Update from the Potomac: 2023 Farm Bill & Related Federal Resources

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Farm Bill Primer: What Is the Farm Bill?

The farm bill is an omnibus, multiyear law that governs an array of agricultural and food programs. It provides an opportunity for policymakers to comprehensively and periodically address agricultural and food issues. In addition to developing and enacting farm legislation, Congress is involved in overseeing its implementation. The farm bill typically is renewed about every five years. Since the 1930s, Congress has enacted 18 farm bills.

Farm bills traditionally have focused on farm commodity program support for a handful of staple commodities—corn, soybeans, wheat, cotton, rice, peanuts, dairy, and sugar. Farm bills have become increasingly expansive in nature since 1973, when a nutrition title was first included. Other prominent additions since then include horticulture and bioenergy titles and expansion of conservation, research, and rural development titles.

Without reauthorization, some farm bill programs would expire, such as the nutrition assistance and farm commodity support programs. Other programs have permanent authority and do not need reauthorization (e.g., crop insurance) and are included in a farm bill to make policy changes or achieve budgetary goals. The farm bill extends authorizations of discretionary programs. The farm bill also suspends long-abandoned permanent laws for certain farm commodity programs from the 1940s that used supply controls and price regimes that would be costly if restored.

The omnibus nature of the farm bill can create broad coalitions of support among sometimes conflicting interests for policies that individually might have greater difficulty achieving majority support in the legislative process. In recent years, more stakeholders have become involved in the debate on farm bills, including national farm groups; commodity associations; state organizations; nutrition and public health officials; and advocacy groups representing conservation, recreation, rural development, faith-based interests, local food systems, and organic production. These factors can contribute to increased interest in the allocation of funds provided in a farm bill.

What Is in the 2018 Farm Bill?

The Agriculture Improvement Act of 2018 (2018 farm bill; P.L. 115-334, H.Rept. 115-1072)—enacted in December 2018 and generally expiring in 2023—is the most recent omnibus farm bill. It contains 12 titles (see **text box**). Provisions in the 2018 farm bill modified some of the farm commodity programs, expanded crop insurance, amended conservation programs, reauthorized and revised nutrition assistance, and extended authority to appropriate funds for many U.S. Department of Agriculture (USDA) discretionary programs through FY2023.

The 2018 Farm Bill (P.L. 115-334), by Title

Title I, Commodities: Provides support for major commodity crops, including wheat, corn, soybeans, peanuts, rice, dairy, and sugar, as well as disaster assistance.

Title II, Conservation: Encourages environmental stewardship of farmlands and improved management through land retirement programs, working lands programs, or both.

Title III, Trade: Supports U.S. agricultural export programs and international food assistance programs.

Title IV, Nutrition: Provides nutrition assistance for low-income households through programs, including the Supplemental Nutrition Assistance Program (SNAP).

Title V, Credit: Offers direct government loans and guarantees to producers to buy land and operate farms and ranches.

Title VI, Rural Development: Supports rural housing, community facilities, business, and utility programs through grants, loans, and guarantees.

Title VII, Research, Extension, and Related Matters: Supports agricultural research and extension programs to expand academic knowledge and help producers be more productive.

Title VIII, Forestry: Supports forestry management programs run by USDA's Forest Service.

Title IX, Energy: Encourages the development of farm and community renewable energy systems through various programs, including grants and loan guarantees.

Title X, Horticulture: Supports the production of specialty crops, USDA-certified organic foods, and locally produced foods and authorizes a regulatory framework for industrial hemp.

Title XI, Crop Insurance: Enhances risk management through the permanently authorized Federal Crop Insurance Program.

Title XII, Miscellaneous: Includes programs and assistance for livestock and poultry production, support for beginning farmers and ranchers, and other miscellaneous and general provisions.

What Was the Estimated Cost in 2018?

Farm bills authorize programs in two spending categories: mandatory and discretionary. While both types of programs are important, mandatory programs usually dominate the farm bill debate. Programs with mandatory spending generally operate as entitlements, and the farm bill provides mandatory funding for programs based on multiyear budget estimates (*baseline*). Programs with authorized discretionary funding are not funded in the farm bill; any discretionary appropriations for these programs would be provided through separate congressional action.

Farm bills have both 5-year and 10-year budget projections. The 10-year score for the 2018 farm bill was budget neutral, and program outlays were projected to remain at $867 billion over FY2019-FY2028 (**Table 1**). Four titles accounted for 99% of the 2018 farm bill's mandatory

spending: Nutrition (primarily SNAP), Commodities, Crop Insurance, and Conservation. Programs in all other farm bill titles accounted for about 1% of mandatory outlays; these programs were authorized to receive mostly discretionary (appropriated) funds.

Table 1. Budget for the 2018 Farm Bill and the Baseline in 2023 for Farm Bill Programs
(million dollars, 10-year mandatory outlays)

Titles	2018 Farm Bill at Enactment FY2019-FY2028 ($ millions)	Baseline as of February 2023 FY2024-FY2033 ($ millions)
Commodities	61,414	56,996
Conservation	59,748	57,479
Trade	4,094	4,810
Nutrition	663,828	1,205,440
Credit	-4,558	a/
Rural Development	-2,362	a/
Research	1,219	1,300
Forestry	10	a/
Energy	737	500
Horticulture	2,047	2,100
Crop Insurance	77,933	96,974
Miscellaneous	3,091	800
Total	**867,200**	**1,426,399**

Sources: CRS using CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*; and CRS analysis of the Congressional Budget Office (CBO) Baseline, February 2023, at https://www.cbo.gov/about/products/baseline-projections-selected-programs, for the five largest titles and amounts in law for programs in other titles.

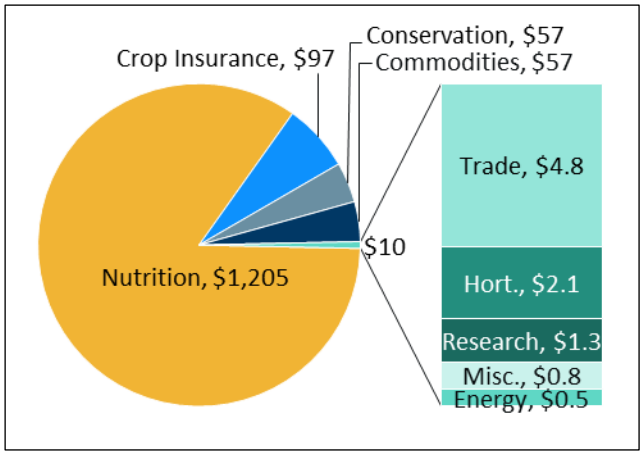
Notes: a/ = Baseline for the credit title is likely negative indicating payments into the Farm Credit System Insurance fund. The rural development title has no current programs with baseline. Baseline for the forestry title is $10 million or less.

What Is the Farm Bill Budget for 2023?

The CBO baseline represents budget authority and is a projection at a particular point in time of what future federal spending on mandatory programs would be assuming current law continues. It is the benchmark against which proposed changes in law are measured. Having a baseline provides projected future funding if policymakers decide that programs are to continue.

An updated CBO scoring baseline for the 2023 legislative session is expected in spring 2023. Presently, the February 2023 CBO baseline is the best indicator of future funding availability. Using this projection for the major farm bill programs, and funding indicated in law for other farm bill programs that are not included in the annual projection, the current baseline for farm bill programs is estimated at $709 billion over 5 years (FY2024-FY2028) and $1,426 billion over 10 years (FY2024-FY2033) (**Figure 1**).

Figure 1. Baseline for Farm Bill Programs, by Title
(billion dollars, 10-year mandatory outlays, FY2024-FY2033)



Source: CRS using the CBO Baseline (February 2023) for the five largest titles, and amounts in law for programs in other titles.
Note: Total estimated at $1,426 billion.

The relative proportions of farm bill spending have shifted over time. In the 2023 projection, the Nutrition title is 85% of the farm bill baseline, compared with about 76% when the 2018 farm bill was enacted and 67% in the 2008 farm bill. Sharp increases in the Nutrition title reflect pandemic assistance and administrative adjustments made to SNAP benefit calculations. For non-nutrition farm bill programs, baseline amounts in 2023 are greater than when the 2018 farm bill was enacted ($221 billion over 10 years as of 2023 compared with $210 billion over 10 years in 2018).

Supplemental spending is not part of the baseline but may be important because of its size in recent years. In FY2019 and FY2020, the Trump Administration increased outlays by a total of over $25 billion to farmers and ranchers affected by retaliatory tariffs. Since FY2020, Congress and the White House have provided over $30 billion of supplemental pandemic assistance to farms and over $60 billion for nutrition. In addition, P.L. 117-169 (often referred to as the Inflation Reduction Act of 2022, or IRA) added over $17 billion in outlays for four programs in the farm bill's Conservation title and one program in the Energy title. Since 2018, Congress has authorized more than $15 billion of ad hoc disaster assistance for agricultural losses. Congress may address the effectiveness of farm bill programs in light of this additional funding.

Information in Selected CRS Reports

CRS In Focus IF12233, *Farm Bill Primer: Budget Dynamics*

CRS In Focus IF12115, *Farm Bill Primer: Programs Without Baseline Beyond FY2023*

CRS Report R47313, *Next Farm Bill Primer Series: A Guide to Agriculture and Food Programs in the 2018 Farm Bill*

CRS Report R45210, *Farm Bills: Major Legislative Actions, 1965-2018*

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2018 Farm Bill Primer: Agriculture Improvement Act of 2018

The farm bill is an omnibus, multiyear law that governs an array of agricultural and food programs. It provides an opportunity for policymakers to comprehensively and periodically address agricultural and food issues. In addition to developing and enacting farm legislation, Congress is involved in overseeing its implementation.

The farm bill is typically renewed about every five years. Since the 1930s, 18 farm bills have been enacted (2018, 2014, 2008, 2002, 1996, 1990, 1985, 1981, 1977, 1973, 1970, 1965, 1956, 1954, 1949, 1948, 1938, and 1933).

The farm bill provides an opportunity for Congress to comprehensively and periodically address agricultural and food issues. The 2018 farm bill expires in 2023.

Some farm bill programs would expire without reauthorization, such as the nutrition assistance programs and commodity programs. Without reauthorization, certain basic farm commodities would revert to long-abandoned—and potentially costly—supply-control and price regimes under permanent law dating back to the 1940s. Many discretionary programs would not have statutory authority to receive appropriations. Other programs have permanent authority and do not need reauthorization (e.g., crop insurance) but might be included in a farm bill to make policy changes or achieve budgetary goals.

Farm bills have traditionally focused on farm commodity program support for a handful of staple commodities—corn, soybeans, wheat, cotton, rice, peanuts, dairy, and sugar. Farm bills have become increasingly expansive in nature since 1973, when a nutrition title was first included. Other prominent additions since then include conservation, horticulture, and bioenergy programs.

The omnibus nature of the farm bill can create broad coalitions of support among sometimes conflicting interests for policies that, individually, might have greater difficulty negotiating the legislative process. This can lead to competition for funds provided in a farm bill. In recent years, more stakeholders have become involved in the debate on farm bills, including national farm groups; commodity associations; state organizations; nutrition and public health officials; and advocacy groups representing conservation, recreation, rural development, faith-based interests, local food systems, and organic production.

The Agriculture Improvement Act of 2018, P.L. 115-334 (H.Rept. 115-1072), referred to here as the "2018 farm bill," is the most recent omnibus farm bill. It was enacted in December 2018 and succeeded the Agricultural Act of 2014 (2014 farm bill; P.L. 113-79). The 2018 farm bill contains 12 titles (see **text box**).

Provisions in the 2018 farm bill modify some of the farm commodity programs, expand crop insurance, amend conservation programs, reauthorize and revise nutrition assistance, and extend authority to appropriate funds for many U.S. Department of Agriculture (USDA) discretionary programs through FY2023.

The 2018 Farm Bill (P.L. 115-334), by Title

Title I, Commodity Programs: Provides support for major commodity crops, including wheat, corn, soybeans, peanuts, rice, dairy, and sugar, as well as disaster assistance.

Title II, Conservation: Encourages environmental stewardship of farmlands and improved management through land retirement and/or working lands programs.

Title III, Trade: Supports U.S. agricultural export programs and international food assistance programs.

Title IV, Nutrition: Provides nutrition assistance for low-income households through programs including the Supplemental Nutrition Assistance Program (SNAP).

Title V, Credit: Offers direct government loans to farmers/ranchers and guarantees on private lenders' loans.

Title VI, Rural Development: Supports rural business and community development programs.

Title VII, Research, Extension, and Related Matters: Supports agricultural research and extension programs.

Title VIII, Forestry: Supports forestry management programs run by USDA's Forest Service.

Title IX, Energy: Encourages the development of farm and community renewable energy systems through various programs, including grants and loan guarantees.

Title X, Horticulture: Supports the production of specialty crops, USDA-certified organic foods, and locally produced foods and authorizes establishing a regulatory framework for the cultivation of industrial hemp.

Title XI, Crop Insurance: Enhances risk management through the permanently authorized federal crop insurance program.

Title XII, Miscellaneous: Covers other programs and assistance, including livestock and poultry production and support for beginning farmers and ranchers.

Estimated Cost of the 2018 Farm Bill

The farm bill authorizes programs in two spending categories: mandatory and discretionary. Programs with mandatory spending generally operate as entitlements. The farm bill pays for them using multiyear budget estimates (baseline) when the law is enacted. Programs with authorized discretionary funding are not funded in the farm bill and require additional action by congressional appropriators. While both types of programs are important, mandatory programs often dominate the farm bill debate.

At enactment in December 2018, the Congressional Budget Office (CBO) estimated the total cost of the mandatory programs in the farm bill would be $428 billion over its five-year duration, FY2019-FY2023, $1.8 billion more than a simple extension of the 2014 farm bill (**Table 1**).

Four titles account for 99% of anticipated farm bill mandatory outlays: Nutrition, Crop Insurance, Farm Commodity Support, and Conservation. The Nutrition title comprises 76% of mandatory outlays, mostly for SNAP. The remaining 24% of outlays covers mostly risk management and commodity support (16%) and conservation (7%) (**Figure 1**). Programs in all other farm bill titles account for about 1% of mandatory outlays. However, some programs are authorized to receive discretionary (appropriated) funds.

Table 1. Budget for the 2018 Farm Bill

Dollars in millions, FY2019-FY2023, mandatory outlays

Farm bill titles	April 2018 baseline	Score of P.L. 115-334	Projected outlays at enactment
Commodities	31,340	+101	31,440
Conservation	28,715	+555	29,270
Trade	1,809	+235	2,044
Nutrition	325,922	+98	326,020
Credit	-2,205	+0	-2,205
Rural Development	98	-530	-432
Research	329	+365	694
Forestry	5	+0	5
Energy	362	+109	471
Horticulture	772	+250	1,022
Crop Insurance	38,057	-47	38,010
Miscellaneous	1,259	+685	1,944
Subtotal	426,462	+1,820	428,282
Increased revenue	-	+35	35
Total	426,462	+1,785	428,247

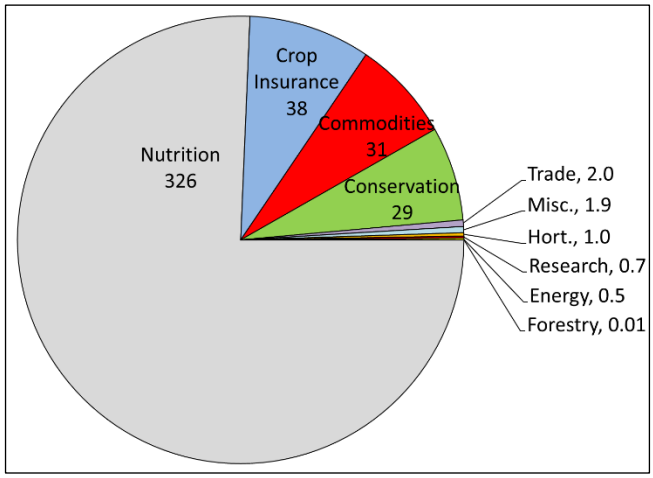
Source: CRS, compiled using the CBO Baseline by Title (unpublished; April 2018), and the CBO cost estimate of the conference agreement for H.R. 2 (December 11, 2018).

Historical Trends

Relative to historical spending, **Figure 2** shows the following trends in farm bill mandatory spending since 1990. SNAP outlays, which comprise most of the Nutrition title, increased markedly after the recession in 2009 and have been gradually decreasing since 2012. Crop insurance outlays have increased steadily over the period, especially during periods when higher market prices and high program participation raised the value of insurable commodities. Farm commodity programs outlays generally rise and fall inversely with commodity prices, such as in the early 2000s and following the return to countercyclical programs in the 2014 farm bill. During the past few years of generally lower commodity prices, outlays for commodity crops have been increasing. Conservation program outlays increased steadily since the 1990s but leveled off in recent years (**Figure 2**).

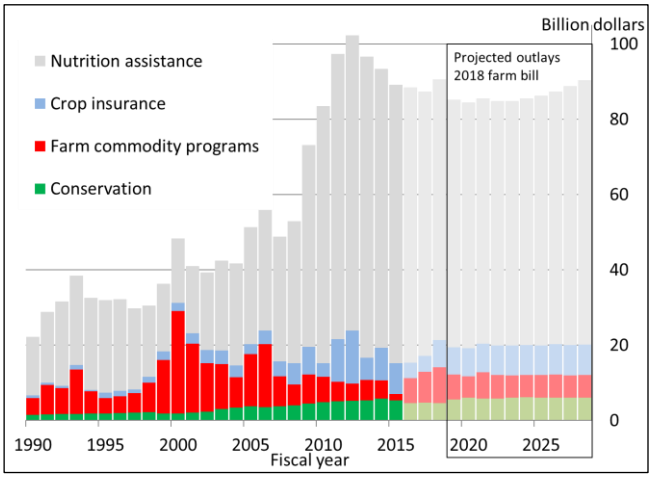
Figure 1. Projected Outlays of the 2018 Farm Bill

(Mandatory outlays, billions of dollars, FY2019-FY2023)



Source: CRS. Compiled from five-year totals in the CBO, "Baseline Projections," April 2018; at the title level (unpublished); and CBO cost estimate of the conference agreement, December 11, 2018.

Figure 2. Actual and Projected Spending by Major Farm Bill Mandatory Programs



Source: CRS using USDA and CBO data.

Notes: Darker shades of each color are actual outlays based on USDA data; lighter shades are CBO data, including CRS analysis of CBO data for projections at enactment of the 2018 farm bill.

CRS Products

CRS Report R45525, *The 2018 Farm Bill (P.L. 115-334): Summary and Side-by-Side Comparison*.

CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*.

CRS Report R45210, *Farm Bills: Major Legislative Actions, 1965-2018*.

CRS Report RS22131, *What Is the Farm Bill?*

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Preparing for the Next Farm Bill

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CRS REPORT
Prepared for Members and
Committees of Congress

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SUMMARY

R47057

March 31, 2022

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Preparing for the Next Farm Bill

The farm bill is an omnibus, multiyear law that governs an array of agricultural and food programs. Although freestanding legislation or components of other major laws sometimes create or change agricultural policies, the periodic farm bill provides a predictable opportunity for policymakers to address agricultural and food issues in a comprehensive manner. The Agriculture Improvement Act of 2018 (2018 farm bill; P.L. 115-334)—the most recent farm bill—generally expires at the end of FY2023. The 2018 farm bill succeeded the Agricultural Act of 2014 (2014 farm bill; P.L. 113-79).

There is no fixed format for the farm bill. Its breadth has grown from the original two titles of the Agricultural Adjustment Act of 1933 (P.L. 73-10) to the 12 titles of the 2018 farm bill. The issues addressed in the 2018 farm bill encompass agricultural commodity supports, credit, trade, conservation, research, rural development, foreign and domestic food programs, and many other policies and programs. Provisions in the 2018 farm bill modified certain commodity programs, expanded crop insurance, amended conservation programs, reauthorized and revised nutrition assistance, and extended authority to appropriate funds for many U.S. Department of Agriculture (USDA) discretionary programs through FY2023.

When the 2018 farm bill was enacted, the Congressional Budget Office (CBO) estimated that the total cost of its mandatory programs would be $428 billion over its five-year duration (FY2019-FY2023). Four titles accounted for 99% of the 2018 farm bill's mandatory spending: Nutrition (Title IV), Commodities (Title I), Crop Insurance (Title XI), and Conservation (Title II). At enactment, the Nutrition title, which includes the Supplemental Nutrition Assistance Program (SNAP), comprised 76% of the estimated total, with the remaining portion mostly addressing agricultural production and conservation issues across other titles.

Historically, omnibus farm bill legislation has focused on commodity-based revenue support policy—namely, the methods and levels of federal support provided to agricultural producers. The 2018 farm bill reauthorized and amended various components of U.S. *farm safety net* programs, which include commodity support programs, the federal crop insurance program, and permanent disaster assistance programs. Certain agricultural interest groups point to additional policy priorities—covering a range of equity issues across the farm sector—and call for enhanced support for small- and medium-sized farms, specialty crops, organic agriculture, local and regional food systems, healthy and nutritious foods, research, conservation, and rural development, among other priorities.

Debate over the next farm bill may include a wide range of other policy priorities and issues in addition to commodity-based revenue support. These include topics raised in prior farm bill debates and more recent issues. Among long-standing issues are the overall budget outlook and the scope and structure of nutrition programs within the farm bill. Among recent issues is the federal government's role in supporting beginning, veteran, and historically underserved farmers and ranchers. New to the next farm bill debate might be a variety of agriculture sector impacts associated with the Coronavirus Disease 2019 (COVID-19) pandemic. These include agricultural supply chain challenges, price inflation, international trade, industry consolidation, and whether, and to what extent, to continue temporary policies enacted in pandemic response laws.

The Biden Administration has prioritized climate change as an overarching federal policy priority. Debate over the next farm bill may include policies related to agriculture and climate change—how federal programs and policies can or should support agriculture's adaptation to changing climatic conditions, as well as agriculture's potential contributions to climate change mitigation.

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Report Topics and CRS Authors

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Introduction

The farm bill is an omnibus, multiyear law that governs an array of agricultural and food programs.[1] Although freestanding legislation or components of other major laws sometimes create or change agricultural policies, the periodic farm bill provides a predictable opportunity for policymakers to address agricultural and food issues in a comprehensive manner. In recent years, Congress has renewed the farm bill every four to six years.[2]

The farm bill has no fixed format. Over time, farm bill legislation has grown in complexity and scope. The law generally recognized as the first omnibus farm bill—the Agricultural Adjustment Act of 1933 (P.L. 73-10)—consisted of two titles and the equivalent of 24 printed pages. The most recent farm bill—the Agriculture Improvement Act of 2018 (2018 farm bill; P.L. 115-334, H.Rept. 115-1072)—comprised 12 titles and about 529 pages of text. In legislation enacted between those two laws, the farm bill has developed from addressing specific farm commodity supports and soil conservation to encompassing additional issues, such as nutrition, trade, rural development, research, credit, horticulture, bioenergy, and other topics.

The omnibus nature of the bill can create broad coalitions of support among sometimes-conflicting interests for policies that individually might not survive the legislative process. It also can stir competition for available funds, particularly among producers of different commodities or stakeholders with differing priorities—for example, urban versus rural interests. In recent years, the diversity of groups involved in the debate has grown along with the topical breadth of the farm bill. These entities now include national farm groups, commodity associations, state organizations, nutrition and public health officials, and advocacy groups representing conservation, recreation, rural development, local and urban farming facilities, faith-based interests, land-grant universities (LGUs), and certified organic production.

The consequences of allowing a farm bill to expire, as has occurred in the past, may motivate legislative action. When a farm bill expires, not all programs are affected equally. Some programs cease to operate unless reauthorized, while others might continue to pay old financial obligations as provided under current law. The farm commodity programs, for example, would expire and revert to permanent law dating back to the 1940s. Nutrition assistance programs require periodic reauthorization, but appropriations can keep them operating. Many discretionary programs would lose statutory authority to receive appropriations, though annual appropriations could provide funding and implicit authorization. Other programs have permanent authority and do not need to be reauthorized (e.g., crop insurance).[3]

This report provides background on each of the major titles included in the 2018 farm bill and previews some of the issues that may factor into the debate over the next farm bill. Many CRS analysts contributed to the writing of this report. The table on the previous page provides a list of agricultural policy topics and the CRS analysts who cover them.

[1] For more background on the farm bill, see CRS Report RS22131, *What Is the Farm Bill?*.

[2] As of this writing, there have been 18 farm bills, including the one in 1933 (2018, 2014, 2008, 2002, 1996, 1990, 1985, 1981, 1977, 1973, 1970, 1965, 1956, 1954, 1949, 1948, 1938, and 1933). See also CRS Report R45210, *Farm Bills: Major Legislative Actions, 1965-2018*.

[3] For more information on the consequences of expiration, see CRS Report R45341, *Expiration of the 2014 Farm Bill*.

The 2018 Farm Bill

The 2018 farm bill—enacted in December 2018 and generally expiring at the end of FY2023—is the most recent farm bill.[4] It succeeded the Agricultural Act of 2014 (2014 farm bill; P.L. 113-79). The 2018 farm bill contains 12 titles (see **text box**).[5] Provisions in the 2018 farm bill modified some of the farm commodity programs, expanded crop insurance, amended conservation programs, reauthorized and revised nutrition assistance, and extended authority to appropriate funds for many U.S. Department of Agriculture (USDA) discretionary programs through FY2023.

The 2018 Farm Bill (P.L. 115-334) Functions and Major Issues, by Title

- **Title I, Commodities.** Provides farm payments when crop prices or revenues decline for major commodity crops, including wheat, corn, soybeans, peanuts, and rice. Includes disaster programs to help livestock and tree fruit producers manage production losses due to natural disasters. Other support includes margin insurance for dairy, marketing quotas, minimum price guarantees, and import quotas for sugar.
- **Title II, Conservation.** Encourages environmental stewardship of farmlands and improved management practices through various working lands programs, as well as changes in land use through land retirement and easement programs.
- **Title III, Trade.** Supports U.S. agricultural export programs and export credit guarantee programs, as well as international food aid programs that provide emergency and nonemergency foreign food aid. Other provisions address issues related to World Trade Organization (WTO) obligations.
- **Title IV, Nutrition.** Provides nutrition assistance for low-income households through programs, including the Supplemental Nutrition Assistance Program (SNAP, formerly known as the Food Stamp Program) and emergency food assistance programs. Also supports food distribution in schools.
- **Title V, Credit.** Offers direct government loans to farmers/ranchers and guarantees on private lenders' loans. Sets eligibility rules and policies.
- **Title VI, Rural Development.** Supports rural business and community development programs. Establishes planning, feasibility assessments, and coordination with other local, state, and federal programs. Programs include grants and loans for infrastructure, economic development, broadband, and telecommunications.
- **Title VII, Research, Extension, and Related Matters.** Offers a wide range of agricultural research and extension programs that expand academic knowledge about agriculture and food and help farmers and ranchers become more efficient, innovative, and productive.
- **Title VIII, Forestry.** Supports forestry management programs run by USDA's Forest Service.
- **Title IX, Energy.** Encourages the development of farm and community renewable energy systems through grants, loan guarantees, and feedstock procurement initiatives. Also facilitates the production, marketing, and processing of advanced biofuels and biofuel feedstocks, as well as research, education, and demonstration programs.
- **Title X, Horticulture.** Supports specialty crops—fruits, vegetables, tree nuts, and floriculture and ornamental products—through initiatives, including market promotion, plant pest and disease prevention, and research. Also provides support to certified organic agricultural production and locally produced foods.
- **Title XI, Crop Insurance.** Amends the permanently authorized federal crop insurance program.
- **Title XII, Miscellaneous.** Covers other types of programs, including livestock and poultry production and limited-resource and socially disadvantaged farmers.

Farm Policy Considerations for Congress

As Congress considers a new farm bill, it does so in an economic setting of increasing farm-sector incomes (see "Farm Economy and International Environment") and general disruption and

[4] For more information on the major provisions of the 2018 farm bill, see CRS Report R45525, *The 2018 Farm Bill (P.L. 115-334): Summary and Side-by-Side Comparison*.

[5] For a listing of the titles and subtitles of the 2018 farm bill, see the **Appendix**.

uncertainty associated with the Coronavirus Disease 2019 (COVID-19) pandemic. The next farm bill is expected to address many competing policy priorities. Efforts to manage farm bill costs, given overall constraints on federal spending, may create heightened competition and tension among a range of U.S. farm policy stakeholders. There is also uncertainty regarding how the Biden Administration will implement its farm policy priorities.

Congress has considered the scope and structure of nutrition programs during many farm bill debates. Farm bills since 1973 have included reauthorization of the Food Stamp Program (renamed the Supplemental Nutrition Assistance Program [SNAP] in the 2008 bill). SNAP currently accounts for the overwhelming majority of total farm bill spending. The partnership between nutrition programs and farm programs generally generates rural and urban support for the farm bill as a whole. Increased food insecurity associated with the COVID-19 pandemic, as well as temporary increases in federal nutrition funding via pandemic response laws, has renewed focus on farm bill nutrition assistance programs.

Historically, omnibus farm bill legislation has focused on commodity-based revenue supports—namely, the mechanisms and levels of federal support provided to agricultural producers. Congress may face competing calls to focus on commodity-based revenue support and to address a range of equity concerns within the food and agriculture sector. With each farm bill, Congress typically reauthorizes and amends various components of U.S. *farm safety net* programs, which include commodity support programs and have incorporated the federal crop insurance program (FCIP) and, more recently, added permanent disaster assistance programs. In recent farm bill debates, certain interest groups have pointed to additional policy priorities outside of traditional commodity-based production agriculture. These interest groups call for enhanced support for small- and medium-sized farms, specialty crops, organic agriculture, local and regional food systems, healthy and nutritious foods, research, conservation, and rural development, among other priorities. Various groups also call for consideration of the federal government's role in supporting beginning, veteran, and historically underserved farmers and ranchers.

New to the next farm bill debate may be a variety of issues highlighted by the COVID-19 pandemic and disruptions in trade. These include agricultural supply chain challenges, price inflation, the effects of international trade disputes, industry consolidation, and to what extent (if at all) to continue temporary policies enacted in pandemic response laws.

Further, the Biden Administration has prioritized climate change as an overarching federal policy priority. Debate over the next farm bill may include consideration of policies related to agriculture and climate change—how federal programs and policies can or should support agriculture's adaptation to changing climatic conditions, as well as agriculture's potential contributions to climate change mitigation. Legislation that would advance the Administration's climate policy priorities in food and agriculture has been introduced in the 117th Congress. If the majority party in the House or Senate changes with the 2022 elections, congressional policy priorities for a new farm bill in the 118th Congress also may change.

Budget Situation and Outlook

Budget Basics

Federal spending for agriculture is divided into two main categories: mandatory and discretionary spending. In the farm bill, *mandatory spending*—which does not require a separate appropriation—is authorized primarily for farm commodity programs, crop insurance,

conservation, and nutrition assistance programs.[6] *Discretionary spending* is authorized for everything else that is not considered mandatory spending. Programs with discretionary spending—including most rural development, research, and credit programs—are authorized in the farm bill but are funded separately in annual appropriations acts. Some research, bioenergy, or rural development programs may have both types of funding, but their primary funding source is discretionary.

Mandatory spending programs usually dominate the farm bill debate and budget. The farm bill provides mandatory spending and determines its policy by following a framework of laws for budget enforcement that use a projected *baseline* and *scores* from the Congressional Budget Office (CBO).

The CBO baseline represents budget authority and is a projection at a particular point in time of what future federal spending on mandatory programs would be assuming current law continues. This baseline is the *benchmark* against which proposed changes in law are measured. Having a baseline essentially gives programs built-in future funding if policymakers decide that the programs are to continue.

The impact (score) of a proposed bill that alters mandatory spending is measured in relation to the baseline. Changes that increase spending relative to the baseline have a *positive* score; those that decrease spending relative to the baseline have a *negative* score. *Budget neutral* refers to having a zero score. Increases in overall cost beyond the baseline may be subject to budget constraints, such as pay-as-you-go requirements.[7] Reductions from the baseline may be used to offset a bill's other provisions that have a positive score or used to reduce the federal deficit. The annual budget resolution determines whether a farm bill would be held budget neutral or whether it would be directed to reduce spending or authorized to increase spending.

Farm Bills in Perspective

Farm bills over the past two decades have ranged from positive to negative scores relative to their baseline funding. The 2002 farm bill (P.L. 107-171) had a positive score, increasing spending by $73 billion over 10 years, which was allowed by a budget resolution during a budget surplus.[8] The 2008 farm bill (P.L. 110-246) was budget neutral, although it added $9 billion to outlays over 10 years by using offsets from a tax-related title within the omnibus legislation.[9] The 2014 farm bill had a negative score, reducing spending by $16 billion over 10 years.[10] The 2018 farm bill achieved budget neutrality by using $3 billion of reductions from an account in the Rural Development title (Title VI) to offset increases in other titles.[11]

Farm bills have 5-year and 10-year budget projections according to federal budgeting practices. When the 2018 farm bill was enacted, the projected cost for the five-year span of the act was $428 billion (FY2019-FY2023). The projected 10-year cost was $867 billion (FY2019-FY2028).

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[6] Crop insurance is funded through the Federal Crop Insurance Corporation. The Supplemental Nutrition Assistance Program (SNAP) is a mandatory entitlement paid through the U.S. Department of the Treasury. Farm commodity programs, conservation, and many other farm bill mandatory programs are funded through the Commodity Credit Corporation (CCC).

[7] For information on pay-as-you-go, see CRS Report R41157, *The Statutory Pay-As-You-Go Act of 2010: Summary and Legislative History*.

[8] CRS Report RL31704, *A New Farm Bill: Comparing the 2002 Law with Previous Law* (available upon request).

[9] For information on the 2008 farm bill, see CRS Report RL34696, *The 2008 Farm Bill: Major Provisions and Legislative Action*.

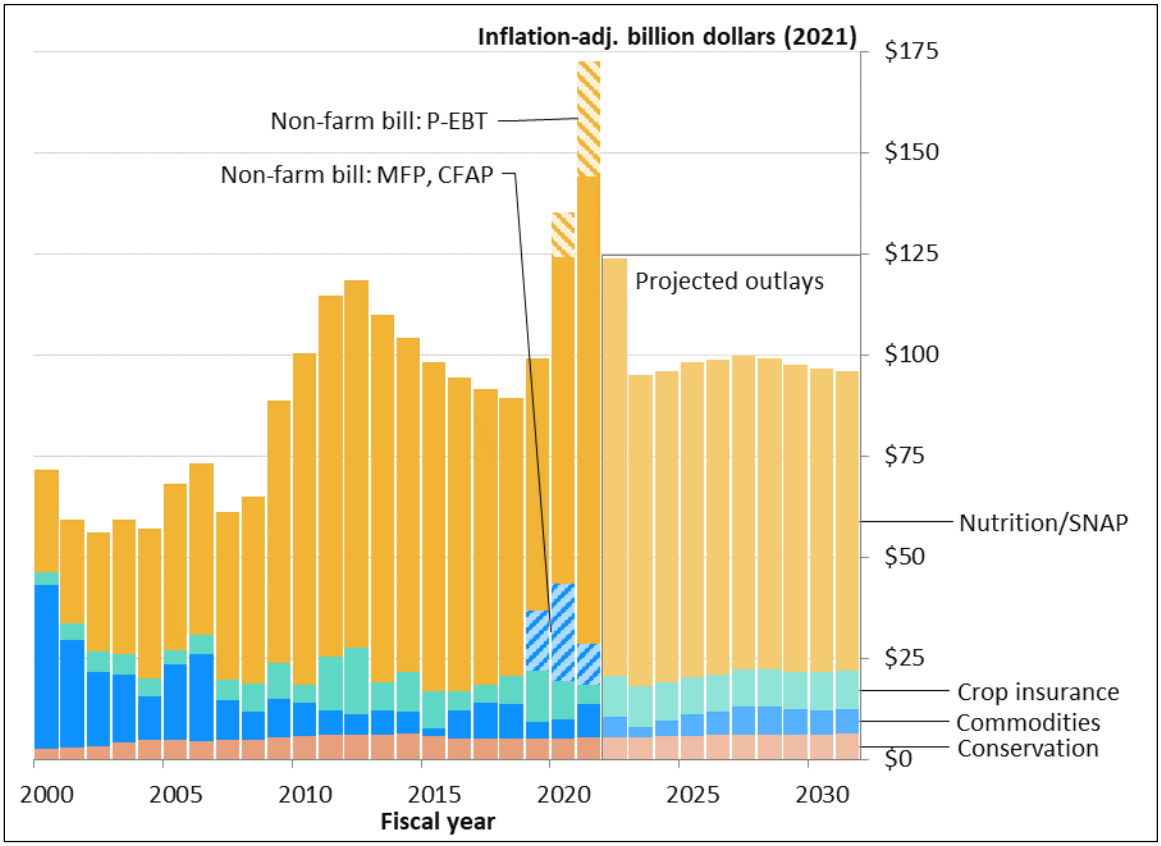
[10] For information on the 2014 farm bill, see CRS Report R42484, *Budget Issues That Shaped the 2014 Farm Bill*.

[11] For information on the 2018 farm bill, see CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*.

Four titles accounted for 99% of the 2018 farm bill's mandatory spending: Nutrition (Title IV; primarily SNAP), Commodities (Title II), Crop Insurance (Title XI), and Conservation (Title II).

Figure 1 shows how the relative proportions of farm bill spending have shifted in inflation-adjusted terms over the past two decades and in projections for the next 10 years. Conservation spending has steadily risen. Crop insurance has been variable but generally is rising as program benefits and enrollment have expanded. Farm commodity program spending has been variable but generally has declined except for recent supplemental spending. Nutrition assistance rose after the 2009 recession, waned for several years as the economy recovered, and rose again at the onset of the COVID-19 pandemic. Since FY2019, supplemental funding has increased outlays for farm and nutrition assistance.

Figure 1. Selected Farm Bill Programs and Supplemental Assistance



Source: Created by CRS using Congressional Budget Office (CBO), "Details About Baseline Projections for Selected Programs," July 2021 baselines; and USDA, *Budget Appendix* (various years).

Notes: P-EBT = Pandemic Electronic Benefit Transfer; SNAP = Supplemental Nutrition Assistance Program; MFP = Market Facilitation Program; CFAP = Coronavirus Food Assistance Program. Adjusted for inflation to 2021 dollars using the gross domestic product price deflator. For comparison, includes selected supplemental outlays outside the farm bill for trade assistance (MFP), coronavirus assistance (CFAP), and P-EBT.

Supplemental spending is not part of the farm bill baseline but may be important to note because of its size in recent years. In FY2019 and FY2020, the Trump Administration used its discretion to provide supplemental funding through the Market Facilitation Program (MFP) in response to tariff policies that disrupted U.S. agricultural exports. Then in FY2020 and FY2021, Congress and the executive branch provided supplemental funding during the pandemic through the Coronavirus Food Assistance Program (CFAP) and the Pandemic Electronic Benefit Transfer.

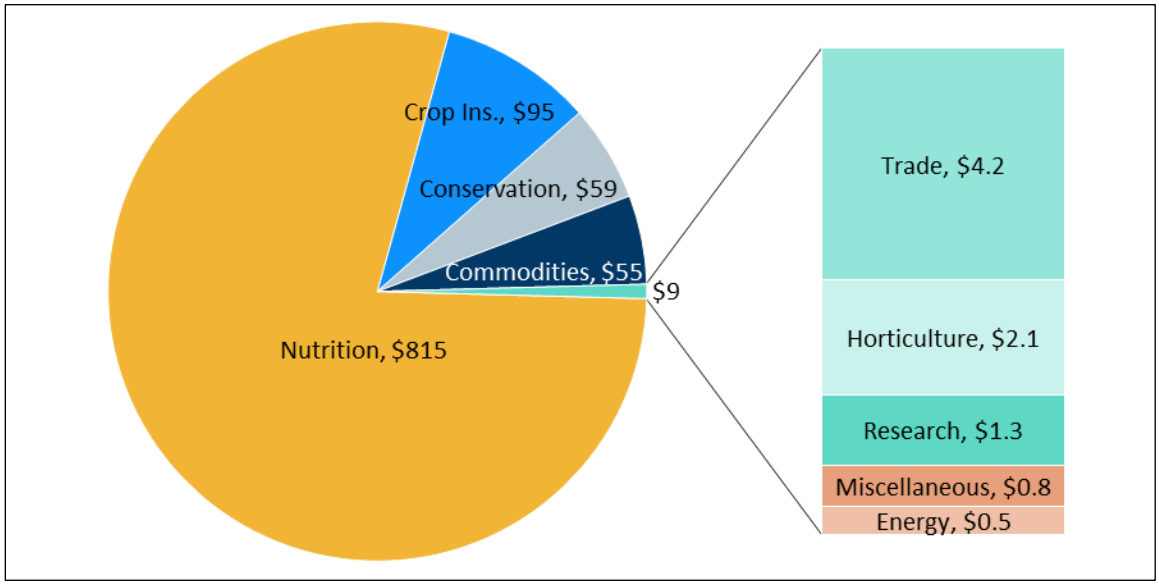
CBO updates its government spending projections, at least annually, based on new information about the economy and program participation.[12] However, any reductions in projected farm bill spending after its enactment do not generate savings that can be credited elsewhere. Similarly, any increases in projected farm bill spending after enactment do not require additional resources from Congress. Mandatory programs operate as entitlements, with eligibility and formulas that are followed once enacted.

Future Baseline

As of this writing, the official baseline to write the next farm bill does not exist. CBO is expected to release its official "scoring baseline" for the 2023 legislative session in early 2023, which would cover the 10-year period FY2024-FY2033. Presently, the July 2021 CBO baseline is the best indicator of future funding availability.

Figure 2. Baseline for Farm Bill Programs, by Title

($ billions; $1,033 billion over 10 years, FY2022-FY2031)



Source: Created by CRS using CBO, "Details About Baseline Projections for Selected Programs," July 2021 baselines (for the commodities, conservation, trade, nutrition, and crop insurance titles); and CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*; and amounts indicated in law for programs in other titles.

Notes: Excludes changes not yet incorporated, such as to the Thrifty Food Plan. Supplemental trade and pandemic assistance are not part of the baseline.

Using the July 2021 CBO baseline projection that covers the major farm bill programs, and funding indicated in law for other farm bill programs not included in the annual projection, an estimated current baseline for farm bill programs is $527 billion over the next 5 years (FY2022-FY2026) and $1,033 billion over the next 10 years (FY2022-FY2031; **Figure 2**).[13] New CBO baselines later in 2022 and again in 2023 would update these amounts and add future fiscal years.

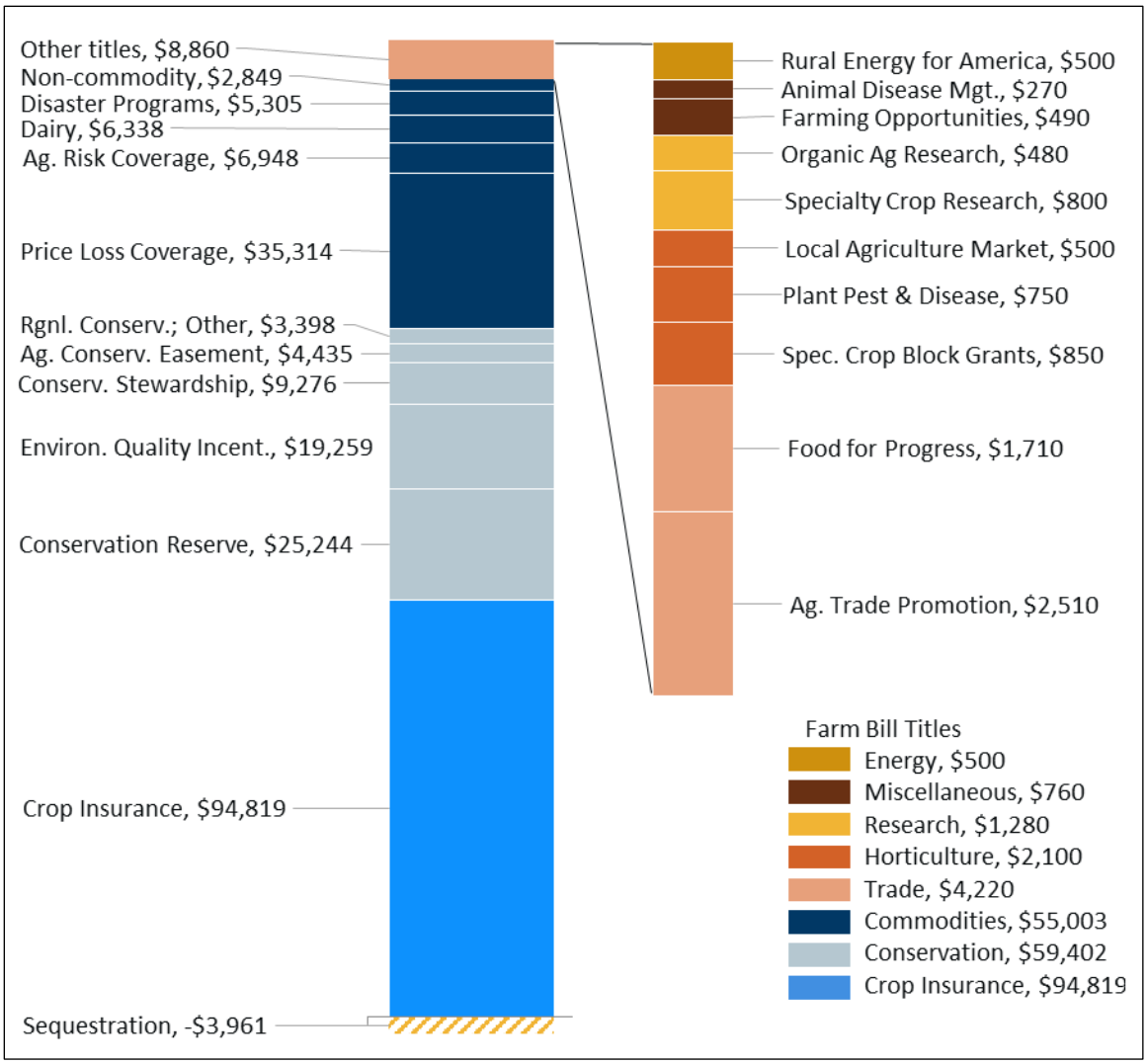
[12] Congressional Budget Office (CBO), "Details About Baseline Projections for Selected Programs," various updates, at https://www.cbo.gov/about/products/baseline-projections-selected-programs.

[13] Calculated using amounts for the 2018 farm bill's nutrition, crop insurance, conservation, commodity programs, and trade titles from CBO, "Details About Baseline Projections for Selected Programs," July 2021 baselines, at

According to CBO's July 2021 baseline, the Nutrition title has become nearly 80% of the 2021 baseline, compared with about 76% when the 2018 farm bill was enacted, mostly due to higher outlays during the COVID-19 pandemic. The 10-year baseline for SNAP is $815 billion as of July 2021, compared with $664 billion when the 2018 farm bill was enacted. For agriculture programs that make up the rest of the farm bill, baseline amounts also are higher than when the 2018 farm bill was enacted ($218 billion over 10 years as of 2021, compared with $203 billion over 10 years in 2018).

Figure 3. Baseline for Agriculture Programs in the Farm Bill

($ millions; excluding Nutrition title, $218 billion over 10 years, FY2022-FY2031)



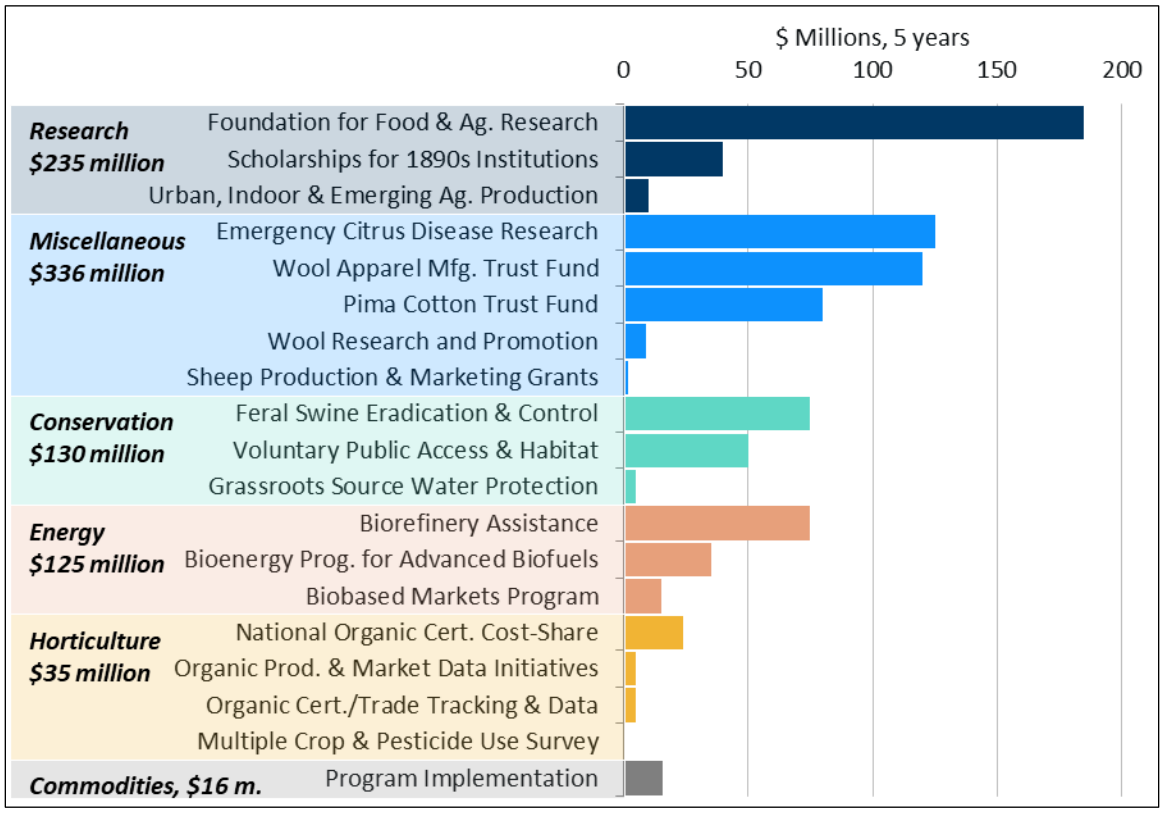
Source: Created by CRS using CBO, "Details About Baseline Projections for Selected Programs," July 2021 baselines (for programs in the commodities, conservation, trade, and crop insurance titles); and CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*; and amounts indicated in law for programs in other titles.

http://www.cbo.gov/about/products/baseline-projections-selected-programs. Amounts for other 2018 farm bill titles (including Horticulture; Research, Extension, and Related Matters; Energy; and Miscellaneous) are compiled using the CBO cost estimate of the 2018 farm bill, available at CBO, *H.R. 2, Agriculture Improvement Act of 2018*, December 11, 2018, at https://www.cbo.gov/publication/54880.

Compared with past farm bills, the 2018 farm bill included more programs that have a budget baseline. **Figure 3** shows the baseline for individual agricultural programs in the farm bill, excluding the Nutrition title. The 2014 and 2018 farm bills added permanent baseline for several of the relatively smaller budget programs, such as those shown for the research, horticulture, energy, and miscellaneous titles.[14]

Figure 4. Farm Bill Programs Without a Baseline Beyond FY2023

Total mandatory funding during the 2018 farm bill (FY2019-FY2023)



Source: Created by CRS using CBO, *H.R. 2, Agriculture Improvement Act of 2018*, December 11, 2018, at https://www.cbo.gov/publication/54880; and the text of P.L. 115-334.

Notes: Programs are identified as having budgetary outlays at any time during FY2019-FY2023 but no new budget authority beyond FY2023. Programs are noted as table notes *b* and *c* in Table 3 of CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*.

Some of these smaller and newer programs had been counted as "programs without a baseline" when past farm bills were written, meaning they received mandatory funding in a farm bill but did not retain baseline beyond that farm bill to pay for reauthorization. As Congress prepares for the next farm bill, there are fewer programs without a baseline than for previous reauthorizations. Nineteen programs received mandatory funding in the 2018 farm bill but do not have a baseline beyond their expiration at the end of FY2023 (**Figure 4**), compared with 39 programs when the 2014 farm bill expired in 2018.[15] The availability of baseline for more programs and the smaller

[14] For example, see the several instances of table notes *d* in Table 3 of CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*, for programs without baseline that obtained future funding beyond the end of the farm bill.

[15] For details on specific programs, see CRS Report R44758, *Farm Bill Programs Without a Budget Baseline Beyond FY2018*.

number of programs without a baseline may make it easier for Congress to balance budget considerations in the next farm bill than in the 2018 farm bill.

For Further Information

CRS Expert

- Jim Monke, Specialist in Agricultural Policy

Relevant CRS Products

- CRS Report R45210, *Farm Bills: Major Legislative Actions, 1965-2018*, by Jim Monke
- CRS Report R45425, *Budget Issues That Shaped the 2018 Farm Bill*, by Jim Monke
- CRS Report R44606, *The Commodity Credit Corporation (CCC)*, by Megan Stubbs
- CRS Report 98-560, *Baselines and Scorekeeping in the Federal Budget Process*, by Bill Heniff Jr.

Farm Economy and International Environment

The U.S. farm sector experienced large changes in farm income between 2010 and 2021. From 2010 to 2014, the sector experienced a period of unusually high incomes driven by strong commodity prices and agricultural exports. From 2015 to 2018, incomes were generally below long-run historical averages due to declining commodity prices. In 2018 and 2019, retaliatory tariffs imposed on exports of certain agricultural commodities affected U.S. farm sector income. Widespread flooding led to record-high prevented planting levels that curbed some crop production in 2019, and drought conditions led to production declines for certain crops in 2021. Beginning in 2020, the U.S. farm sector experienced additional challenges related to the COVID-19 pandemic.

Despite these challenges, U.S. farm sector income increased for the third consecutive year in 2021 and exceeded long-run historical averages in 2020 and 2021. Farm sector income in 2021 was the highest since 2013. Adjusted for inflation, 2021 cash receipts for sales of livestock and animal products were the highest since 2015. In 2021, cash receipts for all crops were the highest since 2014, although cash receipts for fruits, vegetables, and nuts declined for the fourth consecutive year. Continuing a trend since the late 1990s, median farm household income exceeded median U.S. household income in 2018, 2019, and 2020.

Direct payments from federal programs were a key factor driving farm incomes in 2019-2021. In 2020, farmers received record-setting total payments of $45.7 billion. In 2021, total payments amounted to $27.1 billion—$7.0 billion above the inflation-adjusted average for federal direct payments from 1996 to 2021. Most of these payments came from ad hoc programs created to respond to retaliatory tariffs and the COVID-19 pandemic, including the MFP and CFAP. Commodity support programs authorized under the 2018 farm bill provided relatively low payment levels because commodity price declines were not sufficiently severe or prolonged to trigger payments from key support programs. Households with large-scale family farm businesses (i.e., gross cash farm income of $350,000 or more) received the majority of government direct payments to farmers. Households with smaller-scale family farm businesses (i.e., gross cash farm income less than $350,000) earned negative income from their farm businesses on average and received a small share of government direct payments. This discrepancy in the share of payments between larger and smaller farm businesses is consistent with formulas for revenue support program payments, which are based on historical production volume.

As of March 2022, prices are higher than in recent years for many agricultural commodities, and total agricultural exports are at record levels. Trade agreements signed by the United States since 2019—including the Phase One Agreement with China, the “Stage One” U.S.-Japan Agreement,

and the U.S. Mexico-Canada Agreement[16]—were key factors supporting certain agricultural exports in 2020 and 2021. The Phase One Agreement with China expired at the end of 2021, creating uncertainty about future Chinese purchases of U.S. agricultural commodities.

Farmers, like other U.S. business operators, are coping with COVID-19-related impacts on supply chains, including delays and high shipping costs. Inflation in the overall U.S. economy is contributing to higher costs for farm inputs—particularly fuel, natural gas, and chemical inputs. The prices consumers pay for food at grocery stores increased by 6.5% in 2021,[17] which compares with an average annual increase of 1.5% over the prior decade. In 2021, meat, poultry, fish, and eggs as a category recorded the highest retail food price increases, rising by 12.5%.

For Further Information

CRS Expert

- Stephanie Rosch, Analyst in Agricultural Policy

Relevant CRS Product

- CRS Report R47051, *U.S. Farm Income Outlook: 2021 Forecast*, by Stephanie Rosch

Agricultural Production

The 2018 farm bill contained a variety of programs that provide support to crop and livestock producers. Among these, certain programs target specific commodities, production practices (e.g., organic agriculture), or marketing practices (e.g., local foods). Other programs provide price, income, or other forms of support (e.g., animal health protections) for producing or marketing specific commodities.

Farm safety net programs, which include the commodity support programs, FCIP, and permanent disaster assistance programs discussed in this section, account for the majority of the farm bill budget baseline, excluding food and nutrition programs. These farm safety net programs provide direct payments to farmers during times of low market prices, natural disasters, and other adverse events. Most farmers and ranchers are eligible for at least one farm safety net program. Federal crop insurance is available for most field crops (e.g., corn, wheat), certain horticultural crops, and certain livestock and animal products. Certain field crops, dairy, and sugar are eligible for farm commodity support programs. Horticultural crops and livestock also may receive support from the permanent disaster programs.

Commodity Support Programs

Agricultural commodity support began with 1930s Depression-era efforts to raise farm household income when commodity prices were low because of prolonged weak consumer demand. Although initially intended to be a temporary effort, commodity support programs have been retained and expanded to cover many more crops than the few originally targeted. Congress has shifted away from the original approach of providing support through supply control and commodity stocks management to the current approach of direct income and price support

[16] For background on these agreements, see CRS In Focus IF11412, *U.S.-China Phase I Deal: Agriculture*; CRS Report R46576, *"Stage One" U.S.-Japan Agreement: Agriculture*; and CRS Report R45661, *Agricultural Provisions of the U.S.-Mexico-Canada Agreement*.

[17] U.S. Bureau of Labor Statistics, "Economic News Release: Consumer Price Index Summary," updated January 12, 2022.

payments. The Commodity Credit Corporation (CCC) provides financing for commodity support programs, and all such programs receive mandatory indefinite appropriations of "such sums as necessary."[18] Annual program outlays depend in part on commodity prices, such that outlays increase as commodity prices decrease.

Selected Farm Bill Provisions

The 2018 farm bill suspended various out-of-date price support programs authorized under permanent law and authorized multiple commodity support programs through the 2023 crop year. These programs provide support to producers of eligible commodities and to processors of cotton and sugar. For certain commodity support programs, various producer eligibility criteria limit who can participate and provide for maximum payment limits.

Price Loss Coverage Program

Price Loss Coverage (PLC) payments augment farm revenues during periods of low market prices. The PLC program makes payments when season-average market prices fall below a statutorily determined reference price. Payments are proportional to historical planted acres (i.e., base acres) and historical crop yields. The program charges no participation fee. PLC coverage is available for barley, chickpeas, corn, cotton (for seed), lentils, oats, peanuts, peas, rice, sorghum, soybeans, wheat, and certain other oilseeds. PLC coverage cannot be combined with Agriculture Risk Coverage (ARC) for the same commodity. The 2018 farm bill made certain changes to the PLC program, including allowing the following flexibilities: reference price increases of 15% under certain market conditions, for producers to update certain base acre holdings and historical yields, and for producers to change crop enrollments annually between PLC and ARC.

Agriculture Risk Coverage Program

ARC payments augment farm revenues during periods of low crop revenues. There are two types of ARC program coverage: county-level coverage (ARC-CO) and individual-level coverage (ARC-I). ARC-CO makes payments to farmers when county-level revenue for a covered crop falls below a guaranteed level that adjusts annually based on historical county revenues. ARC-I makes payments to farmers when farm-level revenue falls below a guaranteed level that adjusts annually based on historical farm revenues. Payments are proportional to historical planted acres. The program charges no participation fee. The same commodities eligible for PLC are eligible for ARC. The 2018 farm bill made certain changes to the program, including allowing producers to update certain base acre holdings and historical yields and directing USDA to prioritize use of FCIP data for calculating county yields.

Marketing Assistance Loan Program

The Marketing Assistance Loan (MAL) program helps farmers manage their cash flow at harvest time by guaranteeing that farmers can earn at least a minimum revenue for commodities used as MAL collateral. The MAL program offers producers or processors, depending on the crop, nine-month, nonrecourse loans for qualifying stored commodities. The loans are valued at commodity-specific MAL rates established in the 2018 farm bill. When market prices fall below the MAL

[18] Annual outlays for commodity support programs vary based on program enrollments and market conditions. Benefits provided to program participants are calculated according to formulas specified in statute. By providing mandatory indefinite appropriations for these programs in the farm bill, Congress assures that sufficient funds will be available to meet program obligations without further legislative action. For more information, see CRS Report R44606, *The Commodity Credit Corporation (CCC)*.

rates, producers can repay the loans at the market price or surrender the commodity used as collateral in lieu of repayment. Farmers receive the difference between the lower market price and the higher MAL rate as a marketing loan gain payment. MAL coverage is available for the same crops as ARC and PLC—excluding seed cotton—as well as upland and extra long staple cotton, honey, mohair, processed sugar, and wool. The 2018 farm bill increased the statutory loan rate for certain commodities, authorized recourse loans for certain lower quality commodities, and changed how market prices are calculated for cotton, among other changes.

Loan Deficiency Payment Program

The Loan Deficiency Payment (LDP) program augments farm revenues during periods of low market prices. When market prices fall below the MAL rates, the LDP program provides payments to producers equal to the amount of MAL marketing loan gain payments. LDPs are available for the same commodities eligible for MALs. Farmers cannot receive LDPs for commodities used as collateral for MALs. The 2018 farm bill extended the existing program.

Cotton Policy

Congress did not include upland cotton in the list of commodities eligible for ARC and PLC under the 2014 farm bill in response to a World Trade Organization (WTO) dispute settlement case.[19] Instead, cotton producers were eligible to receive ARC and PLC payments using "generic" base acres.[20] The 2014 farm bill also provided cotton producers with separate *shallow loss coverage* through the FCIP.[21] The Bipartisan Budget Act of 2018 (P.L. 115-123) authorized ARC and PLC support for cotton grown for seed. The 2018 farm bill provided support for seed, upland, and extra long staple cotton producers through the ARC, PLC, MAL, and LDP programs. The 2018 farm bill also continued certain import quotas on upland cotton, adjustment assistance for domestic textile mills using upland cotton, and special competitiveness payments for domestic users and exporters of extra long staple cotton.

Dairy Margin Coverage Program

In the 2014 farm bill, Congress shifted the way U.S. dairy policy supports milk prices—from USDA buying dairy commodities to a margin protection program providing payments to dairy producers when the difference between the milk price and a calculated feed ration falls below a producer-selected margin. Actual margins remained higher than initially estimated when the 2014 program was established, resulting in few support payments to producers experiencing weak net returns on milk. In response, the 2018 farm bill established the Dairy Margin Coverage (DMC) program, which lowered producer-paid premium rates for annual milk production of 5 million pounds or less, increased available margin coverage to $9.50 per hundredweight (cwt.), and covered a larger quantity of milk production than the 2014 farm bill. In addition to the DMC program, the 2018 farm bill established a milk donation program to reimburse costs for fluid milk

[19] For more information on cotton and the WTO dispute, see CRS Report R45143, *Seed Cotton as a Farm Program Crop: In Brief*.

[20] The 2014 farm bill renamed cotton base acres as "generic" base acres. Farmers were eligible to receive Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) payments per generic base acre if they planted crops that were otherwise eligible to receive ARC and PLC payments.

[21] The federal crop insurance program's (FCIP's) shallow loss coverage is an area-based insurance product that is used in combination with a regular individual crop insurance policy to partially offset the cost of the regular policy's deductible.

donations by producers, processors, and cooperatives; amended the formula for the Class I skim milk price used to calculate the Class I price under Federal Milk Marketing Orders (FMMOs); and reauthorized the Dairy Forward Pricing Program, the Dairy Indemnity Program, and the Dairy Promotion and Research Program through FY2023.

Sugar Program

Congress extended the U.S. sugar program's existing nonrecourse loans under the MAL program, as well as marketing allotments, and the Feedstock Flexibility Program (FFP) provisions in the 2018 farm bill.[22] The 2018 farm bill raised the loan rate by one cent to 19.75 cents per pound for raw cane sugar and by 1.29 cents to 25.38 cents per pound for refined beet sugar. USDA is required, to the maximum extent possible, to operate the U.S. sugar program at zero cost to the federal government by avoiding sugar loan forfeitures to the CCC. The sugar program uses domestic marketing allotments and import limitations to maintain prices above loan forfeiture levels. Marketing allotments to domestic sugar beet and sugar cane processors limit the amount of sugar marketed for domestic human consumption, while U.S. sugar imports are limited through a tariff-rate quota (TRQ) system that allows for sugar imports at low tariff rates and out-of-quota imports at rates that are usually prohibitive to imports. USDA sets the annual TRQ volume of sugar that meets U.S. WTO obligations. The U.S. Trade Representative allocates the TRQs to various countries and may reallocate unused, country-specific TRQs during the marketing year. A separate bilateral agreement with Mexico regulates the volume of sugar imported from that country. FFP requires USDA to purchase surplus sugar to sell to ethanol producers. The 2008 farm bill established the program, which was activated once, in 2013.

Issues and Options

Distribution of Payments Across Eligible Commodities

When constructing the 2018 and prior farm bills, Congress has considered the distribution of support payments across eligible commodities. Different regions tend to produce different mixes of commodities, which raises the potential for geographic disparities in support payments. Under the 2018 farm bill, commodity support program outlays varied across crops depending on the extent of historical and annual production, market prices, the selection of programs that producers chose to enroll in each year, and program payment trigger levels set in statute. Certain commodities were more likely to receive payments from the MAL and PLC programs than other commodities given the market prices prevalent in 2018 when the farm bill was enacted and the payment triggers specified in statute. Congress could consider whether the payment triggers for the MAL and PLC programs are appropriate in view of the prevailing levels of commodity prices under the current farm bill.

Timeliness of ARC and PLC Payments

Farmers receive ARC and PLC payments at least one year after the crop has been harvested due to technical requirements for calculating average prices over the crop marketing year. This delay may reduce the utility of these payments in addressing farmers' cash flow needs during years when prices are low. The delay in payments also may affect the farm bill's budget score by shifting one year of payments outside of the 10-year scoring window.

[22] In this report, FFP is the acronym for both this program, the Feedstock Flexibility Program, and Food For Peace. For information on Food for Peace, see "International Food Assistance."

Payment Limits and Eligibility Criteria

Commodity support programs approach payment limitations, eligibility criteria, or both in different ways or not at all. ARC and PLC limit the maximum payments that an individual person or legal entity can receive per year. ARC, PLC, MALs, and LDPs impose a means test by limiting the maximum income that an individual can earn and remain eligible for program benefits. In contrast, the FCIP does not limit payments or impose a means test for benefits. The limits on commodity support program payments may raise questions about the size of farms that should receive support, whether payments should be proportional to production or limited per individual, and which farm owners and operators should receive payments. USDA has adopted payment limits and eligibility criteria for certain ad hoc payment programs created since 2018, including the MFP and CFAP, that differ from the payment limits and eligibility criteria applied to commodity support programs authorized by the 2018 farm bill. Some policymakers have advocated for tightening payment limits for commodity support programs to save money, to respond to general public concerns about payments to large farms, and to reduce potential incentives to expand large farms at the expense of small farms. Others have countered that larger farms should not be penalized for the efficiencies they have achieved through economies of size.

Dairy Policy

For 2021, DMC paid about $1.2 billion to dairy producers though January 18, 2022, as low milk prices and high feed costs resulted in an average producer margin of about $6.80 per cwt. During 2021, 77% of U.S. dairies participated in DMC, and producers who bought margin coverage above 2020's average margin, particularly at the $9.50 level, received significant payments for covered milk production. Some in Congress may want to evaluate the program for ways to incentivize greater participation and for whether DMC provides an adequate safety net for dairy producers, who often face milk production costs that are higher than the price they receive for milk, including particularly those dairies with fewer than 500 milk cows.

Most milk is priced through the Federal Milk Marketing Order (FMMO) system, and some dairy stakeholders believe reforming the system might improve milk pricing for producers. The 2018 farm bill amended the Class I skim milk price calculation. That formula change negatively affected producer milk prices in 2020 and 2021 when the COVID-19 pandemic disrupted milk markets. The Dairy Pricing Opportunity Act of 2021 (S. 3292) would reverse the 2018 farm bill's change to the Class I skim milk price formula, and it calls on USDA to hold hearings to allow dairy stakeholders to address their FMMO concerns. If Congress chooses to address producers' FFMO concerns in the debate over the next farm bill, it could consider these and other proposals.

Sugar Policy

Sugar producers and sugar end users (e.g., confectioneries and bakeries) have differing views on the U.S. sugar program. Sugar producers point out that the sugar program, unlike other farm commodity support programs, supports domestic sugar production at no cost to the federal government. Sugar end users contend that program restrictions on marketing allotments and imports raise the costs of their manufactured products, which puts U.S. manufacturers at a competitive disadvantage compared with imported sugar-intensive products while shifting the cost of the sugar support program from the federal government to U.S. consumers.

During past farm bill debates, proposals to amend or end the sugar program have come before Congress. In the 117th Congress, the Fair Sugar Policy Act of 2021 (H.R. 4680/S. 2466) would amend the sugar program by lowering the loan rate of raw cane sugar from 19.75 cents per pound currently to 18.75 cents; repealing marketing allotments for processors and the FFP; and allowing

countries with TRQ allotments to supply sugar to the United States to share their allotments with other exporting countries voluntarily and temporarily. Given the contentious history of sugar policy, this bill or similar legislation to revise the program could become part of the farm bill debate on U.S. sugar policy.

For Further Information

CRS Experts

- Stephanie Rosch, Analyst in Agricultural Policy
- Joel L. Greene, Analyst in Agricultural Policy

Relevant CRS Products

- CRS Report R45730, *Farm Commodity Provisions in the 2018 Farm Bill (P.L. 115-334)*, by Randy Schnepf
- CRS Report R46561, *U.S. Farm Policy: Revenue Support Program Outlays, 2014-2020*, by Randy Schnepf
- CRS Report R46248, *U.S. Farm Programs: Eligibility and Payment Limits*, by Randy Schnepf and Megan Stubbs
- CRS Report R45143, *Seed Cotton as a Farm Program Crop: In Brief*, by Randy Schnepf
- CRS In Focus IF11188, *2018 Farm Bill Primer: Dairy Programs*, by Joel L. Greene
- CRS Report R45044, *Federal Milk Marketing Orders: An Overview*, by Joel L. Greene
- CRS In Focus IF10223, *Fundamental Elements of the U.S. Sugar Program*, by Mark A. McMinimy

Crop Insurance

The FCIP offers farmers the opportunity to purchase insurance coverage against financial losses caused by a wide variety of perils, including certain adverse growing and market conditions. The federal government subsidizes the premiums that farmers pay for these insurance policies to encourage farmer participation, covering about 62% of the total premium on average for all policies sold in 2021.[23] Farmers can choose among many types of policies and policy options to customize coverage to their farm businesses' specific needs. Private-sector companies sell and service the policies; USDA subsidizes, regulates, and reinsures the policies.

The FCIP is permanently authorized under the Agricultural Adjustment Act of 1938 (P.L. 75-430) and the Federal Crop Insurance Act of 1980 (P.L. 96-365). The Federal Crop Insurance Corporation (FCIC)—the agency that finances FCIP operations—is funded with mandatory appropriations of "such sums as necessary." CBO projects that net spending for the FCIP will be almost $49 billion for FY2021-FY2025 and more than $95 billion for FY2021-FY2030—including expenditures to subsidize farmers' policy premiums, compensate private insurance providers for administrative and operating expenses, and reinsure losses from policies sold.[24]

The FCIP plays a prominent role in helping producers manage financial risk and provides financial support to U.S. farmers in times of low farm prices and natural disasters. In crop year 2021, the program sold more than 2.2 million policies and insured crops and livestock valued at more than $150 billion.[25] In all, the FCIP provided coverage for 131 commodities and offered 33 different types of insurance coverage. Fourteen companies sold crop insurance to farmers through the program, and farmers insured a record high 444 million acres in 2021.[26]

[23] CRS calculations using data from USDA Risk Management Agency (RMA), "Summary of Business," database, downloaded January 11, 2022, at https://prodwebnlb.rma.usda.gov/apps/SummaryOfBusiness/ReportGenerator.

[24] CRS calculations using CBO, *Baseline Projections: USDA's Farm Programs*, July 2021.

[25] USDA, RMA, "Summary of Business" database.

[26] USDA, Office of Inspector General, *Federal Crop Insurance Corporation/Risk Management Agency's Financial*

Selected Farm Bill Provisions

The Crop Insurance title (Title XI) of the 2018 farm bill made several minor modifications to the FCIP that CBO projected would reduce FCIP outlays relative to baseline levels by $104 million during the FY2019-FY2028 period.[27] Changes that were projected to increase budgetary outlays included authorizing catastrophic coverage for grazing crops and grasses; allowing separate coverage for crops that are grazed and mechanically harvested in the same season; redefining the term *beginning farmer or rancher* for whole-farm revenue protection policies; and waiving certain requirements for hemp coverage proposals submitted by the private sector. Changes that were projected to reduce budgetary outlays included increasing the administrative fee for catastrophic coverage; authorizing multicounty enterprise units; reducing funds for certain research and development contracts and partnerships; reducing funds for review, compliance, and program integrity; and changing how producer benefits are reduced when producing crops on native sod. The 2018 farm bill also added hemp to the list of crops eligible for FCIP premium subsidies; made hemp eligible for post-harvest loss coverage; and directed USDA to conduct research for developing FCIP coverage for priority topics, commodities, and areas.

Issues and Options

Over the last three farm bills, Congress has expanded the FCIP to cover more commodities and more types of risks. Although crop insurance market penetration for row crops has been high historically, opportunities exist to expand participation, especially for specialty crops, livestock, and animal products.

Numerous stakeholders have proposed reducing the cost of the FCIP by capping underwriting gains for private-sector insurers, reducing premium subsidies for producers, introducing premium subsidy eligibility criteria based on the producer's adjusted gross income, and other proposals. Additionally, the Standard Reinsurance Agreement (SRA)—the agreement between the FCIC and private-sector firms that sell FCIP policies that specifies how the cost of reinsuring the FCIP is shared between the private-sector firms and USDA—has been in place since 2011. To identify additional opportunities to reduce the cost of operating the program, Congress may consider requiring greater transparency about the actual cost of federal underwriting and the share of costs borne by the private sector.

The number of private-sector insurers participating in the FCIP has decreased over time, largely due to consolidation in the insurance industry. Congress may choose to examine the drivers of this consolidation, as well as any implications of consolidation on outreach to producers in underserved areas and on insurers' willingness to market new types of crop insurance coverage.

For Further Information

CRS Expert

- Stephanie Rosch, Analyst in Agricultural Policy

Relevant CRS Products

- CRS Report R46686, *Federal Crop Insurance: A Primer*, by Stephanie Rosch
- CRS Report R45291, *Federal Crop Insurance: Delivery Subsidies in Brief*, by Isabel Rosa
- CRS In Focus IF11919, *Federal Crop Insurance for Hemp Crops*, by Renée Johnson

Statements for Fiscal Years 2021 and 2020, Audit Report 05401-0013-11, November 2021.

[27] For detailed budget analysis of modifications to the FCIP in the 2018 farm bill, see CRS Report R45525, *The 2018 Farm Bill (P.L. 115-334): Summary and Side-by-Side Comparison*.

Disaster Assistance

In addition to direct farm support, farm bills authorize programs designed to help farmers and ranchers recover from the financial effects of natural disasters. These programs are permanently authorized but generally amended in omnibus farm bills.

Selected Farm Bill Provisions

The 2014 farm bill (P.L. 113-79) permanently authorized four agricultural disaster programs for livestock and fruit trees.

- **Livestock Indemnity Program (LIP).** LIP provides payments to eligible livestock owners and contract growers for livestock deaths in excess of normal mortality or sold at reduced price caused by an eligible loss condition (e.g., adverse weather, disease, or animal attack).
- **Livestock Forage Disaster Program (LFP).** LFP makes payments to eligible livestock producers who have suffered grazing losses on drought-affected pastureland or on rangeland managed by a federal agency due to a qualifying fire.
- **Emergency Assistance for Livestock, Honey Bees, and Farm-Raised Fish Program (ELAP).** ELAP provides payments to producers of livestock, honey bees, and farm-raised fish as compensation for losses due to disease, adverse weather, feed or water shortages, or other conditions not covered under LIP or LFP.
- **Tree Assistance Program (TAP).** TAP makes payments to qualifying orchardists and nursery-tree growers to replant or rehabilitate trees, bushes, and vines damaged by natural disasters.

The programs provide compensation for a portion of lost production following a natural disaster and receive mandatory funding amounts of "such sums as necessary" from the CCC. Total payments under LIP, LFP, ELAP, and TAP vary each year based on eligible loss conditions.

Production losses from natural disasters also may be covered under the FCIP (see "Crop Insurance") and the Noninsured Crop Disaster Assistance Program (NAP). Producers who grow a crop that is ineligible for crop insurance may apply for NAP. NAP offers coverage for *catastrophic* losses—losses in excess of 50% of normal yield. Producers may purchase higher coverage levels for less severe losses (referred to as *buy-up* coverage).[28] Producers must purchase NAP policies prior to a disaster event and purchase or renew coverage annually. The program is authorized permanently and receives mandatory funding amounts of "such sums as necessary" from the CCC.

Issues and Options

Over the past 20 years, Congress has authorized permanent disaster assistance programs and expanded FCIP and NAP policies to reduce the need for ad hoc disaster assistance. Following enactment of the 2008 farm bill (P.L. 110-246), Congress appropriated little in the way of supplemental disaster assistance for agriculture for a number of years. This changed in 2018 when Congress authorized supplemental appropriations for agricultural production losses in 2017

[28] Buy-up coverage is available in increments of 5% to cover between 50% and 65% of a crop.

that were not covered by the FCIP or NAP.[29] Congress appropriated additional supplemental funding for natural disaster-related losses in 2018 through 2021, totaling more than $13 billion.[30] Most of this funding was made available through ad hoc assistance, including the Wildfires and Hurricanes Indemnity Program (WHIP) and block grants to states.

With the resurgence in ad hoc assistance, Congress might reassess the effectiveness of the permanent disaster assistance programs as well as NAP and crop insurance coverage. By covering the losses of farmers who chose not to purchase insurance, Congress could consider whether WHIP and other ad hoc assistance creates a potential disincentive for future participation in the FCIP or NAP. The scope and scale of supplemental disaster assistance since enactment of the 2018 farm bill has outpaced spending in some of the permanent disaster support programs, which may call into question whether the permanent disaster assistance programs can or should be expanded to cover additional losses or losses from events that are not currently covered. Overall, the next farm bill could provide a platform for Congress to debate the role of the federal government in supporting natural disaster-related losses for the farm industry, which is acutely vulnerable to natural disasters and fluctuations in weather.

For Further Information

CRS Expert

- Megan Stubbs, Specialist in Agricultural Conservation and Natural Resources Policy

Relevant CRS Products

- CRS Report RS21212, *Agricultural Disaster Assistance*, by Megan Stubbs
- CRS In Focus IF10565, *Federal Disaster Assistance for Agriculture*, by Megan Stubbs
- CRS In Focus IF11539, *Wildfires and Hurricanes Indemnity Program (WHIP)*, by Megan Stubbs

Intersecting Issues and Options for Farm Safety Net Programs

In addition to addressing issues confined to individual aspects of commodity support programs, crop insurance, or disaster assistance in the next farm bill, Congress also could consider addressing issues that intersect multiple aspects of these farm safety net programs. A selection of issues that intersect these program areas follow.

Farm Revenue Support Programs

In the next farm bill, Congress may consider whether the existing structure of farm revenue support programs serves its intended goals—or whether it may potentially introduce unintended outcomes. The U.S. farm sector produces commodities to supply domestic and international demand for food, animal feed, fuel, fiber, and other industrial products. Farm revenue support programs provide support to farmers, ranchers, and other types of agricultural operations to partially offset the financial costs of risks, such as adverse weather and market conditions. Shifting some of the financial costs of these risks from agricultural producers to the federal government can help to stabilize farm revenues. Payments from farm support programs also may improve farmers' access to credit. Proponents of farm revenue support programs have asserted that these programs are necessary to maintain a viable U.S. agricultural sector and an affordable

[29] The Bipartisan Budget Act of 2018 (P.L. 115-123) authorized $2.36 billion for agricultural losses in 2017.

[30] The FY2019 supplemental appropriations (P.L. 116-20) authorized $3 billion for losses in 2018 and 2019, and the FY2022 continuing resolution (P.L. 117-43) authorized $10 billion for losses in 2020 and 2021.

supply of food and fiber.[31] Critics have countered that revenue support programs are harmful and that they waste taxpayer dollars, distort producer behavior in favor of certain crops, inflate returns to landownership, encourage concentration of production, and place producers who do not receive farm support payments—including smaller domestic producers and farmers in lower-income foreign nations—at a comparative disadvantage in applying for credit from private-sector lenders and/or self-funding farm business investments.[32] In addition, certain environmental groups and agricultural economists have argued that subsidies encourage production on environmentally fragile lands and result in pollution from runoff of fertilizer and pesticides.[33] In contemplating a new farm bill, Congress may want to consider how best to balance these competing perspectives.

Supplemental Funding

Nonfarm bill supplemental funding has increased significantly since passage of the 2018 farm bill.[34] Some of this supplemental funding duplicated payments from existing farm safety net programs (e.g., supplemental payments in 2019 to augment regular prevented planting payments through the FCIP). Other supplemental funding provided support that differed from the existing farm safety net programs. This included price and income support for commodities not covered under existing commodity support programs, including for livestock and specialty crops under various USDA pandemic response programs, as well as MFP payments for losses due to trade disputes that were not specifically compensated under existing farm safety net programs.

The farm bill safety net programs—revenue support programs, the federal crop insurance program, and disaster assistance programs—have been established over time to provide a measure of stability in the farm sector and to promote an adequate supply of certain agricultural products while allowing commodity prices to respond to market signals. In view of the prominence of supplemental payments to the farm sector in recent years, Congress may consider what level of farm income is adequate to fulfill these policy objectives and whether the farm bill safety net programs are sufficiently flexible to respond to changing circumstances. Congress also may consider whether the combination of spending on farm revenue support programs and supplemental spending runs a risk of exceeding annual spending limits on trade-distorting domestic support payments that the United States has agreed to under WTO rules.[35] An added consideration for lawmakers is that any expansion in farm safety net programs under the existing farm bill baseline may require making funding reductions for other farm bill priorities.

Animal Agriculture

Farm bills traditionally do not provide livestock and poultry producers with farm revenue support programs like those for major crops, such as grains, oilseeds, and cotton. (The exception is dairy;

[31] For example, see letter from the American Farm Bureau Federation to Chairmen Pat Roberts and Michael Conaway and ranking members Debbie Stabenow and Collin Peterson of the House and Senate Agriculture Committees, August 1, 2018, at https://www.fb.org/files/Farm_Bill_Conference_Letter_8-1-2018.pdf.

[32] For example, see Scott Lincicome, "Examining America's Farm Subsidy Problem," Cato Institute, December 18, 2020, at https://www.cato.org/commentary/examining-americas-farm-subsidy-problem.

[33] For example, see Union of Concerned Scientists, *Subsidizing Waste: How Inefficient US Farm Policy Costs Taxpayers, Businesses, and Farmers Billions*, Policy Brief, August 2016; and Daniel Sumner and Carl Zulauf, "Economic & Environmental Effect of Agricultural Insurance Programs," The Council on Food, Agricultural & Resource Economics, July 2012.

[34] For additional supplemental funding discussion, see "Budget Situation and Outlook" and funding amounts represented as "Non-farm bill" in **Figure 1**.

[35] For more information on WTO rules and limits for domestic agriculture supports, see CRS Report R45305, *Agriculture in the WTO: Rules and Limits on U.S. Domestic Support*.

see "Dairy Policy.") Instead, the livestock and poultry industries look to the federal government for leadership in protecting animal health; establishing transparent, science-based rules for trading animal products; resolving foreign trade disputes; and assuring that supplies of domestic and imported meat and poultry are safe.

Selected Farm Bill Provisions

The 2018 farm bill includes provisions in the Miscellaneous title (Title XII) that addressed animal health, a sheep production and grant program, cattle grading, a statutory dealer trust, and the USDA's Food Safety and Inspection Service (FSIS) guidance for small meat processors. It also included animal welfare provisions that prohibited the slaughter of dogs and cats for human consumption, extended a ban on animal fighting in U.S. territories, required USDA to submit a report on the importation of dogs, and provided shelter assistance grants for pets of victims of domestic violence.

The 2018 farm bill established the National Animal Disease Preparedness and Response Program, which authorized and funded USDA to enter into cooperative agreements with states, tribes, universities, and livestock organizations to conduct activities to mitigate risks to U.S. livestock from animal pests and disease. It also established the National Animal Health Vaccine bank to stockpile vaccines to enable the United States to respond to animal diseases, particularly foot-and-mouth disease (FMD), and expanded funding for the diagnostic National Animal Health Laboratory Network.

The 2018 farm bill established three cattle- and carcass-grading training centers that were set up in USDA's Agricultural Marketing Service in 2019. Other livestock-related provisions in the enacted law authorized USDA to conduct studies on establishing a livestock dealer statutory trust,[36] as well as directed FSIS to provide a report on guidance and outreach to small meat processors. USDA issued these reports in 2020, and the dealer trust was enacted into law in Division N, Section 763, of the Consolidated Appropriations Act, 2021 (P.L. 116-260).

Issues and Options

The U.S. livestock and poultry sector is at risk of highly contagious animal disease outbreaks—such as FMD, African swine fever (ASF), and highly pathogenic avian influenza—that would disrupt U.S. farm animal production and live animal and livestock product exports. Increased resources for border and herd monitoring and surveillance activities for ASF are priorities for the hog industry, especially since ASF was found in the Western Hemisphere (the Dominican Republic and Haiti) for the first time ever in 2021. In September 2021, USDA announced $500 million in additional CCC funding for ASF efforts, and Congress could consider further expanding the preparedness programs initiated in the 2018 farm bill for animal disease threats.

COVID-19 outbreaks in some large meatpacking plants in 2020 and the related disruption to meat processing have heightened ongoing concerns about concentration in the meat-processing sector, leading to calls for increased processing capacity in the form of small- to medium-sized facilities. In the Consolidated Appropriations Act, 2021 (P.L. 116-260), Congress provided grants and loans for food processors with small-sized facilities. The act also provided grant funding to enable existing meat processors to upgrade their facilities to qualify for federal inspection, which would allow them to ship meat products in interstate commerce. In response, USDA established the

[36] In December 2020, Congress enacted the Dealer Statutory Trust in the Consolidated Appropriations Act, 2021 (P.L. 116-260). The dealer trust requires livestock dealers to hold all livestock purchased, and if livestock has been resold, the receivables or proceeds from such sale, in trust for the benefit of all unpaid cash sellers of livestock until full payment has been received by those sellers.

Meat and Poultry Inspection Readiness Grant program in June 2021 and the Pandemic Response and Safety Grant Program in September 2021. In January 2022, the White House announced that $1 billion in American Rescue Plan Act (ARPA; P.L. 117-2) funds—including grants, loans, worker support, overtime inspection costs for small plants, and innovation funds—would be available for expanding meat processing. During the upcoming farm bill debate, Congress could consider the effects of concentration on the meat processing supply chain, the effects of concentration on prices producers receive for livestock and poultry, and on retail prices for consumers. Congress could consider any trade-offs in expanding programs developed during the pandemic for small- to medium-sized meat processors and/or creating new programs in order to increase marketing opportunities for livestock producers.

During past farm bill debates, there was interest in addressing competition in the livestock and poultry sectors. In Executive Order 14036, "Promoting Competition in the American Economy," the Biden Administration directed USDA to consider proposing rules that would address competition through the Packers and Stockyards Act (P&S Act, 7 U.S.C. §181 et seq.). The rules would address the scope of the P&S Act; practices that are unfair or unjustly discriminatory or cause undue or unreasonable preferences or advantages; and the poultry tournament price system. These rules would be similar to the marketing and competition rules, or "GIPSA rules,"[37] that USDA released in 2010 to implement provisions in the 2008 farm bill but that never were finalized. As in the past, support among stakeholders in livestock and poultry industries for these rules is likely to vary, and some may look to the farm bill as an opportunity to address their concerns about competition.

The executive order on competition also directed USDA to consider proposing a rule for a voluntary Product of the USA label for meat. In 2015, the WTO ruled that United States was in violation of its WTO obligations in a country-of-origin labeling (COOL) dispute settlement case involving cattle and hogs. Congress repealed mandatory COOL for beef and pork in December 2015, but some stakeholders have continued to advocate for the re-imposition of mandatory COOL for beef and pork. Several bills introduced in the 117th Congress would restore mandatory COOL (S. 2716 and H.R. 4421/S. 2332). Other bills would define voluntary labels for U.S. beef products (H.R. 4973/S. 2623). As such, meat-origin labeling may become a subject of debate in the upcoming farm bill.

The Animal Welfare Act (7 U.S.C. §2131 et seq.) requires minimum care standards for most types of warm-blooded animals bred for commercial sale, used in research, transported commercially, or exhibited to the public. Although farm animals are exempt, they are covered by other federal laws addressing humane transport and slaughter. As in past farm bills, Congress may consider addressing animal welfare issues for nonfarm animals. For example, bills introduced in the 117th Congress would address adding requirements for commercial dog handlers (H.R. 2840/S. 1385), adopting animals used in research (H.R. 5244/S. 1378), prohibiting the use of wild animals in traveling acts (H.R. 5999/S. 3220), and importing healthy dogs (H.R. 4239/S. 2597). Congress has used general provisions in appropriations acts to ban domestic horse slaughter, and Congress could consider other horse-related measures during the debate over a new farm bill. For example, a House-introduced bill (H.R. 3355) would ban selling, possessing, or transporting horses for slaughter for human consumption and curtail the shipment of horses to Canada or Mexico for slaughter. Other horse-related bills (H.R. 5441/S. 2295, and H.R. 6341) would strengthen the Horse Protection Act (15 U.S.C. §1821 et seq.).

[37] GIPSA (the Grain Inspection, Packers and Stockyards Administration) was the USDA agency that administered the Packers and Stockyards Act. A USDA reorganization in 2017 merged GIPSA into the Agricultural Marketing Service (AMS).

For Further Information

CRS Expert

- Joel L. Greene, Analyst in Agricultural Policy

Relevant CRS Products

- CRS Report R41673, *USDA's "GIPSA Rule" on Livestock and Poultry Marketing Practices*, by Joel L. Greene
- CRS Report RS22955, *Country-of-Origin Labeling for Foods and the WTO Trade Dispute on Meat Labeling*, by Joel L. Greene
- CRS Report R46672, *Federal Statutes Protecting Domesticated and Captive Animals*, by Erin H. Ward
- CRS In Focus IF12002, *Animal Use in Federal Biomedical Research: A Policy Overview*, by Kavya Sekar and Genevieve K. Croft

Other Horticultural Products

Beginning in 2008, enacted farm bill legislation has included a horticulture title covering provisions supporting the fruit, vegetable, and other specialty crop industries, as well as USDA-certified organic products, which cover both organic-certified crops and animal products. Over the years, this title has included provisions supporting locally sourced products (not limited to crops) and provisions establishing a USDA regulatory framework for hemp cultivation. Upon enactment of the 2018 farm bill, CBO-projected outlays for the Horticulture title (Title X) provisions totaled $1.0 billion (FY2019-FY2023), accounting for less than 0.5% of total projected farm bill spending. Support for these sectors is not limited to the horticulture title; it is also contained within other farm bill titles covering a range of programs administered by USDA. Other 2018 farm bill provisions supporting these sectors are part of federal crop insurance and disaster assistance, as well as federal programs supporting the agricultural research and extension, conservation, rural development, trade, and nutrition titles.

Fruits, Vegetables, and Other Specialty Crops

The 2018 farm bill reauthorized and expanded funding for many of the existing USDA programs supporting *specialty crops*—defined as "fruits and vegetables, tree nuts, dried fruits, and horticulture and nursery crops (including floriculture)" (7 U.S.C. §1621 note). In the Horticulture title, provisions included Specialty Crop Block Grants to states, Specialty Crop Market News data collection, food safety education initiatives, and chemical regulation and information collection. Provisions in other 2018 farm bill titles included the Specialty Crop Research Initiative and other USDA programs supporting emergency citrus disease research; USDA purchases of fresh fruits and vegetables for use in domestic nutrition assistance programs; federal crop insurance and supplemental disaster assistance; agricultural trade promotion; and other marketing programs in various titles.

Issues and Options

In previous farm bills, produce industry groups, representing a range of crops and regional interests, tended to support reauthorization and expansion of existing USDA programs. The next farm bill could focus on other legislative priorities within the industry, such as ways to address continued COVID-19-related supply chain disruptions, including access to workers and distribution challenges. Some of these priorities may involve reforms outside the farm bill, but others could be addressed by increasing grant funding, changing USDA procurement rules (e.g., H.R. 5309), and expanding research into mechanization technologies. Additional legislation

pending before the 117th Congress would address seasonal import competition in certain regions of the country (e.g., H.R. 4580 and H.R. 3926/S. 2080).

USDA-Certified Organic Agriculture

The 2018 farm bill reauthorized and expanded funding for provisions supporting agricultural products certified and labeled as USDA Organic, indicating that those products are grown in accordance with USDA regulations (7 C.F.R. §205) and verified by a USDA-accredited certifying agent according to USDA's National Organic Program (NOP). NOP is a voluntary certification program for producers and handlers that uses approved methods and standards. The program covers organically produced specialty crops, field crops, and animal products (e.g., meat and dairy products), as well as nonfood consumer products. The Horticulture title of the 2018 farm bill primarily focused on addressing perceived shortcomings in USDA's organic certification by making changes intended to enhance enforcement, limit program fraud, and fund technology upgrades. Other provisions changed the eligibility and consultation requirements of the National Organic Standards Board (NOSB) and reauthorized the National Organic Certification Cost-Share Program and the Organic Production and Market Data collection. Provisions in other 2018 farm bill titles included the Organic Agriculture Research and Extension Initiative in the Research, Extension, and Related Matters title; transition assistance and incentives for organic production in the Conservation title; and federal crop insurance and other marketing and promotion support in other titles.

Issues and Options

The organic industry represents highly diverse interests with often divergent priorities. Some shared priorities have focused on USDA not finalizing regulations to address transitioning dairy cows to organic standards, livestock handling and poultry living conditions, and oversight and enforcement of NOP-certified products. Some related legislative initiatives in the 117th Congress focus on restoring funding for organic certification cost-share programs and ensuring organic agriculture is part of ongoing U.S. agricultural climate solutions (e.g., H.R. 2803/S. 1251). In the next farm bill, Congress might consider further structural changes to NOP, including establishing a new framework for developing standards, elevating the role of the NOSB, and addressing the current backlog in developing NOP standards (e.g., H.R. 2918). Other actions could advance organic agriculture within USDA research, nutrition, and procurement programs (e.g., H.R. 5309), as well as improve crop insurance and risk management tools. Some producer groups are pursuing an alternative certification regime under a Regenerative Organic label, in part to address perceived NOP shortcomings related to animal welfare protections and objections by some that soilless hydroponic growing systems qualify as USDA Organic.

Local, Urban, and Innovative Production

The 2018 farm bill reauthorized and expanded funding for many of the existing provisions supporting locally sourced foods—both crops and animal products. No consensus exists for what constitutes locally sourced foods. In most cases, USDA farm programs supporting local food systems base their program eligibility on a statutory definition of *locally or regionally produced agricultural food products*, which states that any food product that is raised, produced, and distributed in "the locality or region in which the final product is marketed" where "the total distance that the product is transported is less than 400 miles from the origin of the product; or … the State" where the food was produced (7 U.S.C. §1932). The Horticulture title of the 2018 farm bill created the Local Agriculture Market Program (LAMP), which combined and expanded the existing USDA farmers' market, local food marketing, and value-added processing grant

programs. Provisions in other farm bill titles enhanced crop insurance and disaster assistance for urban and small-scale production and made changes to food programs and grants in the Nutrition title. The 2018 farm bill created new support for urban food systems in the Research, Extension, and Related Matters and in other titles, establishing an Office of Urban Agriculture and Innovative Production at USDA and providing new grant authority to facilitate urban production, harvesting, transportation, and marketing.

The 2018 farm bill also included provisions supporting historically underserved producers (Miscellaneous, Title XII, Subtitle C). These provisions, which often support farming operations within USDA programs that benefit local and urban farmers, also expanded USDA support for beginning, socially disadvantaged, and veteran farmers and ranchers.

Issues and Options

Legislative priorities among groups representing, in general, small-sized local and urban producers—and beginning, socially disadvantaged, and veteran farmers and ranchers—span diverse food systems and community needs. Shared priorities include increasing access to USDA programs and addressing equity and competition—often related to small-sized and limited-resource producers. Priorities also often focus on agricultural sustainability and access to USDA conservation funding, including for organic production systems. Several bills introduced in the 117th Congress would address these priorities. Ensuring climate-focused agricultural policies and that locally sourced food systems are part of U.S. agricultural climate solutions (e.g., H.R. 2803/S. 1251) remain priorities for certain groups. The next farm bill also could provide resources to improve agricultural and rural infrastructure and enhance supply chain resilience by expanding access to farm credit and crop insurance and to USDA nutrition and procurement programs (e.g., H.R. 2896, H.R. 5309), as well as addressing industry consolidation and antitrust concerns (e.g., H.R. 1258). In previous farm bill debates, a range of proposed legislative changes across all farm bill titles were introduced in comprehensive marker bills, reflecting the interests of small-sized local and urban producers.

Hemp Production and Processing

The 2018 farm bill created new authorities to legalize hemp, a variety or cultivar of *Cannabis sativa*—the same plant as marijuana—grown for use in the production of a range of nonpsychoactive food, beverage, consumer, and manufactured products. In statute, *hemp* is defined to include seeds, derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers with a delta-9 tetrahydrocannabinol (THC) concentration of not more than 0.3% on a dry weight basis (7 U.S.C. §1639o). The Horticulture title of the 2018 farm bill directed USDA to establish a framework to regulate hemp cultivation under federal law and facilitate commercial cultivation, processing, marketing, and sale of hemp and hemp-derived products. USDA published final regulations under the Domestic Hemp Production Program in 2021. All U.S. states plan to allow growth of hemp in the 2022 crop year under either a USDA-approved state plan or a USDA general license. USDA has implemented provisions in other 2018 farm bill titles that made hemp producers eligible for federal crop insurance and agricultural research programs.

Issues and Options

Hemp industry interests reflect many national and regional groups with differing priorities, often depending on the products they produce and whether hemp is used for its fiber, grain, or flower. Some shared priorities call for relaxing USDA's regulatory requirements—which are perceived by the hemp industry and some state regulators to be overly restrictive and impractical—and to

reduce the role of the U.S. Drug Enforcement Administration in regulating hemp. In the next farm bill, Congress could consider whether to further amend the statutory definition of hemp (7 U.S.C. §1639o) to raise the allowable legal THC level from 0.3% to 1% (e.g., H.R. 6645; S. 1005) to provide additional regulatory flexibility to growers. Congress also could increase research funding for hemp, including targeted support for processing capacity of hemp fibers for use in insulation, construction materials, and plastics. The National Association of State Departments of Agriculture supports adding hemp to the statutory definition of a *specialty crop* (7 U.S.C. §1621 note), which could qualify hemp for USDA programs that tie eligibility to the specialty crop definition. The next farm bill also could consider ways to ensure hemp is part of ongoing climate proposals involving agriculture.

Other leading efforts by some hemp groups seek to address long-standing concerns that the Food and Drug Administration (FDA) continues to restrict the marketing of food and dietary supplements containing hemp-derived cannabidiol (CBD) (e.g., H.R. 841 and S. 1698). Related proposals in the 117th Congress would establish federal standards under FDA's jurisdiction for hemp-derived CBD products (H.R. 6134). Some interest groups contend that FDA is not properly regulating CBD, which could pose a threat to public safety. An open question is whether changes to FDA laws and regulations are within the farm bill's jurisdiction.

For Further Information

CRS Expert

- Renée Johnson, Specialist in Agricultural Policy

Relevant CRS Products

- CRS Report R44719, Defining "Specialty Crops": A Fact Sheet, by Renée Johnson
- CRS In Focus IF11317, *2018 Farm Bill Primer: Specialty Crops and Organic Agriculture*, by Renée Johnson
- CRS Report R46538, *Local and Urban Food Systems: Selected Farm Bill and Other Federal Programs*, by Renée Johnson et al.
- CRS In Focus IF11252, *2018 Farm Bill Primer: Support for Local Food Systems*, by Renée Johnson and Randy Alison Aussenberg
- CRS In Focus IF11210, *2018 Farm Bill Primer: Support for Urban Agriculture*, by Renée Johnson
- CRS In Focus IF11227, *2018 Farm Bill Primer: Beginning Farmers and Ranchers*, by Renée Johnson
- CRS Report R44742, *Defining Hemp: A Fact Sheet*, by Renée Johnson
- CRS In Focus IF11088, *2018 Farm Bill Primer: Hemp Cultivation and Processing*, by Renée Johnson

Conservation

The conservation title of a farm bill generally contains numerous reauthorizations, amendments, and new programs that encourage farmers and ranchers to voluntarily implement resource-conserving practices on private land. Starting in 1985, farm bills have broadened the conservation agenda to include multiple resource concerns. Although the number of conservation programs has increased and techniques to address resource problems continue to emerge, the basic approach has remained unchanged: to provide financial and technical assistance to implement conservation systems supported by education and research programs.

Selected Farm Bill Provisions

The current conservation portfolio includes over 20 distinct programs, subprograms, and initiatives, many of which were created in farm bill legislation. These programs can be grouped

into the following categories based on similarities: working lands programs, land retirement programs, easement programs, partnership and grant programs, and conservation compliance.

Selected Farm Bill Conservation Programs

Working lands programs allow private land to remain in production while implementing various conservation practices to address natural resource concerns specific to the area.

- Environmental Quality Incentives Program (EQIP), Conservation Stewardship Program (CSP), and Agricultural Management Assistance (AMA)

Land retirement programs provide payments to private agricultural landowners for temporary changes in land use and management to achieve environmental benefits.

- Conservation Reserve Program (CRP)—includes the Conservation Reserve Enhancement Program, Farmable Wetland Program, Clean Lakes Estuaries And Rivers Pilot (CLEAR30), Soil Health and Income Protection Program, and Transition Incentives Program

Easement programs impose a permanent or long-term land use restriction that is placed voluntarily on land in exchange for a payment.

- Agricultural Conservation Easement Program (ACEP) and Healthy Forests Reserve Program (HFRP)

Partnership and grant programs use partnership agreements to leverage program funding with nonfederal funding or provide grants to states or research organizations.

- Regional Conservation Partnership Program (RCPP), Conservation Innovation Grants, On-Farm Conservation Innovation Trials, Feral Swine Eradication and Control Pilot Program, Voluntary Public Access, and Habitat Incentive Program

Conservation compliance prohibits a producer from receiving selected federal farm program benefits (including conservation assistance and crop insurance premium subsidies) when conservation program requirements for highly erodible lands and wetlands are not met.

- Highly erodible land conservation (Sodbuster), wetland conservation (Swampbuster), and Sodsaver

Other types of conservation programs, such as watershed programs, emergency land rehabilitation programs, and technical assistance, are authorized in nonfarm bill legislation. Most of these programs have permanent authorities and receive appropriations annually through the discretionary appropriations process. These programs generally are not addressed in farm bill legislation unless amendments to the program are proposed.

The Conservation title (Title II) of the 2018 farm bill reauthorized and amended portions of most conservation programs, though the main focus was on the following large programs: the Conservation Reserve Program (CRP), Environmental Quality Incentives Program (EQIP), and Conservation Stewardship Program (CSP). Most farm bill conservation programs are authorized to receive mandatory funding (i.e., they do not require an annual appropriation) and include authorities that expire at the end of FY2023.

Issues and Options

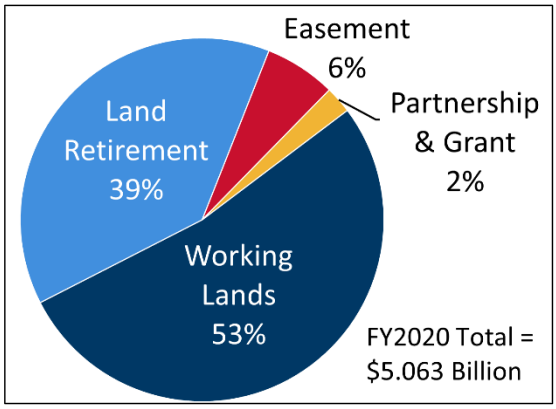
Budget and Baseline

The Conservation title is one of the larger nonnutrition titles of the farm bill, accounting for 7% of the total projected 2018 farm bill cost, or $60 billion of the total $867 billion in 10-year mandatory funding authorized (FY2019-FY2023). Mandatory spending for conservation programs was permanently enacted for the first time in the 1996 farm bill (P.L. 104-127). It has since increased and included total outlays in FY2020 of over $5 billion.[38] The majority of this spending occurs in working lands and land retirement programs (see **Figure 5**).

In addition to funding authorized in the 2018 farm bill, legislation before the 117th Congress, if enacted, would increase funding for selected conservation programs. For example, the House-passed Build Back Better Act (BBBA, H.R. 5376) would extend and increase funding for conservation programs, such as EQIP, CSP, the Agricultural Conservation Easement Program, and the Regional Conservation Partnership Program, by more than $21 billion over 10 years. This level of increase, if enacted, could alter the farm bill debate for conservation funding.[39]

Figure 5. FY2020 Conservation Outlays

Total by program type



Source: Created by CRS using CBO, *Baseline Projections: USDA's Farm Programs*, July 2021.

Climate Change and Carbon Markets

Current strategies for addressing climate change through agricultural programs, through both adaptation and mitigation, rely on the delivery of voluntary conservation technical assistance and financial support programs. Most farm bill conservation programs are designed to address multiple natural resource concerns through locally adaptable practices. Thus, no existing conservation program is specific to climate change adaptation or mitigation, but most programs can integrate climate change-related goals within their current structures.

As part of the next farm bill, Congress may evaluate how well farm bill conservation programs assist producers in climate change-related goals. Recent USDA initiatives related to climate change include the working lands programs (e.g., EQIP and CSP) and proposed discretionary use of the CCC to fund pilot projects to support production and marketing of "climate-smart" agricultural commodities.[40] How USDA implements these climate-focused initiatives and pilot projects may affect the conservation title.

[38] The 1985 farm bill (P.L. 99-198, 99 Stat. 1514) authorized limited mandatory funding for the Conservation Reserve Program in FY1986 and FY1987. FY2020 levels are from CBO, *Baseline Projections*: *USDA's Farm Programs*, July 2021.

[39] For additional information, see CRS In Focus IF11988, *Build Back Better Act: Agriculture and Forestry Provisions*.

[40] CCC serves as the primary funding mechanism for mandatory farm bill funding. For additional information, see CRS Report R44606, *The Commodity Credit Corporation (CCC)*. See also USDA, "Partnership for Climate-Smart

In addition to proposed changes, such as those in the BBBA that would increase funding for existing conservation programs, the 117th Congress has debated legislation related to carbon markets and the potential role that agriculture could play in them (e.g., Growing Climate Solutions Act, S. 1251/H.R. 2820). The role of agriculture in carbon markets has produced a variety of perspectives, including support for and opposition to a USDA role in standardizing voluntary carbon markets for agriculture and forestry. This debate could carry over into the next farm bill, including what role the conservation title could play in assisting producers to generate tradable carbon credits or in supporting carbon markets.[41]

Program Backlogs

Arguments for expanding conservation programs proved to be persuasive to Congress in enacting the 2018 farm bill in light of large backlogs of interested and eligible producers that were unable to enroll because of a lack of funds. Debate on a new farm bill could see similar arguments. Demand to participate in many of the conservation programs exceeds the available program dollars several times over for some programs.

Acceptance rates and backlogs for conservation programs vary by program and program type. In general, working lands programs continue to experience low acceptance rates, whereas recent sign-ups under land retirement programs have had higher acceptance rates. For example, in FY2020, USDA funded 27% of eligible program applications received for EQIP, 35% for CSP, and 43% for Agricultural Management Assistance. By comparison, the 2021 CRP general sign-up had more than 2 million acres offered for enrollment, and almost 1.9 million acres were accepted (93%). Policy issues beyond funding levels also can affect application acceptance rates. Large, ongoing backlogs of unfunded applications could provide a case for additional funding, whereas certain policy changes could reduce demand.

Conservation Compliance

The Food Security Act of 1985 (1985 farm bill; P.L. 99-198) created the highly erodible lands conservation and wetland conservation compliance programs, which tied various farm program benefits to conservation standards. This provision has been amended numerous times to remove certain farm program benefits from the compliance requirements and to add others. The 2018 farm bill made relatively few changes to compliance requirements. Some view these conservation compliance requirements as burdensome, and they continue to be unpopular among producer groups. Conservation compliance has remained a controversial issue since its introduction in the 1985 farm bill, and debate on its existence and effectiveness appears likely to continue.

Direct Spending and Flexibility

The 2018 farm bill required some existing conservation programs to direct a specific level of funding or acres, or percentage of a program's funding, to a resource- or interest-specific issue, initiative, or subprogram. Through these directed policies, Congress specified a support level or required investment that USDA is to achieve through program implementation. The specified levels may reduce USDA's flexibility to allocate funding based on need or reduce the total funds or acres available for activities that may not meet a resource-specific provision. Congress could consider the effect of these policies in the next farm bill.

Commodities," at https://www.usda.gov/climate-solutions/climate-smart-commodities.

[41] For additional information, see CRS Report R46956, *Agriculture and Forestry Offsets in Carbon Markets: Background and Selected Issues*.

For Further Information

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Relevant CRS Products

- CRS Report R40763, *Agricultural Conservation: A Guide to Programs*, by Megan Stubbs
- CRS Report R45698, *Agricultural Conservation in the 2018 Farm Bill*, by Megan Stubbs
- CRS Report R46971, *Agricultural Conservation: FY2022 Appropriations*, by Megan Stubbs

Nutrition

All farm bills since 1973 have included reauthorization of the Food Stamp Program (renamed Supplemental Nutrition Assistance Program [SNAP] in 2008). In addition to SNAP, which is the largest nutrition program, the nutrition title typically includes other programs that provide food or funds to purchase food to low-income households. At the federal level, USDA's Food and Nutrition Service (FNS) administers most nutrition title programs.[42]

Most farm bill domestic food assistance programs are treated as mandatory spending for budget purposes. SNAP is open-ended mandatory spending and funded through appropriations laws. As such, amending SNAP eligibility, benefits, or other program rules can have a budgetary impact at the same time the availability of appropriated funding can affect operations. Discretionary spending programs in the farm bill include the Commodity Supplemental Food Program (CSFP), the administrative cost component of the Emergency Food Assistance Program (TEFAP), and a portion of the Food Distribution Program on Indian Reservations (FDPIR).

The child nutrition programs (National School Lunch Program and others) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) are usually reauthorized by a child nutrition reauthorization law, not by the farm bill.[43]

Selected Farm Bill Provisions

Supplemental Nutrition Assistance Program

SNAP provides benefits to eligible low-income households via electronic benefit transfer (EBT) cards redeemable for SNAP-eligible foods (most edible goods) at SNAP-authorized retailers. In FY2021, a monthly average of 44.5 million individuals participated in SNAP, and federal costs for SNAP were $112.6 billion.[44] The vast majority of the spending ($107.6 billion, 96%) was the cost of the benefits, which are 100% federally financed. SNAP participation and costs increased during the COVID-19 pandemic, reflecting greater economic need and higher benefit amounts instituted by pandemic response laws than in previous years. Although the majority of federal funding is for benefits, SNAP funding includes some nonbenefit funding, such as federal

[42] Exceptions are the Gus Schumacher Nutrition Incentive Program (GusNIP) and Community Food Projects—administered by USDA's National Institute of Food and Agriculture (NIFA)—and a new micro-grant program administered by USDA's AMS.

[43] These programs, located in the Child Nutrition Act of 1966 and the Richard B. Russell National School Lunch Act, were last reauthorized in 2010 in P.L. 111-296, the Healthy, Hunger-Free Kids Act of 2010.

[44] USDA, Food and Nutrition Service (FNS), "Supplemental Nutrition Assistance Program Participation and Costs (data as of January 7, 2022)," at https://www.fns.usda.gov/sites/default/files/resource-files/SNAPsummary-1.pdf.

matching funds for state administrative costs, funds for states' SNAP Employment and Training (E&T programs), and SNAP nutrition education funding.

SNAP is administered as a federal-state partnership, with roles for each partner. For example, SNAP state agencies determine household eligibility, and USDA determines retailer authorization. The program operates in 50 states, the District of Columbia, Guam, and the U.S. Virgin Islands. In lieu of SNAP, Puerto Rico, American Samoa, and the Commonwealth of the Northern Mariana Islands receive block grants to fund household food assistance.

The farm bill could amend any aspect (e.g., eligibility for households and retailers, administrative funding, state administrative requirements) of the program's authorizing law (the Food and Nutrition Act of 2008),[45] but recent farm bills typically have maintained much of current law and made a limited number of changes in selected areas.

Title IV (Nutrition) of the 2018 farm bill largely maintained the SNAP eligibility and benefit calculation rules that had been in place. After debate over work requirements, the enacted conference report largely maintained the program's work-related rules with a few amendments to E&T policies and funding.[46] On benefit calculation, the new law required states to conduct a simplified calculation for homeless households and required certain updates or studies of certain aspects of benefit calculation. One of these studies is of the Thrifty Food Plan (TFP), the basis of SNAP's maximum benefit amounts. In August 2021, the Biden Administration released its reevaluation of the TFP and issued higher benefit amounts for FY2022.[47]

The 2018 farm bill also made some changes to SNAP program integrity policies, such as expanding nationwide a National Accuracy Clearinghouse to identify concurrent enrollment in multiple states. It also changed certain EBT system and retailer policies, including requiring the nationwide implementation of online acceptance of SNAP benefits.[48]

Gus Schumacher Nutrition Incentive Program

In recent years, governments and nonprofit organizations have set up SNAP bonus incentive projects. These initiatives typically provide matching food funds when consumers use SNAP benefits to purchase fruits and vegetables, encouraging such purchases. The 2014 farm bill first authorized federal competitive grants for these incentive projects, called the Food Insecurity Nutrition Incentive (FINI) grant program. The 2018 Nutrition title reauthorized FINI, renaming it the Gus Schumacher Nutrition Incentive Program (GusNIP) and providing for evaluation, training, and technical assistance. The 2018 farm bill expanded these SNAP incentive programs, increasing mandatory funding by $417 million over 10 years and, within GusNIP, dedicating funding for produce prescription projects to serve individuals eligible for SNAP or Medicaid in households with, or at risk of, developing a diet-related health condition.

[45] See most recent statutory compilation available at Govinfo, "Food and Nutrition Act of 2008," at https://www.govinfo.gov/app/details/COMPS-10331/.

[46] USDA implemented these changes in USDA, FNS, "Employment and Training Opportunities in the Supplemental Nutrition Assistance Program," Final Rule, 86 *Federal Register* 35812, January 5, 2021.

[47] See USDA, FNS, "USDA Food Plans: Cost of Food," at https://www.fns.usda.gov/cnpp/usda-food-plans-cost-food-reports.

[48] The 2014 farm bill initially authorized a pilot for online transactions. The pilot began accepting benefits in 2019 and expanded geographically and to different retailer types throughout the COVID-19 pandemic.

The Emergency Food Assistance Program

Under TEFAP, the federal government provides USDA-purchased foods to states for distribution to emergency feeding organizations (e.g., food banks, food pantries, and soup kitchens), which provide food to people in need. States make eligibility decisions for TEFAP assistance under federal parameters and choose local administering agencies. In addition to state allocations of entitlement commodities, each state receives a share of administrative funds to cover storage, distribution, and other expenses. States also receive bonus commodities that USDA acquires in its agriculture support programs on an intermittent basis.

The farm bill specifies an annual amount of funding for TEFAP's entitlement commodities, which is adjusted for inflation according to changes to the TFP.[49] CBO estimated that the 2018 farm bill increased TEFAP's mandatory funding by $105 million from FY2019 to FY2023. The 2018 farm bill also authorized new TEFAP projects, funded at $4 million annually, to facilitate the donation of raw/unprocessed commodities from agricultural producers, processors, and distributors to emergency feeding organizations (Farm to Food Bank Projects).

Separate from the farm bill, TEFAP typically receives annual discretionary administrative funds through appropriations acts. In addition, since 2018, TEFAP has received supplemental aid through USDA actions and pandemic response acts. In FY2019 and FY2020, the Trump Administration used the CCC to purchase $2.3 billion in food for distribution through TEFAP as part of its trade mitigation efforts.[50] Subsequently, COVID-19 response acts have provided $1.25 billion specifically for TEFAP, and the Biden Administration has used an additional $1 billion in COVID-19 response funding for TEFAP and related initiatives.[51] In FY2020, TEFAP expenditures (nearly $2.8 billion) were more than triple what they were in FY2018 ($711 million).[52]

Other Farm Bill Nutrition Programs

The 2018 farm bill and most prior farm bills included provisions pertaining to several other domestic nutrition programs. For some of these programs, the 2018 farm bill extended their authorizations or authorizations of appropriations through FY2023.

- **Nutrition Assistance Block Grants for Puerto Rico, American Samoa, and the Northern Mariana Islands.** As opposed to SNAP's financing, which is open-ended, these territories receive a fixed amount adjusted for inflation each year. In the case of disasters or emergencies, Congress has provided supplemental funding at times. The 2018 farm bill did not amend these programs.
- **Food Distribution Program on Indian Reservations.** Indian tribal organizations may choose to operate FDPIR instead of having the state offer

[49] USDA estimates that the Emergency Food Assistance Program's (TEFAP's) FY2022 funding will increase by $57.75 million because of USDA's recent reevaluation of the Thrifty Food Plan (TFP). USDA, FNS, *Guidance Document FNS-GD-2021-0086, The Emergency Food Assistance Program (TEFAP): Thrifty Food Plan (TFP) Adjustment of TEFAP Funding*, August 16, 2021.

[50] USDA, FNS, *2022 USDA Explanatory Notes – Food and Nutrition Service*, pp. 34-129, at https://www.usda.gov/sites/default/files/documents/34FNS2022Notes.pdf.

[51] USDA, "USDA to Invest $1 Billion to Purchase Healthy Food for Food Insecure Americans and Build Food Bank Capacity," press release, June 4, 2021.

[52] USDA, FNS, *2022 USDA Explanatory Notes – Food and Nutrition Service*, at https://www.usda.gov/sites/default/files/documents/34FNS2022Notes.pdf. For more information about TEFAP, see CRS Report R45408, *The Emergency Food Assistance Program (TEFAP): Background and Funding*.

SNAP benefits. FDPIR distributes USDA foods, rather than benefits redeemable in retail stores, to income-eligible households living on Indian reservations and American Indian households residing in approved areas near reservations or in Oklahoma. Eligible households may receive either SNAP or FDPIR. The 2018 farm bill increased federal administrative funding and made it available for a longer period. It also authorized a demonstration project for tribal organizations to enter into self-determination contracts to purchase commodities for FDPIR.[53]

- **Commodity Supplemental Food Program.** CSFP provides supplemental foods primarily to low-income seniors (aged 60 or older). USDA purchases the foods and distributes them to project grantees for distribution to individuals. The 2018 farm bill reauthorized CSFP and lengthened participants' certification periods.
- **Senior Farmers' Market Nutrition Program (SFMNP).** Under SFMNP, low-income seniors receive vouchers redeemable for fresh produce at farmers' markets and roadside stands. The 2018 farm bill maintained mandatory funding at $20.6 million per year.
- **School Food Programs.** School meals programs typically are reauthorized independently of the farm bill. The 2018 farm bill continued a $50 million set-aside for USDA's fresh fruit and vegetable purchases for schools and required certain USDA actions to enforce Buy American requirements for school meals.
- **Community Food Projects (CFP).** This competitive grant program, established in 1996, funds community food projects intended to promote innovative local food initiatives to meet food insecurity and community needs. The 2014 farm bill amended CFP and increased mandatory funding from $5 million per year to $9 million per year. The 2018 farm bill returned funding to $5 million per year.
- The 2018 farm bill created two new programs: the **Micro-Grants for Food Security Program** funds efforts to increase locally grown foods in eligible states and territories, and the **Healthy Fluid Milk Incentive** pilot funds bonus incentives for milk purchases.

Issues and Options

Policymakers may face the following major policy themes, among others, in the next farm bill's nutrition title: to what extent, if at all, to continue policies enacted in the pandemic response laws; supply chain changes for food distribution programs; and SNAP eligibility debates from past farm bills and regulatory proposals. The budget outlook also affects potential policy proposals. CBO estimated that the enacted 2018 farm bill's nutrition title was budget neutral—policies forecasted to increase direct spending were balanced by policies forecasted to decrease direct spending. Policymakers may debate whether to achieve such a balance within the nutrition title again.

SNAP

COVID-19 Pandemic Policies

The COVID-19 pandemic has posed numerous challenges for SNAP. To address the economic downturn and increased unemployment, the COVID-19 response laws in the 116th and 117th

[53] USDA announced awards to eight tribal nations. USDA, FNS, "USDA Invests $3.5 Million to Provide Food Purchasing Options to Tribal Communities," press release, November 1, 2021.

Congresses included temporary benefit increases,[54] as well as a requirement for the partial suspension of certain work-related eligibility rules. In response to food insecurity concerns among college students, student eligibility was expanded temporarily during the pandemic. The laws also have granted USDA authority to offer administrative flexibilities to SNAP state agencies as agencies respond to the constraints of social distancing, remote work, and higher rates of new SNAP participants. Congress may consider whether to use the farm bill to make permanent or extend temporary policies included in COVID-19 response laws.

Major Eligibility Issues in 2014 and 2018 Farm Bill Debates

The House-passed 2014 and 2018 farm bills would have changed the law around SNAP categorical eligibility, but such changes were not included in the enacted bill. In current law, SNAP categorical eligibility is available to applicants who receive benefits from low-income programs, including Supplemental Security Income (SSI), Temporary Assistance for Needy Families (TANF), and state-financed General Assistance programs. As of January 2022, 44 jurisdictions have adopted the "broad-based" categorical eligibility option, available due to statute and regulation, which gives states increased flexibility with the income and asset limits. Because of this broad-based option, most states are assessing applicants' eligibility without assessing their assets. In July 2019, the Trump Administration proposed a rule to restrict broad-based categorical eligibility. In June 2021, the Biden Administration withdrew the proposed rule. Congress may look at this state option again, as well as the income and asset rules in general.

Like farm bills in the recent past, a new farm bill may revisit work-related rules. SNAP's authorizing law has long included work-related eligibility requirements, the strictest being a time limit for "able-bodied" (nondisabled) adults (aged 18-49) without dependents (ABAWDs) who work less than 80 hours per month. SNAP law also authorizes certain waivers and exemptions from the time limit.[55] The House-passed 2014 and 2018 farm bills included changes to SNAP's work-related rules, proposing work requirements that would have applied to more people and were forecasted to reduce participation. In both years, Congress ultimately enacted changes considered more modest than proposed in the House-passed versions. These previous House-passed farm bills and a December 2019 Trump Administration rule, which was not finalized, also would have made it difficult for states to receive time limit waivers.[56]

In addition, the 2014 farm bill authorized and funded E&T pilot programs in 10 states. USDA has released evaluation reports on the pilots, but the final report is still pending.[57] The next farm bill could propose changes to work-related rules or further changes to E&T program policy, particularly in light of a final evaluation of the pilot programs.

[54] Certain benefit increases have sunset, and others are tied to federal and state public health emergency declarations and will sunset accordingly. The Biden Administration's implementation of a 2018 farm bill provision on the TFP allows for an increase above the FY2019 amounts to continue beyond the emergency, but some households will see lower benefits compared with the amounts received during the pandemic.

[55] The time limit has been suspended during the public health emergency. P.L. 116-127, Division B, Title III, §2301. See USDA, FNS, *Guidance Document FNS-GD-2020-0016, SNAP – Families First Coronavirus Response Act and Impact on Time Limit for Able-Bodied Adults Without Dependents (ABAWDs)*, March 20, 2020.

[56] That regulation was struck down in federal court, and the Biden Administration withdrew the Trump Administration's appeal. For more information, see USDA, "Statement by Agriculture Secretary Tom Vilsack on D.C. Circuit Court's Decision Regarding ABAWDs Rule," press release, March 24, 2021.

[57] USDA, FNS, *Expanding Opportunities and Reducing Barriers to Work: Interim Summary Report (Evaluation of SNAP Employment & Training Pilots)*, September 3, 2021.

Retailer and Redemption Policies

Both the 2018 farm bill and COVID-19 pandemic pose numerous policy questions for SNAP's retailer and redemption aspects. In the case of GusNIP, the 2018 farm bill increased funds for SNAP bonus incentives and set aside funding for produce prescription programs (see "Gus Schumacher Nutrition Incentive Program"). Congress may consider changing funding levels again or changing matching fund requirements, a policy changed in a COVID-19 response law. USDA has initiated and expanded the SNAP Online Purchasing Pilot in recent years. Congress may take interest in providing additional requirements for the pilot or moving beyond the pilot stage. Under current law, restaurants cannot be authorized as SNAP retailers except through the Restaurant Meals Program state option (i.e., a state can contract with restaurants to accept SNAP for meals for senior, homeless, and disabled SNAP participants). Because the pandemic has created challenges for the restaurant industry and its workforce, policymakers may be interested in expanding the role for restaurants within SNAP.

Programs in Lieu of SNAP

Past farm bills (2008 and 2014) have required feasibility studies to explore transitions to the SNAP program for Puerto Rico and the Commonwealth of the Northern Mariana Islands.[58] Policymakers may consider potentially revising or phasing out the Nutrition Assistance Block Grants provided to Puerto Rico, American Samoa, and/or the Commonwealth of Northern Mariana Islands, allowing these jurisdictions to participate in the open-ended SNAP program instead.

Congress may consider using the experiences of USDA and the tribal nations participating in the 2018 farm bill's FDPIR demonstration project to explore policies that further tailor FDPIR to tribal needs and interest in self-governance.

TEFAP

Several TEFAP developments may inform the next farm bill. For example, Congress may consider whether or not to make permanent recent temporary funding increases for TEFAP. Congress also may consider changes to the funding or operation of Farm to Food Bank Projects, which have operated for three years.

In addition, Congress may consider adjustments to TEFAP's procurement process. Under the current model, USDA purchases foods on behalf of states and emergency feeding organizations. The process can take roughly one to five months from solicitation through delivery.[59] This time frame caused some concern during the early months of the COVID-19 pandemic when food banks were experiencing increasing demand. The Trump Administration created the Farmers to Families Food Box Program with the goal of expediting deliveries, among other purposes.[60] While the Biden Administration ended the Farmers to Families Food Box Program, it

[58] Anne Peterson et al., *Implementing Supplemental Nutrition Assistance Program in Puerto Rico: A Feasibility Study*, USDA, FNS, June 2010; and Anne Peterson et al., *Assessing the Feasibility of Implementing SNAP in the Commonwealth of the Northern Mariana Islands*, USDA, FNS, August 2016.

[59] USDA, AMS, "AMS CPP Procurement Schedule for 2021 to 2022 (xlsx)," https://www.ams.usda.gov/selling-food/solicitations.

[60] The procurement process under the food box program differs from TEFAP in that USDA awarded contracts to distributors to deliver food boxes to emergency feeding organizations. U.S. Congress, House Agriculture Committee, Subcommittee on Nutrition, Oversight, and Department Operations, *An Overview of the Farmers to Families Food Box Program*, hearings, 116th Cong., 2nd sess., July 21, 2020, Serial No. 116–34, p. 34.

incorporated the pre-packaged food box concept into TEFAP by enabling states to use their entitlement commodity funds for fresh produce boxes. Congress may deliberate on the potential advantages (e.g., efficiency) and drawbacks (e.g., less recipient choice) of food boxes.[61] Other procurement changes include efforts to incorporate more local foods into TEFAP.[62]

For Further Information

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- Kara Clifford Billings, Analyst in Social Policy

Relevant CRS Products

- CRS In Focus IF11087, *2018 Farm Bill Primer: SNAP and Nutrition Title Programs*, by Randy Alison Aussenberg and Kara Clifford Billings
- CRS Report R42505, *Supplemental Nutrition Assistance Program (SNAP): A Primer on Eligibility and Benefits*, by Randy Alison Aussenberg
- CRS Report R45408, *The Emergency Food Assistance Program (TEFAP): Background and Funding*, by Kara Clifford Billings
- CRS Report R46681, *USDA Nutrition Assistance Programs: Response to the COVID-19 Pandemic*, by Randy Alison Aussenberg and Kara Clifford Billings
- CRS Report R42054, *The Supplemental Nutrition Assistance Program (SNAP): Categorical Eligibility*, by Randy Alison Aussenberg and Gene Falk
- CRS Report R46817, *Food Insecurity Among College Students: Background and Policy Options*, coordinated by Kara Clifford Billings and Joselynn H. Fountain

Agricultural Trade

USDA and the U.S. Agency for International Development (USAID) administer programs designed to alleviate hunger, improve global food security, and expand foreign markets for U.S. agricultural producers and food manufacturers. The Trade title (Title III) of the 2018 farm bill covered international food assistance programs, export credit guarantee programs, export market development programs, and international scientific and technical exchange programs and provisions. Title III programs derive their statutory authorities from the Food for Peace Act of 1954 (P.L. 83-480) for international food assistance programs and from the Agricultural Trade Act of 1978 (P.L. 95-501) for foreign market expansion programs.

Trade and Export Promotion

The federal government provides support for U.S. agricultural exports through two types of programs: export market development and export credit guarantees. Legislative authorization for agricultural trade promotion programs is included in the trade title of the farm bill, with the exception of the Quality Samples Program (QSP), which is authorized under the Commodity

[61] For a discussion of related issues, see Food Bank News, "Cardboard Boxes are Centerpiece of USDA's Coronavirus Food Program," April 22, 2020.

[62] For example, the Biden Administration's TEFAP Fresh Produce Box initiative encourages vendors to include locally grown foods. Outside of TEFAP, the Biden Administration announced on December 6, 2021, a Local Food Purchase Cooperative Agreement Program that is to award $400 million to state and tribal governments for purchases of local foods for distribution to emergency feeding organizations. Although TEFAP foods are domestically produced, they are not necessarily local.

Credit Corporation Charter Act of 1948 (P.L. 80-806, as amended).[63] USDA's Foreign Agricultural Service (FAS) administers its export promotion programs, which are generally funded using mandatory monies.[64]

Selected Farm Bill Provisions

Export market development programs include the Market Access Program (MAP), Foreign Market Development Program (FMDP), Emerging Markets Program, QSP, and Technical Assistance for Specialty Crops. These programs primarily aim to assist U.S. industry efforts to build, maintain, and expand overseas markets for U.S. agricultural products. The 2018 farm bill brought existing USDA export promotion programs together under a single Agricultural Trade Promotion and Facilitation Program and created a new Priority Trade Fund (PTF)—with a total mandatory permanent budgetary baseline of $255 million annually for all the programs. The 2018 farm bill extended budget authority for these programs through FY2023.

The amendments in the 2018 farm bill allow MAP and FMDP funding for certain activities in Cuba, but export credit guarantees for Cuba remain prohibited.[65] Under PTF, the 2018 farm bill provides $3.5 million in mandatory funding per year for one or more new programs to access, develop, maintain, and expand markets for U.S. agricultural products at the discretion of the Secretary of Agriculture.

The 2018 farm bill also reauthorized the FAS-administered short-term Export Credit Guarantee Program—known as GSM-102[66]—and the Facility Guarantee Program (FGP), with a total annual joint funding of at least $1 billion per year. Under these programs, the CCC provides payment guarantees for commercial financing of U.S. agricultural exports. The total GSM guarantees for FY2020 were $2.2 billion, over 86% of which went to Latin America.[67] Over 99% of the guarantees in FY2020 supported export sales of grains, soybeans and flour, soybean meal, or soybean oil. Regulatory constraints limiting the use of established facilities to U.S. imports, eligibility criteria for foreign banks, and other constraints have limited FGP's use, with the program inactive in some years.

Issues and Options

Over the years, Congress has altered export promotion programs to facilitate exports of high-value agricultural products rather than raw commodities and to conform to U.S. obligations under international trade agreements, such as those under the WTO. These changes have led associations that promote olives, strawberries, and highbush blueberries to receive funding and increased allocations for some processed products, such as distilled spirits.[68] Of the $175.6 million total MAP allocations for FY2022, almost 30% are shared among five groups: Cotton

[63] 15 U.S.C. §714c(f) states that the CCC is authorized to use its general powers to "[e]xport or cause to be exported, or aid in the development of foreign markets for, agricultural commodities (other than tobacco) (including fish and fish products, without regard to whether such fish are harvested in aquacultural operations)."

[64] Occasionally, USDA may use additional ad hoc export promotion funding.

[65] For more on U.S. policy on Cuba, see CRS Report R45657, *Cuba: U.S. Policy in the 116th Congress and Through the Trump Administration*.

[66] GSM refers to the General Sales Manager, an official within the Foreign Agricultural Service (FAS)—appointed by the FAS administrator—charged with increasing exports and managing the programs that encourage foreign countries and companies to import U.S. farm products.

[67] CRS communication with USDA, FAS, January 2021.

[68] See Table A-1 in CRS Report R46760, *U.S. Agricultural Export Programs: Background and Issues*.

Council International, U.S. Meat Export Federation, Food Export Association of the Midwest, American Soybean Association, and U.S. Grains Council.[69] Almost 80% of the $26.8 million in FMDP allocations for FY2022 go to six commodity associations that promote exports of soybeans, wheat, cotton, grains, hardwood, and rice.[70]

A private study released in 2016 on behalf of three agricultural associations asserted that USDA export programs disproportionately benefit growers in the Midwest and deliver relatively small benefits to the food processing and services sectors in the Northeast.[71] To the extent this reflects the current beneficiaries of these programs, one possible response to equity concerns could be to expand export promotion programs that target growers and processors of specialty crops, particularly small- and medium-sized enterprises that historically have not engaged in trade. Some experts assert that the United States' core advantage in agricultural exports may lie in quality, safety, and other nonprice factors.[72] Communication of these differences to potential foreign buyers via labeling may benefit U.S. exports of specialty food products.

The COVID-19 pandemic and recent trade disputes highlight the importance of maintaining diverse U.S. import sources and export markets to minimize risks from supply chain disruptions in a specific market. Congress may wish to assess how existing USDA export programs could be used to diversify U.S. import and export markets.

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Relevant CRS Products

- CRS Report R46760, *U.S. Agricultural Export Programs: Background and Issues*, by Anita Regmi
- CRS In Focus IF11223, *2018 Farm Bill Primer: Agricultural Trade and Food Assistance*, by Anita Regmi and Alyssa R. Casey
- CRS Report R46456, *Reforming the WTO Agreement on Agriculture*, by Anita Regmi, Nina M. Hart, and Randy Schnepf
- CRS Report R45865, *Farm Policy: USDA's 2019 Trade Aid Package*, by Randy Schnepf
- CRS Report R45903, *Retaliatory Tariffs and U.S. Agriculture*, by Anita Regmi

International Food Assistance

The United States has led global funding support for international food assistance programs for over 60 years.[73] These programs originated with blended goals: to support domestic producers by creating additional demand, further agricultural trade goals, support the U.S. maritime industry and help alleviate hunger abroad. These blended objectives are manifested through statutory

[69] USDA, FAS, "MAP Funding Allocations – FY 2022," at https://www.fas.usda.gov/programs/market-access-program-map/map-funding-allocations-fy-2022.

[70] USDA, FAS, "FMD Funding Allocations – FY 2022," at https://www.fas.usda.gov/programs/foreign-market-development-program-fmd/fmd-funding-allocations-2022.

[71] Informa Economics IEG, *Economic Impact of USDA Export Market Development Programs*, prepared for U.S. Wheat Associates, USA Poultry & Egg Export Council, and Pear Bureau Northwest, July 2016.

[72] Jeffrey J. Reimer et al., "Agricultural Export Promotion Programs Create Positive Economic Impacts," *Choices*, vol. 32, no. 3 (3rd Quarter 2017).

[73] For country-by-country data on food aid donations over time, see World Food Program, "Food Aid Information System," at http://www.wfp.org/fais/.

requirements that the majority of U.S. international food assistance be donated as U.S. agricultural commodities to be distributed as food or sold to generate funds for development programs and that they be shipped primarily on U.S.-flag vessels.[74]

USAID and FAS administer the international food assistance programs—including market-based and in-kind food assistance programs—authorized under the farm bill. Market-based assistance programs are cash-based, while in-kind programs operate with U.S. commodity donations.[75] The CCC procures commodities for all in-kind food assistance programs, regardless of which agency implements the program. Annual outlays for U.S. international food assistance—across programs managed by USAID and FAS—averaged $3.3 billion between FY2010 and FY2020. Outlays during this period varied, from a low of $2.29 billion in FY2013 to a high of $5.06 billion in FY2020.[76]

Selected Farm Bill Provisions

Congress reauthorized the suite of programs that govern U.S. international food assistance under the Trade title (Title III) of the 2018 farm bill. USAID administers Food for Peace (FFP) Title II; Farmer to Farmer (FFP Title V); the Emergency Food Security Program (EFSP); and the Community Development Fund. USDA administers Food for Progress (FFPr), the McGovern-Dole International Food for Education and Child Nutrition Program (McGovern-Dole Program), and the Local and Regional Procurement Program (LRP). USAID and USDA jointly administer the Bill Emerson Humanitarian Trust (BEHT).

Among market-based assistance programs, as opposed to in-kind donation programs, EFSP is the largest, providing assistance in the form of food vouchers, cash transfers, or local and regional procurement (LRP) to approximately 50 countries. LRP finances the provision of locally and regionally procured foods to beneficiaries, usually in nonemergency situations. The 2014 farm bill (P.L. 113-79) permanently authorized LRP and authorized discretionary funding of $80 million annually (FY2014-FY2018). The 2018 farm bill reauthorized this level of funding through FY2023. Since FY2016, Congress has appropriated LRP funding as a set-aside within McGovern-Dole Program funding. In addition to the 10% LRP set-aside, the 2018 farm bill authorized USDA to use up to 10% of annual McGovern-Dole Program funding for LRP.

Among in-kind food assistance programs, FFP and the McGovern-Dole Program provide a majority of donations to respond to emergency food needs or to be used in development projects. Under FFP, the federal government donates U.S.-sourced commodities to qualifying international organizations and nongovernmental organizations (NGOs) for direct distribution to food-insecure populations. One major revision to the 2018 farm bill eliminated the requirement to monetize at least 15% of FFP Title II commodities—that is, sell them on local markets to fund development projects (§3103). The McGovern-Dole Program provides in-kind aid for school meals in priority countries. Congress funds the programs in annual Agriculture appropriations bills, and the programs' administering agencies determine funding allocations.

[74] The requirement is called "agricultural cargo preference," the specifics of which have fluctuated several times. Congress increased the share of food aid commodities required to ship on U.S.-flag vessels from 50% to 75% in the 1985 farm bill (P.L. 99-198) and lowered it to 50% in a 2012 surface transportation reauthorization act (P.L. 112-141).

[75] International food assistance market-based programs include EFSP and LRP; in-kind programs include FFP, BEHT, FFPr, and McGovern-Dole.

[76] CRS calculations based on data available from USAID, "Reports to Congress," at https://www.usaid.gov/open/reports-congress.

Under Food for Progress, another in-kind program, FAS donates U.S. agricultural commodities to eligible entities, which can then distribute them to beneficiaries or sell them locally to raise funds for development projects.[77] The 2018 farm bill authorized a new pilot program to finance Food for Progress projects directly rather than through commodity monetization. The 2018 farm bill authorized appropriations of $10 million per year (FY2019-FY2023) for Food for Progress pilot agreements. Congress has not funded these pilot agreements to date.

Issues and Options

The Global Food Security Act of 2016 (GFSA; P.L. 114-195) amended Section 491 of the Foreign Assistance Act of 1961 (P.L. 87-195) to create EFSP. The program is authorized to provide emergency food assistance "including in the form of funds, transfers, vouchers, and agricultural commodities" to address emergency food needs as a result of natural, human-induced, and complex emergencies (e.g., earthquakes, civil unrest, famine). The Global Food Security Reauthorization Act of 2017 (P.L. 115-266) will expire at the end of FY2023. As Congress considers a new farm bill, it also may choose to consider whether to reauthorize GFSA.

The United States' use of market-based assistance has increased under EFSP in recent years. In FY2010, in-kind aid comprised roughly 89% of U.S. international food assistance, with market-based assistance making up the remaining 11%. In FY2020, in-kind aid accounted for roughly 41% of assistance, and market-based assistance comprised approximately 59%.[78] Proponents of market-based assistance emphasize that it allows for quicker response times than shipping in-kind aid via ocean freight. Critics of market-based assistance argue that it could undermine the coalition of commodity groups, NGOs, and shippers that advocate for international food assistance programs, potentially resulting in reductions in funding for U.S. food assistance programs. As Congress debates the next farm bill, it could consider whether existing programs and the current split between in-kind and market-based assistance strike the right balance to address global hunger.

For Further Information

CRS Expert

- Amber R. Nair, Analyst in Agricultural Policy

Relevant CRS Products

- CRS Report R45422, *U.S. International Food Assistance: An Overview*, by Alyssa R. Casey and Emily M. Morgenstern
- CRS In Focus IF10475, *Global Food Security Act of 2016 (P.L. 114-195)*, by Sonya Hammons

Credit

The federal government has a long history of assisting farmers with obtaining loans. Government intervention in otherwise private lending markets has been justified by citing unequal information, lack of competition, insufficient rural lending resources, and efforts by Congress to direct lending to various groups, such as small farms, beginning farmers, or socially disadvantaged farmers.

[77] USDA provides commodities to partner entities for distribution or monetization. In practice, the majority of Food for Progress projects have monetized all commodities.

[78] USAID, *International Food Assistance Report to Congress for Fiscal Year 2020*.

Selected Farm Bill Provisions

The agricultural lender over which Congress has the most authority is USDA's Farm Service Agency (FSA). FSA is a relatively small lender based on market share, providing about $13 billion of direct loans (about 3% of the overall $441 billion market for farm debt at the end of 2020) and $17 billion of loan guarantees (about 4% of the market).[79] FSA makes direct farm ownership and operating loans to family-sized farms that are unable to obtain credit elsewhere.[80] FSA also guarantees payment of principal and interest on qualified loans made by other lenders who may not have lent without the government guarantee.

For individual borrowers, FSA loan limits are set in law: $400,000 for direct farm operating loans; $600,000 for direct farm ownership loans; and $1.825 million for guaranteed loans (amount adjusted for inflation in FY2022). The standard guarantee ratio is 80%-90% of the amount borrowed depending on the borrower's credit risk, but for socially disadvantaged and beginning farmer borrowers, the guarantee ratio is 95%. The 2018 farm bill increased each of these guarantee ratios.

The Farm Credit System (FCS) is another agricultural lender with a federal mandate. FCS is a cooperatively owned, federally chartered private lender with a statutory mandate limited to serving agriculture-related borrowers. It is a government-sponsored enterprise receiving tax benefits, among other preferences, in return for restrictions on its lending base. FCS makes loans to creditworthy farmers and accounts for about 44% of farm debt.

Issues and Options

The statutory authorities for FSA and FCS are permanent. Farm bills often amend these statutes for eligibility criteria, the scope of operations, and—for FSA—authorization for appropriations.

The following issues could be debated in the next farm bill: further targeting FSA lending resources to beginning and socially disadvantaged farmers who face financial difficulties due to obtaining or repaying farm loans;[81] increasing focus at FSA or FCS on specific agriculture sectors or practices, such as local or urban farms, conservation practices, or trait-specific production; and addressing loan forgiveness and related qualification criteria for provisions that were enacted in the American Rescue Plan Act (P.L. 117-2) but have been stalled pending ongoing judicial review.

For Further Information

CRS Expert

- Jim Monke, Specialist in Agricultural Policy

Relevant CRS Product

- CRS Report R46768, *Agricultural Credit: Institutions and Issues*, by Jim Monke

[79] USDA, Farm Service Agency (FSA), "FY2020 Farm Loan Programs Servicing Data," at https://www.fsa.usda.gov/programs-and-services/farm-loan-programs/program-data/index; and USDA, Economic Research Service (ERS), "Farm Sector Balance Sheet," December 1, 2021, at https://www.ers.usda.gov/topics/farm-economy/farm-sector-income-finances/assets-debt-and-wealth.

[80] Family-sized farms are required for the USDA farm loan program in 7 U.S.C. §1922 and are defined in regulation (7 C.F.R. §761.2) as a business operations that produce enough agricultural commodities to be recognized as a farm rather than a rural residence and has labor and management provided primarily by the borrower with assistance from persons related by blood or marriage and may use full-time hired labor only to supplement family labor.

[81] U.S. Government Accountability Office, *Agricultural Lending: Information on Credit and Outreach to Socially Disadvantaged Farmers and Ranchers Is Limited*, GAO-19-539, July 2019.

Rural Development

Approximately 14% of U.S. residents (46 million) live in rural areas.[82] Rural communities face unique challenges compared with urban communities, including higher poverty rates, declining populations, and lower per person incomes.[83] USDA Rural Development (RD) administers programs that are meant to help to improve the economic condition and quality of life in rural America.

RD programs can be grouped into the following categories: rural business, rural utilities, and rural housing. Rural business programs—administered by the Rural Business-Cooperative service—promote the expansion and development of rural businesses. Rural utilities programs—administered by the Rural Utilities Service—construct and modernize utility systems, including water, waste disposal, electrical, telephone, and broadband systems. Rural housing programs—administered by the Rural Housing Service—build and improve housing and essential community facilities in rural areas.

Selected Farm Bill Provisions

Since 1973, farm bills have included a rural development title to address challenges facing rural communities, as well as to reauthorize and amend existing programs administered by RD. Most RD programs rely on discretionary funding, which Congress has authorized in previous farm bills and funded through the annual appropriations process.

Among its many provisions, the Rural Development title (Title VI) of the 2018 farm bill includes provisions to combat substance use disorder in rural areas. In the 2018 farm bill, Congress prioritized funding for selected RD programs for projects providing services to prevent, treat, and recover from substance use disorder and extended this prioritization for FY2019-FY2025 (two years longer than FY2023, which is when authorization for most other 2018 farm bill programs and provisions expire).

Most RD programs require projects to serve rural areas. Prior to the 2018 farm bill, a *rural area* was defined for many RD programs as any area other than a city or town with a population of more than 50,000 and the urbanized area contiguous and adjacent to such a city or town (7 U.S.C. §1991(a)(13)). For the direct loans and grants aspects of the Community Facilities Program and the Water and Waste Disposal Program within RD, a *rural area* is defined as an area with a population threshold lower than 50,000 people. The 2018 farm bill amends the definition of *rural* to exclude certain populations when determining an area's population: incarcerated populations on a long-term or regional basis and the first 1,500 people living in housing on military bases.

The 2018 farm bill reauthorized and amended a wide range of RD programs, including the Rural Broadband Program and the Community Connect Grant Program. The reauthorization for most RD programs, including the Rural Broadband Program, expires at the end of FY2023. The Rural Broadband Program provides assistance to help construct, improve, and acquire facilities and equipment needed to provide broadband service to rural areas. Prior to enactment, the program's authority was limited to direct loans and loan guarantees. The 2018 farm bill established a grant program within the Rural Broadband Program. To date, Congress has provided funding for direct loans and loan guarantees but not for grants. The 2018 farm bill also increased the minimum broadband access speed for Rural Broadband Program eligibility. This change resulted in a

[82] John Cromartie et al., "2020 Edition: Rural America at a Glance," USDA, ERS, Economic Information Bulletin (EIB) Number 221, December 2020.

[83] Ibid.; and John Pender et al., "2019 Edition: Rural America at a Glance," ERS, EIB-212, November 2019.

greater number of rural areas becoming eligible for the program. In addition, the 2018 farm bill provided permanent authority for the Community Connect Grant Program, which awards grants to entities to provide broadband service to economically challenged rural communities.

Issues and Options

The ReConnect Program was not included in the 2018 farm bill. Congress established the pilot program that became known as the ReConnect Program through the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2018 (P.L. 115-141), which became law after the 2018 farm bill was enacted. Congress has appropriated more than $4.3 billion for the ReConnect Program. The program provides funding and financing to facilitate broadband deployment in rural areas that do not have sufficient broadband access. Congress has reauthorized the pilot program through annual appropriations acts. Congress could consider whether to permanently authorize the ReConnect Program in the next farm bill.

Congress also may consider whether USDA Rural Development programs could play a larger role in helping to prevent and treat COVID-19 in rural areas. USDA's Economic Research Service (ERS) found that from September 2020 to October 2021, rural persistent poverty counties experienced higher numbers of COVID-19 cases compared with other rural counties and urban counties, including urban persistent poverty counties.[84] Congress could consider whether RD programs could be utilized to help rural persistent poverty counties address COVID-19 challenges.

For Further Information

CRS Expert

- Lisa S. Benson, Analyst in Agricultural Policy

Relevant CRS Products

- CRS Report R46912, *USDA Rural Broadband, Electric, and Water Programs: FY2022 Appropriations*, by Lisa S. Benson
- CRS *In Focus IF11918, Infrastructure Investment and Jobs Act: Funding for USDA Rural Broadband Programs*, by Lisa S. Benson
- CRS In Focus IF11988, *Build Back Better Act: Agriculture and Forestry Provisions*, by Jim Monke et al.
- CRS Report RL31837, *An Overview of USDA Rural Development Programs*, by Tadlock Cowan
- CRS Report R47017, *USDA's ReConnect Program: Expanding Rural Broadband*, by Lisa S. Benson

Research, Extension, and Education

Since 1977, enacted farm bill legislation has included a research title focused on agricultural research, extension, and education.[85] This title reauthorizes funding for existing programs, establishes new programs, and amends USDA policies and programs. It addresses *extramural* activities conducted at land-grant universities (LGUs) and other nonfederal institutions, as well as USDA policies, programs, and *intramural* research conducted by federal researchers.

Four agencies carry out USDA's research, extension, and education activities. The National Institute of Food and Agriculture (NIFA) administers extramural programs; the Agricultural

[84] Elizabeth A. Dobis et al., "2021 Edition: Rural America at a Glance," ERS, EIB-230, November 2021.

[85] Agricultural *extension* provides nonformal education to the nonuniversity public.

Research Service (ARS) conducts intramural scientific research; ERS conducts economic and social science research; and the National Agricultural Statistics Service (NASS) provides official statistics on U.S. agriculture. The Office of the Chief Scientist (OCS) coordinates science policy and activities across USDA.

Most research title programs require annual discretionary appropriations; a few programs receive mandatory spending. Upon enactment of the 2018 farm bill, projected mandatory outlays for the research title totaled $694 million (FY2019-FY2023). In contrast, USDA research agencies received approximately $3.4 billion in discretionary appropriations for FY2021 alone. In addition to federal funding, certain grants require nonfederal matching funds.

Selected Farm Bill Provisions

The farm bill addresses extramural activities administered by NIFA, OCS, and the Foundation for Food and Agriculture Research (FFAR) and intramural activities of ARS, ERS, and NASS.

NIFA administers capacity grant programs for LGUs and competitive grant programs for LGUs as well as a range of eligible applicants.[86] Capacity grant programs (e.g., Hatch Act, Evans-Allen Act, Tribal College Endowment Fund) are permanently authorized and require annual appropriations. The 2018 farm bill addressed capacity grant issues, including reporting and administrative requirements, nonfederal matching funds, and program eligibility. Competitive grant programs generally require annual appropriations and reauthorization with each farm bill. Specific to LGUs, the 2018 farm bill established new competitive grant programs (e.g., Scholarships for Students at 1890 Institutions; New Beginning for Tribal Students; and Centers of Excellence at 1890 Institutions) and amended existing programs. The Agriculture and Food Research Initiative (AFRI), NIFA's flagship competitive grants program, is open to a range of applicants. The 2018 farm bill amended AFRI and reauthorized appropriations through FY2023. The 2018 farm bill also provided mandatory funds for certain competitive grant programs (e.g., the Specialty Crop Research Initiative, Organic Agriculture Research and Extension Initiative, and Farming Opportunities Training and Outreach).

Within OCS, the 2018 farm bill authorized a new pilot program—the Agriculture Advanced Research and Development Authority (AGARDA)—to carry out innovative research and develop solutions to agricultural threats. Congress authorized $50 million per year (FY2019-FY2023) for AGARDA. Congress provided $1 million for AGARDA in FY2022 appropriations (P.L. 117-103). As of this writing, USDA has not established AGARDA.

FFAR is a nonprofit research corporation designed to leverage federal investments in agricultural research with private funding. Congress established FFAR in the 2014 farm bill (P.L. 113-79) and provided a total of $200 million in mandatory funding. The 2018 farm bill provided an additional $185 million in mandatory funding and required FFAR to submit to Congress a strategic plan describing a path to self-sustainability.[87]

Other research title provisions address USDA policies, programs, and intramural research. For example, the 2018 farm bill amended the purposes of federally funded agricultural research, extension, and education to add international scientific collaboration; reauthorized and amended provisions for a federal advisory board; and directed ERS to update a report on U.S. dairy farms.

[86] NIFA distributes *capacity grants* (formula funds) among eligible institutions based on formulas in statute. NIFA awards *competitive grants* directly to individual projects selected by NIFA through a peer-review process.

[87] This strategic plan is available at Foundation for Food and Agriculture Research, "Governance," at https://foundationfar.org/about/governance.

Issues and Options

In the next farm bill, Congress may choose to address a variety of issues related to agricultural research, extension, and education. These may include LGU funding equity; research infrastructure; research innovation; and climate change research and extension.

Some stakeholders and Members of Congress have expressed concerns about funding equity among LGU types. The 2018 farm bill addressed differences in grant requirements for 1890 (historically Black) and 1862 (original) LGUs. Organizations representing Native American education have called for increased funding of 1994 (Tribal) Institutions. Congress may consider whether (and if so, how) to address concerns about LGU funding equity, including the amounts, types, and policies associated with funding different types of LGUs.

Congress may choose to address the role of federal funding, if any, in improving agricultural research infrastructure. Many grants prohibit spending federal funds on research facilities. The Build Back Better Act (H.R. 5376) would provide $1 billion for agricultural research facilities at minority-serving LGUs and certain other institutions.

The 2018 farm bill authorized AGARDA to support innovative, high-risk, high-reward research that otherwise may not be funded. As of this writing, Congress has appropriated a total of $1 million for AGARDA; its authorization expires at the end of FY2023. Congress may consider whether there is need for federal funding of innovative research and the flexible hiring and funding authorities granted to AGARDA.

Extreme weather and climate change have emerged as concerns for farmers and ranchers. Stakeholders including the Food and Agriculture Climate Alliance—a diverse coalition of producers, agribusiness, state governments, and others—have advocated for an increased focus on these topics. Congress may consider whether existing authorities, programs, and funding levels for climate change research and extension adequately address the needs of agricultural producers.

For Further Information

CRS Expert

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Relevant CRS Products

- CRS Report R40819, *Agricultural Research: Background and Issues*, by Genevieve K. Croft
- CRS In Focus IF12023, *Farm Bill Primer: Agricultural Research and Extension*, by Genevieve K. Croft
- CRS In Focus IF11319, *2018 Farm Bill Primer: Agricultural Research and Extension*, by Genevieve K. Croft
- CRS Report R45897, *The U.S. Land-Grant University System: An Overview*, by Genevieve K. Croft
- CRS In Focus IF11847, *1890 Land-Grant Universities: Background and Selected Issues*, by Genevieve K. Croft
- CRS In Focus IF12009, *1994 Land-Grant Universities: Background and Selected Issues*, by Genevieve K. Croft

Forestry

One-third of the land area in the United States is forestland (765 million acres).[88] These lands provide ecological services, including air and water resources, fish and wildlife habitats, opportunities for recreation and cultural use, and timber resources for lumber, plywood, paper, and other materials, among other uses and benefits. Most U.S. forestland is privately owned (444

[88] Sonja Oswalt et al., *Forest Resources of the United States, 2017: A Technical Document Supporting the Forest Service 2020 RPA Assessment*, Forest Service, GTR-WO-97, 2019.

million acres); the rest is publicly owned—primarily by the federal government—of which 238 million acres are federal and 84 million acres are state and local.

The federal government engages in four types of forestry activities: managing federal forests; providing financial, technical, or other resources to promote forest ownership and stewardship (referred to as "forestry assistance"); sponsoring or conducting research to advance the science of forestry; and engaging in international forestry assistance and research. The Forest Service (within USDA) is the principal federal forest management agency and is responsible for administering most forestry assistance programs, conducting forestry research, and leading U.S. international forestry assistance and research efforts. The Forest Service is responsible for managing 19% of all U.S. forestlands (145 million acres) as part of the National Forest System (NFS).[89]

Selected Farm Bill Provisions

The previous three farm bills each contained a standalone forestry title that included provisions related to forestry research, providing assistance for nonfederal forest management, and federal forest management.[90] Title VII (Forestry) of the 2018 farm bill modified one and repealed several forestry research programs, including a grant program to support minority and female students studying forestry and a project demonstrating wood bioenergy. In addition, the 2018 farm bill repealed, modified, and reauthorized some forestry assistance programs. This included providing explicit statutory authorization and congressional direction for programs that had been operating under existing, broad authorization (e.g., the Landscape Scale Restoration program). The law also established, reauthorized, and modified assistance programs intended to promote the use of wood products for energy, building construction, and other purposes and to mitigate wildfire risk by incentivizing the removal of forest biomass on both federal and nonfederal lands. The 2018 farm bill included other provisions related to federal and tribal forest management—such as modifying planning requirements and reauthorizing, extending, expanding, and establishing certain management, partnership, and collaboration programs—as well as several provisions related to the Forest Service's authorities to convey NFS lands through lease, sale, or exchange.

Issues and Options

Most forestry assistance, research, and federal forest management programs are permanently authorized and do not require reauthorization in the farm bill. Some programs, however, are set to expire at the end of FY2023.[91] If expiring programs are to continue, Congress may consider the following: extending these programs, with or without changes; modifying existing programs and possibly establishing new options to support assistance to nonfederal forest owners, forest research, and federal forest management. Congress also could consider addressing specific and/or emerging forestry issues, such as those related to forest risks or climate change. Congress also may choose to address any potential issues with provisions enacted in the Infrastructure Investment and Jobs Act (IIJA; P.L. 117-58). IIJA authorized, provided program direction, and

[89] In addition to forests, the 193 million acre National Forest System contains nonforested woodlands and grasslands. Other federal agencies manage forestlands, including the Bureau of Land Management, National Park Service, and Fish and Wildlife Service (all within the Department of the Interior).

[90] Forestry-related provisions may be included in other farm bill titles. For example, in the 2018 farm bill, the Conservation (Title II), Research (Title VII), Energy (Title IX), and Miscellaneous (Title XII) titles each contained provisions related to forestry or forest ownership.

[91] The four programs set to expire at the end of FY2023 are the Healthy Forests Reserve Program, Rural Revitalization Technology, National Forest Foundation, and funding for implementing statewide forest resource assessments.

appropriated funding for several Forest Service assistance and research programs and activities. Alternatively, Congress may elect not to address forestry issues, if, for example, existing authorities and programs are considered adequate in addressing the nation's forestry needs.

Congress may choose to address concerns related to forest health management generally on federal and nonfederal lands. This could include assistance or management programs to reduce the risk of catastrophic disturbance events, such as an uncharacteristically severe wildfire or insect or disease infestations. For nonfederal forests, this may include establishing or modifying assistance programs to enhance wildfire protection, preparedness, and forest resiliency. For federal forests, this may involve establishing new authorities or expanding existing authorities to reduce hazardous fuel levels or other forest restoration activities. Because many forest risks span multiple ownership boundaries, Congress may consider new approaches to expand or facilitate cross-boundary forest management activities. This could be through authorizing and/or incentivizing a variety of federal and nonfederal partnerships and collaborations.

Congress may choose to continue facilitating the development or advancement of wood products. In previous farm bills and other legislation, Congress has established several programs to promote new markets and uses for woody biomass, in part to encourage forest restoration and reduce wildfire threats. A new farm bill could extend, expand, alter, or terminate these programs or replace them with alternative approaches.

Forests can contribute to mitigating climate change and be affected by changing climatic conditions. To address some of the uncertainties regarding climate impacts on forest management, Congress may consider modifying existing or establishing new research programs. As another option, Congress could establish programs to increase or optimize carbon sequestration on federal and nonfederal lands through market or nonmarket mechanisms.

For Further Information

CRS Experts

- Katie Hoover, Specialist in Natural Resources Policy
- Anne A. Riddle, Analyst in Natural Resources Policy

Relevant CRS Products

- CRS In Focus IF12054, *Farm Bill Primer: Forestry Title*, by Katie Hoover
- CRS Report R45219, *Forest Service Assistance Programs*, by Anne A. Riddle and Katie Hoover
- CRS Report R43872, *National Forest System Management: Overview, Appropriations, and Issues for Congress*, by Katie Hoover and Anne A. Riddle
- CRS Report R46976, *U.S. Forest Ownership and Management: Background and Issues for Congress*, by Katie Hoover and Anne A. Riddle
- CRS Report R45696, *Forest Management Provisions Enacted in the 115th Congress*, by Katie Hoover et al.

Energy

Four farm bills have contained an energy title: the 2002, 2008, 2014, and 2018 farm bills. Over time, the focus of the energy titles has shifted and expanded. The 2002 farm bill established several new programs, including programs focused on biofuels, biobased products, and energy efficiency. The 2008 farm bill increased the number of energy programs and expanded the focus to include more noncorn feedstock programs (e.g., Community Wood Energy Program) and a biomass feedstock logistics program (i.e., Biomass Crop Assistance Program). The 2014 farm bill extended funding for most of those programs. The 2018 farm bill also extended funding—

providing less mandatory funding than previous farm bills—and established the Carbon Utilization and Biogas Education Program.

The farm bill primarily centers on *agriculture-based renewable energy*, which is generally defined as energy (e.g., transportation fuel, electricity, or heat) produced from biomass feedstocks (e.g., woody biomass, crop residue) or energy produced from resources located in rural areas (e.g., wind) or from agricultural operations (e.g., manure). Examples of such energy include corn-based ethanol, wind farms, and anaerobic digesters. Producing this type of energy can encourage rural economic development, environmental improvements, energy security, and more. Challenges include feedstock access, supply, and cost, as well as technology development and infrastructure, among other things.

Selected Farm Bill Provisions

The Energy title (Title IX) of the 2018 farm bill has a dozen provisions pertaining mostly to agriculture-based renewable energy production and use.[92] Program coverage areas include biobased products, biofuels, renewable chemicals, energy efficiency, renewable energy systems, biomass research and development, biomass feedstocks, wood energy, carbon utilization and sequestration, biogas, and more. Many of the existing programs build upon programs established in the 2002 farm bill's energy title. USDA administers these programs, most of which expire at the end of FY2023 and lack baseline funding.

Congress provided mandatory funding ($375 million) and authorized discretionary funding ($1.7 billion) over the five-year reauthorization period for the 2018 farm bill for many of the energy title programs. Mandatory funding has supported most programs, as Congress has rarely appropriated discretionary funding. Programs that have routinely received discretionary funding include the Rural Energy for America Program (REAP), the Rural Energy Savings Program, and the Sun Grant Program.

Issues and Options

As Congress prepares for the next farm bill, it may consider some of the issues facing the energy title programs. Among these are funding and authorization. For instance, REAP is the only program that has authorization past FY2023. The mandatory baseline funding for many of the other energy title programs expires at the end of FY2023. Additionally, Congress has authorized a fraction of the discretionary funds available for the energy title programs for FY2019-FY2021 (approximately $48 million of a possible approximately $1 billion). Congress may assess whether a different authorization period (e.g., longer than five years) and different funding amounts could be considered for the energy title programs to reflect the complexity and design life associated with many of the projects they support.

Congress may further explore how agriculture-based renewable energy fits into the U.S. energy portfolio and if it addresses consumer demands and climate policy goals, among other things. For example, Congress may consider a more rapid transition from conventional biofuels to advanced biofuels, partly for the environmental benefits, and may consider related opportunities and challenges with such a transition. Additionally, Congress may ponder the extent to which agriculture-based renewable energy can contribute to energy production and consumption trends given the impacts of the COVID-19 pandemic, commodity supply and pricing, and international trade negotiations. Lastly, Congress may examine the progress and impacts of existing mandates

[92] 7 U.S.C. Ch. 107 Renewable Energy Research and Development.

(e.g., the Renewable Fuel Standard) and tax incentives (e.g., Renewable Electricity Production Tax Credit) that involve biomass or agriculture-related renewable energy.

For Further Information

CRS Expert

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Relevant CRS Products

- CRS In Focus IF10288, *Overview of the 2018 Farm Bill Energy Title Programs*, by Kelsi Bracmort
- CRS Report R45943, *The Farm Bill Energy Title: An Overview and Funding History*, by Kelsi Bracmort
- CRS Report R43325, *The Renewable Fuel Standard (RFS): An Overview*, by Kelsi Bracmort
- CRS Report R46865, *Energy Tax Provisions: Overview and Budgetary Cost*, by Molly F. Sherlock

Miscellaneous

The miscellaneous titles in farm bills have included a variety of provisions that are not united by a common theme. The title has included provisions addressing the livestock and poultry sectors, particularly on animal health and disease preparedness issues (see "Animal Agriculture"). The 2008 farm bill (P.L. 110-246) was an exception for livestock, as that farm bill included a standalone Livestock title (Title XI). Animal welfare provisions have been included regularly in the Miscellaneous title.

The miscellaneous titles of the last three farm bills have included provisions for beginning farmers and ranchers, socially disadvantaged producers, and veteran farmers. Some provisions have created outreach and technical programs, various commissions, advisory committees, and required civil rights reports. The 2018 farm bill contained provisions that amended the Department of Agriculture Reorganization Act of 1994 (P.L. 103-354, as amended), making various changes to USDA agencies. The Miscellaneous title also is the location of many USDA report requests on issues or new programs not directly linked to other titles in the farm bill.

Appendix. 2018 Farm Bill Titles and Subtitles

Agriculture Improvement Act of 2018, P.L. 115-334

I. Commodities

- A. Commodity Policy
- B. Marketing Loans
- C. Sugar
- D. Dairy Margin Coverage and Other Dairy Related Provisions
- E. Supplemental Agricultural Disaster Assistance
- F. Noninsured Crop Assistance
- G. Administration

II. Conservation

- A. Wetland Conservation
- B. Conservation Reserve Program
- C. Environmental Quality Incentives Program and Conservation Stewardship Program
- D. Other Conservation Programs
- E. Funding and Administration
- F. Agricultural Conservation Easement Program
- G. Regional Conservation Partnership Program
- H. Repeals and Technical Amendments

III. Trade

- A. Food for Peace Act
- B. Agricultural Trade Act of 1978
- C. Other Agricultural Trade Laws

IV. Nutrition

- A. Supplemental Nutrition Assistance Program
- B. Commodity Distribution Programs
- C. Miscellaneous

V. Credit

- A. Farm Ownership Loans
- B. Operating Loans
- C. Administrative Provisions
- D. Miscellaneous

VI. Rural Development

A. Improving Health Outcomes in Rural America

B. Connecting Rural Americans to High Speed Broadband

C. Miscellaneous

D. Additional Amendments to the Consolidated Farm and Rural Development Act

E. Additional Amendments to the Rural Electrification Act of 1936

F. Program Repeals

G. Technical Corrections

VII. Research, Extension, and Related Matters

A. National Agricultural Research, Extension, and Teaching Policy Act of 1977

B. Food, Agriculture, Conservation, and Trade Act of 1990

C. Agricultural Research, Extension, and Education Reform Act of 1998

D. Food, Conservation, and Energy Act of 2008

E. Amendments to Other Laws

F. Other Matters

VIII. Forestry

A. Cooperative Forestry Assistance Act of 1978

B. Forest and Rangeland Renewable Resources Research Act of 1978

C. Global Climate Change Prevention Act of 1990

D. Healthy Forests Restoration Act of 2003

E. Repeal or Reauthorization of Miscellaneous Forestry Programs

F. Forest Management

G. Other Matters

IX. Energy

X. Horticulture

XI. Crop Insurance

XII. Miscellaneous

A. Livestock

B. Agriculture and Food Defense

C. Historically Underserved Producers

D. Department of Agriculture Reorganization Act of 1994 Amendments

E. Other Miscellaneous Provisions

F. General Provisions

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Disclaimer

I'm Walking on Sunshine: Key Contract Terms and Other Pitfalls & Pointers in Solar Leasing

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Label-Free: Court Concludes No Warning Label for Glyphosate

A federal judge in the Eastern District of California has upheld the court's earlier decision that the state of California cannot require that cancer warning labels be placed on glyphosate-based products under California's Safe Drinking Water and Toxic Enforcement Act of 1986, commonly known as Proposition 65. The opinion, ***Nat'l Ass'n of Wheat Growers v. Becerra***, **No. 2:17-cv-02401 (E.D. Cal.)**, was issued June 22, 2020 and concludes that it would be a violation of the First Amendment of the United States Constitution to do so.

Proposition 65

The California state law known as Proposition 65 requires the Governor of California to publish a list of chemicals known to the state to cause cancer. The California Office of Environmental Health Hazard Assessment ("OEHHA") is the state agency with authority to administer Proposition 65 and maintains the list of known carcinogens. As part of that list, OEHHA is required to include any chemical identified by the International Agency for Research on Cancer ("IARC") identifies as a carcinogen.

Proposition 65 also requires any person in the course of doing business to provide a "clear and reasonable" warning if they knowingly expose another person to one of the chemicals listed as a known carcinogen. Although the text of the statute does not specify what qualifies as a "clear and reasonable" warning, it gives two examples of "safe harbor" warnings which will satisfy the warning requirements of Proposition 65 when placed on products that contain chemicals listed under the statute. Both of these warnings are broad and state that the products on which they are placed are known to cause cancer.

Background

In 2015, IARC issued a report which identified glyphosate as a "probable human carcinogen." As a result, glyphosate was listed under Proposition 65 and any product containing glyphosate was required to bear a warning label stating that the product was known to cause cancer. Glyphosate is one of the widest used pesticides in the United States. It is the primary ingredient of Roundup, a pesticide developed by Monsanto Company ("Monsanto"), now owned by Bayer. Roundup is registered under the Federal Insecticide, Fungicide, and Rodenticide Act and approved for use on over 100 food crops.

This case was originally filed in 2017 by a coalition of agriculture groups including Monsanto. In the original complaint, the plaintiffs argued that requiring Proposition 65 warning labels to be placed on all products containing glyphosate would violate the United States Constitution. First, the plaintiffs claimed that requiring warning labels to be put on any products containing glyphosate would violate the Free Speech Clause of the First Amendment by compelling speech that is "false and misleading." Second, the plaintiffs alleged that OEHHA has violated Article VI, Clause 2 of the United States Constitution, commonly known as the Supremacy Clause, which provides that state laws that conflict with federal law

are preempted and have no legal effect. The plaintiffs asked the court to issue an injunction, a court order that would prevent required labeling for pesticide products.

In 2018, the court issued such an order. The 2018 order was a preliminary injunction, meaning that the order was issued to maintain the status quo of the issues being litigated. To get a preliminary injunction, a party must show that it will suffer irreparable harm unless the injunction is issued. When making that determination, a court will consider whether the plaintiff is likely to succeed on the merits, whether the plaintiff is likely to suffer irreparable harm without the injunction, whether the balance of equities and hardships is in the plaintiff's favor, and whether an injunction is in the public interest. In this case, the court felt irreparable harm would take place if manufacturers were required to put Proposition 65 warning labels on glyphosate products before the case was fully resolved.

In its June 22 order, the court has granted a permanent injunction, meaning that the underlying issues have been resolved and glyphosate products will not require Proposition 65 labels going forward.

Court Opinion

In its opinion, the court concluded that requiring glyphosate products to bear Proposition 65 labels was a violation of the First Amendment of the United States Constitution. Although Proposition 65 itself does not violate the First Amendment, the court found that it was unconstitutional as applied to glyphosate.

In reaching this conclusion, the court first noted that the label required by Proposition 65 was "compelled commercial speech." This means that the labels are speech that is legally required within the realm of commerce. In this case, Proposition 65 would have required any business to provide warnings if they knowingly exposed another person to glyphosate. In the vast majority of cases, the First Amendment prevents the government from either preventing or requiring a private party to make speech. However, the government *can* compel speech in certain circumstances, such as to protect public healthy and safety. Proposition 65 labels fall into the category of compelled commercial speech that is typically permitted because it protects public health and safety.

When reviewing challenges to Proposition 65 labels, the government has the burden of showing that the commercial speech it was compelling was "purely factual and uncontroversial." If the government cannot show do so, it must show that the speech is "neither misleading nor connected to unlawful activity." If the government cannot prove either of those things, then requiring the speech will violate the First Amendment, and may not be compelled.

Here, the court concluded that the Proposition 65 warning labels claiming that glyphosate was a known carcinogen failed both tests. According to the court, it was not factual to state that glyphosate was known to cause cancer when only IARC had identified glyphosate as a "probable human carcinogen." The court noted that other entities, including the Environmental Protection Agency and the World Health Organization, have concluded that glyphosate does not cause cancer or that there is not enough data to conclude that glyphosate is carcinogenic. Therefore, it would not be "factual" to state that glyphosate is known to cause cancer, failing the first of the government's tests. The court used the same reasoning to conclude that the government did not meet the second test, and it would be "misleading" to state that glyphosate is known to cause cancer.

Because the government did not meet either test, the court determined that it would be a violation of the First Amendment to require Proposition 65 labels be placed on products containing glyphosate.

Going Forward

Following this decision, glyphosate is not subject to the warning requirements of Proposition 65. This means that anyone doing business in the state of California knowing that they will be exposing others to glyphosate, will not have to provide a warning. That includes a variety of people, ranging from retailers selling Roundup, groundskeeping businesses and those who employ them, and growers selling produce that has been exposed to glyphosate.

At this time, it is unknown whether the defendants will appeal this case. They have 30 days from the date that the judgement is filed in this case to appeal the court's decision. If they do appeal, they will do so to the Ninth Circuit.

This case does not affect any other litigation involving glyphosate, or any settlement that may be reached in other glyphosate cases.

HEALTH AND SAFETY CODE - HSC

DIVISION 20. MISCELLANEOUS HEALTH AND SAFETY PROVISIONS [24000 - 26275]

(Division 20 enacted by Stats. 1939, Ch. 60.)

CHAPTER 6.6. Safe Drinking Water and Toxic Enforcement Act of 1986 [25249.5 - 25249.14]

(Chapter 6.6 added November 4, 1986, by initiative Proposition 65, Sec. 2.)

25249.5. Prohibition On Contaminating Drinking Water With Chemicals Known to Cause Cancer or Reproductive Toxicity. No person in the course of doing business shall knowingly discharge or release a chemical known to the state to cause cancer or reproductive toxicity into water or onto or into land where such chemical passes or probably will pass into any source of drinking water, notwithstanding any other provision or authorization of law except as provided in Section 25249.9.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.6. Required Warning Before Exposure To Chemicals Known to Cause Cancer Or Reproductive Toxicity. No person in the course of doing business shall knowingly and intentionally expose any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual, except as provided in Section 25249.10.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.7. (a) A person who violates or threatens to violate Section 25249.5 or 25249.6 may be enjoined in any court of competent jurisdiction.
(b) (1) A person who has violated Section 25249.5 or 25249.6 is liable for a civil penalty not to exceed two thousand five hundred dollars ($2,500) per day for each violation in addition to any other penalty established by law. That civil penalty may be assessed and recovered in a civil action brought in any court of competent jurisdiction.
(2) In assessing the amount of a civil penalty for a violation of this chapter, the court shall consider all of the following:

(A) The nature and extent of the violation.

(B) The number of, and severity of, the violations.

(C) The economic effect of the penalty on the violator.

(D) Whether the violator took good faith measures to comply with this chapter and the time these measures were taken.

(E) The willfulness of the violator's misconduct.

(F) The deterrent effect that the imposition of the penalty would have on both the violator and the regulated community as a whole.

(G) Any other factor that justice may require.

(c) Actions pursuant to this section may be brought by the Attorney General in the name of the people of the State of California, by a district attorney, by a city attorney of a city having a population in excess of 750,000, or, with the consent of the district attorney, by a city prosecutor in a city or city and county having a full-time city prosecutor, or as provided in subdivision (d).
(d) Actions pursuant to this section may be brought by a person in the public interest if both of the following requirements are met:

(1) The private action is commenced more than 60 days from the date that the person has given notice of an alleged violation of Section 25249.5 or 25249.6 that is the subject of the private action to the Attorney General and the district attorney, city attorney, or prosecutor in whose jurisdiction the violation is alleged to have occurred, and to the alleged violator. If the notice alleges a violation of Section 25249.6, the notice of the alleged violation shall include a certificate of merit executed by the attorney for the noticing party, or by the noticing party, if the noticing party is not represented by an attorney. The certificate of merit shall state that the person executing the certificate has consulted with one or more persons with relevant and appropriate experience or expertise who has reviewed facts, studies, or other data regarding the exposure to the listed chemical that is the subject of the action, and that, based on that information, the person executing the certificate believes there is a reasonable and meritorious case for the private action. Factual information sufficient to establish the basis of the certificate of merit, including the information identified in paragraph (2) of subdivision (h), shall be attached to the certificate of merit that is served on the Attorney General.

(2) Neither the Attorney General, a district attorney, a city attorney, nor a prosecutor has commenced and is diligently prosecuting an action against the violation.

(e) (1) (A) If, after reviewing the factual information sufficient to establish the basis for the certificate of merit and meeting and conferring with the noticing party regarding the basis for the certificate of merit, the Attorney General believes there is no merit to the action, the Attorney General shall serve a letter to the noticing party and the alleged violator stating the Attorney General believes there is no merit to the action.

(B) If the Attorney General does not serve a letter pursuant to subparagraph (A), this shall not be construed as an endorsement by the Attorney General of the merit of the action.

(2) A person bringing an action in the public interest pursuant to subdivision (d) and a person filing an action in which a violation of this chapter is alleged shall notify the Attorney General that the action has been filed. Neither this subdivision nor the procedures provided in subdivisions (f) to (k), inclusive, affect the requirements imposed by statute or a court decision

in existence on January 1, 2002, concerning whether a person filing an action in which a violation of this chapter is alleged is required to comply with the requirements of subdivision (d).

(f) (1) A person filing an action in the public interest pursuant to subdivision (d), a private person filing an action in which a violation of this chapter is alleged, or a private person settling a violation of this chapter alleged in a notice given pursuant to paragraph (1) of subdivision (d), shall, after the action or violation is subject either to a settlement or to a judgment, submit to the Attorney General a reporting form that includes the results of that settlement or judgment and the final disposition of the case, even if dismissed. At the time of the filing of a judgment pursuant to an action brought in the public interest pursuant to subdivision (d), or an action brought by a private person in which a violation of this chapter is alleged, the plaintiff shall file an affidavit verifying that the report required by this subdivision has been accurately completed and submitted to the Attorney General.

(2) A person bringing an action in the public interest pursuant to subdivision (d), or a private person bringing an action in which a violation of this chapter is alleged, shall, after the action is either subject to a settlement, with or without court approval, or to a judgment, submit to the Attorney General a report that includes information on any corrective action being taken as a part of the settlement or resolution of the action.

(3) The Attorney General shall develop a reporting form that specifies the information that shall be reported, including, but not limited to, for purposes of paragraph (2) of subdivision (e), the date the action was filed, the nature of the relief sought, and for purposes of this subdivision, the amount of the settlement or civil penalty assessed, other financial terms of the settlement, and any other information the Attorney General deems appropriate.

(4) If there is a settlement of an action brought by a person in the public interest under subdivision (d), the plaintiff shall submit the settlement, other than a voluntary dismissal in which no consideration is received from the defendant, to the court for approval upon noticed motion, and the court may approve the settlement only if the court makes all of the following findings:

(A) The warning that is required by the settlement complies with this chapter.

(B) The award of attorney's fees is reasonable under California law.

(C) The penalty amount is reasonable based on the criteria set forth in paragraph (2) of subdivision (b).

(5) The plaintiff subject to paragraph (4) has the burden of producing evidence sufficient to sustain each required finding. The plaintiff shall serve the motion and all supporting papers on the Attorney General, who may appear and participate in a proceeding without intervening in the case.

(6) Neither this subdivision nor the procedures provided in paragraph (2) of subdivision (e) and subdivisions (g) to (k), inclusive, affect the requirements imposed by statute or a court decision in existence on January 1, 2002, concerning whether claims raised by a person or public prosecutor not a party to the action are precluded by a settlement approved by the court.

(g) The Attorney General shall maintain a record of the information submitted pursuant to subdivisions (e) and (f) and shall make this information available to the public.
(h) (1) The basis for the certificate of merit required by subdivision (d) is discoverable only to the extent that the information is relevant to the subject matter of the action and not subject to the attorney-client privilege, the attorney work product privilege, or any other legal privilege.

(2) Upon the conclusion of an action brought pursuant to subdivision (d) with respect to a defendant, if the trial court determines that there was no actual or threatened exposure to a listed chemical, the court may, upon the motion of that alleged violator or upon the court's own motion, review the basis for the belief of the person executing the certificate of merit, expressed in the certificate of merit, that an exposure to a listed chemical had occurred or was threatened. The information in the certificate of merit, including the identity of the persons consulted with and relied on by the certifier, and the facts, studies, or other data reviewed by those persons, shall be disclosed to the court in an in-camera proceeding at which the moving party shall not be present. If the court finds that there was no credible factual basis for the certifier's belief that an exposure to a listed chemical had occurred or was threatened, then the action shall be deemed frivolous within the meaning of Section 128.5 of the Code of Civil Procedure. The court shall not find a factual basis credible on the basis of a legal theory of liability that is frivolous within the meaning of Section 128.5 of the Code of Civil Procedure.

(i) The Attorney General may provide the factual information submitted to establish the basis of the certificate of merit on request to a district attorney, city attorney, or prosecutor within whose jurisdiction the violation is alleged to have occurred, or to any other state or federal government agency, but in all other respects the Attorney General shall maintain, and ensure that all recipients maintain, the submitted information as confidential official information to the full extent authorized in Section 1040 of the Evidence Code.
(j) In an action brought by the Attorney General, a district attorney, a city attorney, or a prosecutor pursuant to this chapter, the Attorney General, district attorney, city attorney, or prosecutor may seek and recover costs and attorney's fees on behalf of a party who provides a notice pursuant to subdivision (d) and who renders assistance in that action.
(k) Any person who serves a notice of alleged violation pursuant to paragraph (1) of subdivision (d) for an exposure identified in subparagraph (A), (B), (C), or (D) of paragraph (1) shall complete, as appropriate, and provide to the alleged violator at the time the notice of alleged violation is served, a notice of special compliance procedure and proof of compliance form pursuant to subdivision (l) and shall not file an action for that exposure against the alleged violator, or recover from the alleged violator in a settlement any payment in lieu of penalties or any reimbursement for costs and attorney's fees, if all of the following conditions have been met:

(1) The notice given pursuant to paragraph (1) of subdivision (d) was served on or after the effective date of the act amending this section during the 2013–14 Regular Session and alleges that the alleged violator failed to provide clear and reasonable warning as required under Section 25249.6 regarding one or more of the following:

(A) An exposure to alcoholic beverages that are consumed on the alleged violator's premises to the extent onsite consumption is permitted by law.

(B) An exposure to a chemical known to the state to cause cancer or reproductive toxicity in a food or beverage prepared and sold on the alleged violator's premises primarily

intended for immediate consumption on or off premises, to the extent of both of the following:

(i) The chemical was not intentionally added.

(ii) The chemical was formed by cooking or similar preparation of food or beverage components necessary to render the food or beverage palatable or to avoid microbiological contamination.

(C) An exposure to environmental tobacco smoke caused by entry of persons (other than employees) on premises owned or operated by the alleged violator where smoking is permitted at any location on the premises.

(D) An exposure to chemicals known to the state to cause cancer or reproductive toxicity in engine exhaust, to the extent the exposure occurs inside a facility owned or operated by the alleged violator and primarily intended for parking noncommercial vehicles.

(2) Within 14 days after service of the notice, the alleged violator has done all of the following:

(A) Corrected the alleged violation.

(B) (i) Agreed to pay a civil penalty for the alleged violation of Section 25249.6 in the amount of five hundred dollars ($500), to be adjusted quinquennially pursuant to clause (ii), per facility or premises where the alleged violation occurred, of which 75 percent shall be deposited in the Safe Drinking Water and Toxic Enforcement Fund, and 25 percent shall be paid to the person that served the notice as provided in Section 25249.12.

(ii) On April 1, 2019, and at each five-year interval thereafter, the dollar amount of the civil penalty provided pursuant to this subparagraph shall be adjusted by the Judicial Council based on the change in the annual California Consumer Price Index for All Urban Consumers, published by the Department of Industrial Relations, Division of Labor Statistics and Research, for the most recent five-year period ending on December 31 of the year preceding the year in which the adjustment is made, rounded to the nearest five dollars ($5). The Judicial Council shall quinquennially publish the dollar amount of the adjusted civil penalty provided pursuant to this subparagraph, together with the date of the next scheduled adjustment.

(C) Notified, in writing, the person that served the notice of the alleged violation, that the violation has been corrected. The written notice shall include the notice of special compliance procedure and proof of compliance form specified in subdivision (l), which was provided by the person serving notice of the alleged violation and which shall be completed by the alleged violator as directed in the notice.

(3) The alleged violator shall deliver the civil penalty to the person that served the notice of the alleged violation within 30 days of service of that notice, and the person that served the notice of violation shall remit the portion of the penalty due to the Safe Drinking Water and Toxic Enforcement Fund within 30 days of receipt of the funds from the alleged violator.

(l) The notice required to be provided to an alleged violator pursuant to subdivision (k) shall be presented as follows:

* *

NOTICE OF INCOMPLETE TEXT: The Proof of Compliance form
appears in the published bill.
See Sec. 1, Chapter 187 (pp. 7–8), Statutes of 2019.

* *

(m) An alleged violator may satisfy the conditions set forth in subdivision (k) only one time for a violation arising from the same exposure in the same facility or on the same premises.
(n) Nothing in subdivision (k) shall prevent the Attorney General, a district attorney, a city attorney, or a prosecutor in whose jurisdiction the violation is alleged to have occurred from filing an action pursuant to subdivision (c) against an alleged violator. In any such action, the amount of any civil penalty for a violation shall be reduced to reflect any payment made by the alleged violator for the same alleged violation pursuant to subparagraph (B) of paragraph (2) of subdivision (k).
(o) If a violation of this chapter is alleged or the application or construction of provisions of this chapter is at issue in a proceeding in the Supreme Court, court of appeal, or the appellate division of the superior court, each party shall serve a copy of the party's brief or petition and brief, on the Attorney General. Service on the Attorney General shall be accomplished by serving the brief, or petition and brief, on the Proposition 65 coordinator at the service address designated on the Attorney General's internet website for Proposition 65 enforcement reporting. A brief shall not be accepted or filed unless the proof of service shows service on the Attorney General. A party failing to comply with this subdivision shall be given a reasonable opportunity to cure the failure before the court imposes sanction, and, in that instance, the court shall allow the Attorney General reasonable additional time to file a brief in the matter.
(Amended by Stats. 2019, Ch. 187, Sec. 1. (AB 1123) Effective January 1, 2020. Note: See published chaptered bill for complete section text. The Proof of Compliance form appears on pages 7 to 8 of Stats. 2019, Ch. 187. Note: This section was added on Nov. 4, 1986, by initiative Prop. 65.)

25249.8. List Of Chemicals Known to Cause Cancer Or Reproductive Toxicity.
(a) On or before March 1, 1987, the Governor shall cause to be published a list of those chemicals known to the state to cause cancer or reproductive toxicity within the meaning of this chapter, and he shall cause such list to be revised and republished in light of additional knowledge at least once per year thereafter. Such list shall include at a minimum those substances identified by reference in Labor Code Section 6382(b)(1) and those substances identified additionally by reference in Labor Code Section 6382(d).
(b) A chemical is known to the state to cause cancer or reproductive toxicity within the meaning of this chapter if in the opinion of the state's qualified experts it has been clearly shown through scientifically valid testing according to generally accepted principles to cause cancer or reproductive toxicity, or if a body considered to be authoritative by such experts has formally identified it as causing cancer or reproductive toxicity, or if an agency of the state or federal government has formally required it to be labeled or identified as causing cancer or reproductive toxicity.

(c) On or before January 1, 1989, and at least once per year thereafter, the Governor shall cause to be published a separate list of those chemicals that at the time of publication are required by state or federal law to have been tested for potential to cause cancer or reproductive toxicity but that the state's qualified experts have not found to have been adequately tested as required.
(d) The Governor shall identify and consult with the state's qualified experts as necessary to carry out his duties under this section.
(e) In carrying out the duties of the Governor under this section, the Governor and his designates shall not be considered to be adopting or amending a regulation within the meaning of the Administrative Procedure Act as defined in Government Code Section 11370.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.

25249.9. Exemptions from Discharge Prohibition.
(a) Section 25249.5 shall not apply to any discharge or release that takes place less than twenty months subsequent to the listing of the chemical in question on the list required to be published under subdivision (a) of Section 25249.8.
(b) Section 25249.5 shall not apply to any discharge or release that meets both of the following criteria:
(1) The discharge or release will not cause any significant amount of the discharged or released chemical to enter any source of drinking water.
(2) The discharge or release is in conformity with all other laws and with every applicable regulation, permit, requirement, and order.
In any action brought to enforce Section 25249.5, the burden of showing that a discharge or release meets the criteria of this subdivision shall be on the defendant.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.10. Exemptions from Warning Requirement.
Section 25249.6 shall not apply to any of the following:
(a) An exposure for which federal law governs warning in a manner that preempts state authority.
(b) An exposure that takes place less than twelve months subsequent to the listing of the chemical in question on the list required to be published under subdivision (a) of Section 25249.8.
(c) An exposure for which the person responsible can show that the exposure poses no significant risk assuming lifetime exposure at the level in question for substances known to the state to cause cancer, and that the exposure will have no observable effect assuming exposure at one thousand (1000) times the level in question for substances known to the state to cause reproductive toxicity, based on evidence and standards of comparable scientific validity to the evidence and standards which form the scientific basis for the listing of such chemical pursuant to subdivision (a) of Section 25249.8. In any action brought to enforce Section 25249.6, the burden of showing that an exposure meets the criteria of this subdivision shall be on the defendant.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.11. Definitions.

For purposes of this chapter:
(a) “Person” means an individual, trust, firm, joint stock company, corporation, company, partnership, limited liability company, and association.
(b) “Person in the course of doing business” does not include any person employing fewer than 10 employees in his or her business; any city, county, or district or any department or agency thereof or the state or any department or agency thereof or the federal government or any department or agency thereof; or any entity in its operation of a public water system as defined in Section 116275.
(c) “Significant amount” means any detectable amount except an amount which would meet the exemption test in subdivision (c) of Section 25249.10 if an individual were exposed to such an amount in drinking water.
(d) “Source of drinking water” means either a present source of drinking water or water which is identified or designated in a water quality control plan adopted by a regional board as being suitable for domestic or municipal uses.
(e) “Threaten to violate” means to create a condition in which there is a substantial probability that a violation will occur.
(f) “Warning” within the meaning of Section 25249.6 need not be provided separately to each exposed individual and may be provided by general methods such as labels on consumer products, inclusion of notices in mailings to water customers, posting of notices, placing notices in public news media, and the like, provided that the warning accomplished is clear and reasonable. In order to minimize the burden on retail sellers of consumer products including foods, regulations implementing Section 25249.6 shall to the extent practicable place the obligation to provide any warning materials such as labels on the producer or packager rather than on the retail seller, except where the retail seller itself is responsible for introducing a chemical known to the state to cause cancer or reproductive toxicity into the consumer product in question.
(Amended by Stats. 1996, Ch. 1023, Sec. 238. Effective September 29, 1996. Note: This section was added on Nov. 4, 1986, by initiative Prop. 65.)

25249.12. (a) The Governor shall designate a lead agency and other agencies that may be required to implement this chapter, including this section. Each agency so designated may adopt and modify regulations, standards, and permits as necessary to conform with and implement this chapter and to further its purposes.
(b) The Safe Drinking Water and Toxic Enforcement Fund is hereby established in the State Treasury. The director of the lead agency designated by the Governor to implement this chapter may expend the funds in the Safe Drinking Water and Toxic Enforcement Fund, upon appropriation by the Legislature, to implement and administer this chapter.
(c) In addition to any other money that may be deposited in the Safe Drinking Water and Toxic Enforcement Fund, all of the following amounts shall be deposited in the fund:
(1) Seventy-five percent of all civil and criminal penalties collected pursuant to this chapter.

(2) Any interest earned upon the money deposited into the Safe Drinking Water and Toxic Enforcement Fund.

(d) Twenty-five percent of all civil and criminal penalties collected pursuant to this chapter shall be paid to the office of the city attorney, city prosecutor, district attorney, or Attorney General,

whichever office brought the action, or in the case of an action brought by a person under subdivision (d) of Section 25249.7, to that person.
(Amended by Stats. 2003, Ch. 228, Sec. 22. Effective August 11, 2003. Note: This section was added on Nov. 4, 1986, by initiative Prop. 65.)

25249.13. Preservation Of Existing Rights, Obligations, and Penalties. Nothing in this chapter shall alter or diminish any legal obligation otherwise required in common law or by statute or regulation, and nothing in this chapter shall create or enlarge any defense in any action to enforce such legal obligation. Penalties and sanctions imposed under this chapter shall be in addition to any penalties or sanctions otherwise prescribed by law.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987. Note: Sections 25250 to 25259 are in Articles 13 to 17 of Chapter 6.5, following Section 25249.2.)

25249.14. The Governor's Office of Business and Economic Development shall post in a conspicuous location on its Internet Web site, and include with any informational materials provided to businesses relating to a business's obligations under state law, a disclaimer that states the following:
Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, requires businesses to provide a clear and reasonable warning before knowingly and intentionally exposing anyone to chemicals that are known to the state to cause cancer or birth defects or other reproductive harm. It is important to know that a product that receives certification from the United States Food and Drug Administration, or another federal agency or state agency, is not necessarily exempt from California requirements for chemical exposure warnings. Businesses should be aware of the levels of harmful chemicals in their products and of applicable Proposition 65 requirements. For more information on Proposition 65 and how to comply with its requirements, please visit https://oehha.ca.gov.
(Added by Stats. 2017, Ch. 510, Sec. 2. (AB 1583) Effective January 1, 2018.)

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Solar Leasing for Landowners

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USDA National Agricultural Library
UNITED STATES DEPARTMENT OF AGRICULTURE

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While not a new subject, solar leasing is a topic that will garner increased attention because of the additional funds from the Inflation Reduction Act (IRA) becoming available at the beginning of 2023. The IRA incentivizes the adoption of solar through several mechanisms such as the 30% solar tax credit for installing solar on a residence, but the primary one affecting solar leasing on a commercial scale is the 30% business investment tax credit. This credit is expected to spur demand for more commercial solar projects over the next decade and landowners can expect to be approached by representatives of these future projects for leasing opportunities.

What is a solar lease?

The typical commercial solar lease is where an outside party approaches a landowner to negotiate placing solar panels, substations, power lines, roads and other necessary infrastructure on their property for a significant period of time (twenty-five to thirty-five years with optional extensions are common) for a specified rental rate per acre per year or with some form of revenue sharing much like a royalty payment for an oil or gas lease.
These leases tend to be complicated and due to the length of the lease it is important to have an experienced attorney look over any potential contract before signing. While the leases tend to be long, twenty to forty pages is not uncommon, there are some clauses that need to be reviewed carefully.

Typical Clauses and Things to be Aware of in Solar Leases

Different companies use different lease agreements; however, there are similarities between the various contracts. Understanding these clauses can help when consulting with an experienced attorney about potential lease options.

Signing a lease agreement does not guarantee a solar lease.
Signing a solar lease guarantees that the solar developer has the option to go forward with the construction of a solar project, but it does not guarantee that they will build it. Solar companies

may approach many landowners and sign lease agreements that lock the landowner into an initial agreement where the solar company can gather data and decide which site will best fit their needs. During the initial period the landowner typically has to grant them access to the property and refrain from signing any other agreements that might interfere with the solar lease. If by the end of the initial period the company has not started construction then the agreement typically expires, the landowner is able to keep any payments that have already been made, and the landowner can sign new lease agreements with other solar companies.

Income from the Solar Lease

What have your neighbors been offered? Many leases have a confidentiality clause, but those are typically only binding after the contract has been signed. Rental rates can vary dramatically so researching current rates is critical before signing a solar lease. Another issue this often not thought of is how will your rental rate increase over time? Remember that these agreements can last for more than three decades. The revenue you receive might be adequate in 2023, but will that same sum be a fair rental rate in 2037? Escalation clauses address this issue by building into the agreement an orderly increase in the rental rate over the life of the lease agreement.

Property taxes

Property that is assessed and tax as agricultural property generally has a lower property tax rate than residential or commercial property. If a solar project is developed on your property then a county assessor may determine that the property is in commercial energy production rather than agricultural production which could significantly increase your annual property tax. This should be an area that is addressed in a lease agreement. Does the solar company pay the increase in taxes due to the solar development or will the landowner bear this cost?

Liability for Damage to the Solar Equipment

What about protecting the solar panels and other equipment on the leased property? Some leases make the landowner liable for any damages to equipment on the leased property. Can you guarantee that nobody will damage the equipment? Many solar projects construct fencing around the perimeter and it may be prudent to make the company responsible for any damage that occurs on their leased property.

Decommissioning the Project

Solar projects can easily last twenty-five to thirty-five years; however, at some point the project will no longer be economically viable. Who will pay for cleanup at the end of the lease period? Many contracts are silent as to which party bears the cost of removing the solar equipment and restoring the land to its prior condition. A good lease agreement should specify which party will be responsible for decommissioning the project and some ever require the solar company to establish a bond to pay for cleanup at termination. A lawyer can be extremely helpful in negotiating these types of arrangements.

Conclusion

There are numerous things that a landowner should think about before signing a solar lease and this article covers some of the important things to consider. Having an experienced attorney go

through the lease is crucial because the time to negotiate is before signing the contract. For more information on the subject of solar leases click **here**.

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An Agricultural Law Research Publication

Farmland Owner's Guide to Solar Leasing

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Farmland Owner's Guide to

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The Ohio State University
College of Food, Agricultural, and Environmental Sciences

National Agricultural Law Center

USDA United States Department of Agriculture
National Agricultural Library

About this Guide

With funding from the **National Agricultural Library** at the United States Department of Agriculture, the **National Agricultural Law Center** partnered with the OSU Extension Agricultural & Resource Law Program in the College of Food, Agricultural & Environmental Sciences at **The Ohio State University** to produce this guide for agricultural landowners faced with decisions about leasing land for solar energy development.

The authors of the guide are **Peggy Kirk Hall**, Associate Professor in Agricultural and Resource Law and Director of the OSU Extension Agricultural and Resource Law Program; **Evin Bachelor**, Senior Research Associate and Law Fellow with the OSU Extension Agricultural and Resource Law Program; and **Eric Romich**, Associate Professor and Field Specialist in Energy Education for OSU Extension.

Special thanks and acknowledgements

We are grateful to **Ryan Conklin**, attorney with Wright & Moore Law Co., LPA in Delaware, Ohio, for providing extensive insights into solar leases from the perspective of a private practitioner, and to **Dr. Shannon Ferrell**, Associate Professor in Agricultural Law at Oklahoma State University, whose webinar on solar leasing for the National Agricultural Law Center served as a foundation for the guide.

Photo credits

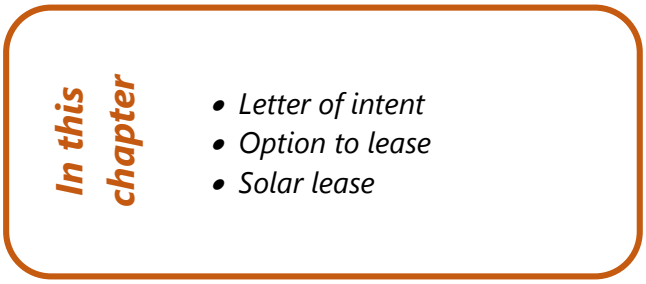
Thank you to Eric Romich and Ken Chamberlain of Ohio State University Extension for providing all photos for the guide, with the exception of the Creative Commons photograph on pages 1 and 30.

How to use this guide

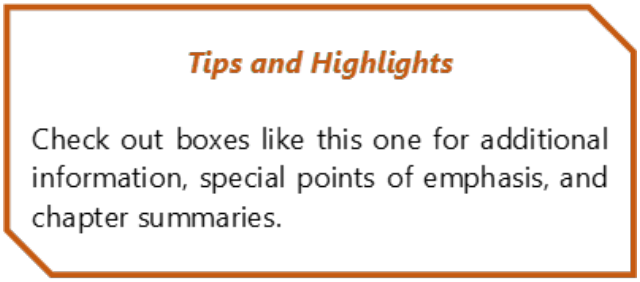
This guide aims to help farmland owners understand solar energy development and the solar energy leasing process. The guide includes specific information for **Ohio**, but other information about solar leasing in the guide is relevant for farmland owners in **any state**. However, we recommend that a farmland owner confer with an **in-state attorney** to clarify legal issues specific to the state.

The guide includes a lot of information, so we've developed several tools to help readers navigate and understand the material.

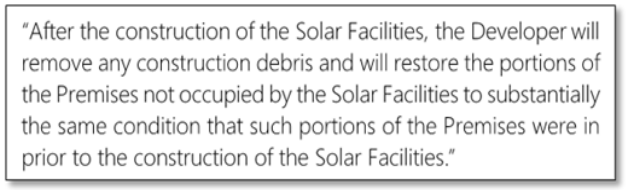
At the start of each chapter, a rounded box like the one on the right highlights the topics covered in the chapter. The content of these boxes matches the topics in the table of contents. As an additional navigation tool, this guide highlights key phrases in **bold.**



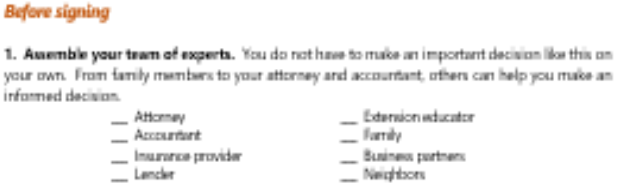
Sometimes there are points that just need a little extra explanation or emphasis. Boxes with angled edges like the one on the right provide additional information worth highlighting, special points of emphasis, and chapter summaries.



One goal of this guide is to familiarize and educate readers on the language and terms they will encounter in a solar lease. Be on the lookout for boxes like the one on the right that contain language taken from actual solar leases.


"After the construction of the Solar Facilities, the Developer will remove any construction debris and will restore the portions of the Premises not occupied by the Solar Facilities to substantially the same condition that such portions of the Premises were in prior to the construction of the Solar Facilities."

The final chapter of the guide organizes solar leasing issues into a **checklist tool** that reviews questions to ask and actions to take when thinking about solar energy development on the farm.


Before signing

1. Assemble your team of experts. You do not have to make an important decision like this on your own. From family members to your attorney and accountant, others can help you make an informed decision.

__ Attorney
__ Accountant
__ Insurance provider
__ Lender
__ Extension educator
__ Family
__ Business partners
__ Neighbors

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- *Site selection: what do solar companies look for?*
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- *The solar energy project approval process*
- *Utility scale solar energy development on your land*

1 Solar Energy Development in Ohio

While solar energy production has a brief history in Ohio, "utility-scale" production is on the rise. A landowner can benefit from learning about the history and the current state of solar energy in Ohio, as well as how a project develops—from site selection to construction and finally, production.

1.1 History of solar energy production in Ohio

Over the past decade, Ohio has experienced considerable growth in photovoltaic (PV) solar development. In 2009, Ohio had 14 solar projects certified with the Public Utilities Commission of Ohio, growing to more than 2,697 projects representing 210 megawatts (MW) of capacity in June 2019. Prior to 2018, most solar projects in Ohio were small projects located on homes, farms, and businesses. In fact, of the 2,697 Ohio solar projects, the average system size was 78 kilowatts. Prior to 2019 there were only two

projects larger than 10 MWs, including the 28.7 MW DG AMP Solar Bowling Green project and the 12 MW Wyandot Solar Energy Generation Facility.

As of May 2019, nine large scale solar cases representing 1,325 MWs of potential capacity were submitted to the Ohio Power Siting Board; six have been approved and three are pending approval. While OPSB application approval does not guarantee a project will ultimately be built, Ohio's PV solar capacity would increase by 630 percent to a total of 1,535 MW if all nine projects currently under review with the OPSB are constructed. These nine projects would require a footprint of 16,500 acres of land to support the development.

1.2 "Utility-scale" solar energy development

Since 2012, the utility-scale solar sector has led the overall U.S. solar market in installed capacity. In 2017, the utility-scale sector accounted for nearly 60% of all new solar capacity additions. Based on past trends and future projections, utility-scale solar development will continue to thrive. But what does this mean? How can you determine if a solar project is a "utility-scale" project or not? Physically, there is very little difference between a large solar project installed on a farm and a utility-scale solar project. They often use the same racking components, inverters, and solar modules, making it difficult to differentiate the two based on visual appearance.

Companies and experts use different metrics to define "utility-scale" solar because the industry and regulators have yet to adopt a standard metric. Some classify utility-scale solar projects based on the structure of the electric offtake arrangement, while others base it on the size of the investment.

Two primary differences between commercial and residential solar projects and utility-scale solar projects are that utility-scale solar projects are typically greater than 5 MW and the electricity generated is interconnected to the electric distribution or transmission grid. Under a utility-scale solar model, either an electrical utility owns the project or an independent project owner enters into a power purchase agreement to sell electricity to wholesale utility buyers.

How much is a megawatt?

A megawatt equates to one million watts of electricity, and a megawatt hour measures the number of megawatts consumed in one hour.

An old trick of the hand said that one megawatt could power 1,000 homes; however, that number assumes that everything will operate at peak efficiency with no energy loss during transmission. Plus, the average home consumes more electricity than it used to.

The Solar Energy Industries Association calculates that one megawatt of solar powers between 150 and 210 homes on average in the United States; however, that number continues to increase with improved technology and more utility-scale production.

Utility-scale solar projects are no longer modern marvels limited to the sunny skies of Southwestern deserts, but instead are now commonly found in densely populated areas and the rural countryside of the upper Midwest and Northeast. The increasing development of utility-scale PV solar consumes massive tracts of land for development. According to the National Renewable Energy Laboratory report, the average total direct land requirements for PV solar projects greater than 20 MW is 7.5 acres per MW for fixed-tilt systems, 8.3 acres per MW for single axis tracking systems, and 8.1 acres per MW for dual axis tracking systems.

A study from the National Renewable Energy Laboratory titled "U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis," estimates the technical potential of specific utility-scale PV solar development in the United States. This study estimates the potential energy generation based on solar resource availability and quality, technical system performance, topographic limitations, environmental, and land use constraints. These estimates do not consider social, policy, economic, or market constraints, and therefore do not reflect a level of generation that will actually be deployed. The study analyzed the potential for utility-scale PV solar development for both open spaces located within urban boundaries and rural areas located outside the urban zones.

Based on the estimates, Ohio ranked fifth in potential urban utility-scale solar land area with 294,055 acres yielding a generation potential of 86,496 gigawatt hours. When considering the potential rural utility-scale solar land area, Ohio ranked 26th with 12,332,535 developable acres yielding a generation potential of 3,626,182 gigawatt hours.

Table 1: State Ranking of Photovoltaic Solar Cumulative Capacity Installed Through February 2019

Rank	State	Net Summer Capacity (MWs)	Global Horizontal Irradiance** (kWh/m^2/day)
1	California	18,876	5.15
2	North Carolina	4,135	4.63
3	Arizona	3,231	5.78
4	Texas	2,448	4.96
5	New Jersey	2,240	4.17
6	Massachusetts	2,164	4.06
7	Nevada	2,027	5.35
8	Florida	1,623	4.91
9	New York	1,529	3.90
10	Utah	1,100	4.68
25	Ohio	208.3	4.03

** Global Horizontal Irradiance for this chart is based on the location of the state capital.

Sources: U.S. Energy Information Administration, Form EIA-860, 'Annual Electric Generator Report' and Form EIA-860M, 'Monthly Update to the Annual Electric Generator Report.'

Global Horizontal Irradiance is based on data from the National Renewable Energy Laboratory System Advisory Model typical meteorological year data developed using methods described in the technical notes.

1.3 Site selection: what do solar energy developers look for?

Many factors go into selecting a property as a potential utility-scale development project.

Three important factors are the potential amount of sun a site might receive, a property's proximity to transmission infrastructure, and physical qualities of the property.

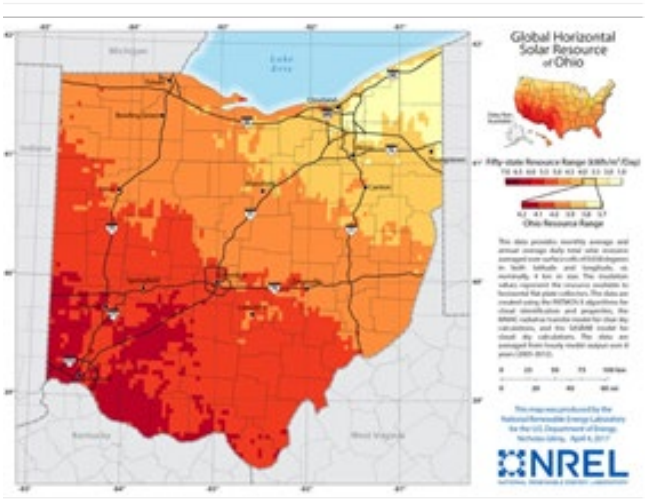
Examining a property's **solar potential** can help determine how much sun the solar modules in a development might receive. Ohio is not commonly associated with the long sunny days often linked to solar energy production because of its wet springs and cold snowy winters. However, as illustrated in Table 1, Ohio's solar resource is similar to many solar industry leaders on the east coast, including New Jersey, Massachusetts, and New York.

The **Global Horizontal Irradiance** (GHI) is a metric used by the PV solar industry to measure solar potential. It in essence describes the amount of energy that could be produced from the sun in a given spot if all of that energy were converted to electricity. It includes total solar radiation, which factors in both Direct Normal Irradiance and Diffuse Horizontal Irradiance per unit area that reaches a horizontal surface.

As a state, Ohio has a wide range of GHI, ranging from a kWh/m^2/day of 3.93 in Youngstown, to 4.05 in Bowling Green, 4.03 in Columbus, and 4.15 in Dayton. Based on the GHI resource data, the best location for utility-scale solar development in Ohio is in the southwest region of the state. Image 1 maps Ohio's GHI resource.

It is also critical that a site is in close **proximity to transmission**. The site should be near a suitable grid interconnection point

Image 1: Global Horizontal Irradiance Resource for Ohio



with adequate capacity and grid availability. Two simple questions must be addressed when structuring a utility-scale solar project: 1) who will buy the electricity, and 2) how will it be delivered? Interconnection into the electric grid provides a physical path to deliver the electricity generated by the solar project to the purchaser of the power. Interconnection represents a critical cost component of project development. To reduce project cost, developers will seek sites with low interconnection costs. Pre-application studies help developers strategically identify optimal grid interconnection locations, while dismissing problematic sites that require additional upgrades in grid infrastructure.

Ohio's transmission grid consists of 6,983 miles of high voltage transmission lines and 112 miles of low voltage transmission lines, providing developers ample interconnection opportunities. Ohio is located in the PJM Interconnection, a regional transmission organization that manages a competitive wholesale electricity market and a high-voltage electricity grid reaching more than 65

million people in Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. Access to the PJM Interconnection provides developers the opportunity to participate as a merchant power plant in an open market, or to engage individual businesses in direct power purchase agreements of renewable energy. A recent emerging trend is corporate customers directly procuring renewable energy from independent power producers as a cost savings strategy and to meet corporate sustainability goals. For example, in 2018, there were 75 new corporate renewable deals, supporting almost 7 gigawatts of new projects.

Several **physical qualities of the property** also affect selection of a solar development site. In addition to solar capacity and proximity to transmission, developers also look for locations that provide flat ground with slopes less than three percent, have minimal zoning, environmental, or permitting issues, do not have shading obstructions, and possess good drainage characteristics.

1.4 Incentives for solar energy development

Advances in technology and policy mandates that require the installation of PV solar have contributed to the reduction of system costs. For example, according to the National Renewable Energy Laboratory 2018 U.S. Solar Photovoltaic System Cost Benchmark report, the inflation-adjusted system cost for residential PV solar installations reached $2.70 per/DC-watt, while commercial projects were $1.83 per/DC-watt and utility-scale PV solar projects posted at $1.06 per/DC-watt. Specifically, comparing the declining system costs of inflation-adjusted utility-scale solar projects between Q1 2010 and Q1 2018 show a 77 percent decrease from $4.63 per/DC-watt to $1.06 per/DC-watt. Despite declining costs for PV solar, incentives are critically important to the cost-effectiveness of a project. Incentives come from four primary sources that include federal, state and local governments and utility companies.

The Federal **Business Energy Investment Tax Credit** (ITC) program was originally established in the Energy Policy Act of 2005. This incentive program is a cornerstone tool for renewable energy project development. In 2016, many solar project developers felt a sense of urgency to get projects under way, as the 30 percent ITC program was scheduled for elimination or drastic reductions after December 31, 2016. While the passage of the Consolidated Appropriations Act extended the ITC program, there is once again a sense of urgency to get projects completed in order to take advantage of higher tax credit levels. For projects that start construction by the end of 2019, the ITC program offers a 30 percent tax credit of the eligible construction and equipment costs allowing the project owner to obtain a dollar-for-dollar reduction in federal income tax liability. This tax credit can be carried back one year or carried forward 20 years to monetize the full value of the tax credit. Projects that start construction in 2020 are eligible for a 26 percent ITC credit, while projects that begin in 2021 may claim a 22 percent ITC credit. After 2021, the commercial ITC credit will drop to a

permanent 10 percent and the residential ITC program will expire.

A **renewable portfolio standard** (RPS) is a state policy that mandates a percentage of the state's overall electricity generation that must be produced from renewable energy. In many cases, the amount of renewable energy required will increase annually from the baseline or benchmark to reach an ultimate target set over a predetermined timeframe. As of 2019, 29 states and Washington, D.C. have established RPS mandates, and an additional eight states have voluntary RPS goals. Ohio passed Senate Bill (S.B.) 221 in the spring of 2008, which included the state's first RPS standards. The policy originally required utilities to generate 12.5% renewable energy by 2024. The legislation also included a solar carve out with specific targets of one-half percent solar energy generation by 2024. However, Ohio passed S.B. 310 in June 2014, which placed a two year freeze on progress toward the 12.5% mandate by 2024. As a result, the current RPS targets in Ohio are set at 12.5% renewable generation by 2026. The amendments in S.B. 310 also allowed renewable energy project owners in neighboring states to certify their projects with the Public Utilities Commission of Ohio and to allow the renewable electricity imported from these projects to contribute to Ohio's RPS determination.

To monitor compliance of state RPS standards, a system of credits known as **Renewable Energy Credits** (RECs) were developed to validate and track the amount of renewable energy generated during a compliance period. In Ohio, a REC represents the environmental properties associated with one MW-hour of electricity generated by a renewable energy facility certified by the Public Utilities Commission of Ohio. A **Solar Renewable Energy Credit** (SREC) is one MW-hour of electricity generated by a certified PV solar system, which counts towards compliance of a specific solar carve-out mandate. The Public Utilities Commission of Ohio monitors compliance annually to determine if utilities are in compliance with the RPS Standards. Utilities can meet their annual benchmark obligations by developing and owning a REC producing certified renewable energy facility or purchasing RECs from other qualified renewable energy projects.

In July 2019, the Ohio General Assembly passed House Bill (H.B.) 6 to promote electricity production from clean air resources that improve air quality in Ohio. The legislation repeals the existing RPS originally established in 2008 by S.B. 221 and. creates an electricity rate rider for all residential customers to establish a clean air fund. These funds will first be made available as subsidies for two nuclear power plants in Ohio and the remaining funds will establish a reduced emissions program for other technologies that attempt to reduce their emissions.

Ohio established **Alternative Energy Zone** legislation in 2010 in S.B. 232. The law authorizes counties to establish an Alternative Energy Zone and exempt qualified energy projects in the zone from paying the public utility tangible personal property tax and real property taxes. The utility-based taxes are replaced by a standardized **payment in lieu of taxes**

(PILOT) program which establishes a set annual fee based on the facilities' total nameplate capacity. The base PILOT fee is set automatically at $7,000 per MW of nameplate capacity for qualified solar projects. For all other non-solar qualified energy facilities, the PILOT fee is between $6,000 and $8,000 per MW and is based on the percentage of Ohio-based employees utilized during the construction period. The county may integrate an additional service payment not to exceed $9,000 per MW when combined with the base PILOT fee. The PILOT base fee is to be distributed to local governments and school districts in the same way as the tangible personal property taxes, while any additional service payment required by the county is to be deposited in the county general fund.

To qualify for the PILOT program, a renewable energy facility must apply to the Ohio Development Services Agency for status as a "qualified energy project" before December 31, 2020. For qualified energy projects greater than 5 MWs, the agency forwards the application to the county commissioners for approval and to each taxing unit in the impacted counties. In addition, the county can pass a local resolution to establish the entire county as an "alternative energy zone," which has the effect of pre-approving PILOT for any qualified energy projects located within the zone. If the county commissioners reject the application or fail to act within 30 days, the exemption application is automatically denied.

1.5 The solar energy project approval process

Ohio created the Ohio Power Siting Board (OPSB) in 1972 to guide the development of major energy infrastructure projects based on public need, environmental implications, land use considerations and economic benefits. Before constructing a major utility facility in Ohio, developers must acquire a certificate of environmental compatibility and public need from the OPSB. Major utility facilities under OPSB jurisdiction include electric generation facilities of 50 MWs or more, including solar; electric transmission lines and associated facilities of 100 kilovolts or more; economically significant wind farms with a generating capacity of 5 MW or more; and gas pipelines longer than 500 feet with an outside diameter greater than 9 inches designed for transporting gas at a maximum operating pressure in excess of 125 pounds per square inch.

The OPSB process is designed to inform and engage local residents in the review process. Legal notices of applications are published in local newspapers near the impacted area, and the notices list local libraries where residents may review a copy of the application. All case records are also available online.

Public participation is an important part of the OPSB project review process. There are various ways local residents can participate in the process and voice questions, concerns, or support. First, prior to filing an application to build a new facility, the developer must hold a public meeting to share project details, gather input, and hear concerns. Representatives from the OPSB attend the

pre-application meeting to discuss the siting and public participation process. Second, interested parties are encouraged to submit informal written comments to the OPSB, which are filed in the public comments section of the case record to inform the OPSB during its investigation. Third, the OPSB hosts a public hearing after making its recommendation. At the hearing, community members can provide sworn testimony or submit written statements to the case record. Finally, individuals, organizations, and governments may formally intervene in the case and participate as a party of record in the case proceedings.

To learn more about a utility-scale solar project in or near a community, visit the OPSB website at https://www.opsb.ohio.gov. Local residents can stay connected by reading case documents online, signing up to receive news releases and board meeting agendas, subscribing for case updates, reviewing the OPSB calendar for upcoming events, and following the OPSB on Facebook. In addition, the OPSB is available by phone at 866-270-OPSB (6772), and by email at contactOPSB@puco.ohio.gov.

1.6 Utility-scale solar energy development on your land

Once complete, a utility-scale solar project has minimal moving parts and no noise, smell, or emissions. For the most part, the system simply sits there and generates electricity. However, a great deal of activity takes place on the land prior to project completion. Initially, the developer needs to access the land to collect land use information and conduct feasibility studies. During the construction phase of a project, the site experiences disturbances such as site grading, soil erosion, soil compaction, damaged field tile, and noise. It is important to remember that the site becomes a major construction zone for a period of time, with heavy equipment used to grade access roads, dump trucks with stone to build laydown yards, flatbed trailers delivering equipment components to construct the arrays, trencher plows to lay cable, concrete trucks and cranes to set power enclosures, and hydraulic post drivers to set racking, as illustrated in the following photos. Such activities may disturb neighbors.

Once construction of a solar project is complete, ongoing operations and maintenance activities for the project occur. These activities include panel cleaning, thermograph testing for wire faults, inspecting combiner boxes, inverter maintenance, inspection of racking support, and spraying and mowing for vegetation control.

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- *Who has legal interests in the land?*
- *Impacts on the farm and land*
- *Family matters*
- *Property taxes*
- *Government programs*
- *Liability and insurance*
- *Neighbor and community relations*
- *Who is the developer?*
- *Professionals who can help you*

2 Solar Energy on Your Land: Initial Considerations

Dedicating land to solar energy development is a long-term commitment that can have both positive and negative impacts on a farm and its owners. In this chapter, we review initial considerations that can help a landowner decide whether a solar lease is a good fit for the farm, the family, and the community.

To help determine if a solar lease is right for you, give careful thought to the many implications of solar energy development on your farm. How might solar leasing affect your land and how you use it, your farm business, your family and its plans for the future, and your neighbors and community? Consider also the many related legal issues such as other legal interests in the land, property taxes, government programs, and liability risk. Thinking through these initial issues should help you decide whether to lease your farm for solar development, and if you choose to do so, should help you plan for the future and avoid unexpected consequences.

2.1 Length of the commitment

A common first question we hear about solar leases is "how long do they last?" A solar energy project can exist on your land for a long time—as many as 20 years or more, with automatic extension periods of five to ten years. It's important to anticipate future events that could occur during this time period and ensure that the solar development won't conflict with or preclude anticipated needs or uses of the farmland. It's difficult and perhaps nearly impossible for a landowner to back out of a solar lease agreement, so be prepared to commit the land for the entire length of the solar lease agreement.

2.2 Who has legal interests in the land?

It may seem obvious that a landowner must have the legal right to grant a solar lease, but many legal rights held by others could interfere with a landowner's right to lease the land. When considering whether or not to enter into a solar lease, a landowner must determine what other types of legal interests in the land exist and should identify ways to address the interests.

For example, a lender could have provisions in an existing **mortgage** on the property that would prohibit the landowner from granting this type of legal interest to another party, or could require permission from the lender before doing so. Violation of such provisions could allow the lender to declare a default and demand payment of the mortgage balance. On the other hand, a solar energy developer might require the landowner to obtain a subordination agreement from the lender, which would ensure that the lender would not evict the developer if the landowner fails to pay the mortgage. A lender might or might not be willing to sign a subordination agreement.

A **farmland lease** is another legal interest that could conflict with the granting of a solar lease. A tenant or lessee of an existing farmland lease would have legal rights if a landowner would attempt to terminate the lease before the end of the lease period. A written farmland lease might address how to handle an early termination by the landowner. A common approach is to require the landowner to "buy out" the remainder of the lease by reimbursing the tenant for expenses and lost profits. As we explain in Chapter 4, a solar lease can contain provisions for reimbursement when construction of the development causes crop damages. This mechanism could allow the landowner to reimburse a tenant if the construction begins when a tenant's crop is still in the ground. A landowner should assess the potential of interfering with an existing farmland lease, and pay special attention to the costs of terminating a farm lease that still has many years remaining in the lease period.

Likewise, a **hunting lease** could be problematic for a landowner. As we discuss in Chapter 4, many solar leases do not allow hunting on or near the solar development site. If there is an existing hunting lease, a landowner may need to terminate or revise the lease in accordance with the solar lease. These actions might require a landowner to reimburse lease payments, improvements or

other benefits that were provided in exchange for the lease.

Mineral rights might also exist on the land. If someone holds a legal interest in oil, gas, coal or other minerals beneath the surface, those rights could be impacted by a solar development. For this reason, a solar developer will have concerns about leasing land if someone else holds the mineral rights, and might require a landowner to obtain a formal termination of the mineral estate. As with a farmland lease, this could require a buyout by the landowner. It's possible, however, that a solar developer would allow mineral rights to exist if development could occur without harm to the solar energy project.

Easements also grant legal interests in land to other parties, and a solar development could interfere with easement rights. Farmland often has many easements, such as easements for utilities, drainage, wetlands, conservation and farmland preservation. Easement language often prohibits any conflicting land uses on the easement property, which would give the easement holder a legal right to object to the solar lease or seek payment for easement violations and interferences. A landowner should determine the existence of all easements on the property and ensure that a solar lease would not conflict with existing easements.

A final legal interest in the property to consider is the interest of **joint owners, business entities or trusts**. All co-owners of the property must agree to a solar lease. If a business entity or trust holds title to the land, the business entity or trust must be the party that enters into the lease, in accordance with the entity's operating procedures or trust provisions. A solar lease must have the approval of all co-owners of the land or the business entity or trust that holds title to the land.

2.3 Impacts on the farm and land

A solar energy development can have tremendous **physical impacts** on the land, both during the solar project's lifetime and afterwards. We explained in Chapter 1 that the land will be a major construction site for a period of time. Heavy equipment may cause soil compaction. Installation of solar modules and trenches could disrupt subsurface and surface drainage systems, and subsurface drainage tiles beneath the development site could be inaccessible for future repairs. Since we have not previously experienced utility scale solar energy development projects in Ohio, it is difficult to know how long-term such physical impacts will be and how successfully the land can convert back to agricultural uses at the end of the solar lease period.

If a portion of a farm's land would be used for a solar development, what effects might there be on the **farm operation**? Financial benefit is one potential positive impact. Predictable annual payments can provide income and stability to a farm operation. A solar lease could also have negative impacts on a farming operation. Removing parcels of land from agricultural production will require a reconsideration of the components of the operation. With fewer acres, operating costs could increase on remaining parcels. The loss of grazing, forage, or manure application land could require a decrease in livestock numbers. The location of the development could interfere with access to sections of the farm, making it more difficult to engage in farming activities.

It is also possible that a solar development will affect a landowner's ability to **leverage equity** in the land. Committing the land to a long term physical development like a solar energy project can affect the land's value and its desirability to loan lenders. Analyzing how a solar lease would impact business or personal lending and liquidity needs would be a useful discussion to have with a lender.

What **other land uses** on the farm could be foreclosed, limited or required because of a solar energy development? Be aware that a solar lease will prohibit a landowner from interfering in any way with the development's access to sunlight. This restriction could prevent a landowner from constructing new buildings or making improvements, even planting trees. It could also require a landowner to trim back or cut down existing trees that block sunlight. A lease could also prohibit hunting in or around the project site.

The location of the solar development site could interfere with the landowner's access to woodlots and water bodies. Additional house lots on the farm may not be possible or desirable, and the view of those who live on the farm could change from farm fields to solar fields. A careful assessment of these impacts on the farm and the land could prevent unexpected limitations on how a landowner can use land that is subject to or near the solar development.

2.4 Family matters

Farms and farmland can be important components of a family's heritage and wealth, which raises the need to know how all family members could be affected by a solar lease. Would a solar lease prevent or hinder the next generation's ability to farm the land? Do all family members support removing the land from agricultural production? Are there current estate or farm transition plans in place that must be revised if the land is subject to a solar lease? How might the solar lease affect retirement or long-term health care needs? Asking these questions of family members, an attorney, and a financial planner may provide necessary clarity on critical issues.

2.5 Property taxes

The construction and operation of a solar energy facility on farmland will affect eligibility for Ohio's Current Agricultural Use Valuation (CAUV) program. The program allows land that is devoted exclusively to commercial agricultural use to be assessed at a lower value for property tax purposes. Because a solar energy development is not

"commercial agricultural use" according to Ohio Revised Code § 5713.30, the land would not qualify for the CAUV reduced tax assessment. Additionally, removing the land from the CAUV program initiates a "recoupment penalty." A landowner who converts all or any portion of a parcel of CAUV-qualifying land to a non-agricultural land use must pay an amount equal to the tax savings the landowner received on the converted land in the three previous tax years. A recoupment fee for land converted to solar energy development could be significant, and future property taxes on the land will rise due to the loss of CAUV eligibility. Note, however, that a solar lease can address whether the landowner or the solar developer pays for these additional property tax obligations.

2.6 Government programs

Yet another question to consider is how leasing farmland for solar energy development will affect eligibility for government programs such as the USDA's Conservation Reserve Program, Conservation Reserve Enhancement Program, and Environmental Quality Incentives Program. Placing a solar facility on lands that are under these types of USDA program contracts could violate the terms of the contracts and trigger penalties, loss of future payments, or reimbursement of past payments. A solar developer might be willing to address these financial losses for the landowner. Because solar development on farmland is still relatively new, the USDA does not have a formal policy on the compatibility of solar energy facilities with conservation program lands. This makes it imperative for a landowner who has land in such programs or plans to enroll land in the future to discuss the situation and implications with the appropriate agency personnel.

2.7 Liability and insurance

Does having a solar energy development on the farm pose additional liability risks for a farmland owner? What if someone visiting the farm suffers an injury at the solar facility? What if a curious neighbor child breaks into the site and is harmed? Or a hunter's stray shot breaks a solar panel? These questions raise issues not only of whether a landowner will be responsible for someone harmed at the project site, but whether the landowner will be liable to the developer for harm to the solar project. The answers to these questions will depend largely on the facts of the situation and the terms of the solar lease agreement.

Insurance and indemnity clauses are common in solar leases. An insurance clause might require both the landowner and the developer to maintain certain levels and types of liability insurance. An indemnification clause might attempt to shift liability for damages or injuries to the landowner if such harm was not the result of the developer's inaction, misconduct, or negligence, or could work the other way and shift liability for harm to or by trespassers to the solar developer. Because of such insurance provisions, it's important for a landowner to review liability risk and insurance needs with an insurance professional. Insurance providers have risk analysts who can estimate appropriate amounts of coverage in light of the lease.

These risk assessments are a helpful piece of information for a landowner debating whether or not to enter into a solar lease.

2.8 Neighbor and community relations

Changing land from farmland to a solar energy project can affect neighbors and the surrounding community. As with other forms of energy development, there will be neighbors and others who do not like solar energy or don't want to see solar modules in the landscape. Some may fear that the development will lower their property values or will not be removed at the end of the lease period. Neighbors will be subject to noise, dust, and truck traffic during a solar project's construction period. Nearby organic farms and home businesses may be particularly concerned about potential impacts on their lands and businesses. All of these issues may raise conflict in the community and between neighbors, particularly if the neighbors are the last to know about an impending solar project.

Remember that the solar project approval process described in Chapter 1 allows any interested party to review the solar project materials and submit written comments on the project to the Ohio Power Siting Board. A landowner who is considering a solar lease must be prepared for both positive and negative reactions from neighbors and the community, and such reactions could be made public through the regulatory process. The landowner may need a plan for determining how, when, or whether to notify the neighbors of the solar lease and whether or how to address neighbor concerns.

Zoning is an issue that neighbors and community members might raise as a means to limit utility scale solar energy production. However, Ohio law limits local zoning authority over "public utilities." Counties and townships have no authority to regulate:

> *"the location, erection, construction, reconstruction, change, alteration, maintenance, removal, use or enlargement of any buildings or structures of any public utility* [...], *or the use of land by any public utility or railroad, whether publicly or privately owned, or the use of land by any public utility or railroad for the operation of its business."* Ohio Revised Code §§ 303.211(A), 519.211(A).

Supplying electricity for light, heat or power purposes to consumers within the state qualifies as a "public utility" according to Ohio Revised Code § 4905.03(C).

Note that the Ohio Legislature has granted a slight exception to this zoning limitation by giving counties and townships authority to regulate the location of small wind farms, but a similar exception does not exist for solar projects. Therefore, a county or township can't "zone out" a solar energy development that supplies electricity for consumers.

These limitations should not be confused with Ohio's "agricultural exemption" from county and township zoning regulations. Many farmland owners are likely familiar with this exemption, which limits county and township zoning authority over agricultural land uses and structure. The agricultural exemption does not apply to farmland that will transition to a solar energy development.

2.9 Who is the developer?

A multi-decade lease sets up a long-term relationship between the landowner and developer. Knowing who is on the other side of that relationship can minimize future problems between the parties. Is the developer in a sound financial position? If not, payment issues might arise. Is this a new business, or does the developer have little experience with solar energy production? If not, the project might not go as planned. What reputation does the developer have with other parties, especially other landowners? Answering these questions requires a farmland owner to engage in "due diligence" on the solar development company. While learning as much as possible about the company may be a difficult task, it could help avoid entering into a problematic relationship.

Be aware that in some cases, the initial contact with a landowner is by a "landman" or a land broker who is assembling parcels for or to sell to a developer. Landowners should verify whether the party they're dealing with is a landman or a developer. If the person is a landman, try to determine whether a developer is also involved and whether the landman has full authority to negotiate on behalf of the developer.

2.10 Professionals who can help you

This chapter illustrates the complexity of making a decision about leasing farmland for utility scale solar energy production. While we've raised many issues to consider, other professionals that farmland owners work with might have additional issues of concern for particular situations. These professionals can provide valuable insight and guidance for the solar leasing process. We recommend assembling a team of professionals who can help you, which could include:

- Attorney who is familiar with solar leasing
- The farm business or family attorney, if different than the above attorney
- Accountant
- Financial planner
- Lender
- Insurance professional
- OSU Extension professionals in energy education, farm management, agronomy, community development, and agricultural law

Final words on initial considerations

As with everything in life, there is always more to learn and think about. This chapter explains the important legal and social implications of signing a solar lease, but it should serve as a foundation for further inquiry. Each farm and each family is unique. A farmland owner may have other considerations to make before deciding to commit to a long-term solar lease. If your gut tells you to think more about a particular issue, trust your judgment to inquire.

Who can help you learn about a solar energy developer?

The developer. Ask for the most recent financial and annual reports, a project portfolio, and names of landowners with whom the developer has done business.

The Ohio Secretary of State's online "Business Search" tool. A landowner can see whether the company is registered to do business in Ohio, find its address and agent for contact purposes, and learn whether the company is operating for-profit or as a non-profit. The website's "Uniform Commercial Code" tool lets a landowner see whether there are any financing statements filed by creditors of the company. Find this information at https://businesssearch.sos.state.oh.us.

The Better Business Bureau. This organization can help determine whether people have lodged complaints against a company.

Credit check services. Companies like Dun and Bradstreet can provide a credit check on a business or individual for a fee.

County Recorder's office. Check for names of other landowners with solar leases that have been recorded in the public records. While others under lease may not be able to discuss confidential information, they may be willing to talk about their working relationship with the company.

Attorneys who have worked on solar leases. They may know about a solar developer, its reputation, and its willingness to work with landowners.

The Ohio Power Siting Board. A search through this agency's online records will show if the developer has any other energy development projects in process.

The Solar Energy Industry Association. SEIA established a business code to promote transparency, good faith, and understanding in the solar energy industry. Check the code at https://www.seia.org, and ask the developer if it is a member of the association.

A general online search. Use Google or another search engine to find the developer's website, along with any news, articles or other information about the developer.

Resources

"Energize Ohio," *Community Development*, OHIO STATE UNIVERSITY EXTENSION, https://comdev.osu.edu/programs/economic-development/energy.

"State Programs," *Farm Service Agency: Ohio*, UNITED STATES DEPARTMENT OF AGRICULTURE, https://www.fsa.usda.gov/state-offices/Ohio/programs/index.

Ted Feitshans and Molly Brewer, "Threshold Issues for Landowner Solar Leasing," NORTH CAROLINA STATE UNIVERSITY EXTENSION, (Feb. 2, 2016),https://content.ces.ncsu.edu/threshold-issues-for-landowner-solar-leasing.

In this chapter

- *Letter of intent*
- *Option to lease*
- *Solar lease*

3 Common Legal Documents

Legal documents can feel long and hazy, but they do not have to be hard to understand. Fortunately, solar energy developers often use similar legal documents to enter into the solar leasing process with landowners. Their contents will vary from developer to developer, but their purpose is consistent, as we explain in this chapter.

Solar developers have many ways of making an initial contact with a landowner in an area that's under consideration for solar development. A landowner might receive a letter, for instance, stating that the developer is seeking land for a solar energy development project and providing a phone number to call to learn more about leasing land for the project. Or a developer might send out a post card announcing a local informational meeting about a potential solar development project. These types of initial contacts are primarily informational and don't involve legal documents that seek to obligate a landowner to a leasing situation.

At some point, however, a solar developer will send a legal document or set of documents that attempt to engage the landowner in a legal agreement. Some developers prefer to use a "letter of intent" as the first step in the leasing process, while some may skip the letter of intent and send a landowner an "option to lease." Others might combine an option to lease with the actual solar lease. Because these documents can be legally binding, it's critical for a landowner to understand the content and legal implications of the documents. We explain each below and highlight important issues for landowners.

3.1 Letter of intent

One document that a solar energy developer may use after identifying a potential site for development is a letter of intent, also referred to as a term sheet or preliminary agreement.

The purpose of this type of document is to "reserve" the property while giving the company time to investigate the site. The document can be a short and informal notification to the landowner of the company's interest in the property, or it might be a more detailed description of the project with proposed solar lease terms.

Although a letter of intent is preliminary, a landowner must review a letter of intent carefully because the document might lock in the developer's right to lease the property if it decides to proceed with a project. If so, the terms in the letter of intent, such as payment amounts and length of the term, would be the terms that would apply to the leasing situation. A letter of intent that is signed by a landowner and contains the essential terms of a lease or a confidentiality clause can be **legally binding** and enforceable by a developer. However, if the document contains language stating that it is for "informational purposes only" or is "not to be interpreted as a binding contract," then the letter of intent is not attempting to bind a landowner to a contract.

The document usually includes a **confidentiality clause** that prevents the landowner from negotiating with other solar energy companies and requires the landowner to keep all information about the project confidential. This type of clause might state:

> "Landowner agrees not to solicit or negotiate or permit its agents or employees to solicit or negotiate or furnish information to any other solar power entity concerning the construction and development of a solar project on the Landowner's property."

3.2 Option to lease

While a letter of intent may or may not be binding, an option to lease is a binding agreement by a landowner that grants rights to the developer. Like a letter of intent, an option provides the developer with time to do its due diligence and investigate the property, secure other land parcels, and obtain financing and government permits. An option to lease will likely contain many of the essential terms of the solar lease. In fact, many solar energy developers will attach the proposed lease to the option document. Others might include an option within the lease, which negates the need for a separate option to lease document.

Be aware that while an option is binding on a landowner, **an option does not bind the developer** to actually develop the project. It only binds the developer if the developer chooses to exercise the option and proceed with the project. However, the developer must provide "consideration," the legal term for compensation, to a landowner in order for the option to be legally enforceable. The typical way to do this is to make a lump sum **payment** to the landowner for signing the option, which may be referred to as a "bonus payment." The option may also include the amount of an annual payment the developer will make to the landowner during the option period, on a per acre basis.

It's important to understand the **length** of the option period. An option might be in place at least one year, but it could last for several years or more. Two to five years appears to be common.

A developer may allow a landowner to continue to use the land for **crop production or grazing** during the option period. If so, there must be language in the option that addresses how the landowner can use the property during the option period. There should also be provisions for **damages to crops or forage** if the developer exercises the option and begins construction of the project when crops are in the ground. The document should explain how and when the developer will notify the landowner if it intends to proceed with the lease, which might allow the landowner time to remove crops and livestock from the project area in order to prevent damages.

Critical junctures

Whenever a solar energy developer sends you something in writing that requests your signature and offers you money, you want to make sure that you understand exactly what that document says.

We call this a critical juncture because the act of signing the document will **bind you** to whatever provisions the solar energy developer included, and courts will enforce it.

So be on the lookout for:
- A written document
- Requesting your signature and
- Offering you money

3.3 Solar lease

The solar lease serves as the primary written legal agreement between the farmland owner and the solar energy developer. It contains the terms of payment, the lease duration, rights and obligations of both parties, tax and liability issues, and more. Solar leases are commercial leases, and courts assume that parties to a solar lease can negotiate and understand the terms of the lease. While the law regulates residential leases to protect consumers, the law does not provide the same level of protection for a commercial lease. As courts are apt to enforce the terms of a solar lease, it is imperative that a landowner fully negotiates and understands the lease provisions. We discuss these provisions in detail in the following chapter.

Resources

Wendy Walker, "Agricultural Solar Energy Development: Understanding Lease Agreements for Utility-Scale Installations," MICHIGAN STATE UNIVERSITY EXTENSION (2019).

Final words on common legal documents

Solar energy developers commonly use documents such as the Letter of Intent, Option to Purchase and Solar Lease to create agreements with a landowner. Don't worry about what a document is called as much as what it means for you. It is in a landowner's best interest to **carefully read each document**. Ask questions, do research, and gain a clear understanding of what the document contains and how it obligates you. Be aware that signing a written document that requests your signature and offers you money may bind you to a legal agreement. When you receive a document from a developer, talk with an attorney and the rest of your professional team before signing the document.

In this chapter

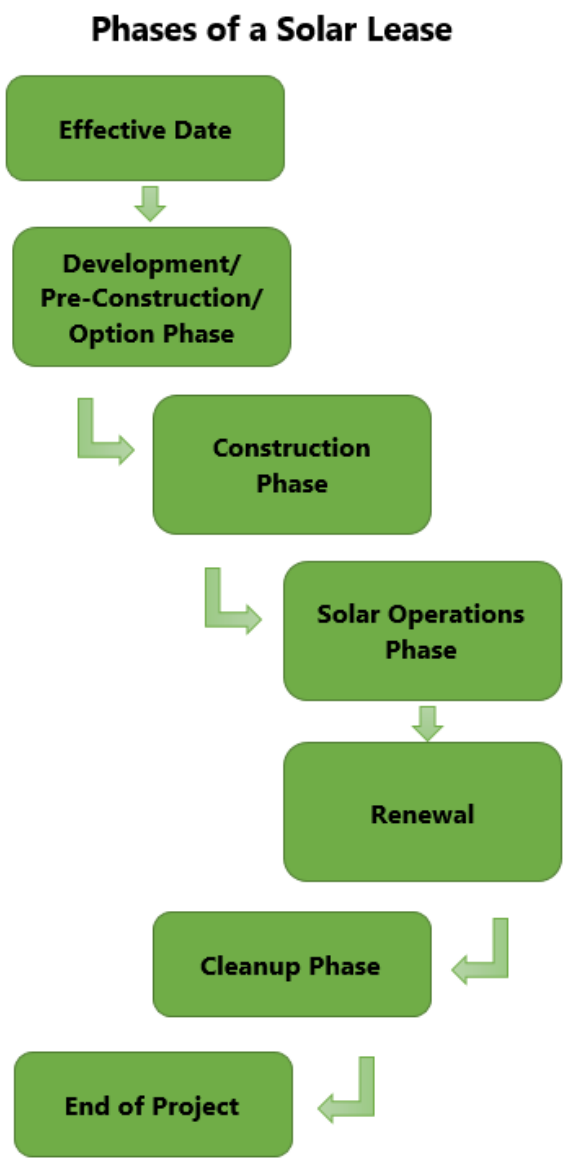
- *The life cycle of a solar lease*
- *Common solar lease terms*

4 The Solar Lease

The solar lease is a long-term legal agreement that will dictate the rights and obligations of the solar energy developer and landowner. A landowner who negotiates and fully understands the terms of a solar lease is more likely to be satisfied with the arrangement. We begin this chapter by explaining the life cycle of a solar lease, then discuss common solar lease terms and highlight leasing issues of importance to farmland owners.

4.1. The life cycle of a solar lease

A solar energy lease has a life: a beginning, an end, and defined phases in the middle. Each phase in the lease involves different activities that the developer will have a right to conduct on the property. A landowner's rights and restrictions might also vary during these different phases, as will the amount of the rental payments. For these reasons, it's important to understand the different phases of a solar lease, when each begins and ends, and the rights and obligations that accompany each phase. Before we examine solar lease terms let's take a closer look at the phases of a solar lease, which we've illustrated on the next page.



The beginning of the lease's life is known as the **effective date**, which is the date on which the parties have properly signed the agreed upon lease. From this point forward, the parties are bound by a legally binding contract. Upon the effective date, a solar lease typically enters into a **development or pre-construction phase**. If the parties had not already entered into an Option to Lease as explained in Chapter 3, then the lease might refer to this phase as the option period. During this phase, the solar energy developer is determining whether it will or can install a solar energy facility on the land. The developer will have rights to enter the property for surveys, feasibility studies, and other investigatory practices. The developer could also be working on project design, regulatory approval, securing financing, and similar activities. A landowner might have rights to continue farming the land during this phase, which may last for about two to five years. Typically, if the developer doesn't begin or give notice to begin construction of the project before the end of this phase, the lease will terminate.

The **construction phase** is the period of time when construction activities occur. This phase includes site clearing, construction and improvement of roads, installation of temporary structures, fencing, solar modules and transmission equipment, and any other activities necessary for installing the solar facility. The length of this phase might last from nine months to over a year, depending upon the size of the project.

The **solar operations phase** begins when the equipment is on the ground and solar energy is actively being produced. This phase can range from 15 to 30 years, which is intended to give a developer time to enter into long term power purchase agreements with energy buyers and maximize the anticipated useful life of the solar energy equipment.

A solar lease usually also contains a **renewal period** that would allow the developer to continue the project for an additional period of time without having to renegotiate the lease, likely five or ten years.

Once the solar operations phase has run its course, the **cleanup phase** begins. During this phase, the developer will remove the solar facility. A common amount of time for a cleanup phase is one year from the completion of the solar operations phase. The end of the cleanup phase also signals the end of the project.

4.2 Common solar lease terms

As we noted in chapter 3, while each solar energy developer's lease template may look different from others, the lease documents generally contain many similar provisions. This consistency allows us to explain what those leases contain and what to look out for.

The guide loosely organizes the topics in an order that seems fairly common in solar leases, but this does not mean that your lease will contain all of the terms and topics in this order, if at all. It may require a little digging and jumping around for you to determine whether something is or is not included in your lease.

In this chapter, we explain these common terms contained in many solar leases:

- The parties
- Description of the property
- Lease periods and payments
- Compensation for property damages
- Other compensation
- Easements
- Landowner obligations
- Property maintenance
- Termination
- Cleanup
- Miscellaneous legal clauses

Solar Power Purchase Agreement (PPA)

A solar power purchase agreement is a contract between an energy producer and a purchaser of energy. It outlines how much energy a purchaser will receive, how much the purchaser will pay for the electricity, and other important terms. Because a solar energy developer wants to ensure it has a purchaser of its energy, it often enters into a power purchase agreement that will last the same period of time as the solar operations phase.

The parties

A sometimes overlooked provision in a lease is the designation of the parties who are subject to the lease. The lease will refer to the solar energy developer as the lessee, tenant or company and the landowner as the "landlord," "lessor," or "owner." It's important that whoever holds the legal title to the property is the party designated in this way. If a husband and wife or other co-owners hold title to the property, both must approve and sign the lease. If a business entity holds the title, then the authorized representative must sign the lease on behalf of the business entity, but only after the entity has approved the lease according to its operating provisions. Likewise, if the land is held in a trust, the trustee must have the authority to enter into the lease according to the provisions of the trust and must sign the lease on behalf of the trust.

Description of the property

A solar lease must accurately describe the location and amount of property that is subject to the lease. While this may sound simple, inaccurate or vague descriptions can occur and can create uncertainty in the future. A landowner should review the description carefully before signing a lease to avoid being caught by surprise later when learning that the lease burdens more, less, or different land than the landowner thought.

One approach to describing the property is to include a **legal description** in the lease, often taken from the deed for the property. However, old legal descriptions may be outdated or may require revision if only a portion of the property is to be included in the lease. For these reasons, the parties may want a new **survey of the land**. In this case, the lease should state who will pay for the survey, what type of survey is acceptable, and when the survey must be completed. Many developers appear to prefer having a new legal survey of the lease property and will include this provision in the lease.

Another approach is to also include a **map or photograph** of the property that identifies the project's boundaries. This may be based upon the surveyor's work, a tax map, or an aerial photograph. This can be helpful because it shows clearly identifiable landmarks such as waterways or structures, allowing the landowner to visualize and verify the project boundaries.

Lease periods and payments

As we explained at the beginning of this chapter, the solar leasing arrangement has several distinct phases, referred to in the lease as periods or lease term. Note that not all leases use the same names for these periods, so a landowner might see different designations than the periods we describe. Less important than the name for a period is what occurs during the period, how long the period may last, and the amount of payment for the period. It is likely that the amount of the payments will vary for different periods of the lease. For example, the rental payment will likely be at its lowest value during an option period and at its highest amount when the facility is operating and producing energy. A landowner should also understand the entire length of time that the lease will be in place, determined by adding all of the periods together.

If a separate option to lease doesn't already exist, a lease will include an **option period**. This is the amount of time the developer has for determining whether the project will move forward. The option should contain provisions for how the developer must notify the landowner that the project will not proceed. Once a developer gives such notice, both the option period and the lease itself comes to an end. Some developers pay a lump sum amount for the option period, some pay a "bonus" or lump sum plus an additional annual rental payment, and some might pay only an annual rental amount.

Take a look at this example of option provisions in a solar lease:

> "Option Term: Five (5) years. Developer shall have the right to terminate the option.
> Initial Consideration: Within fifteen (15) days of execution of the Option, developer shall pay to owner $X as initial consideration.
> Option Payments: $X per acre per year shall be paid to Owner on an annual basis during the term of the Option."

A lease will also describe the **development or construction period**. This phase of the lease typically begins once the developer announces that the project will proceed, commonly referred to as "exercising the option." Some leases refer to one development period and include construction activities and one rental amount throughout the period, while others might separate the development and construction periods into two distinct terms with different time periods and payments for each. Here's an example from a solar lease that designates a development period:

> "Development Period: The period commencing at the end of the Option Period and expiring on the date three (3) years thereafter.
> Development Period Payments: $XX/acre/year."

The **solar operations period** is the longest period of time in the lease and probably the period that receives the most attention from a landowner as it represents a significant revenue stream over a long period of time A lease usually describes this period as the time during which energy is being produced at the site. The rental amount is typically highest during this period, and will likely include an adjustment for inflation because the period may last for 20 years or more. The inflation adjustment may be tied to a measure like the Consumer Price Index, or may be a fixed rate to provide more certainty for the developer's project costs. Here is an example of an operations period provision:

> "Operations Period. The solar operations phase of the Project will be for a period of thirty (30) years from the date when at least one solar generating facility is installed and operational on the Premises.
> Operations Rent. During the Operations Period, an annual payment equal to the sum of $XXX per acre of land within the Solar Project Area and $XX per acre of Property outside of the Solar Project Area. The Operations Rent shall be adjusted upward annually by two and one-half percent (2.5%) each year (the "Inflation Adjustment Factor")."

A lease's **renewal** clause allows the developer to extend the lease for an additional amount of time. Renewals are at the option of the developer, and renewal automatically occurs if a developer provides notice of the renewal to the landowner. Certain lease terms could be renegotiable in a renewal situation, such as rental payment. The period for a renewal term varies among solar leases from about

five to 20 years. Some leases include one set period of several years or more, and some allow up to two or three renewal periods. A renewal provision might read:

> "Developer will have the right at its option to extend the solar operations phase for up to two additional periods of five years. To exercise its option, Developer must deliver a written extension notice to the Owner at least six months prior to the expiration of the solar operations phase. Developer will have no right to extend the lease term beyond its two additional periods."

Finally, a lease may contain a **cleanup period**, which gives the solar energy developer a set period of time to remove the equipment and restore the land. The typical time allotted for cleanup is around 12 months, depending upon the project size. More on cleanup later.

Adding all of the periods in the lease term together will clarify the **total length** of the leasing arrangement. In the above examples, the option period could last for up to five years, the development period would last for three years, the solar operations period would be in place for 30 years, and there is a possibility of two five-year renewals. The total period of time that the land could be subject to the lease would be 48 years.

Compensation for property damages

A lease should also include other payments that compensate a landowner for damages that occur to the landowner's property over the lifetime of the lease. Of particular importance to farmland owners is the possibility of damage to the farm's **drainage system**. Moving equipment, building roads and laydown yards, installing cable trenches, installing posts, and other similar construction activities could interfere with or damage both subsurface drainage tiles and surface drainage ways. A lease should specify how a developer will address these situations, either by compensating the landowner or repairing the problem. Compensation measures could address both the drainage infrastructure and harm to crops or property due to a drainage interference. If a developer is to make repairs, a lease may include guidelines for the repairs. To avoid the possibility of harm to drainage infrastructure, a lease might require a landowner to provide a map to the developer showing all drainage improvements on the property.

Compensation for **crop damage** is another unique issue of concern for farmland owners, as this example illustrates:

> "During initial construction, Developer shall pay Owner for damages to crops on a per acre basis (prorated for fractional portions of an acre), for any and all portions of the Premises that are taken out of commercial crop production during the construction of the Solar Facilities and any and all crops that are removed or damaged as a direct result of Developer's construction and operations."

Harm to crops first arise if a developer decides to begin construction activities when crops are still in the ground. Damages to crops might also inadvertently occur when maintenance and similar activities are carried

out throughout the lease period. In these situations, a lease can require a developer to compensate the landowner for crop losses. It's important, however, that the lease address how to determine the value of an unharvested crop. Common factors to consider are the location, average yield in the area, and predicted price that would have been paid for the crop. Each lease may use a slightly different calculation, or at least involve different definition for such factors. Here's an example of a crop damages calculation provision:

> "Crop damage will equal the amount of damaged acres (based upon Owner's reasonable estimate as agreed upon by Developer's representative) multiplied by the average yield in the county where the property is located multiplied by Price multiplied by 1.1.
>
> The average yield in the county where the property is located shall be based on the average yield for the latest three years in the county as published by the National Agricultural Statistics Service.
>
> The price shall be based on the respective commodity's futures price for December delivery with the Chicago Board of Trade as of the close of the 15th day of the month during which the damage occurs."

In the above example, crop damages equal Acres X Average county yield X Price X Multiplier of 1.1. The farmland owner should understand these term, and what they mean for crop damage payments.

For example, *acres* refers to the volume of land affected by the developer's activity and taken out of agricultural production. In the example, acreage is based on a reasonable estimate by the landowner and the developer has the right to challenge this acreage estimate.

The *average crop yield* for the county refers to the expected volume per acre of crop that would have been produced had this crop made it to harvest. It's common to follow an approach like the example and average the yield over several years. A lease will also identify a data source for yields, such as the National Agricultural Statistics Services.

The *price* for the crop is likely to cause the most confusion for farmland owners. The simplest method is to use an objective benchmark such as a market commodity price for a set day in the month during which the damage occurs. The *price* is not determined by the market value of the crop on the day it was damaged, but by the market value on the specified day in the month the damage occurred.

A crop damages calculation might also include a multiplier that serves as a bonus payment to compensate the farmland owner beyond the calculated fair market value of the lost crop alone. The multiplier recognizes that the crop could have been worth more in reality, or may serve as an act of good faith, or an apology for the landowner's loss of sweat equity in the crop.

Other compensation

Some solar energy developers will offer to cover **expert expenses** incurred by the farmland owner in conferring with an attorney, accountant, or other advisor about the solar lease. The total amount covered by the developer may be capped at a certain dollar amount, so the landowner will want to ensure that the cap provides enough funds to seek adequate counsel for an informed decision.

A lease can also provide compensation for removing the land from a **differential property tax assessment program** such as Ohio's Current Agricultural Use Valuation program. This provision should cover the entire amount of the "recoupment fee" that the landowner must pay for converting the land and removing it from the program. Likewise, a lease can reimburse the landowner for any **conservation program** penalties resulting from the withdrawal of lands from government programs. We discuss these issues in more detail in Chapter 2 of this guide.

Easements

An **easement** is a legal right to use the property of another. A typical solar lease includes multiple easements that grant the developer different rights to use different parts of the property for different purposes. It's important for a landowner to know which type of easement exists on which part of the property, and the time period or extent of each easement.

Most solar energy leases contain the following types of easements:

- Construction easement
- Access easement
- Transmission easement
- "Nuisance" easement
- Solar easement
- Catch-all easement

A **construction easement** provides the solar energy developer with the right to access the land for the purposes of preparing the ground for development and installing the solar equipment. In addition to constructing the solar panel system, construction activities are also necessary for temporary and permanent access roads, "laydown areas" used for staging the equipment until it is installed, and areas for office trailers, parking, and employee activities. Since such activities involve heavy machinery and gravel yards, landowners should consider the location and impact of the construction activities that are granted by the construction easement. Negotiation might be necessary, especially if the landowner has future plans for construction areas.

An **access easement** grants the developer the right to cross the landowner's property to

> "Owner grants an easement over, across, and on the Premises for ingress to and egress from the Solar Facilities by means of any existing roads and lanes, or by such route or routes as the Developer may construct from time to time at its discretion. Such right will include the right to improve existing roads or lanes, or to build new roads."

access the solar energy facility. Here's an example:

This provision allows the solar energy developer a number of important rights. It grants a right to use existing roads, lanes, and access points on the property and also lets the developer improve those paths. The example doesn't define the extent of such "improvements," so a landowner may want clarification on this issue. We can assume that improvements could include laying down gravel, installing drainage ways, constructing a bridge, or other measures "reasonably necessary" for access. The easement also allows a developer to create a new road or lane on the property. Sometimes this provision will include language that gives the developer sole discretion in determining the new routes. If there are areas that a landowner does not want to be developed as new roads or lanes or if the landowner wants to have a voice in the location of the roads, the landowner must negotiate such terms so that they are included in the lease.

In addition to getting its people and equipment to and from the solar facility, a developer needs to get its power to the grid. A **transmission easement** grants the developer the right to install equipment and power lines for transmission purposes. This easement can include the installation of power lines, poles, or channels above, on, or beneath other parts of the landowner's property that are beyond the solar project location, as determined by the developer. The easement also allows the developer to access the transmission areas for the duration of the project and make repairs or improvements over time. As with the other easements, a landowner must negotiate any exceptions or parameters to these rights before signing the lease. A transmission easement provision may look like this:

> "Owner grants an exclusive easement on, over, and across the Property for one or more line or lines of poles and/or towers, with such wires and cables as from time to time are suspended therefrom, and/or overhand and/or underground wires and cables, for the transmission and/or collection of electrical energy and/or for communications purposes, along with all necessary and proper foundations, footings, towers, poles, cross arms, guy lines and anchors and other appliances and fixtures for use in connection with said towers, wires, and cables."

The development, construction and operation of a solar facility can create annoyances or inconveniences to landowners, such as noise, dust, traffic, vibrations of the earth, and sun glare. In anticipation of these potential impacts, solar lease agreements will include a **nuisance easement**. This easement prevents the landowner from bringing a nuisance claim against the developer. Note that the easement does not apply to neighbors who may believe that the activities create a nuisance since the neighbors are not a party to the contract and are not bound by its terms. Here's a typical nuisance easement:

> "Owner grants an easement and waives any claim arising in nuisance for conditions common to solar energy projects, such as construction activities, maintenance activities, noise originating from equipment, reflective glare, and other nuisances."

A solar facility needs one crucial component: access to the sun. The all-important **solar easement** ensures that the solar facilities can receive sunlight without interference from the landowner, as this example illustrates:

> "Owner hereby grants and conveys to Company an exclusive easement on, over and across the Premises for the open and unobstructed access to the sun to any Solar Facilities on any of the Project Properties and to ensure adequate exposure of the Solar Facilities to the sun."

This provision may apply to all the land owned by the landowner, regardless of proximity to the solar energy facility. It might also specifically prohibit the landowner from placing any new trees, buildings and other improvements on the property in a way that the developer believes will interfere with solar access.

Be aware that a solar lease agreement might also include a **catch-all easement** that aims to maximize the developer's right to use the land. These provisions are often broad and vague, which could be problematic for a landowner.

Landowner obligations

The lease is not all about the solar energy developer. The farmland owner also has obligations and rights under the lease agreement. Some of these are for the benefit of the solar energy developer, but many benefit the farmland owner. Four common lease terms obligate the landowner to act, or not act, in a certain manner. While each may only be a sentence or two long, they include important restrictions on what a landowner can or cannot do in regards to the leasing arrangement.

A **non-interference** provision is a promise by the landowner not to interfere with the solar energy developer's rights and easements. A broad non-interference provision will state that a landowner cannot impede the solar energy developer's ability to construct, operate, and do anything it is allowed to do under the agreement.

An **exclusivity provision** guarantees the developer's right to sole possession of the lease property. An exclusivity provision might also prohibit the landowner from allowing other solar developments on the landowner's premises, such as this example:

> "Owner shall in no event construct or allow others to construct any solar energy facility or similar project on the Premises."

A **quiet enjoyment provision** allows the solar energy developer to peacefully enjoy all of its rights under the agreement and may explicitly state that the landowner promises

not to hinder or interrupt the solar energy developer's rights or allow any other party to do so for the duration of the lease agreement. Such a provision can force the landowner to defend the developer's rights in the property against any other parties.

We mentioned **confidentiality clauses** in Chapter 2 when we explained the Option to Lease document. A solar lease will also usually include a confidentiality provision that prohibits the landowner from sharing certain information contained in the lease. Many confidentiality provisions begin by protecting the financial and payment terms of the lease, which keeps one landowner from knowing how much another landowner will receive for a solar lease. A confidentiality clause might also cover methods and technology that the solar energy developer believes is its proprietary information. Take this example of a confidentiality clause:

> "Owner shall maintain in the strictest confidence all information pertaining to the financial terms and payments under this Lease, Developer's site or product design, methods of operation, methods of construction, power production, and other such information deemed proprietary by the Developer."

A confidentiality provision also usually includes termination and expiration language that continues confidentiality beyond the lease period. Take this example:

> "The provisions of this confidentiality clause shall survive the termination or expiration of this Lease."

This example does not stipulate how long beyond the end of the lease that the confidentiality clause will last. In such a case courts usually conclude that the clause lasts for "a reasonable time."

Many leases also address **owner improvements**, and what happens when an owner's improvements interfere with the project's open access to the sun. Often lease agreements will allow existing structures and trees to remain, but either require developer permission for future improvements or impose certain criteria that the landowner must follow to build a new structure nearby. Landowners may be able to negotiate for an improvement term that requires the solar energy developer to consent to an owner's request so long as the improvement does not negatively impact the solar facility's access to sun. Farmland owners who want to protect certain structures or guarantee the ability to add structures in the future want to read these provisions carefully to ensure that the farmland owner's needs are addressed.

Once the solar energy development has been constructed, landowners will retain the right to use the access easements granted to the solar energy developer. However, the landowner cannot interfere with the solar energy developer's use of the easement path.

Property maintenance

A solar lease should address who will maintain the property in and around the solar project site. Often, the solar energy developer will be responsible for mowing, removing weeds, keeping brush under control, and maintaining access points.

Developers prefer to keep this responsibility so that only its personnel will be near the project site. However, the lack of clear standards for property maintenance in a lease could become a point of contention.

Consider **noxious weeds**. In Ohio, noxious weeds are invasive or harmful plants designated by the Ohio Department of Agriculture to pose a risk to humans, ecosystems, or agricultural crops and livestock. Landowners have a legal duty to destroy noxious weeds located on their property after proper notification by the township. Failure to remove noxious weeds can result in government action and assessment of the costs of the removal on the landowner's property taxes. This type of problem could be avoided if the lease explains which party bears the responsibility to maintain the property. The lease can spell out who is responsible for **mowing the grass and weeds**, which is typically the developer, and outline what happens when the party responsible does not meet its obligations.

Some developers have interest in alternative solutions for maintaining the vegetation around a solar project site. A lease might allow the landowner to **plant crops** that are compatible to the site and will not interfere with the panels, such as alfalfa and clover. A lease might also allow **sheep** to graze among the solar panels. Unlike goats, which try to climb onto solar panels, and cows, which run into or rub up against the panels, sheep pose no risk of harm to a solar energy site.

Another option that might appear in a lease is to create **pollinator habitats** in the solar project area. This type of arrangement can

address who is responsible for planting and maintaining the habitat, and what to do if or when noxious weeds grow within the pollinator habitat area.

Termination

It's possible that a solar lease will not make it to the end of its natural life and one or more parties will find it necessary to **terminate the agreement**. Any thorough legal document or contract will outline when parties may permissibly terminate the agreement early, and what happens when they do. Solar leases commonly grant the developer the right to terminate the lease upon written notice to the landowner, with the notice taking effect a month or so after. On the other hand, farmland owners often may only terminate the solar lease in the event that the solar energy developer commits a material default of the lease, such as habitual non-payment of rent.

Cleanup

A solar lease will likely address two types of cleanup situations: post-construction and

post-project cleanup. **Post-construction cleanup** addresses the solar energy developer's duty to restore the land once the solar panels and all other equipment have been installed. Here's an example:

> "After the construction of the Solar Facilities, the Developer will remove any construction debris and will restore the portions of the Premises not occupied by the Solar Facilities to substantially the same condition that such portions of the Premises were in prior to the construction of the Solar Facilities."

A provision like this requires the solar energy developer to put the property in "substantially the same condition" as before construction began. This could require leveling of land, removal of construction materials, or reinstalling a fence that had to be removed. A landowner who wants the land restored in a certain manner after the solar panels have been installed should specify what he or she expects. This could include taking pictures of the land before construction.

Post-project cleanup deals with the solar energy developer's duty to restore the land once the lease has ended, whether due to expiration, termination, or otherwise. The clause should outline when and how the developer will remove all of the solar facility from the landowner's property. Take a look at this post-project cleanup clause:

> "At the end of the Term, including upon any termination of the Lease, the Developer will remove all of its Solar Facilities within twelve months from the date the Term expires or the Lease terminates."

The example gives the developer a set time frame to remove its solar panels and equipment from the property: A lease might pair this type of clause with an express easement that grants the solar energy developer a right to continue to access the land during the cleanup time frame. A lease should lay out what happens if the solar energy company fails to remove its equipment. For example, a lease might grant the landowner permission to clear the equipment and seek reimbursement from the solar energy developer for the cost of removing the equipment.

An important provision for the landowner in regards to cleanup is a requirement for a developer to **escrow** funds as security to cover the cost of cleanup. The funds can be placed into an escrow account or an investment grade security. The landowner would likely only receive the funds if the solar energy developer fails to remove its equipment as scheduled.

Also in the landowner's best interest would be standards for **restoring the land** after removal of the equipment. If the solar energy developer installed foundations to support the solar panels or other equipment, will they be removed? Will they be removed entirely, or only to a certain depth? Did the construction affect drainage tiles? Does the landowner want the solar energy developer to leave improvements such as gates and fences or roads? These are all important issues that a lease can address, with pictures and descriptions of the property to provide guidance.

Miscellaneous legal clauses

As with any legal document, a solar lease will include common "boilerplate" terms. A **warranty of title** clause is a promise by the landowner that he or she is the true owner of the property and has the right to encumber the property. This clause should include an exception for previously existing encumbrances that are recorded or disclosed by the landowner, which would prevent a developer from terminating the lease by claiming that a landowner does not have clean title to the property.

A **hazardous materials** clause requires the farmland owner to certify that the land is in compliance with all applicable environmental laws and regulations, and that the landowner will continue to comply with all required environmental laws through the duration of the lease. As a companion duty, the developer also promises to comply with all environmental laws once it takes possession of the property. These companion promises relate to an often included indemnity provision that requires the party at fault to take responsibility for any financial, restoration, or other penalties.

Indemnity clauses aim to place legal liability on the party that has possession and control of a condition that causes harm. A solar lease will place liability for harm resulting from the solar project on the developer, while maintaining the property owner's liability if a person is harmed on other property areas and conditions that under the landowner's control.

A **condemnation** or eminent domain clause addresses what happens if the government to seizes some or all of the property its use. The clause should address whether a developer has to stop paying rent, and how to divide a condemnation award. The developer may attempt to claim all of a condemnation award as compensation for its improvements, loss of revenue, relocation costs, and lost value of its project. A more equitable split of a condemnation award would address both the developer's investment and the value of the real estate taken from the landowner.

Force majeure is common in many legal documents and addresses uncontrollable and unforeseeable acts of God. In the solar leasing context, a force majeure provision may allow the solar energy developer to suspend rental payments when an act of God prevents it from operating on the property or complying with any provision in the lease. The clause might also lengthen the term of the lease by the amount of time that the solar energy developer could not operate. This would mean that the solar energy developer would not pay rent during its down time and the lease term would automatically extend by the amount of the down time.

Lender protections frequently arise in solar leases, and are not usually negotiable. A developer's lenders may require guarantees that their financial investments in the project will be protected. Such clauses in the lease assure that the developer's lenders can recoup investments if there is a default by foreclosure or some other legal means.

Arbitration is a popular clause in many legal documents today. Arbitration is an out of court process that relies on one or more arbitrators to serve as decision makers for a dispute between two parties. An arbitration decision is binding on the parties and is enforceable in court. Be aware that some arbitration clauses prohibit a party from appealing the arbitration decision to a court of law, meaning that the landowner does not have another chance at resolving the problem. Look for a clause that does allow for an appeal and also requires mutual consent by the parties to use a particular arbitrator or arbitration service, which gives the landowner a say in who will be making a decision.

A **jury trial waiver** would prevent a landowner from requesting a trial by jury if a dispute arises with the solar energy developer. These clauses operate on the premise that a jury is swayed by emotional arguments, favors local residents, and has more discretion than a judge in applying the law, factors that tend to benefit a landowner more than a company. For these reasons, a developer may seek to have the landowner waive the right to a jury trial and have a judge make a decision. Landowner attorneys commonly seek to remove this clause and keep a jury trial as an option in the event of a dispute that goes to a court of law.

A **damages waiver** is an attempt to avoid compensating for any harm that results from a party's actions. In the solar leasing context, a damages waiver would run contrary to other provisions discussed earlier for damages to property, drainage, and crops, so should not be included in a solar lease.

Choice of law and choice of venue clauses are in many legal documents to provide predictability about where a dispute will be heard. If a legal dispute arises, these clauses pre-determine the location and state law that will apply to resolving the dispute. Such clauses are common when the parties are from different states. A landowner in a solar leasing situation will want to ensure that the disputes would be heard in the state where the leased property exists.

Attorney fee clauses take on a number of shapes and sizes, but are meant to shift the costs of litigating a dispute on one party or another. Beware of a solar lease that requires a farmland owner to pay the legal fees of the developer if any disputes result in legal action.

Resources

"Farmers' Guide to Solar and Wind Energy in Minnesota," FARMERS' LEGAL ACTION GROUP, INC. (2019) http://www.flaginc.org/wp-content/uploads/2019/04/Farmers%E2%80%99-Guide-to-Solar-and-Wind-Energy-in-Minnesota-April-2019.pdf.

Shannon Ferrell, "Solar Leasing for Agricultural Lands," National Agricultural Law Center (April 4, 2018) [webinar] https://nationalaglawcenter.org/consortium/webinars/solarleasing/.

Shannon Ferrell, "Understanding Solar Energy Agreements," NATIONAL AGRICULTURAL LAW CENTER (2019).

"Guide to Land Leases for Solar," SOLAR ENERGY INDUSTRIES ASSOCIATION (2016).

Solar Power Purchase Agreements," *Green Power Partnership*, U.S. ENVIRONMENTAL PROTECTION AGENCY, https://www.epa.gov/greenpower/solar-power-purchase-agreements.

Final words on the solar lease

A solar lease details the relationship between the solar energy developer and the landowner. Just as every relationship and piece of property is unique, each lease will be unique. This chapter examines a number of terms commonly included in a solar lease, but a lease may contain additional terms or may not include all of the terms covered here.

Understanding a lease document may take time, patience, and a willingness to ask questions. Consulting an attorney with experience in agriculture or solar energy leasing would be a wise step.

On a final note, entering into a solar lease means entering into a long-term relationship with a solar energy developer. A good working relationship requires good communication, and also a good understanding of the parameters of the relationship. The lease provides those parameters.

5 The Farmland Owner's Solar Leasing Checklist

Entering into a long-term lease agreement for your land is a big decision. Whether you're just starting to think about solar leasing on your land or already have a lease waiting for your signature on your kitchen table, the best time to make sure that a solar lease is in your best interest is now.

The following checklist condenses the information from this guide to help you remember things to do, issues to consider, people to consult, and questions to ask before and after signing a lease. The checklist is not an exclusive list, but is a starting point to help you get organized as you consider whether and how to lease your farmland for solar energy development.

1. Assemble your team of experts. You do not have to make an important decision like this on your own. From family members to your attorney and accountant, others can help you make an informed decision. Include the following in your team:

___ Attorney
___ Accountant
___ Insurance provider
___ Lender
___ Extension educator
___ Family
___ Business partners
___ Neighbors

2. Research the solar energy developer. It's always a good idea to know who you're dealing with in a business transaction. Research the developer who's contacted you about a solar lease. Does the developer have a good reputation with other leasing landowners, the Better Business Bureau, Public Utilities Commission, and Attorney General? Does it have other solar energy projects pending or in existence, and any problems with existing projects? Your own research and your team of experts can help you answer these questions.

3. Talk to your family. A solar lease can take a lot of land for a long period of time. Consider the following questions to make sure that you understand what this lease would do to your land, your family, and your plans for the future.

- How would the land and farm operation be impacted by this lease?
- What are the family's long term goals for the farm, and does this lease interfere with or support those goals?
- How does the family feel about not being able to use the land for a long period of time?
- How does the family feel about seeing and living with a large scale solar development on the farm?

4. Seek out Extension experts. OSU Extension and other state Extension organizations have expertise that can help guide you in the decision making process. Check out OSU Extension's Energize Ohio website, https://comdev.osu.edu/programs/economic-development/ energy for information about solar energy. A few questions Extension experts might help with include:

- Is there any data on rental values and crop damage payments in my area for solar leases?
- Are you familiar with this solar energy developer or its reputation?
- Can you connect me with other landowners in the area who have or are considering solar leasing?

5. Read all documents carefully and with professional assistance. The documents a solar developer gives to you can be legally binding once you sign them. Don't sign anything you don't understand. Make sure your team of professionals know about these documents, and let them help you review them.

6. Consider the terms of the solar lease. On the first read through, you don't have to understand everything in the lease. Note anything you don't understand so that you can ask questions and gain a clear understanding of what the lease proposes. Specific terms in the lease to review include these:

___ Accurate description of the property and parties
___ The term of each lease period, when each period begins and ends, and the total length of the lease
___ Whether renewal is permitted, how to renew, and length of renewal periods
___ Rental payments, inflation adjustments, and how each will be calculated
___ Whether farming and similar activities can continue prior to construction of the facility
___ Who pays for penalties for withdrawal of land from CAUV and government programs and termination of farmland leases
___ How to deal with existing mortgages
___ How damages to crops, improvements and drainage will be addressed
___ The types and extent of easements granted
___ Obligations of the landowner, such as non-interference and confidentiality requirements
___ Post-construction clean up obligations
___ Limitations on owner improvements such as new buildings, fences and tree plantings
___ Responsibility for maintaining vegetation, weeds, access points, driveways and fences
___ What happens if either party terminates early
___ Cleanup and restoration of the property at lease end, including funds for cleanup
___ Landowner's hunting and recreation rights
___ Potential interferences with mineral rights
___ Indemnity and insurance provisions
___ How conflicts will be resolved, including arbitration and waiver of jury trial clauses
___ How weather and acts of God affect obligations
___ Handling of proceeds from eminent domain actions
___ Payment of attorney fees if disputes arise

7. Meet the solar energy developer. Entering into a solar lease means entering into a long term business relationship with a solar energy developer. It's important to determine early on what kind of business relationship you would have and to review important lease provisions with the developer. The following questions can help.

- How long has your company operated in Ohio?
- How many similar projects have you completed?
- Can you refer me to other landowners that your company has partnered with?
- What is your timeline for this project?
- Do you intend to sell the solar facility after it's constructed?
- Will your company cover my expenses to have an attorney review the lease?
- What ingress and egress paths will be needed for construction and post-construction?
- How frequently will your agent(s) be on site?

- What will my land look like after the project has ended and been cleaned up?
- What are your procedures for cleanup?
- How do you handle property maintenance, and are there opportunities for grazing or haying on the site?
- What happens if or when your company causes damage to my crops?
- What happens if or when your company causes damage to my drainage tile?
- Will you notify me and neighbors when construction will begin?
- Do you take precautions to protect nearby lands from harm during construction, such as organic farms and home businesses?
- How can I contact your company?
- How quickly can I expect a response to a question or concern?
- Will you add verbal promises to the written lease?

8. Review the lease with your attorney. An attorney can ensure that you understand the lease. An attorney with experience in advising agricultural clients may have additional insights into provisions farmland owners should negotiate to include in their leases, such as crop damages and land use rights.

- How many solar energy leases have you reviewed?
- How much do you charge to review and negotiate the lease?
- Are you familiar with this solar energy developer or its reputation?
- Can you answer these specific questions I have about the lease provisions?
- What protections for me, my family and my farm are missing from the lease?
- How does this lease affect my estate plan and farm transition plan?
- How does this lease affect my long-term health care plan or options for health care?
- How does this lease affect my property taxes, government programs, and existing farm leases?

9. Check in with your accountant. Your accountant is your numbers expert who can analyze financial implications and consequences. Ask the following questions:

- What will the lease pay me for rental, and are the damages compensations calculated fairly?
- What are the tax consequences of signing this lease?

10. Consult with your insurance provider. Leases almost always include provisions about how much liability insurance each party must carry. Ask your insurance provider to determine whether you need additional coverage, and how much that will cost.

- Do I have the type of liability coverage that this lease requires me to have?
- What type and level of coverage do you recommend for this situation?

11. Talk with your neighbors. Neighbors will be impacted by the construction and long-term existence of a utility-scale solar development in the neighborhood. Some neighbors, such as organic farmers or home-based businesses, may have needs for special protections. Others may

react negatively to a proposed solar development. Knowing your neighbor's views and concerns can help you determine whether and how to proceed with a solar lease.

12. Review the survey or aerial maps provided by the solar energy developer or its surveyor. It's important to know what land would be affected by a proposed lease. If a survey has not been conducted, then you may need to contact a surveyor to obtain an accurate understanding of the land that would be affected by the lease.

13. Ensure that you have good title. Solar energy developers prefer to lease property that is free and clear of third party burdens such as liens and similar legal interests. Conduct a search of your property records online or at your county land records office to ensure that no surprise encumbrances have been recorded.

14. Re-read your documents. By now you should have a firm grasp of what your lease and other documents say, what signing the documents would mean for you, your family, farm, and community. If you read something again and have more questions, be sure to find an answer before signing.

If you do sign a lease

Your efforts don't end with signing a solar lease, as you've now begun a long term business relationship. Below are a few suggestions for next steps to take after entering into a solar lease. We recommend that you continue working with your professional team to identify other long-term needs for your leasing situation.

1. Store all documents and agreements in a secure location. Maintain both a hard copy and a digital copy of all documents associated with the solar lease.

2. Set up accounts and procedures for rental payments. Keep records to ensure that you receive all payments due under the lease.

3. Document any instances of property damage or other violations of the lease agreement. If the developer or its agent causes unauthorized damage, document when and how the damage occurred and the extent of the damage. Photographs or videos serve as important pieces of evidence.

4. Track your option period. If the developer doesn't notify your or begin construction by the end of the option period, the lease likely terminates. Know when the option period ends and you'll know if the lease continues or terminates.

5. Contact the developer for any permissions as required in the lease. Your lease may have included provisions requiring that you seek permission when engaging in certain activities like hunting, building structures, or planting trees near the project site. If permission is required under the lease, engaging in that activity without such permission would constitute a breach of contract.

6. Follow the dispute procedures in the lease. If you have a dispute about the lease, make sure that you refer to the lease to ascertain how you are to handle a dispute. If you don't follow the procedures outlined in the lease, you could lose certain rights to continue to dispute the issue.

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Land Use Conflicts Between Wind and Solar Renewable Energy and Agricultural Uses

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I. Introduction

The terms "solar farm" and "wind farm"[1] could not more perfectly demonstrate the inevitable pairing of renewable energy and agriculture as uses of land. At the same time, harvesting the sun and wind and converting both to energy forms usable to mankind are far from traditional agricultural practices.

Many states have renewable energy policies, goals, or even mandates that encourage the development of large utility-scale renewable energy facilities.[2] Utility-scale facilities are those that produce energy to sell directly to the electrical power grid—these may have size requirements based on acreage or power production capacity.[3] These renewable energy efforts raise the question of where to put the renewable facilities, particularly facilities that take up considerably more land or surface area than traditional sources of energy, at least initially.[4]

[1] Energy Farms, U.S. Department of Agriculture, https://www.nal.usda.gov/afsic/energy-1.
[2] State Renewable Portfolio Standards and Goals, National Conference of State Legislatures, https://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx.
[3] *See e.g.*, Governor's Task Force on Renewable Energy Development and Siting, State of Maryland, at 11 (2020), https://governor.maryland.gov/wp-content/uploads/2020/09/REDS-Final-Report.pdf; Model Solar Ordinance for Indiana Local Governments, Indiana University Environmental Resilience Institute and Great Plains Institute, at 6 (Dec. 2020), https://eri.iu.edu/documents/in-solar-ordinance-2020-december.pdf; Planning and Zoning for Solar Energy, American Planning Association, at 770 (2014) https://planning-org-uploaded-media.s3.amazonaws.com/document/product_EIP_E_IP30.pdf.
[4] See *infra* Section II.a.

Although siting renewable facilities on farmland can supplement the landowner's income and allow agricultural production to occur where such production otherwise would not be feasible,[5] more often the loss of farmland and increased land competition set renewable energy policies at odds with farmland protection policies. That is, policies that aim to reduce the conversion of agricultural land to non-agricultural uses directly compete with policies that encourage increased production of renewable energy.[6] The friction forces a policy decision on whether to prohibit or limit wind and solar development on farmland in the face of mandates and incentives for renewable energy.

By way of example, one particularly complex clash occurs in California between the Williamson Act, originally adopted to combat suburban development,[7] and siting renewables. Under the Act, counties may enter into contracts with landowners to dedicate land to agricultural use in exchange for tax benefits, with the counties also holding the authority to determine whether green energy development is compatible with a Williamson Act contract.[8] Most local governments have found that green development is not compatible.[9] However, three counties have allowed solar development on non-prime farmland soils.[10] In the majority of cases, the Williamson Act contracts have had to be cancelled.[11]

Land use is typically under local purview. Thus, tensions escalating between renewables and agriculture are being exacerbated by the age-old tension between state and local control.[12] Notably, local regulation runs the full gamut

[5] In the Matter of Twigg, 2019 WL 1375206, 3 (Ct. Spec. App. Md. 2019) (The Court of Special Appeals of Maryland recognized this concept, opining that allowing solar arrays on 10 acres of a 40-acre parcel would allow the remaining to return to agricultural production).
[6] American Farmland Trust, To Combat Climate Change: Encourage Solar Energy That Doesn't Sacrifice Agricultural Land, https://farmland.org/encourage-solar-energy-that-doesnt-sacrifice-agricultural-land/.
[7] Comment, Growing Energy: Amending the Williamson Act to Protect Prime Farmland and Support California's Solar Future, 21 San Joaquin Agric. L. Rev. 321, 322 (2011-2012).
[8] *Id.* at 322.
[9] *Id.* at 323.
[10] *Id*.
[11] *Id*.
[12] Two-thirds of Illinois Counties Oppose SB 1602, National Wind Watch (May 21, 2021), https://www.wind-watch.org/news/2021/05/21/two-thirds-of-illinois-counties-oppose-sb1602-limiting-local-zoning-laws/; Illinois Bill Proposes Statewide Standards for Solar, Wind Farm Energy Facilities (May 3, 2021), https://www.natlawreview.com/article/illinois-bill-proposes-statewide-standards-solar-wind-farm-energy-facilities.

from total exclusion[13] to equating solar and wind facilities to traditional agricultural practices.[14]

The U.S. Census of Agriculture began tracking on-farm energy produced by wind turbines, solar panels, and methane digesters in 2009.[15] In the 2012 Census of Agriculture, the survey identified "renewable energy systems" that also included geothermal/geoexchange systems, small hydro systems, biodiesel, and ethanol in addition to solar panels, wind turbines, and methane digesters.[16] Most data show only the number of systems and not whether systems provide energy only to the farm itself or to the grid.[17]

The number of farms with renewable energy producing systems has grown exponentially, particularly solar panels. In 2009, a total of 9,509 farms in the U.S. had renewable energy producing systems.[18] That number rose to 57,299 in 2012 and more than doubled in five years to 133,176 in 2017.[19] Similarly, the number of farms with solar panel systems grew from 7,968 in 2009 to 36,331 in 2012, and to 90,142 in 2017. A total of 1,420 farms reported wind turbines in 2009, of which only 14 are considered "large wind" (greater than 100 kW).[20] By 2017, a total of 14,136 farms had wind turbines.[21]

This paper first, in Section II, reviews the issues arising between renewable energy and agriculture when siting the two uses, in terms of land consumption,

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[13] *Id.*
[14] *Id.*
[15] U. S. Dept. of Agriculture, National Agricultural Statistics Service, 2007 Census of Agriculture: On-farm Energy Production Survey (2009), https://www.nass.usda.gov/Publications/AgCensus/2007/Online_Highlights/On-Farm_Energy_Production/index.php, (hereinafter 2009 Survey). Note that the 2007 data were collected differently than subsequent years, contain more detail, and were collected in a 2009 survey.
[16] U. S. Dept. of Agriculture, National Agricultural Statistics Service, 2012 Census of Agriculture History (2017) at 197, https://www.nass.usda.gov/Publications/AgCensus/2012/Online_Resources/History/2012%20History%20Final%203.14.17.pdf. Although the other renewable energy systems are significant in number and generally increasing, the land consumption issue focuses on wind and solar, so this paper also focuses on those two types of systems.
[17] 2009 Survey, *supra* note 16. Note that the 2009 data show more detail than the other years.
[18] *Id.*
[19] Table 49, Renewable Energy: 2017 and 2012, in U.S. Dept. of Agriculture, National Agricultural Statistics Service, 2012 Census of Agriculture (2017), https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1,_Chapter_1_US/usv1.pdf (hereinafter 2012 Census Table 49).
[20] Table 1, Farms Reporting Wind Turbines, Capacity, Installation Cost, Percent Funded by Outside Sources, and Year of Installation: 2009, in 2009 Survey, *supra* note16.
[21] 2012 Census Table 49, s*upra* note 19.

local opposition, and co-location. Section III then highlights results of our research on the status of state laws in place that weigh the interests of renewables and use of agricultural lands and summarizes the range of local regulation. At present, few states have detailed regulation as to how to navigate siting renewable energy facilities on agricultural lands.[22] In Section IV, the paper compiles recommendations from existing laws, recent state bills, as well as leading resources on siting renewables on agricultural lands, including model code language. The paper concludes with several issues for future research in Section V and a full list of recommended resources on siting renewables and agricultural uses in Section VI.

II. The Issues: Renewables and Agriculture

Agricultural lands can play an important role in meeting energy demands in the United States. One prediction is that 11% of the country's cropland could satisfy U.S. electricity production needs if converted to producing renewable energy.[23] Most Americans support expanding wind and solar energy over continued investments in other energy sources such as coal, nuclear, and oil and gas.[24] Even so, locating utility-scale wind and solar facilities in agricultural areas raises recurring issues centered on land consumption and its implications, opposition to individual wind and solar projects at the local level, and co-locating multiple land uses.

a. *Land Consumption*

Concerns commonly surface about the amount of acreage consumed by a utility-scale solar or wind project.[25] Much of the attention focuses on farmland

[22] The research for this paper included a state-by-state review of current local ordinances to identify provisions addressing the siting of renewable energy facilities on agricultural lands. *See infra* Section III.
[23] Rebecca R. Hernandez et al, Environmental Impacts of Utility-scale Solar Energy, 29 Renewable and Sustainable Energy Reviews 766, at 775 (2014).
[24] Cary Funk and Brian Kennedy, The Politics of Climate, Pew Research Center, at 16 (Oct. 4, 2016), https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2016/10/PS_2016.10.04_Politics-of-Climate_FINAL.pdf.
[25] *See, e.g.*, Christopher Joyce, Renewable Energy Needs Land, Lots of Land, National Public Radio (Aug. 28, 2009), https://www.npr.org/templates/story/story.php?storyId=112323643; Dave Merrill, The U.S. Will Need a lot of Land for a Zero-Carbon Economy, Bloomberg Green (Apr. 29, 2021), https://www.bloomberg.com/graphics/2021-energy-land-use-economy/; Tux Turkel, Unprecedented Wave of Solar Development Spurs Land Rush in Maine, Press Herald (Jan. 4, 2021).

loss.[26] The land consumption issue in turn raises implications for land competition, prime soils, and farmland protection policies. Possible alternative sites for renewable energy facility development include state lands, landfills, brownfields and industrial lands, and rooftops.[27] However, like most development, renewable energy facilities can generally be developed less expensively on agricultural land and forestland than previously developed land or land that may be contaminated.[28] At the same time, solar and wind development may not encroach on farmlands to the same detrimental degree as housing or commercial development.[29]

The initial physical footprint of wind or solar energy undoubtedly differs from those of extractive sources such as coal and gas, with wind and solar having a greater direct footprint at the onset of a project.[30] The lower "power density" of wind and solar energy contributes to this difference, as more land is arguably necessary to produce a set amount of energy from wind and solar than from extractive energy sources.[31] The result is that wind and solar energy can require at least ten times the amount of land per unit of power as coal and gas energy.[32]

A counter to apprehensions over land consumption is the "time to land use equivalency" theory, which argues that land consumption comparisons between energy sources should be made over time.[33] Wind and solar facilities use the same land year after year for decades, while fossil-based energy continuously requires new land, that may or may not be capable of being

[26] *See, e.g.*, Donnelle Eller, Solar Energy Projects Surge in Iowa, Farmland Loss a Concern, Des Moines Register, (Apr. 22, 2021); Ally Lanasa, A Third Solar Farm Eyes County, Marysville Journal-Tribune (Aug. 4, 2021) https://www.marysvillejt.com/news/a-third-solar-farm-eyes-county; Matthew Weaver, NW Solar, Wind Developments Could Impact Vast Swaths of Ag Land, Capital Press (May 5, 2021).
[27] Energy Sprawl in Connecticut: Why Farmland and Forests are Being Developed for Electricity Production; Recommendations for Better Siting, A Special Report of the Council on Environmental Quality, at 7-9 (Feb. 3, 2017).
[28] *Id.* at 4.
[29] Grow Solar: Local Government Solar Toolkit for Planning, Zoning, and Permitting, Brian Ross and Abby Finis, Great Plains Institute, at 11 (Jun. 2017), https://ilcounty.org/file/195/IllinoisSolarToolkit_June2017.pdf (Agricultural Protection If the community has ordinances that protect agricultural soils, this provision applies those same standards to solar development. Counties should understand, however, that solar farms do not pose the same level or type of risk to agricultural practices as does housing or commercial development.).
[30] Anne M. Trainor et al, Energy Sprawl is the Largest Driver of Land Use Change in United States, PLoS ONE 11(9), at 9 (Sept. 8, 2016), https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0162269.
[31] Samantha Gross, Renewables, Land Use and Local Opposition in the United States, Brookings Institute, at 4 (Jan. 2020) https://www.brookings.edu/wp-content/uploads/2020/01/FP_20200113_renewables_land_use_local_opposition_gross.pdf.
[32] *Id.* at 11.
[33] Trainor, *supra* note 30, at 2, 6.

reverted to an alternate use. Applying "time to land use equivalency" theory, land consumption for extraction-based energy eventually catches up to the larger initial needs of renewable energy, and the land use impacts of each is about the same over the lifetime of an energy project.[34]

Land conversion data helps explain the concerns about initial losses of agricultural land to utility-scale wind and solar energy development. One study concluded that by 2015, almost 30% of utility-scale solar projects in the U.S. were sited on croplands and pastures.[35] Over 27,000 acres of solar projects at that time were in California's Central Valley, a highly productive agricultural area.[36] More recently, approved or pending utility-scale wind and solar projects in Ohio today total more than 73,000 acres of land, primarily agricultural, with an average size of 1,027 acres per solar facility.[37] Meanwhile, wind farms can occupy thousands of acres in agricultural areas, such as the 70,000-acre Roscoe Wind Farm in Texas, the 41,632-acre Grand Meadow Wind Farm in Minnesota, and the 40,000-acre Whispering Willow Wind Farm in Iowa.[38] As another example, Connecticut adopted laws to encourage renewable energy development as early as 2005. By 2016, solar photovoltaic facilities constituted the primary type of development consuming agricultural and forest land in the state.[39]

The loss of farmland to wind and solar facilities also raises the issue of increased competition for land. Additional demands for renewable energy intensify land competition between energy and agricultural production.[40] Heightened competition for farmland can alter the nature of economic activities in rural

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[34] *Id.*
[35] Rebecca R. Hernandez et al, Solar Energy Development Impacts on Land Cover Change and Protected Areas, Proceedings of the National Academy of Sciences of the United States of America, Vol. 112, No. 44, 13579, at 13582 (Nov. 3, 2015), https://doi.org/10.1073/pnas.1517656112.
[36] *Id.*
[37] Ohio Power Siting Board, Wind Farm Map and Statistics and Solar Farm Map and Statistics, https://opsb.ohio.gov/wps/portal/gov/opsb/.
[38] Paul Denholm et al, Land-use Requirements of Modern Wind Power Plants in the United States, National Renewable Energy Laboratory, Technical Report NREL/TP-6A2-45834, Appendix (Aug. 2009), https://www.nrel.gov/docs/fy09osti/45834.pdf.
[39] *Id.* at 2.
[40] Anuj Krishnamurthy and Oscar Serpell, Harvesting the Sun, On-Farm Opportunities and Challenges for Solar Development, Kleinman Center for Energy Policy, U. of Pennsylvania, at 1 (July 2021), https://kleinmanenergy.upenn.edu/research/publications/harvesting-the-sun-on-farm-opportunities-and-challenges-for-solar-development/.

areas.[41] More specifically, for the 39% of U.S. farmland being rented,[42] tenant operators at risk of losing land to wind and solar development can be forced to compete for other land and see increases in per-acre rental costs.[43] In Maryland, for example, farmers lease crop or pastureland for between $25.50 per acre and $175 per acre, while lease rates offered by solar companies can range from $800 to $1,200 per acre.[44]

At the core of the land competition conflict is the reduction of "prime farmland," land that is highly suited for food and fiber production due to its physical and chemical characteristics.[45] However, the same flat, unshaded, well-drained lands that contain productive soils are also optimal for wind and solar development, particularly if located near transmission access and infrastructure. [46] Consuming prime farmland for renewable energy facilities rather than agricultural production naturally leads to conflict in the farm communities where facilities locate.[47]

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[41] Craig Schultz et al, Renewable Energy Trends, Options, and Potentials for Agriculture, Forestry, and Rural America, U.S. Dept. of Agriculture Office of the Chief Economist, at 43 (March 2021), https://www.usda.gov/sites/default/files/documents/renewable-energy-trends-2020.pdf.
[42] Daniel Bigelo, Allison Borchers and Todd Hubbs, U.S. Farmland Ownership, Tenure and Transfer, EOB-161, U.S. Dept. of Agriculture, Economic Research Service (Aug. 2016), https://www.ers.usda.gov/webdocs/publications/74672/eib-161.pdf?v=5301.6.
[43] Travis Grout and Jennifer Ifft, Approaches to Balancing Solar Expansion and Farmland Preservation: A Comparison Across Selected States, Cornell University Charles H. Dyson School of Applied Economics and Management EB 2018-04, at 3 (May 2018).
[44] Dru Schmidt-Perkins, An Opportunity to Get Solar Siting Right, Abell Foundation, at 5 (Sept. 2019), https://abell.org/sites/default/files/files/Solar%20Siting%20Report%209_10_19.pdf. In addition, consider the following: "Land is more valuable if building a solar farm is less expensive to construct. Ideally, land would be: flat (less than 5 degrees of slope; more is acceptable if it slopes to the south), clear of trees, structures, or other obstacles, free of ponds, streams, creeks, etc., and bordered by a road that will provide easy access to construction crews. These conditions are typically found on prime agricultural farmland. Simple rule of thumb is that 1MW solar power should require about 7.9 acres. Depending on the specific technology, a utility-scale solar power plant may require between 5 and 10 acres per megawatt (MW) of generating capacity." Alison F. Davis, Considerations for Future Utility Scale Solar Farm Developments, University of Kentucky (Sept. 2020), https://agecon.ca.uky.edu/files/considerations_for_future_utility_scale_solar_farm_developments_aec_staff_paper_498_davis_sept2020.pdf.
[45] U.S. Dept. of Agriculture, Handbook No. 18 (Oct. 1993), excerpt available at https://www.nrcs.usda.gov/wps/portal/nrcs/detail/null/?cid=nrcs143_014052.
[46]Grout, *supra* note 43, at 3. *See e.g.*, Solar Land Lease, What do Solar Developers Look for in a Property?, https://www.solarlandlease.com/what-do-solar-developers-look-for-in-a-property.
[47] Grout, *supra* note 40; Ellen Rosen, As Demand for Green Energy Grows, Solar Farms Face Local Resistance, New York Times (Nov. 2, 2021), https://www.nytimes.com/2021/11/02/business/solar-farms-resistance.html.

b. *Local Opposition*

Strong public support exists in the U.S. for wind and solar power and policies that increase the use of renewable energy for producing electricity.[48] Eighty-nine percent of citizens favor expanding solar power and 83% approve of wind power expansion, significantly higher than support for fossil fuels or nuclear energy.[49] High approval numbers for renewable energy often do not play out at the local level, however, and negative or "Not in My Backyard (NIMBY)" reactions to utility-scale wind or solar development are common.[50] Experts offer divergent reasons for strong local opposition to renewable energy development across the country. Those who support renewable energy in the abstract can reverse that opinion if they believe a development will cause economic or health problems or if the project raises aesthetics issues.[51] In fact, renewable energy proposals often prompt the pairing of strange bedfellows, as well as conflicts within given coalitions. For example, in the Flint Hills of Kansas proponents of a proposed wind project included the developers of the project, environmentalists focused on green energy, and landowners (mostly farmers) seeking to derive income from leasing their land to the developers for placement of turbines.[52] Opponents also included farmers, but those that wanted to maintain the landscape in its present condition, and environmentalists who were instead focused on aesthetics and ecology.[53]

More generally, proximity of a renewable energy facility to residences and different land types may also be a factor in NIMBYism.[54] Both the higher land use requirements and the siting of projects in areas where people have not

[48] Abel Gustafson, Republicans and Democrats Differ in Why They Support Renewable Energy, Energy Policy 141, 111448 (June 2020), https://doi.org/10.1016/j.enpol.2020.111448.
[49] Funk, *supra* note 24.
[50] *See, e.g.*, David R. Baker and Millicent Dent, NIMBYs Shoot Down Green Projects Next Door While Planet Burns, Bloomberg Green (Sept. 17, 2019), https://www.bloomberg.com/news/features/2019-09-17/nimbys-shoot-down-green-projects-next-door-while-planet-burns; Jan Ellen Spiegel, New Farmland Harvest—Solar Energy—Creating Political Sparks, Ct Mirror (Feb. 21, 2017), https://ctmirror.org/2017/02/21/new-farmland-harvest-solar-energy-creating-political-sparks/; Madeline Wells, SF Bay Area NIMBYs Reportedly in Favor of Green Energy Oppose Solar Farm in Their Backyard, SF Gate (Oct. 1, 2020), https://www.sfgate.com/home/article/About-SFGATE-15613713.php.
[51] Gross, *supra* note 31, at 9.
[52] Comment, Turbines v. Tallgrass: Law, Policy, and a New Solution to Conflict Over Windfarms in the Kansas Flint Hills, 54 U. Kan. L. Rev. 1131, 1135 (2006).
[53] *Id.*
[54] Juliet E. Carlisle, Utility-scale Solar and Public Attitudes Toward Siting: A Critical Examination of Proximity, Land Use Policy 58, at 491 (2016).

customarily encountered energy development can affect acceptance of wind and solar projects locally.[55] Environmental impacts, harm to wildlife, noise and nuisance interferences, and effects on property values are additional reasons people oppose wind development.[56] Some argue that opposition to energy projects is rational and understandable, usually driven by a concern for property values, sense of place, local environment, or distrust in energy companies.[57]

c. *Co-location of Renewables and Agricultural Uses*

Another topic increasingly raised in conjunction with utility-scale renewable energy concerns is "co-location," the intentional co-existence of different land uses on a parcel. Advocates of co-location claim that an "either/or" mentality drives policy and development decisions around utility-scale renewable energy installations.[58] Conventional land use approaches can force renewable energy to compete in a "zero-sum-game" with agriculture, while co-location is a more integrated approach that can maintain and improve both energy and food production security.[59]

In the agricultural context, co-location or "dual-use" deliberately locates agriculture within wind and solar installations.[60] Wind turbines can fit into an agricultural landscape with little disruption or displacement of the agricultural activities around them.[61] Because a farmer can engage in crop and livestock production beneath and up to the base of a wind turbine, agriculture co-locates easily with wind energy.[62] More difficult is the integration of agriculture on a solar installation site, an evolving area of research referred to as

[55] Gross, *supra* note 31, at 8.
[56] K.K. DuViver and Thomas Witt, NIMBY to NOPE—or YESS?, 38 Cardozo L. Rev. 1453, 1459-62 (2018).
[57] Sanya Carley and David Konisky, Will NIMBYs Sink New Clean Energy Projects? The Conversation (Aug. 11, 2021), https://theconversation.com/will-nimbys-sink-new-clean-energy-projects-the-evidence-says-no-if-developers-listen-to-local-concerns-164052.
[58] Greg A. Barron-Gafford, et al, Agrivoltaics Provide Mutual Benefits Across the Food-Energy-Water Nexis in Drylands, Nature Sustainability 2(9), at 1 (Sept. 2019), DOI:10.1038/s41893-019-0364-5, https://www.nature.com/articles/s41893-019-0364-5.
[59] *Id.*
[60] *Id.*
[61] *Id.*; Colin Tiernan, Idaho's Largest Wind Farm Planned Near Shoshone, Times-News (Mar. 20, 2020), https://magicvalley.com/news/local/idahos-largest-wind-farm-planned-near-shoshone/article_23864dbd-7660-54cd-869f-3a2b1ee351df.htm.
[62] Benjamin Retik, The Mutual Benefits of Wind and Energy and Agriculture, Guidehouse Insights (May 11, 2021), https://guidehouseinsights.com/news-and-views/the-mutual-benefits-of-wind-energy-and-agriculture.

"agrivoltaics."[63] Agrivoltaics involves raising and spacing solar panels to allow agricultural production around and beneath the panels.[64]

Co-location, particularly agrivoltaics, is offered as a strategy for overcoming the separation of food and energy production that occurs in the land use arena.[65] Research concludes that agrivoltaics can reduce land use competition[66] and increase land productivity.[67] Agrivoltaics may also affect the social acceptance of utility-scale renewable energy.[68] Solar industry officials believe local communities are more likely to support solar energy projects that involve agrivoltaics due to the multiple local benefits that "projects with personality" can provide a community.[69] Finally, combining solar power generation with agriculture could provide additional revenue to farmers, helping to protect farmland and keep food costs down.[70]

On the other hand, agrivoltaics presents concerns among the agricultural sector, including challenges with the adoption and integration of new technologies and uncertain market potential. Some accept the challenge with a willingness to help farmers determine how to continue to work solar facility lands for agriculture. States like New York and Maine advocate co-location and provide informational and technical assistance for farmers. [71] Like farmers, energy developers must also be willing to engage in co-location opportunities.

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[63] Model Solar Ordinance, *supra* note 3, at 6 (Agrivoltaics – A solar energy system co-located on the same parcel of land as agricultural production, including crop production, grazing, apiaries, or other agricultural products or services.)
[64] *Id.*
[65] Alexis S. Pascaris et al, Integrating Solar Energy with Agriculture: Industry perspectives on the Market, Community, and Socio-political Dimensions of Agrivoltaics, Energy Research & Social Science 75, at 1 (2021).
[66] Elnaz H. Adeh et al, Solar PV Power Potential is Greatest over Croplands. Scientific Reports, 9(1) (2019).
[67] Axel Weselek et al, Agrophotovoltaic Systems: Applications, Challenges, and Opportunities, a Review, Agronomy for Sustainable Development, 39(4) (2019), https://link.springer.com/content/pdf/10.1007/s13593-019-0581-3.pdf.
[68] Pascaris, *supra* note 65, at 5.4 page 10.; Lisa Prevost, Connecticut Solar Developers Enlist Sheep to Cut Grass and Ease Tensions, Energy News Network (Mar. 3, 2021) https://energynews.us/2021/03/03/connecticut-solar-developers-enlist-sheep-to-cut-grass-and-ease-tensions/.
[69] *Id.*
[70] Gross, *supra* note 28, at 13
[71] *See e.g.*, Harrison Dreves, Beneath Solar Panels, the Seeds of Opportunity Sprout, National Renewable Energy Laboratory, https://www.nrel.gov/news/features/2019/beneath-solar-panels-the-seeds-of-opportunity-sprout.html; Dual-Use of (Agrivoltaic) Solar Installations, Maine Dept. of Agriculture Conservation & Forestry (Dec. 2020), https://www.maine.gov/dacf/ard/resources/docs/dual-use-factsheet.pdf.

III. State-Local Tensions

Locating uses within a community is most often a matter of local concern addressed through zoning laws. In some instances, states preempt local zoning authority for siting certain uses for public policy reasons.[72] As siting renewable energy has often proven to be a NIMBY issue[73] squarely at odds with state mandates on reaching renewable energy source standards,[74] some states have begun to remove local authority to regulate the siting of renewable energy. In doing so, however, few states have detailed legislation to navigate the overlap between siting renewable energy and the use of agricultural lands, a clash with which local regulators may have more intimate knowledge. On the other hand, deference to local knowledge and likely other reasons leads some states to maintain local regulation for the siting of renewables.

Local regulation of renewable energy projects typically varies widely, even within relatively small geographic areas.[75] For example, the Flint Hills in Kansas contains 12 counties.[76] Two of the counties have no zoning and, hence, no local regulation of renewable energy projects.[77] One county completely bans commercial wind farms.[78] The remaining nine counties regulate wind turbines in a wide range of ways.[79]

Local zoning authority granted by states not surprisingly often seeks to both preserve agriculture and promote renewables,[80] but rarely details how to balance these two goals when at odds with each other. Notably, of the few states that specifically address the overlap between siting renewables and the effect on agricultural lands, most merely require that siting or permitting authorities

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[72] CLOSUP: Center for Local State and Urban Policy, Appendix State-by-State Chart (Feb. 2021), http://closup.umich.edu/sites/closup.umich.edu/files/working-papers/closup-wp-50-Essa-Solar-Siting-Authority-Across-the-United-States.pdf; State Approaches to Wind Facility Siting, National Conference of State Legislatures (Sept. 2, 2020), https://www.ncsl.org/research/energy/state-wind-energy-siting.aspx.
[73] See *supra* Section II.b.
[74] *See, e.g.*, State Renewable Portfolio Standards and Goals, *supra* note 2.
[75] EZ Policies for Maryland, OpenEI, https://openei.org/wiki/Maryland/EZ_Policies.
[76] Turbines v. Tallgrass, *supra* note 52, at 1140.
[77] *Id.*
[78] *Id.*
[79] *Id.* at 1140-41,
[80] *See e.g.*, N.H. Rev. Stat. Ann. § 672:1 (West) (Neighboring sections of zoning authority show that renewables and ag are "important" and shouldn't be unreasonably affected, but doesn't account for when renewables and agriculture are in competition with each other); 53 Pa. Stat. Ann. § 10105 (West).

consult with the particular state's department of agriculture[81] or have a policy to consider effects[82] on agriculture with little detail. Several states have created state energy plans,[83] advisory councils, or similar projects with the purpose of understanding how to promote renewables with some level of consideration on the impacts to agriculture[84] or to promote cooperation with the agricultural community.[85] Other states have failed to include representatives from the agricultural community in these advisory groups.[86] One state specifically has a program for the protection of agricultural lands from development, but that development excludes wind energy facilities.[87] A few states have provisions to encourage pollinator habitats[88] or generally promote renewables to the agricultural community.[89] Meanwhile, a small handful of states have gone so far as to specifically consider siting renewables on agricultural lands based on soil quality,[90] or require an impact mitigation agreement[91] or environmental assessment[92] that includes agriculture.

Interestingly, far more states than those currently with legislation on the books have recently considered bills that squarely deal with the intersection between agriculture and siting renewables, indicating this conflict is thoroughly ripe. Given how many of these bills have failed, the conflict is also proving to be a contentious one. Interestingly, the content of these bills gives considerable insight into potential mechanisms for addressing issues arising from siting renewables on agricultural lands, much of which is included with Section IV's summary of recommended practices.

[81] *See, e.g.*, Minn. Stat. Ann. §216B.243 (West); W.S.A. 101.175 (In Wisconsin, installation of renewables must involve consultation with department of agriculture).
[82] *See, e.g.*, Mont. Code Ann. §90-4-1001 (West); N.J. Stat. Ann. §4:1C-32.6 (West).
[83] *See, e.g.*, 30 V.S.A. §202b.
[84] N.D.C.C. §54-63-01, -03; 4 Pa. Code §6.232. Interestingly, at least one state has the Department of Agriculture administering its grant and subsidized loan program for renewables. S.C. Code §46-3-260.
[85] Va. Code Ann. §45.1-391 (West) (Solar Energy Center promotes cooperation with agriculture).
[86] *Id.* §45.2-1710 (new energy plan does not mention agriculture).
[87] Ohio Rev. Code Ann. §931.02 (West).
[88] Mo. Ann. Stat. §261.500 (West).
[89] Miss. Code. Ann. §69-46-5 (West); N.D.C.C. § 54-63-01, -03; Va. Code Ann. §45.1-39 (West).
[90] H.R.S §205-2.
[91] 55 ILCS 5/5-12020.
[92] Tenn. Code Ann. §65-17-105 (West).

IV. Summary of Recommended Practices

A review of existing laws and pending bills reveals several strategies. Recognizing the need to better anticipate how renewables can be brought onto agricultural lands while *minimizing conflicts*,[93] numerous manuals, handbooks, toolkits, and factsheets have been created by a range of entities—agricultural interest groups, renewable energy interest groups, universities, state task forces, and more. The Connecticut Department of Environmental Quality refers to the "balance trap," arguing that balancing two conflicting goals results in "diminishment of both pursuits."[94] Integration or harmonization of goals provides a better solution,[95] with an example being the enlistment of sheep to cut grass below solar panels and ease tensions between solar development and local opinion.[96] Co-location integrates and harmonizes. The intentional combining of uses through agrivoltaics is proactive and planned, not reactive.

From the birds' eye view, renewable siting regulation to minimize conflict with agriculture has manifested in several forms: primarily state-level regulation, primarily local-level regulation, and hybrid approaches.[97] Between all of these, numerous concerns come up repeatedly:

- protecting quality soils,
- involving agricultural leaders in decision-making,
- planning through mapping,
- the benefits of dual-use or agrivoltaics, and
- planning for decommissioning.[98]

First, renewable energy and agriculture policymakers must be brought together to create cohesive policy that clearly defines state and local control with regard to the placement of wind and solar facilities and the protection of agricultural lands. The resulting policies will likely involve protection of quality soils. For the

[93] OR. H 2520 (2021) (would fund the creation of rules specifically for this purpose).
[94] Energy Sprawl in Connecticut, *supra* note 27, at 9.
[95] *Id.*
[96] Prevost, *supra* note 68.
[97] *See, e.g.*, State Approaches to Wind Facility Siting, *supra* note 72.
[98] More complex efforts to preserve agricultural lands through land use have included to exempt portions of agricultural lands with renewables from participating in the trade of development rights, or to require an equivalent amount of agricultural land that is used for renewables to be placed under deed restriction limiting it to traditional agricultural use. MA S 2174/H 3346 (2021).

most protected soils, involving state-level agricultural boards or departments[99] in decision-making during the siting process or even requiring that such entity issue a letter of attestation as a pre-requisite to a power purchase agreement[100] may enable better navigation of renewable-agriculture conflicts. More generally, whether imposed at the state level or local level, maintaining quality soils in agricultural production appears to be a recurring concern, and often soil quality is determined by federal definitions.[101]

Second, comprehensive mapping should be developed to inform both state and local decision-making on the siting of renewables, detailing categories of agricultural lands, including prime farmlands and other soil categories; current placement of wind and solar installations, both on-farm and utility-scale; wind energy potential; solar energy potential; transmission lines and other utility infrastructure; and areas experiencing increasing drought or otherwise experiencing decreasing arability.

At the state level, preserving agricultural lands may be rooted in concerns over food security, desires to preserve the aesthetics of the countryside, or an interest in protecting the "small farmer,"[102] all of which are squarely at odds with state measures for meeting renewable energy goals.[103] From this perspective, renewable-agriculture conflicts may be lessened through requirements that comprehensive plans and their required land use maps consider the placement of renewables within local communities.[104] State-level mapping of current placement of renewables, existing energy infrastructure, agricultural lands and their various levels of quality, and renewable potential placement may inform

[99] CT. H 5175 (2021).
[100] HI. S 942 (2021).
[101] *See* 7 C.F.R. § 657.5. "The protection of prime soils and prime farmland should be prioritized. Other farmland and marginal farmland should be pursued for standard ground-mounted solar array, dual-use should also be considered, if possible (AFT, 2020).5 If solar projects are still proposed on prime soils, they should be agricultural dual-use projects, ensuring continued production is prioritized. Dual-use projects will be a challenge for lands that have been used for crop and livestock production but would be better suited for small animal grazing, i.e., sheep (but not goats)." Solar Siting Guidelines for Farmland, American Farmland Trust New England, Northampton, MA: American Farmland Trust, (Jan. 2020), https://s30428.pcdn.co/wp-content/uploads/2020/01/AFT-solar-siting-guidelines-Jan-2020.pdf.

[102] Schmidt-Perkins, *supra* note 44, at 5.
[103] State Renewable Portfolio Standards and Goals, *supra* note 2.
[104] Farmland Solar Policy Design Toolkit, Solar Energy Initiative, at 8 (2020), https://farmandenergyinitiative.org/wp-content/uploads/2020/08/Final-FSPP-Toolkit-Report.pdf.

this decision-making as well.[105] And, as renewable development occurs, states may consider maintaining a database or mapping to catalog the actual transition of agricultural lands to renewable energy production,[106] something the USDA does at the national level.[107] The mapping can both direct renewable energy facilities to certain areas and determine areas for possible co-location.

Co-location or dual use with livestock, crops, and pollinator habitats shows promise and should be encouraged. Where renewables are allowed, agrivoltaics,[108] also known as co-location or dual-use, [109] can deploy renewable facilities so that some level of agriculture may continue. Agrivoltaics ranges from traditional crop production or livestock pasturing beneath solar panels or wind turbines all the way to simply requiring pollinator friendly ground cover[110] and buffer areas.

Another strategy is creating a distinction in regulation between renewables utilized exclusively for on-farm use (accessory renewables[111]), which can be considerable given, for example, the cost of pumping irrigation water,[112] and

[105] Schmidt-Perkins, *supra* note 44, at 6. ("But perhaps the biggest obstacle to striking a balance between maintaining prime land for agriculture and developing plots to achieve renewable energy targets is that there is no statewide mapping of 'preferred' land."). *See, e.g.*, Renewable EnerGIS, Hawaii State Energy Office, http://geodata.hawaii.gov/energis; Zoning for Renewable Energy Database, Michigan Department of Environment, Great Lakes, and Energy, https://www.michigan.gov/climateandenergy/0,4580,7-364-85453_85461-519951--,00.html; Liam Neimeyer, As solar power moves in, a Kentucky farm community wonders about its future, Hoptown Chronicle (Feb. 22, 2021), https://hoptownchronicle.org/as-solar-power-moves-in-a-kentucky-farm-community-wonders-about-is-future/ (combining farmland data from the USDA and solar power data from PJM Interconnection to generate mapping).

[106] VA. H 2023 (2021).

[107] *See supra* notes 16—21.

[108] *See supra* Section I.c.

[109] N.J. S 3484 (2021) (incentivizes dual-use).

[110] Grow Solar, *supra* note 29, at 10 (Ground Cover Standards Perennial grasses and wildflowers planted under the panels, between arrays, and in setback or buffer areas will substantially mitigate the stormwater risks associated with solar arrays, and result in less runoff than typically seen from many types of agriculture. Moreover, establishing and maintaining native ground cover can have important co-benefits to the community or the property owner. Native grasses can be harvested for forage and wildflowers and blooming plants can create pollinator and bird habitat, and maintaining the site in native vegetation will build soils that can be turned back into agriculture at the end of the solar farm's life.); Model Solar Ordinance, *supra* note 3, at 12 (If appropriately established, these ground cover standards also likely reduce maintenance costs and limit the need for chemical weed management, which also improves water quality outcomes.); *Id.* at 14 (The groundcover at solar farms will protect agricultural soil, build nutrients, prevent erosion, and improve topsoil quality at the site.).

[111] NHSEA Model Solar Zoning Ordinance (2018), https://docs.wixstatic.com/ugd/c6c29c_c3f6d0279dfe4037bfb95bfa28b041e5.pdf.

[112] Co-locating Renewable Energy Resources and Agricultural Operations: Challenges and Opportunities, TomKat Center for Sustainable Energy, Stanford University, at 17 (Aug. 2019), https://stanford.app.box.com/s/fk6n5ymzp2qk3uszqql6g2m26if3u0xw.

utility-scale renewable facilities.[113] In delineating a threshold between various renewable facility sizes, protecting agricultural land may be best served by definitions based on land use footprint, i.e. acreage, rather than or in conjunction with array capacity, electrical load, or consumer type.[114] In avoiding prime farmlands, areas experiencing increasing drought may be appropriate for transitioning farmlands no longer able to produce to solar farms.[115]

Lastly, planning for the decommissioning of wind and solar facilities to revert to agricultural use is an important consideration. A commitment to revert solar or wind "farms" back to agricultural lands at the end of the facilities' lifespan is a common requirement of land use regulation of renewable energy facilities.[116]

Additional recommended practices by developers, while not formalized in state or local land use laws, may help reduce local opposition and the NIMBY impacts of wind and solar facility development. For instance, in New York, a developer reduced the size of a proposed facility from 500 to 245 acres in response to local resident concerns that the project would have too large an impact on the pastoral setting.[117] Some developers have learned that offering to screen developments from view and incorporate pollinator habitats and agrivoltaics can also win community support.[118] And in a recent mediation ordered by the Hawaii Public Utilities Commission, Kahana Solar agreed to a legally enforceable "community benefits" package that will provide $55,000 per year over a 25-year period in funding for community groups and a pledge to hire local workers at an agreed upon prevailing wage in the West Maui community where the solar facility would locate on former pineapple fields.[119] While the result of an intervention in the utilities approval process by the West Maui Preservation

[113] Farmland Solar Policy Design Toolkit, *supra* note 104, at 9.
[114] *Id.* at 15-16.
[115] Sammy Roth, California Farmers are Planting Solar Panels as Water Supplies Dry Up, Los Angeles Times (Jul. 31, 2019), https://www.latimes.com/business/la-fi-agriculture-farmlands-solar-power-20190703-story.html.
[116] Planning and Zoning for Solar Energy, *supra* note 3.
[117] Rosen, *supra* note 44.
[118] *Id.*; John Flesher and Tammy Webber, Bees, sheep, crops: Solar developers tout multiple benefits, AP News, Nov. 4, 2021.
[119] Report of Parties and Participants on Mediation, *In the Matter of the Application of Maui Electric Company, Limited*, Public Utilities Commission of the State of Hawaii, No. 2020-0141 (Oct. 15, 2021), https://dms.puc.hawaii.gov/dms/DocumentViewer?pid=A1001001A21J15B01424A01661. *See also* Brittany Lyte, How a Maui Solar Farm Reached An 'Unprecedented' Deal With Neighbors, Honolulu Civil Beat (Nov. 21, 2021), https://www.civilbeat.org/2021/11/how-a-maui-solar-farm-reached-an-unprecedented-deal-with-neighbors/.

Association, the case offers insight into mediated and voluntary approaches that can remedy local opposition to facility development while also addressing land consumption and co-location issues.

V. Remaining Issues

Siting renewables on agricultural lands has consequences well beyond that not-so-simple act, consequences with the potential to be both positive[120] and negative. From a land use perspective, rural communities are going to be significantly impacted by changes to the landscape, community character, the local economy, and the numerous domino effects from what promises to be an imminent and significant change in agricultural America. Much more research is needed to understand the full range of land use issues and mitigate adverse impact during this transition.

VI. List of Key Resources for Wind and Solar Energy and Agricultural Land Uses

An Opportunity for Maryland to Get Solar Siting Right, Dru Schmidt-Perkins, Abell Foundation (Sept. 2017), https://abell.org/sites/default/files/files/Solar%20Siting%20Report%209_10_19.pdf.

Clean Energy in Agriculture: A Colorado Study, Center for the New Energy Economy, Colorado State University (Apr. 2018), http://ruralenergy.colostate.edu/wp-content/uploads/2020/04/CNEE-Report-on-Clean-Energy-in-Agriculture-Colorado-April-2018-1.pdf.

[120] Mapping may also include preferred locations in "wellhead protection area[s] for the purpose of removing agricultural uses from high-risk recharge areas." Model Solar Ordinance, *supra* note 3, at 14. Also consider the potential for renewable development in the floodplain. *Id.* at 16. "In 2018, researchers at the Department of Energy's Argonne National Laboratory found that stable pollinator populations facilitated by pollinator-friendly solar farms allowed nearby agricultural land to be pollinated and, ultimately, boosted crop yields. Planting pollinator-friendly vegetation in solar farms provides multiple ecological and economic benefits to stakeholders. Using native plants as ground cover can help recharge groundwater, reduce erosion, and improve soil carbon sequestration." Abby Neal, Pollinator-Friendly Solar Installations Benefit Wildlife, Farmers, Climate, Environmental and Energy Study Institute (Mar. 2020), https://www.eesi.org/articles/view/pollinator-friendly-solar-installations-benefit-wildlife-farmers-climate.

Co-Locating Renewable Energy Resources and Agricultural Operations: Challenges and Opportunities, Brown et al., TomKat Center for Sustainable Energy, Stanford University (Aug. 2019), https://stanford.app.box.com/s/fk6n5ymzp2qk3uszqql6g2m26if3u0xw.

Considerations for Future Utility Scale Solar Farm Developments, Alison Davis, Department of Agricultural Economics, University of Kentucky (Sept. 2020), https://agecon.ca.uky.edu/files/considerations_for_future_utility_scale_solar_farm_developments_aec_staff_paper_498_davis_sept2020.pdf.

Dual-use (or Agrivoltaic) Solar Installations, Fact Sheets, Maine Department of Agriculture, Conservation, and Forestry (Dec. 2020), https://www.maine.gov/dacf/ard/resources/docs/dual-use-factsheet.pdf.

Energy Sprawl in Connecticut, Connecticut Council on Environmental Quality (2017), EnergySprawlinConnecticutpdf.pdf.

Farmland Solar Policy Design Toolkit, Genevieve Byrne, Farm and Energy Initiative (May 2020), https://farmandenergyinitiative.org/wp-content/uploads/2020/08/Final-FSPP-Toolkit-Report.pdf.

Governor's Task Force on Renewable Energy Development and Siting, Final Report (Aug. 2020), https://governor.maryland.gov/wp-content/uploads/2020/09/REDS-Final-Report.pdf.

Grow Solar: Local Government Solar Toolkit for Planning, Zoning, and Permitting, Brian Ross and Abby Finis, Great Plains Institute (Jun. 2017), https://ilcounty.org/file/195/IllinoisSolarToolkit_June2017.pdf.

Innovative Site Preparation and Impact Reductions on the Environment Project (InSPIRE), U.S. Department of Energy National Renewable Energy Laboratory (Oct. 2021), https://openei.org/wiki/InSPIRE.

Model Solar Ordinance for Indiana Local Governments, Great Plains Institute (Dec. 2020), https://eri.iu.edu/documents/in-solar-ordinance-2020-december.pdf.

Planning and Zoning for Solar Energy, American Planning Association (2014), https://planning-org-uploaded-media.s3.amazonaws.com/document/product_EIP_E_IP30.pdf (with model ordinances, permitting applications, and decommissioning plan).

Renewables, Land use, and Local Opposition in the United States, Samantha Gross, Brookings Institution (Jan. 2020), https://www.brookings.edu/wp-content/uploads/2020/01/FP_20200113_renewables_land_use_local_opposition_gross.pdf.

Technical Guidance for Utility-scale Solar Installation and Development on Agricultural, Forested, and Natural Lands (Jan. 2021), https://www.maine.gov/dacf/ard/resources/docs/dacf-solar-guidance-182021.pdf.

Let's Be Blunt: Legal Ethics in the Cannabis Industry

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Table of Contents

1.1 Competence

A lawyer shall provide competent representation to a client. Competent representation requires the legal knowledge, skill, thoroughness and preparation reasonably necessary for the representation.

Comment

Legal Knowledge and Skill

[1] In determining whether a lawyer employs the requisite knowledge and skill in a particular matter, relevant factors include the relative complexity and specialized nature of the matter, the lawyer's general experience, the lawyer's training and experience in the field in question, the preparation and study the lawyer is able to give the matter and whether it is feasible to refer the matter to, or associate or consult with, a lawyer of established competence in the field in question. In many instances, the required proficiency is that of a general practitioner. Expertise in a particular field of law may be required in some circumstances.

[2] A lawyer need not necessarily have special training or prior experience to handle legal problems of a type with which the lawyer is unfamiliar. A newly admitted lawyer can be as competent as a practitioner with long experience. Some important legal skills, such as the analysis of precedent, the evaluation of evidence and legal drafting, are required in all legal problems. Perhaps the most fundamental legal skill consists of determining what kind of legal problems a situation may involve, a skill that necessarily transcends any particular specialized knowledge. A lawyer can provide adequate representation in a wholly novel field through necessary study. Competent representation can also be provided through the association of a lawyer of established competence in the field in question.

[3] In an emergency a lawyer may give advice or assistance in a matter in which the lawyer does not have the skill ordinarily required where referral to or consultation or association with another lawyer would be impractical. Even in an emergency, however, assistance should be limited to that reasonably necessary in the circumstances, for ill-considered action under emergency conditions can jeopardize the client's interest.

[4] A lawyer may accept representation where the requisite level of competence can be achieved by reasonable preparation. This applies as well to a lawyer who is appointed as counsel for an unrepresented person. See also Rule 6.2.

Thoroughness and Preparation

[5] Competent handling of a particular matter includes inquiry into and analysis of the factual and legal elements of the problem, and use of methods and procedures meeting the standards of competent practitioners. It also includes adequate preparation. The required attention and preparation are determined in part by what is at stake; major litigation and complex transactions ordinarily require more extensive treatment than matters of lesser complexity and consequence. An agreement between the lawyer and the client regarding the scope of the representation may limit the matters for which the lawyer is responsible. See Rule 1.2(c).

Retaining or Contracting With Other Lawyers

[6] Before a lawyer retains or contracts with other lawyers outside the lawyer's own firm to provide or assist in the provision of legal services to a client, the lawyer should ordinarily obtain informed consent from the client and must reasonably believe that the other lawyers' services will contribute to the competent and ethical representation of the client. See also Rules 1.2 (allocation of authority), 1.4 (communication with client), 1.5(e) (fee sharing), 1.6 (confidentiality), and 5.5(a) (unauthorized practice of law). The reasonableness of the decision to retain or contract with other lawyers outside the lawyer's own firm will depend upon the circumstances, including the education, experience and reputation of the nonfirm lawyers; the nature of the services assigned to the nonfirm lawyers; and the legal protections, professional conduct rules, and ethical environments of the jurisdictions in which the services will be performed, particularly relating to confidential information.

[7] When lawyers from more than one law firm are providing legal services to the client on a particular matter, the lawyers ordinarily should consult with each other and the client about the scope of their respective representations and the allocation of responsibility among them. See Rule 1.2. When making allocations of responsibility in a matter pending before a tribunal, lawyers and parties may have additional obligations that are a matter of law beyond the scope of these Rules.

Maintaining Competence

[8] To maintain the requisite knowledge and skill, a lawyer should keep abreast of changes in the law and its practice, including the benefits and risks associated with relevant technology, engage in continuing study and education and comply with all continuing legal education requirements to which the lawyer is subject.

1.3 Diligence

A lawyer shall act with reasonable diligence and promptness in representing a client.

Comment

[1] A lawyer should pursue a matter on behalf of a client despite opposition, obstruction or personal inconvenience to the lawyer, and take whatever lawful and ethical measures are required to vindicate a client's cause or endeavor. A lawyer must also act with commitment and dedication to the interests of the client and with zeal in advocacy upon the client's behalf. A lawyer is not bound, however, to press for every advantage that might be realized for a client. For example, a lawyer may have authority to exercise professional discretion in determining the means by which a matter should be pursued. See Rule 1.2. The lawyer's duty to act with reasonable diligence does not require the use of offensive tactics or preclude the treating of all persons involved in the legal process with courtesy and respect.

[2] A lawyer's work load must be controlled so that each matter can be handled competently.

[3] Perhaps no professional shortcoming is more widely resented than procrastination. A client's interests often can be adversely affected by the passage of time or the change of conditions; in extreme instances, as when a lawyer overlooks a statute of limitations, the client's legal position may be destroyed. Even when the client's interests are not affected in substance, however, unreasonable delay can cause a client needless anxiety and undermine confidence in the lawyer's trustworthiness. A lawyer's duty to act with reasonable promptness, however, does not preclude the lawyer from agreeing to a reasonable request for a postponement that will not prejudice the lawyer's client.

[4] Unless the relationship is terminated as provided in Rule 1.16, a lawyer should carry through to conclusion all matters undertaken for a client. If a lawyer's employment is limited to a specific matter, the relationship terminates when the matter has been resolved. If a lawyer has served a client over a substantial period in a variety of matters, the client sometimes may assume that the lawyer will continue to serve on a continuing basis unless the lawyer gives notice of withdrawal. Doubt about whether a client-lawyer relationship still exists should be clarified by the lawyer, preferably in writing, so that the client will not mistakenly suppose the lawyer is looking after the client's affairs when the lawyer has ceased to do so. For example, if a lawyer has handled a judicial or administrative proceeding that produced a result adverse to the client and the lawyer and the client have not agreed that the lawyer will handle the matter on appeal, the lawyer must consult with the client about the possibility of appeal before relinquishing responsibility for the matter. See Rule 1.4(a) (2). Whether the lawyer is obligated to prosecute

the appeal for the client depends on the scope of the representation the lawyer has agreed to provide to the client. See Rule 1.2.

[5] To prevent neglect of client matters in the event of a sole practitioner's death or disability, the duty of diligence may require that each sole practitioner prepare a plan, in conformity with applicable rules, that designates another competent lawyer to review client files, notify each client of the lawyer's death or disability, and determine whether there is a need for immediate protective action. Cf. Rule 28 of the American Bar Association Model Rules for Lawyer Disciplinary Enforcement (providing for court appointment of a lawyer to inventory files and take other protective action in absence of a plan providing for another lawyer to protect the interests of the clients of a deceased or disabled lawyer).

1.6 Confidentiality of Information

(a) A lawyer shall not reveal information relating to the representation of a client unless the client gives informed consent, the disclosure is impliedly authorized in order to carry out the representation or the disclosure is permitted by paragraph (b).

(b) A lawyer may reveal information relating to the representation of a client to the extent the lawyer reasonably believes necessary:

(1) to prevent reasonably certain death or substantial bodily harm;

(2) to prevent the client from committing a crime or fraud that is reasonably certain to result in substantial injury to the financial interests or property of another and in furtherance of which the client has used or is using the lawyer's services;

(3) to prevent, mitigate or rectify substantial injury to the financial interests or property of another that is reasonably certain to result or has resulted from the client's commission of a crime or fraud in furtherance of which the client has used the lawyer's services;

(4) to secure legal advice about the lawyer's compliance with these Rules;

(5) to establish a claim or defense on behalf of the lawyer in a controversy between the lawyer and the client, to establish a defense to a criminal charge or civil claim against the lawyer based upon conduct in which the client was involved, or to respond to allegations in any proceeding concerning the lawyer's representation of the client;

(6) to comply with other law or a court order; or

(7) to detect and resolve conflicts of interest arising from the lawyer's change of employment or from changes in the composition or ownership of a firm, but only if the revealed information would not compromise the attorney-client privilege or otherwise prejudice the client.

(c) A lawyer shall make reasonable efforts to prevent the inadvertent or unauthorized disclosure of, or unauthorized access to, information relating to the representation of a client.

Comment

[1] This Rule governs the disclosure by a lawyer of information relating to the representation of a client during the lawyer's representation of the client. See Rule 1.18 for the lawyer's duties with respect to information provided to the lawyer by a prospective client, Rule 1.9(c)(2) for the lawyer's duty not to reveal information relating to the lawyer's prior representation of a former

client and Rules 1.8(b) and 1.9(c)(1) for the lawyer's duties with respect to the use of such information to the disadvantage of clients and former clients.

[2] A fundamental principle in the client-lawyer relationship is that, in the absence of the client's informed consent, the lawyer must not reveal information relating to the representation. See Rule 1.0(e) for the definition of informed consent. This contributes to the trust that is the hallmark of the client-lawyer relationship. The client is thereby encouraged to seek legal assistance and to communicate fully and frankly with the lawyer even as to embarrassing or legally damaging subject matter. The lawyer needs this information to represent the client effectively and, if necessary, to advise the client to refrain from wrongful conduct. Almost without exception, clients come to lawyers in order to determine their rights and what is, in the complex of laws and regulations, deemed to be legal and correct. Based upon experience, lawyers know that almost all clients follow the advice given, and the law is upheld.

[3] The principle of client-lawyer confidentiality is given effect by related bodies of law: the attorney-client privilege, the work product doctrine and the rule of confidentiality established in professional ethics. The attorney-client privilege and work product doctrine apply in judicial and other proceedings in which a lawyer may be called as a witness or otherwise required to produce evidence concerning a client. The rule of client-lawyer confidentiality applies in situations other than those where evidence is sought from the lawyer through compulsion of law. The confidentiality rule, for example, applies not only to matters communicated in confidence by the client but also to all information relating to the representation, whatever its source. A lawyer may not disclose such information except as authorized or required by the Rules of Professional Conduct or other law. See also Scope.

[4] Paragraph (a) prohibits a lawyer from revealing information relating to the representation of a client. This prohibition also applies to disclosures by a lawyer that do not in themselves reveal protected information but could reasonably lead to the discovery of such information by a third person. A lawyer's use of a hypothetical to discuss issues relating to the representation is permissible so long as there is no reasonable likelihood that the listener will be able to ascertain the identity of the client or the situation involved.

Authorized Disclosure

[5] Except to the extent that the client's instructions or special circumstances limit that authority, a lawyer is impliedly authorized to make disclosures about a client when appropriate in carrying out the representation. In some situations, for example, a lawyer may be impliedly authorized to admit a fact that cannot properly be disputed or to make a disclosure that facilitates a satisfactory conclusion to a matter. Lawyers in a firm may, in the course of the firm's practice, disclose to each other information relating to a client of the firm, unless the client has instructed that particular information be confined to specified lawyers.

Disclosure Adverse to Client

[6] Although the public interest is usually best served by a strict rule requiring lawyers to preserve the confidentiality of information relating to the representation of their clients, the confidentiality rule is subject to limited exceptions. Paragraph (b) (1) recognizes the overriding value of life and physical integrity and permits disclosure reasonably necessary to prevent reasonably certain death or substantial bodily harm. Such harm is reasonably certain to occur if it will be suffered imminently or if there is a present and substantial threat that a person will suffer such harm at a later date if the lawyer fails to take action necessary to eliminate the threat. Thus, a lawyer who knows that a client has accidentally discharged toxic waste into a town's water supply may reveal this information to the authorities if there is a present and substantial risk that a person who drinks the water will contract a life-threatening or debilitating disease and the lawyer's disclosure is necessary to eliminate the threat or reduce the number of victims.

[7] Paragraph (b)(2) is a limited exception to the rule of confidentiality that permits the lawyer to reveal information to the extent necessary to enable affected persons or appropriate authorities to prevent the client from committing a crime or fraud, as defined in Rule 1.0(d), that is reasonably certain to result in substantial injury to the financial or property interests of another and in furtherance of which the client has used or is using the lawyer's services. Such a serious abuse of the client-lawyer relationship by the client forfeits the protection of this Rule. The client can, of course, prevent such disclosure by refraining from the wrongful conduct. Although paragraph (b)(2) does not require the lawyer to reveal the client's misconduct, the lawyer may not counsel or assist the client in conduct the lawyer knows is criminal or fraudulent. See Rule 1.2(d). See also Rule 1.16 with respect to the lawyer's obligation or right to withdraw from the representation of the client in such circumstances, and Rule 1.13(c), which permits the lawyer, where the client is an organization, to reveal information relating to the representation in limited circumstances.

[8] Paragraph (b)(3) addresses the situation in which the lawyer does not learn of the client's crime or fraud until after it has been consummated. Although the client no longer has the option of preventing disclosure by refraining from the wrongful conduct, there will be situations in which the loss suffered by the affected person can be prevented, rectified or mitigated. In such situations, the lawyer may disclose information relating to the representation to the extent necessary to enable the affected persons to prevent or mitigate reasonably certain losses or to attempt to recoup their losses. Paragraph (b)(3) does not apply when a person who has committed a crime or fraud thereafter employs a lawyer for representation concerning that offense.

[9] A lawyer's confidentiality obligations do not preclude a lawyer from securing confidential legal advice about the lawyer's personal responsibility to comply with these Rules. In most situations, disclosing information to secure such advice will be impliedly authorized for the lawyer to carry out the representation. Even when the disclosure is not impliedly authorized,

paragraph (b)(4) permits such disclosure because of the importance of a lawyer's compliance with the Rules of Professional Conduct.

[10] Where a legal claim or disciplinary charge alleges complicity of the lawyer in a client's conduct or other misconduct of the lawyer involving representation of the client, the lawyer may respond to the extent the lawyer reasonably believes necessary to establish a defense. The same is true with respect to a claim involving the conduct or representation of a former client. Such a charge can arise in a civil, criminal, disciplinary or other proceeding and can be based on a wrong allegedly committed by the lawyer against the client or on a wrong alleged by a third person, for example, a person claiming to have been defrauded by the lawyer and client acting together. The lawyer's right to respond arises when an assertion of such complicity has been made. Paragraph (b)(5) does not require the lawyer to await the commencement of an action or proceeding that charges such complicity, so that the defense may be established by responding directly to a third party who has made such an assertion. The right to defend also applies, of course, where a proceeding has been commenced.

[11] A lawyer entitled to a fee is permitted by paragraph (b)(5) to prove the services rendered in an action to collect it. This aspect of the rule expresses the principle that the beneficiary of a fiduciary relationship may not exploit it to the detriment of the fiduciary.

[12] Other law may require that a lawyer disclose information about a client. Whether such a law supersedes Rule 1.6 is a question of law beyond the scope of these Rules. When disclosure of information relating to the representation appears to be required by other law, the lawyer must discuss the matter with the client to the extent required by Rule 1.4. If, however, the other law supersedes this Rule and requires disclosure, paragraph (b)(6) permits the lawyer to make such disclosures as are necessary to comply with the law.

Detection of Conflicts of Interest

[13] Paragraph (b)(7) recognizes that lawyers in different firms may need to disclose limited information to each other to detect and resolve conflicts of interest, such as when a lawyer is considering an association with another firm, two or more firms are considering a merger, or a lawyer is considering the purchase of a law practice. See Rule 1.17, Comment [7]. Under these circumstances, lawyers and law firms are permitted to disclose limited information, but only once substantive discussions regarding the new relationship have occurred. Any such disclosure should ordinarily include no more than the identity of the persons and entities involved in a matter, a brief summary of the general issues involved, and information about whether the matter has terminated. Even this limited information, however, should be disclosed only to the extent reasonably necessary to detect and resolve conflicts of interest that might arise from the possible new relationship. Moreover, the disclosure of any information is prohibited if it would compromise the attorney-client privilege or otherwise prejudice the client (e.g., the fact that a corporate client is seeking advice on a corporate takeover that has not been publicly announced; that a person has consulted a lawyer about the possibility of divorce before the

person's intentions are known to the person's spouse; or that a person has consulted a lawyer about a criminal investigation that has not led to a public charge). Under those circumstances, paragraph (a) prohibits disclosure unless the client or former client gives informed consent. A lawyer's fiduciary duty to the lawyer's firm may also govern a lawyer's conduct when exploring an association with another firm and is beyond the scope of these Rules.

[14] Any information disclosed pursuant to paragraph (b)(7) may be used or further disclosed only to the extent necessary to detect and resolve conflicts of interest. Paragraph (b)(7) does not restrict the use of information acquired by means independent of any disclosure pursuant to paragraph (b)(7). Paragraph (b)(7) also does not affect the disclosure of information within a law firm when the disclosure is otherwise authorized, see Comment [5], such as when a lawyer in a firm discloses information to another lawyer in the same firm to detect and resolve conflicts of interest that could arise in connection with undertaking a new representation.

[15] A lawyer may be ordered to reveal information relating to the representation of a client by a court or by another tribunal or governmental entity claiming authority pursuant to other law to compel the disclosure. Absent informed consent of the client to do otherwise, the lawyer should assert on behalf of the client all nonfrivolous claims that the order is not authorized by other law or that the information sought is protected against disclosure by the attorney-client privilege or other applicable law. In the event of an adverse ruling, the lawyer must consult with the client about the possibility of appeal to the extent required by Rule 1.4. Unless review is sought, however, paragraph (b)(6) permits the lawyer to comply with the court's order.

[16] Paragraph (b) permits disclosure only to the extent the lawyer reasonably believes the disclosure is necessary to accomplish one of the purposes specified. Where practicable, the lawyer should first seek to persuade the client to take suitable action to obviate the need for disclosure. In any case, a disclosure adverse to the client's interest should be no greater than the lawyer reasonably believes necessary to accomplish the purpose. If the disclosure will be made in connection with a judicial proceeding, the disclosure should be made in a manner that limits access to the information to the tribunal or other persons having a need to know it and appropriate protective orders or other arrangements should be sought by the lawyer to the fullest extent practicable.

[17] Paragraph (b) permits but does not require the disclosure of information relating to a client's representation to accomplish the purposes specified in paragraphs (b)(1) through (b)(6). In exercising the discretion conferred by this Rule, the lawyer may consider such factors as the nature of the lawyer's relationship with the client and with those who might be injured by the client, the lawyer's own involvement in the transaction and factors that may extenuate the conduct in question. A lawyer's decision not to disclose as permitted by paragraph (b) does not violate this Rule. Disclosure may be required, however, by other Rules. Some Rules require disclosure only if such disclosure would be permitted by paragraph (b). See Rules 1.2(d), 4.1(b), 8.1 and 8.3. Rule 3.3, on the other hand, requires disclosure in some circumstances regardless of whether such disclosure is permitted by this Rule. See Rule 3.3(c).

Acting Competently to Preserve Confidentiality

[18] Paragraph (c) requires a lawyer to act competently to safeguard information relating to the representation of a client against unauthorized access by third parties and against inadvertent or unauthorized disclosure by the lawyer or other persons who are participating in the representation of the client or who are subject to the lawyer's supervision. See Rules 1.1, 5.1 and 5.3. The unauthorized access to, or the inadvertent or unauthorized disclosure of, information relating to the representation of a client does not constitute a violation of paragraph (c) if the lawyer has made reasonable efforts to prevent the access or disclosure. Factors to be considered in determining the reasonableness of the lawyer's efforts include, but are not limited to, the sensitivity of the information, the likelihood of disclosure if additional safeguards are not employed, the cost of employing additional safeguards, the difficulty of implementing the safeguards, and the extent to which the safeguards adversely affect the lawyer's ability to represent clients (e.g., by making a device or important piece of software excessively difficult to use). A client may require the lawyer to implement special security measures not required by this Rule or may give informed consent to forgo security measures that would otherwise be required by this Rule. Whether a lawyer may be required to take additional steps to safeguard a client's information in order to comply with other law, such as state and federal laws that govern data privacy or that impose notification requirements upon the loss of, or unauthorized access to, electronic information, is beyond the scope of these Rules. For a lawyer's duties when sharing information with nonlawyers outside the lawyer's own firm, see Rule 5.3, Comments [3]-[4].

[19] When transmitting a communication that includes information relating to the representation of a client, the lawyer must take reasonable precautions to prevent the information from coming into the hands of unintended recipients. This duty, however, does not require that the lawyer use special security measures if the method of communication affords a reasonable expectation of privacy. Special circumstances, however, may warrant special precautions. Factors to be considered in determining the reasonableness of the lawyer's expectation of confidentiality include the sensitivity of the information and the extent to which the privacy of the communication is protected by law or by a confidentiality agreement. A client may require the lawyer to implement special security measures not required by this Rule or may give informed consent to the use of a means of communication that would otherwise be prohibited by this Rule. Whether a lawyer may be required to take additional steps in order to comply with other law, such as state and federal laws that govern data privacy, is beyond the scope of these Rules.

Former Client

[20] The duty of confidentiality continues after the client-lawyer relationship has terminated. See Rule 1.9(c)(2). See Rule 1.9(c)(1) for the prohibition against using such information to the disadvantage of the former client.

1.15 Safekeeping Property

(a) A lawyer shall hold property of clients or third persons that is in a lawyer's possession in connection with a representation separate from the lawyer's own property. Funds shall be kept in a separate account maintained in the state where the lawyer's office is situated, or elsewhere with the consent of the client or third person. Other property shall be identified as such and appropriately safeguarded. Complete records of such account funds and other property shall be kept by the lawyer and shall be preserved for a period of [five years] after termination of the representation.

(b) A lawyer may deposit the lawyer's own funds in a client trust account for the sole purpose of paying bank service charges on that account, but only in an amount necessary for that purpose.

(c) A lawyer shall deposit into a client trust account legal fees and expenses that have been paid in advance, to be withdrawn by the lawyer only as fees are earned or expenses incurred.

(d) Upon receiving funds or other property in which a client or third person has an interest, a lawyer shall promptly notify the client or third person. Except as stated in this Rule or otherwise permitted by law or by agreement with the client, a lawyer shall promptly deliver to the client or third person any funds or other property that the client or third person is entitled to receive and, upon request by the client or third person, shall promptly render a full accounting regarding such property.

(e) When in the course of representation a lawyer is in possession of property in which two or more persons (one of whom may be the lawyer) claim interests, the property shall be kept separate by the lawyer until the dispute is resolved. The lawyer shall promptly distribute all portions of the property as to which the interests are not in dispute.

Comment

[1] A lawyer should hold property of others with the care required of a professional fiduciary. Securities should be kept in a safe deposit box, except when some other form of safekeeping is warranted by special circumstances. All property that is the property of clients or third persons, including prospective clients, must be kept separate from the lawyer's business and personal property and, if monies, in one or more trust accounts. Separate trust accounts may be warranted when administering estate monies or acting in similar fiduciary capacities. A lawyer should maintain on a current basis books and records in accordance with generally accepted accounting practice and comply with any recordkeeping rules established by law or court order. See, e.g., ABA Model Rules for Client Trust Account Records.

[2] While normally it is impermissible to commingle the lawyer's own funds with client funds, paragraph (b) provides that it is permissible when necessary to pay bank service charges on that account. Accurate records must be kept regarding which part of the funds are the lawyer's.

[3] Lawyers often receive funds from which the lawyer's fee will be paid. The lawyer is not required to remit to the client funds that the lawyer reasonably believes represent fees owed. However, a lawyer may not hold funds to coerce a client into accepting the lawyer's contention. The disputed portion of the funds must be kept in a trust account and the lawyer should suggest means for prompt resolution of the dispute, such as arbitration. The undisputed portion of the funds shall be promptly distributed.

[4] Paragraph (e) also recognizes that third parties may have lawful claims against specific funds or other property in a lawyer's custody, such as a client's creditor who has a lien on funds recovered in a personal injury action. A lawyer may have a duty under applicable law to protect such third-party claims against wrongful interference by the client. In such cases, when the third-party claim is not frivolous under applicable law, the lawyer must refuse to surrender the property to the client until the claims are resolved. A lawyer should not unilaterally assume to arbitrate a dispute between the client and the third party, but, when there are substantial grounds for dispute as to the person entitled to the funds, the lawyer may file an action to have a court resolve the dispute.

[5] The obligations of a lawyer under this Rule are independent of those arising from activity other than rendering legal services. For example, a lawyer who serves only as an escrow agent is governed by the applicable law relating to fiduciaries even though the lawyer does not render legal services in the transaction and is not governed by this Rule.

[6] A lawyers' fund for client protection provides a means through the collective efforts of the bar to reimburse persons who have lost money or property as a result of dishonest conduct of a lawyer. Where such a fund has been established, a lawyer must participate where it is mandatory, and, even when it is voluntary, the lawyer should participate.

4.1 Truthfulness in Statements to Others

In the course of representing a client a lawyer shall not knowingly:

(a) make a false statement of material fact or law to a third person; or

(b) fail to disclose a material fact when disclosure is necessary to avoid assisting a criminal or fraudulent act by a client, unless disclosure is prohibited by Rule 1.6.

Comment

Misrepresentation

[1] A lawyer is required to be truthful when dealing with others on a client's behalf, but generally has no affirmative duty to inform an opposing party of relevant facts. A misrepresentation can occur if the lawyer incorporates or affirms a statement of another person that the lawyer knows is false. Misrepresentations can also occur by partially true but misleading statements or omissions that are the equivalent of affirmative false statements. For dishonest conduct that does not amount to a false statement or for misrepresentations by a lawyer other than in the course of representing a client, see Rule 8.4.

Statements of Fact

[2] This Rule refers to statements of fact. Whether a particular statement should be regarded as one of fact can depend on the circumstances. Under generally accepted conventions in negotiation, certain types of statements ordinarily are not taken as statements of material fact. Estimates of price or value placed on the subject of a transaction and a party's intentions as to an acceptable settlement of a claim are ordinarily in this category, and so is the existence of an undisclosed principal except where nondisclosure of the principal would constitute fraud. Lawyers should be mindful of their obligations under applicable law to avoid criminal and tortious misrepresentation.

Crime or Fraud by Client

[3] Under Rule 1.2(d), a lawyer is prohibited from counseling or assisting a client in conduct that the lawyer knows is criminal or fraudulent. Paragraph (b) states a specific application of the principle set forth in Rule 1.2(d) and addresses the situation where a client's crime or fraud takes the form of a lie or misrepresentation. Ordinarily, a lawyer can avoid assisting a client's crime or fraud by withdrawing from the representation. Sometimes it may be necessary for the lawyer to give notice of the fact of withdrawal and to disaffirm an opinion, document, affirmation or the like. In extreme cases, substantive law may require a lawyer to disclose information relating to the representation to avoid being deemed to have assisted the client's

crime or fraud. If the lawyer can avoid assisting a client's crime or fraud only by disclosing this information, then under paragraph (b) the lawyer is required to do so, unless the disclosure is prohibited by Rule 1.6.

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Legal Sidebar

Recent Developments in Marijuana Law

Updated December 6, 2022

Marijuana and other products derived from the cannabis plant are regulated under both federal and state law. In recent years, a significant divide has developed between federal and state regulation. Under the federal Controlled Substances Act (CSA), marijuana is strictly regulated and may not legally be used for medical or recreational purposes. In contrast, a substantial majority of states have relaxed state law prohibitions on medical or recreational marijuana.

The fall of 2022 saw several key developments in federal and state marijuana regulation. In October 2022, President Joe Biden granted clemency to certain low-level federal marijuana offenders and directed the Attorney General to review the status of marijuana under federal law. While some observers consider President Biden's grant of clemency to represent a significant change in federal marijuana policy, as a legal matter it did little to alter the growing disparity between federal and state marijuana regulation. Then, in November 2022, voters in five states considered ballot initiatives to legalize recreational marijuana at the state level, two of which were adopted. Congress also subsequently enacted the Medical Marijuana and Cannabidiol Research Expansion Act, which aims to facilitate research on marijuana and cannabidiol (CBD). Legislators and commentators have proposed a number of other legal reforms that would alter federal marijuana regulation and potentially reduce the divergence between federal and state law.

This Legal Sidebar provides an overview of the legal status of marijuana under federal and state law and then discusses recent developments including the grant of clemency for federal marijuana possession offenses, November 2022 state ballot initiatives related to marijuana, and the enactment of federal legislation to expand marijuana and CBD research. The Sidebar concludes with an overview of selected legislative proposals related to marijuana.

The Legal Status of Marijuana

Under federal law, unless a statutory exemption applies, most cannabis and cannabis derivatives are classified as *marijuana*, a Schedule I controlled substance under the CSA. (The CSA generally uses an alternative spelling, "marihuana," but this Sidebar uses the more common spelling.) The CSA imposes a comprehensive regulatory framework on certain drugs and other substances—whether medical or recreational, legally or illicitly distributed—that pose a significant risk of abuse and dependence. The framework broadly aims to protect public health from those risks while ensuring that patients have access to pharmaceutical controlled substances for medical purposes. To advance those goals, the CSA (1)

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requires entities engaged in legitimate activities involving controlled substances to register with the government and take steps to prevent diversion and misuse and (2) imposes criminal penalties for various unauthorized activities involving controlled substances.

Substances become subject to the CSA through placement in one of five lists, known as Schedules I through V. A lower schedule number carries greater restrictions, so controlled substances in Schedule I are subject to the most stringent controls. Schedule I controlled substances have no currently accepted medical use, and it is illegal to produce, dispense, and possess such substances except in the context of federally approved scientific studies. By contrast, substances in Schedules II through V have accepted medical uses and may be dispensed for medical purposes, generally by prescription.

A substance can be placed in a CSA schedule, moved to a different schedule, or removed from control under the CSA either by legislation or through an administrative rulemaking process overseen by the Drug Enforcement Administration (DEA) and based on criteria set out in the CSA. Congress placed marijuana in Schedule I in 1970 when it enacted the CSA. Since that time, DEA has denied multiple petitions from stakeholders seeking to move marijuana to a less restrictive schedule or remove the substance from control under the CSA. In 2018, Congress amended the CSA to provide that *hemp*—defined to include cannabis products containing no more than 0.3 percent of the psychoactive cannabinoid delta-9 tetrahydrocannabinol (THC)—is not a controlled substance subject to the CSA. (Hemp products remain subject to regulation under other provisions of federal law.)

In addition to the federal CSA, each state has its own controlled substances laws. As a general matter, state controlled substances laws often mirror federal law and are relatively uniform across jurisdictions, but there is not a complete overlap between drugs subject to federal and state control. Marijuana regulation is one area where the gap between federal and state controlled substance laws is particularly salient. In contrast to the stringent federal control of marijuana, in recent decades most of the states have changed their laws to permit the use of marijuana (or other cannabis products) for medical purposes. In addition, at the time of writing, 21 states and the District of Columbia have removed certain state criminal prohibitions on recreational marijuana use by adults.

Notably, however, states cannot fully legalize marijuana, because states cannot change federal law. So long as marijuana is a Schedule I controlled substance under the CSA, all activities involving marijuana prohibited by that statute are federal crimes anywhere in the United States, including in states that have legalized medical or recreational marijuana under state law.

While the current state-legal marijuana industry generally operates in violation of the CSA, certain factors mitigate the disparity between federal and state law. An appropriations rider enacted every year since FY2015 prohibits the Department of Justice (DOJ) from using taxpayer funds to prevent states from "implementing their own laws that authorize the use, distribution, possession, or cultivation of medical marijuana." In addition, DOJ may exercise prosecutorial discretion to decline to prosecute marijuana offenses not covered by the appropriations rider. While official DOJ policy has varied somewhat across Administrations, recent presidential Administrations have not prioritized prosecution of state-legal activities involving marijuana.

Federal Clemency for Marijuana Possession

On October 6, 2022, President Biden issued a proclamation granting "a full, complete, and unconditional pardon" to "all current United States citizens and lawful permanent residents" who had committed or been convicted of simple possession of marijuana under the CSA or a related provision of the D.C. Code. President Biden's invocation of the clemency power means that persons who committed simple possession of marijuana before the date of the proclamation may not be prosecuted or punished for the offense under the relevant provisions of the CSA or the D.C. Code. (Although the District of Columbia

has its own criminal code, its criminal justice system has some overlap with the federal system and is subject to the President's clemency power.)

Several factors limit the scope of the pardon. First, it applies only to violations of federal and D.C. law and does not affect other state law marijuana offenses. In announcing the pardon, President Biden also encouraged state governors to take similar steps but, under the United States' federalist system of government, the President has no direct power to change state law or compel the states to adopt federal policies. While some governors have taken similar steps or expressed willingness to do so, in some states, governors cannot independently grant clemency.

Second, the pardon applies only to simple possession of marijuana, not to other marijuana-related CSA offenses such as manufacture, distribution, or possession with intent to distribute or to other federal crimes. Federal prosecutions of simple possession of marijuana are relatively uncommon. The U.S. Sentencing Commission (USSC) reports that about 7,700 people subject to the pardon were convicted of only simple possession since FY1992, none of whom are currently in federal custody. (Additional individuals not subject to the pardon were convicted during that period.) In FY2021, 117 people subject to the pardon were convicted of only simple possession. A smaller number of people were convicted of possessing marijuana and possessing other illicit drugs or committing other crimes. Those people would remain liable for the other offenses. Shortly after the pardon was announced, the USSC issued policy priorities including "consideration of possible amendments to the [Sentencing] Guidelines Manual relating to criminal history to address … the impact of simple possession of marihuana offenses."

Third, the pardon by its terms "does not apply to individuals who were non-citizens not lawfully present in the United States at the time of their offense." According to a 2016 USSC report, the vast majority of federal marijuana possession arrests occur at the border between the United States and Mexico. Among offenders sentenced for marijuana possession in FY2013, the USSC reports that over 94% of those arrested at the border were not U.S. citizens. To the extent those individuals were not lawfully present in the country, they would not benefit from the pardon.

Fourth, the pardon applies only to offenses committed before the proclamation. The Supreme Court has explained that the President may issue a pardon "at any time after [an offense's] commission, either before legal proceedings are taken, or during their pendency, or after conviction and judgment." While DOJ is currently not prioritizing prosecuting low-level marijuana offenses, the October 2022 pardon does not prevent prosecution of *future* offenses if the current Administration or a future Administration adopts a different policy.

Fifth, the pardon may not remove all legal consequences of marijuana possession, because it does not expunge convictions. Moreover, some collateral consequences of marijuana-related activities do not depend on a person being charged with or convicted of a CSA violation.

Finally, and most fundamentally, the pardon does not change the status of marijuana under federal law. The President lacks the power to make such a change unilaterally. In announcing the grant of clemency, President Biden directed the Attorney General to review the classification of marijuana under the CSA, which is one way the federal government could change the status of the substance consistently with relevant separation-of-powers principles and the CSA's procedural requirements. Any agency action in response to that directive would likely occur through notice-and-comment rulemaking, subject to judicial review and applicable international treaty obligations.

Notwithstanding the foregoing limitations, some commentators have described the October 2022 pardon as a significant development in national marijuana policy that may restore some civic rights to those who benefit from it. Some have expressed concerns that the pardon might benefit offenders who committed more serious offenses but pleaded guilty to simple possession or that relaxing controls on marijuana may generally lead to an increase in crime. Others advocate for further pardons, expungements, and legal reforms to decriminalize marijuana.

State Ballot Initiatives

Recent years have seen numerous states repeal criminal prohibitions on medical and recreational marijuana use. Despite some failures, marijuana legalization proposals have regularly appeared in state legislatures and on state ballots and, where successful, have significantly changed the legal landscape. That trend continued in the 2022 elections, where on November 8, 2022, voters in five states considered ballot measures that would relax state controls on recreational marijuana.

Two of the measures were adopted. In Maryland, voters approved a ballot initiative to amend the state constitution to legalize the use of marijuana by persons 21 or older and direct the state legislature to enact laws regulating and taxing marijuana-related activities within the state. In Missouri, voters approved a ballot initiative to amend the state constitution to remove cannabis from the state schedules of controlled substances and provide that cannabis "shall hence forth be considered a food and not a controlled substance or a drug, by Missouri law." Among other things, the Missouri measure provided that cannabis use could not be grounds for denial of housing, employment, or possession of a firearm.

Three of the November 2022 marijuana initiatives were unsuccessful. In Arkansas, voters rejected a ballot initiative to amend the state constitution to legalize the use of recreational marijuana by persons 21 or older subject to licensing, regulation, and taxation by state authorities. In North Dakota, voters disapproved a ballot initiative to amend state law to remove hashish, marijuana, and THC from the state schedules of controlled substances; allow persons over the age of 21 to use, possess, and transport up to two ounces of prepared marijuana; and provide for state regulation and taxation of marijuana businesses. In South Dakota, voters rejected a ballot initiative to amend state law to, among other things, legalize the use, possession, or distribution of up to an ounce of marijuana by persons 21 or older. South Dakota voters previously voted in 2020 to amend the state constitution to legalize recreational marijuana, but state courts struck down the measure for failure to comply with procedural requirements.

All of the states where voters considered recreational marijuana ballot measures in November 2022 had previously enacted laws authorizing the use of medical marijuana. Medical marijuana laws remain in effect in the three states where voters declined to adopt recreational marijuana measures. As noted above, state laws legalizing medical or recreation marijuana or other controlled substances at the state level do not affect the status of marijuana under federal law.

Marijuana and CBD Research

The CSA authorizes scientific research involving Schedule I controlled substances such as marijuana and imposes stringent controls on such research. Some have expressed concerns that the CSA places too many restrictions on marijuana research, including limiting the type and amount of marijuana that researchers can use. (For many years, there was only one registered manufacturer that legally produced marijuana for research, though DEA recently approved additional marijuana manufacturers.) CBD is not a controlled substance but is regulated by the Food and Drug Administration (FDA) under the Federal Food, Drug, and Cosmetic Act.

On December 2, 2022, President Biden signed into law the Medical Marijuana and Cannabidiol Research Expansion Act (H.R. 8454), which aims to ease requirements for research involving marijuana and CBD. Title I of the Act creates specialized, expedited procedures for DEA approval of marijuana research and manufacture of marijuana for research purposes. Title II authorizes CSA registrants to "manufacture, distribute, dispense, or possess marijuana or cannabidiol ... for purposes of medical research for drug development or subsequent commercial production." It also directs DEA to register applicants to manufacture or distribute CBD or marijuana for the purpose of commercial production of FDA-approved drugs in accordance with CSA requirements. Title III provides that it shall not be a violation of the CSA for physicians to discuss "the currently known potential harms and benefits of marijuana and marijuana

derivatives," including CBD, with patients and their guardians. Title IV directs the Secretary of Health and Human Services to submit to certain congressional committees a report on the potential therapeutic effects of CBD and marijuana on serious medical conditions; potential effects of marijuana on the body, brain development, and cognitive abilities; and barriers to researching marijuana or CBD in states that have legalized the use of such substances.

Federal Legislative Proposals

Numerous proposals before the 117th Congress would change how the federal government regulates marijuana. Congress has broad power to regulate marijuana or relax federal regulation of the substance as part of its authority over interstate commerce.

Several recent proposals would remove marijuana from control under the CSA. For instance, the Marijuana Opportunity Reinvestment and Expungement Act (MORE Act, H.R. 3617) would remove marijuana and THC from control under the CSA and require expungement of past convictions for many federal marijuana offenses. Among other things, it would also remove some collateral consequences for marijuana-related activities, impose a 5% tax on cannabis products, and use revenues from the tax to fund certain grant programs for disadvantaged individuals and "individuals most adversely impacted by the War on Drugs." The MORE Act passed the House in April 2022 and is currently pending before the Senate.

Another descheduling proposal, the Cannabis Administration and Opportunity Act (S. 4591), would remove from Schedule I marijuana and THC derived from the cannabis plant. It would also provide for expungement of certain past marijuana convictions, but it would retain federal criminal liability for cannabis-related activities not authorized under the law of the states where they occur. In addition, among other things, it would provide guidance for regulation of cannabis products under the Federal Food, Drug, and Cosmetic Act. It would also impose a 10%-25% tax on cannabis products and use revenues from the tax to fund programs including small business development, community reinvestment, and opioid abuse treatment. Other legislative proposals from the 117th Congress would also remove marijuana from control, allow for expungement or sealing of certain federal marijuana convictions, or facilitate expungement of state convictions.

In the alternative, some proposals would continue to regulate marijuana as a controlled substance but would move it to a less restrictive schedule, potentially allowing it to be dispensed by prescription for medical purposes. Several legislative proposals from the 116th Congress would have left marijuana in Schedule I but limited enforcement of federal marijuana law in states that legalize marijuana. In the 117th Congress, the Small and Homestead Independent Producers Act of 2022 (H.R. 8825) would allow shipment of marijuana within and between states that have legalized the substance.

Some proposals would address specific legal consequences of marijuana's Schedule I status. For example, the SAFE Banking Act of 2021 (H.R. 1996/S. 910), which passed the House in April 2021, seeks to protect depository institutions that provide financial services to cannabis-related businesses from regulatory sanctions. Other proposals would seek to ensure access to insurance and other financial resources, further facilitate federally approved clinical research involving marijuana, or enable veterans to access information about or use medical marijuana. Additional proposals would remove collateral legal consequences of marijuana-related activities for individuals in areas such as immigration, gun ownership, and federally assisted housing.

While most recent proposals would relax federal regulation of marijuana, Congress could also impose more stringent controls. As one example, the Welfare for Needs not Weed Act (H.R. 4536) would prohibit the use of benefits under the Temporary Assistance for Needy Families block grant at any store that offers marijuana for sale. Other proposals would seek to address the issues of workplace impairment or driving under the influence of marijuana and other substances.

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Cooperative Conservation Under the Endangered Species Act: What Lenders, Landowners, & Lawyers Need to Know

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Species Listing

Threatened vs. Endangered:

A threatened species means "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant part of its range." 16 U.S.C. § 1532(20).

An endangered species means "any species which is in danger of extinction throughout all or a significant portion of its range, other than insects that constitute a pest whose protection would present an overwhelming and overriding risk to man." 16 U.S.C. § 1532(6).

A candidate species is a plant and animal for which the Services have sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate Conservation Agreements with Assurances Policy, 81 Fed. Reg. 95,164, 95,171 (December 27, 2016).

A proposed species is a species that is proposed for listing, but the Service has yet to determine if it qualifies as a candidate, threatened or endangered.

Prior to August 19, 2019, once listed there was no substantive difference in management between a threatened or endangered species. On August 19, 2019, the Fish and Wildlife Service and National Marine Fisheries Service (collectively "Services") issued joint regulations that required that a species-specific special rule would be proposed for each listed threatened species which specifies any prohibited "take," and that the general "take" prohibitions would not apply.

Species Listing Process:

The Services may decide to list a species on their own initiative, or a private party may petition on of the Services to list a species. Anyone can petition to have a species listed. 16 U.S.C. § 1533(b)(3)(A).

The decision to designate a threatened or endangered species is considered rulemaking and is to be published in the Federal Register.

Listing decisions are to be based on the "best scientific and commercial data available." 16 U.S.C. § 1533(b)(1)(A). Under the ESA, the best scientific and commercial data available" means:

- Literature search only,
- No counting of species,

- No economic considerations,
- Species population numbers may not be in decline; rather the Services can list if the agency believes the habitat area to be shrinking.

Under the ESA, a species may be listed as threatened or endangered if it meets any one of the following criteria:

- The present or threatened destruction, modification or curtailment of its habitat or range;
- Overutilization for commercial, recreational, scientific, or educational purposes;
- Disease or predation;
- Inadequacy of existing regulatory mechanisms; or
- Other natural or manmade factors affecting its continued existence.

16 U.S.C. § 1533(a)(1).

"Take" Prohibitions:

Once a species is listed as endangered, prohibitions against "take" apply.

"Take" means "to harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect, or attempt to engage in such conduct." 16 U.S.C. § 1532(19).

"Harm" in the definition of "take" means "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering." 50 C.F.R. § 222.102.

"Harass" in the definition of "take" means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding feeding or sheltering." 50 C.F.R. § 17.3

If convicted to "take," a person can be liable for either civil or criminal penalties. The ESA allows civil penalties of up to $25,000 per violation, and criminal penalties of up to $50,000 and one year in prison per violation. 16 U.S.C. § 1540(a), (b).

<u>Critical Habitat Designation</u>

Once a species is listed as threatened or endangered, the Services must "to the maximum extent prudent and determinable," concurrent with making a determination that a species is an endangered or threatened species, designate any habitat of such species which is then considered to be critical habitat. 16 U.S.C. § 1533(a)(3)(A); 50 C.F.R. § 424.12(a).

The ESA defines critical habitat as:

- The specific areas within the geographical area occupied by the species, at the time it is listed [...] on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and

- Specific areas outside the geographical area occupied by the species at the time it is listed [...] that are essential for the conservation of the species.

16 U.S.C. § 1532(5).

This definition outlines two types of critical habitat, that which is occupied by the species at the time of listing, and that which is unoccupied at the time of listing.

An area will be designated as a "geographical area occupied by the species" (a.k.a. occupied habitat) if the area "may generally be delineated arounds species' occurrences, as determined by the Secretary (*i.e.*, range). Such areas may include those areas used throughout all or part of the species' life cycle, even if not used on a regular basis (e.g., migratory corridors, seasonal habitats, and habitats used periodically, but not solely by vagrant individuals." 50 C.F.R. § 424.02.

An area will be deemed to have "physical or biological features essential to the conservation of the species" if it has "features that occur in specific areas and that are essential to support the life-history needs of the species, including but not limited to, water characteristic, soil type, geographical features, sites, prey, vegetation, symbiotic species, or other features." 50 C.F.R. § 424.02.

When designating critical habitat, the Services will first evaluate areas occupied by the species. The Services will only consider unoccupied areas as "essential to the conservation of the species" where a critical habitat designation limited to the geographical areas occupied by the species would be inadequate to ensure its conservation. "In addition, for an unoccupied area to be considered essential, the Secretary must determine that there is a reasonable certainly both that the area will contribute to the conservation of the species and that the area contains one or more of those physical or biological features essential to the conservation of the species." C.F.R. § 424.12(b).

According to the Supreme Court, to be considered critical habitat, an area must first be "habitat" for the species. *Weyerhaeuser Co. v. U.S. Fish and Wildlife Serv.*, 139 S. Ct. 361 (2018)

The Services shall designate critical habitat and make revisions thereto on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat. The Services may exclude any area from critical habitat if they determine that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned. 50 C.F.R. § 424.12(a).

Section 7 Consultation

Section 7 of the ESA provides that "[e]ach Federal agency [must] in consultation with and with the assistance of the Secretary [of the Interior], insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary . . . to be critical . . . ." 16 U.S.C. § 1536(a)(2).

Actions for which ESA section 7 consultation is required include actions that require a permit or authorization from the federal government, including even private participation in U.S. Department of Agriculture or Natural Resource Conservation District farm programs or the use of pesticides licensed by the Environmental Protection Agency.

ESA Section 10 & Private Land

Habitat Conservation Plans (HCPs), Safe Harbor Agreements (SHA), and Candidate Conservation Agreements with Assurances (CCAA) are voluntary agreements between a landowner and the Services whereby the landowner agrees to take certain actions to try to keep species from being listed as threatened or endangered. 16 U.S.C. § 1539. SHAs and CCAAs are both programs where a landowner is protected from the liability of "take" of a threatened or endangered species (listed species) if the landowner (1) voluntarily implements conservation measures that address the threats to a species and (2) is acting in compliance with the CCAA or SHA. Announcement of Final Safe Harbor Policy, 64 Fed. Reg. 32,717, 32,721 (June 17, 1999); Candidate Conservation Agreements with Assurances Policy, 81 Fed. Reg. 95,164 (December 27, 2016). The CCAA program also includes species proposed to be listed with the additional assurance that federal Services will not implement new restrictions on their property related to the covered species. Candidate Conservation Agreements with Assurances Policy at 95,164.

For both agreements, an enhancement of survival (EOS) permit from the Secretary of the Interior is required. 16 U.S.C. § 1539(a). An EOS permit is a permit that allows an

exception to the "take" provision of the ESA if certain conservation measures are taken to overall enhance the population or habitat of a protected species. 50 C.F.R. § 17.22. If an enhancement of survival permit is obtained, and the conservation measures are taken, then the landowner may continue authorized use of their property, even if it results in an incidental take of the species. 50 C.F.R. § 17.22.

Habitat Conservation Plans (HCPs)

In order to avoid the penalties for "take" of a species, and still allow the use and development of private land, the ESA also authorizes the Services to issue incidental take statement (ITS) to private landowners upon the fulfillment of certain conditions, specifically the development and implementation of HCPs. 16 U.S.C. § 1539(a)(1)(B); 50 C.F.R. § 17.22(b)(1). Under this scheme, private landowners are able to engage in activities that could result in incidental take without fearing ESA violations, while also undertaking conservation efforts that help to promote the overall goals of the ESA.

An HCP must include (a) a description of the proposed action, (b) the impact to the listed species that will result from the proposed action, (c) the steps that the applicant will take to minimize any negative consequences to the listed species by the proposed action, (d) any alternatives the applicant considered to the proposed action and why those alternatives were rejected, and (e) any other measures that the Services may deem necessary for the conservation plan. 50 C.F.R. § 17.22(b)(1).

Once an HCP is presented, the Services must make certain findings before it can issue an ITS. Those findings include (a) that the taking of the species is incidental to the proposed action, (b) that the proposed action implements a lawful activity, (c) that the applicant, to the maximum extent possible, will minimize and mitigate any negative impacts to the listed species, (d) that the HCP is adequately funded, (e) that the taking will not appreciable reduce the survival and recovery of the listed species, and (f) that any other measures deemed necessary will be carried out. 16 U.S.C. § 1539(a)(2)(A).

As a practical matter, mitigation means that the applicant will either fund programs supporting the listed species or will provide or set aside land.

Safe Harbor Agreements (SHAs)

Safe Harbor Agreements are voluntary agreements between the Services and a non-federal landowner who wishes to continue use of their land, even if it results in an incidental take of the species. The Services created the SHA program as a way to work with private landowners who were interested in conserving listed species. Under an SHA, the property owner agrees to engage in actions that contribute to the recovery of listed species on non-federal land. In return, the Services provide formal assurances that the property owner will not be required to take on any additional or different management practices without the property owner's consent. As part of an SHA, the participating landowner will be issued an "enhancement of survival permit" which

authorizes any take incidental to carrying out the activities agreed to in the SHA. 16 U.S.C. § 1539(a)(1)(A).

SHAs are intended to be incentives for non-federal landowners to "restore, enhance, or maintain habitats and/or populations of listed species that result in a net conservation benefit to these species." Announcement of Final Safe Harbor Policy, 64 Fed. Reg. 32,717, 32,721 (June 17, 1999). SHAs are also intended to achieve mainly short-term and mid-term conservation benefits but are not required to achieve long-term conservation benefits.

The goal of an SHA is to allow actions on private property that achieve a "net conservation benefit." A "net conservation benefit" is "the cumulative benefits of the management activities identified in a[n SHA] that provide for an increase in a species' population and/or the enhancement, restoration, or maintenance of covered species' suitable habitat within the enrolled property, taking into account the length of the Agreement and any off-setting adverse effects attributable to the incidental taking allowed by the enhancement of survival permit. Net conservation benefits must be sufficient to contribute, either directly or indirectly, to the recovery of the covered species." Announcement of Final Safe Harbor Policy at 32,722.

Conservation benefits include, but are not limited to:

- Reduction of habitat fragmentation rates;
- The maintenance, restoration, or enhancement of habitats;
- Increase in habitat connectivity;
- Maintenance or increase of population numbers or distribution;
- Reduction of the effects of catastrophic events;
- Establishment of buffers for protected areas;
- Establishment of areas to test and develop new and innovative conservation strategies.

Announcement of Final Safe Harbor Policy at 32,723.

Net conservation benefits are measured by comparing the benefits to the "baseline conditions." Baseline conditions refer to the "population estimates and distribution and/or habitat characteristics in the determined area of the enrolled property that sustain seasonal or permanent use by the covered species at the time the SHA is executed[.]" Announcement of Final Safe Harbor Policy at 32,722. Baseline conditions must reflect the known biological and habitat characteristics that support existing levels of use of the property by species covered in the SHA. These baseline conditions will be

agreed upon by the Services and the participating property owner. The parties must also agree to the extent which the enrolled property is inhabited by the species (seasonally, permanently, etc.). Announcement of Final Safe Harbor Policy at 32,723.

If the actions in the SHA achieve a net conservation benefit, then the private landowner receives certain "Safe Harbor Assurances." Safe Harbor Assurances" are "assurances provided by the Services to a non-Federal property owner in the agreement and authorized in the enhancement of survival permit for covered species. These assurances allow the property owner to alter or modify enrolled property, even if such alteration or modification results in the incidental take of a listed species to such an extent that it returns the species back to its originally agreed upon baseline conditions." Announcement of Final Safe Harbor Policy at 32,723. The assurances run with the land for as long as the participating landowner complies with the SHA and accompanying enhancement of survival permit. Announcement of Final Safe Harbor Policy at 32,725. The assurances can also outlive the duration of the SHA, if the participating landowner still has the enhancement of survival permit.

In order for the Services to approve an SHA, it must satisfy the following requirements:

- Specify the species and/or habitats covered;
- Include a full description of the baseline conditions;
- Identify management actions that would be undertaken to accomplish the net conservation benefits and when those benefits would be achieved;
- Describe any incidental take associated with the management actions;
- If appropriate, incorporate a notification requirement to provide the Services or appropriate state agencies with a reasonable opportunity to rescue individuals of a covered species before authorized incidental taking occurs;
- Describe what activities would be expected to return the enrolled property to baseline conditions and the extent of incidental take that would result from the activities;
- Satisfy other requirements of section 10 of the ESA; and
- Identify a schedule for monitoring and the responsible parties who will monitor maintenance of the baseline conditions, implementation of terms and conditions of SHA and any incidental take as authorized in the permit.

Announcement of Final Safe Harbor Policy at 32,723.

Candidate Conservation Agreement with Assurances (CCAAs)

CCAAs are agreements between a non-federal landowner and the Services for landowners to implement conservation measures for species that are proposed for listing under the ESA in exchange for assurances that the land where the conservation measures are taken would be exempt from certain regulations if the candidate species is listed. Candidate Conservation Agreements with Assurances Policy, 81 Fed. Reg. 95,164 (December 27, 2016).

CCAAs are intended to provide landowners with incentives to take conservation measures for candidate species while ensuring "regulatory certainty" with regard to resource restrictions that might apply if the candidate species is listed under the ESA. Candidate Conservation Agreements with Assurances Policy at 95,171. In other words, those who sign a CCAA (or "certificate of inclusion" under an umbrella CCAA) will receive assurances that additional conservation measures above those contained in the CCAA will not be required or imposed upon the landowner upon species listing or designation of critical habitat.

To receive these assurances, the conservation measures must be reasonably expected to achieve a "net conservation benefit." A "net conservation benefit" is "the cumulative benefits of the CCAA's specific conservation measures designed to improve the status of a covered species by removing or minimizing threats so that populations are stabilized, the number of individuals is increased, or habitat is improved. The benefit is measured by the projected increase in the species' population or improvement of the species habitat, considering the duration of the CCAA and any off-setting adverse effects attributable to the incidental taking allowed by the enhancement of survival permit." Candidate Conservation Agreements with Assurances Policy at 95,171.

When determining whether to enter into a CCAA, the Service will consider the extent to which the CCAA "reduces threats to proposed and candidate species and species likely to become candidates or proposed in the near future so as to preclude or remove any need to list the species as threatened or endangered under the Act." Similar to entering into a SHA, the landowner must first obtain an EOS permit as required by ESA section 10(a)(1)(A).

The enhancement of survival permit can benefit the non-federal property owner in two ways: (1) in the event that a species is listed, incidental take authorization enables property owners to continue existing and agreed-upon land uses that have the potential to cause take, provided that the property owner is properly implementing the CCAA, and (2) the property owner is provided the assurance that, if the species is listed, no additional conservation measures will be required and no additional land use restrictions will be imposed. Candidate Conservation Agreements with Assurances Policy at 95,172.

The parties to a CCAA are the Services and the property owner(s) wanting to obtain regulatory assurances from the Services. While the policy does not require neighboring landowners or other state Services to be party to the signed CCAA, the Service is required to work with any state or federal Services that may have an interest in the CCAA to ensure that there are not any significant environmental, economic, social,

historical or cultural impact, or significant controversy. Candidate Conservation Agreements with Assurances Policy at 95,173.

To be approved by the Services, the CCAA must include:

- The population levels (if available) of the covered species at the time the parties sign the agreement, existing habitat characteristics that sustain current, permanent or seasonal use, potential use by the covered species and consideration of the existing and anticipated condition of the landscape of the contiguous lands or waters not on the participating owner's property;

- The conservation measures the participating property owner agrees to undertake to address specific threats identified to conserve the species;

- The benefits expected to result from the conservation measures;

- A monitoring provision that requires measuring and reporting on:

    - Progress in implementing the conservation measures described in the CCAA;

    - Changes in habitat conditions and the species' status resulting from the conservation measures; and

- As appropriate, a notification requirement to provide the Services or state agencies with a reasonable opportunity to rescue individuals of the covered species before any authorized incidental take occurs.

U.S. Fish & Wildlife Serv., Candidate Conservation Agreements with Assurances Handbook, 11-20 (2003).

Assurances related to take of the covered species will be authorized through the EOS permit, including assurances that no additional conservation measures will be required, and no additional land, water, or resource use restrictions will be imposed beyond those described in the CCAA unless the conservation measures are not being implemented properly or there are unforeseen circumstances. The Services must obtain the property owner's permission before additional conservation measures are implemented. The amount of prescribed incidental take allowed under the enhancement of survival permit will also be included. Candidate Conservation Agreements with Assurances Policy at 95,172.

The National Agricultural Law Center's Endangered Species Act Manual:

A Practical Guide to the ESA for Agricultural Producers

Brigit Rollins
National Agricultural Law Center

Contents

Acronym Glossary:

BiOp – Biological Opinion

CWA – Clean Water Act

EPA – Environmental Protection Agency

ESA – Endangered Species Act

FWS – Fish and Wildlife Service

HCP – Habitat Conservation Plan

ITP - Incidental Take Permit

NEPA - National Environmental Policy Act

NMFS - National Marine Fisheries Service

SHA – Safe Harbor Agreement

I. Introduction

In 1973, Congress passed what would come to be regarded as one of the nation's most powerful tools to protect wildlife.[1] Known as the Endangered Species Act ("ESA"), this statute is recognized as granting the federal government broad powers to conserve those species it identifies as endangered or in threat of becoming endangered.[2] While the ESA is frequently recognized as the nation's most effective law for protecting species[3], it also places restrictions on certain activities carried out by the federal government and private landowners.[4] It is therefore important that any landowner who may have an endangered or threatened species on their property, or anyone who will be working with the federal government on an activity that may impact endangered or threatened species, understand how the ESA functions.

This manual will provide an in-depth look at the ESA by examining the text of the statute, its implementing regulations, and case law that has impacted how the ESA is carried out. Additionally, this manual will provide a thorough discussion on how the ESA impacts private landowners, and will explore the various ESA programs available to private landowners. Finally, this manual will conclude by discussing some real-life examples of how the ESA affects agriculture, and how agricultural producers can be critical to achieving the statute's conservation goals.

a. What is the ESA?

The Endangered Species Act of 1973 is considered the primary wildlife protection law in the United States. The purposes of the ESA are two-fold: to prevent imperiled wildlife species from becoming extinct, and to recover species at-risk of extinction to the point where the ESA's protections are no longer needed.[5] To achieve these goals, the ESA has created a framework for protecting both at-risk species and their habitats. Crucial to that framework is the Federal List of Endangered and Threatened Wildlife and Plants

[1] Fish & Wildlife Service, *History of the U.S. Fish and Wildlife Service*, USFWS (Oct. 18, 2022), https://www.fws.gov/history-of-fws.
[2] U.S. Congressional Research Service. The Endangered Species Act: Overview and Implementation (R46677; February 9, 2021). Text in: CRS Web; Accessed: October 17, 2022, https://crsreports.congress.gov/product/pdf/R/R46677/1.
[3] *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 180 (1978).
[4] The Endangered Species Act: Overview and Implementation at 1.
[5] 16 U.S.C. § 1531.

("the Federal List").[6] That list is central to the function of the ESA because only those species added to the list receive the Act's protections.[7]

Two of the main protections granted to species listed under the ESA are the prohibition against "take" of any listed species, and the designation of "critical habitat." The term "take" is broadly defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."[8] A taking of even one individual of a listed species can amount to a violation of the ESA.[9] Additionally, when a species is listed under the ESA, it may require a designation of critical habitat,[10] which is generally identified as the habitat necessary to conserve the species.[11] Just as it is a violation of the ESA to take a species, it is also a violation of the ESA for a federal agency to destroy or modify designated critical habitat.[12] This prohibition can also affect a

[6] Fish & Wildlife Service, *Threatened & Endangered Species*, Environmental Conservation Online System (last visited Oct. 19, 2022), https://ecos.fws.gov/ecp/.
[7] 16 U.S.C. § 1533(c).
[8] 16 U.S.C. § 1532(19).
[9] 16 U.S.C. § 1533(a).
[10] 16 U.S.C. § 1533(a)(3)(A)(i).
[11] 16 U.S.C. § 1532(5).
[12] 16 U.SC. § 1536(2).

private landowner who may be carrying out an activity that requires federal involvement.[13] For example, a landowner who wants to clear and construct an animal feeding operation on his property may need to obtain federal permits. If a portion of the landowner's property has been designated as critical habitat, the federal agency issuing permits to the landowner will need to ensure that doing so will not destroy or modify designated critical habitat. By protecting both individual members of a listed species, and the habitat that species relies on, the ESA has become an important tool for wildlife conservation.

The Fish and Wildlife Service ("FWS") and the National Marine Fisheries Service ("NMFS") (collectively "the Services") are both responsible for administering the ESA.[14] Each of the Services are required to identify species for listing under the ESA, and designate critical habitat for listed species. FWS is responsible for terrestrial and freshwater organisms, while NMFS is responsible for marine wildlife and anadromous fish.[15] The Services also work with other federal agencies to ensure that their actions do not violate the ESA, and with private landowners who want to engage in endangered species conservation.[16]

The ESA has been referred to as the "pit bull" of environmental laws.[17] In the past, courts have tended to interpret the ESA's requirements very strictly, citing Congress's intent to give species conservation the highest priority.[18] Because of that, the ESA has the potential to impact almost any activity that affects wildlife.

b. Historical Background and Congressional Intent

Federal wildlife laws intended to conserve wildlife have existed since the beginning of the twentieth century. The Lacey Act of 1900 outlawed the commercial hunting and interstate trade of certain animals and plants.[19] The Migratory Bird Treaty Act of 1918 made it illegal to pursue, hunt, capture, kill, or take any birds identified by FWS as a

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[13] U.S. Congressional Research Service. The Endangered Species Act (ESA) and Claims of Property Rights "Takings" (RL31796; Jan. 07, 2013), by Robert Meltz. Text in: CRS Web; Accessed: October 19, 2022, https://sgp.fas.org/crs/misc/RL31796.pdf.
[14] The Endangered Species Act: Overview and Implementation at 1.
[15] *Id.*
[16] 16 U.S.C. § 1536; Fish & Wildlife Service, *Tools for Conservation Partnerships*, FWS (last visited Oct. 20, 2022), https://fws.gov/library/collections/tools-conservation-partnerships.
[17] Holly Doremus, *The Purposes, Effects, and Future of the Endangered Species Act's Best Available Science Mandate*, 34 Envtl. L. 397, 399 (2004).
[18] *Tennessee Valley Authority*, 437 U.S. at 174 ("[E]xamination of the language, history, and structure of the legislation under review here indicates beyond doubt that Congress intended endangered species to be afforded the highest of priorities.").
[19] 16 U.S.C. § 3372.

migratory bird species.[20] The Bald and Golden Eagle Protection Act of 1940 also protected birds by prohibiting the "taking" of any bald or golden eagle.[21] The Act defined "taking" to include pursuing, shooting, shooting at, poisoning, wounding, killing, capturing, rapping, collecting, molesting, or disturbing a bald or golden eagle.[22]

In 1966, Congress passed the statute that would become the precursor to the ESA. That law, the Endangered Species Preservation Act of 1966, initiated a program to help conserve, protect, and restore certain wildlife species.[23] The Department of Interior was instructed to put together a federal list of endangered animals that would be protected under the 1966 Act.[24] Congress also directed the Department of Interior to acquire a limited amount of private land to help with the protection of listed species.[25] The 1966 Act was amended a few years later by the Endangered Species Conservation Act of 1969.[26] Under the 1969 law, protections for listed species were expanded and a new list was developed to identify species that were at risk of worldwide extinction.[27] The 1969 Act made it illegal to import or sell those species within the United States.[28]

In 1972, President Nixon issued a message to Congress in which he declared that current federal laws addressing species conservation did not go far enough. He requested that Congress pass a "stronger law to protect endangered species of wildlife."[29] Ultimately, this prompted Congress to pass the Endangered Species Act of 1973. The stated purpose of the ESA is to protect species and the ecosystems on which they depend.[30] To do that, the ESA expanded on the wildlife protection laws that had preceded it by making all plant and invertebrate species eligible for protection; applying "take" prohibitions to all endangered; and prohibiting federal agencies from authorizing, funding, or carrying out any action that would jeopardize a listed species or protected habitat.

Since 1973, Congress has passed two major amendments to the ESA, in 1982 and 1988.[31] Those amendments have shaped the ESA into the statute that it is known as today by

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[20] 16 U.S.C. § 703(a).
[21] 16 U.S.C. § 668(a).
[22] 16 U.S.C. § 668c.
[23] The Endangered Species Act: Overview and Implementation at 2.
[24] *Id.*
[25] Fish & Wildlife Service, *Endangered Species Act Milestones: Pre 1973*, USFWS (last visited Oct. 18, 2022), https://fws.gov/node/266462.
[26] *Id.*
[27] *Id.*
[28] Endangered Species Conservation Act, Pub. L. No. 91-135, 83 Stat. 275 (1969).
[29] United States., & Nixon, R. (1972). *Special Message to the Congress Outlining the 1972 Environmental Program*, https://www.presidency.ucsb.edu/documents/special-message-the-congress-outlining-the-1972-environmental-program.
[30] 16 U.S.C. § 1531(b).
[31] Endangered Species Act Amendments of 1982, Pub. L. No. 97-305, 96 Stat. 1411 (1982); Endangered Species Act Amendments of 1988, Pub. L. No. 100-478, 102 Stat. 2306 (1988).

introducing habitat conservation plans,[32] refining processes related to species recovery,[33] and broadening protections for endangered plants.[34]

c. What Does the ESA Mean to Agriculture?

There are many ways in which the ESA can impact agriculture. If a species listed under the ESA is located on agricultural land, that may affect the activities that can be carried out on that property. Any action that a farmer or rancher carries out that could cause a "take" of a listed species may put them in violation of the ESA.[35] Critical habitat designations can also impact agriculture. Although critical habitat designations do not directly affect private actions on private land or non-federal public property, federal agencies are required to ensure that their actions will not jeopardize designated critical habitat. This can cover a variety of agriculture-related actions including pesticide registrations, grazing permits on federal land, and even projects on private land that require a federal permit or funding. Therefore, even though private landowners are not explicitly prohibited from modifying critical habitat under the ESA, if the landowner carries out a project with a federal nexus, they may face limitations from any critical habitat located on their property. However, there are also ways in which the ESA allows farmers and landowners to work with the Services in order to reach conservation goals while removing some risk of unintentional ESA violations.

Because the ESA can have a variety of impacts to agriculture, it is important that people within the agricultural industry understand the Act and how it may affect them. This document will serve as a manual to help members of the agriculture industry navigate the ESA.

II. How Does the ESA Work?

As already mentioned, the ESA has two main goals: to protect species in danger of extinction, and to recover those species to the point where they no longer need federal protection. These goals are accomplished through several key sections of the Act that outline the process for listing species, the responsibilities of federal agencies, the activities prohibited by the ESA, and more. Understanding what these provisions of the ESA do is critical for understanding how the Act impacts land management activities.

The following is an overview of the relevant sections of the ESA.

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[32] 16 U.S.C. § 1539(a)(2).
[33] 16 U.SC. § 1533(f).
[34] 16 U.S.C. § 1538.
[35] 16 U.S.C. § 1538 (a)(1)(B) ("[I]t is unlawful for any person subject to the jurisdiction of the United States to […] take any such species[.]").

a. Section 4

For a species to be protected under the ESA, it must first be listed as either "threatened" or "endangered." Once a species is listed, it may receive designated critical habitat which is regarded as the habitat essential to conserving the species. Section 4 of the ESA establishes both the processes by which species are listed, and critical habitat is designated.

Under the ESA, FWS and NMFS are tasked with maintaining a list of endangered and threatened species. The species on those lists receive ESA protection. Those lists are available to the public, and may be found here.

According to section 4 of the ESA, a species may be listed as either threatened or endangered due to any of the following factors:

(1) The present or threatened destruction, modification, or curtailment of its habitat or range;
(2) Overutilization for commercial, recreational, scientific, or educational purposes;
(3) Disease or predation;
(4) The inadequacy of existing regulatory mechanisms; or
(5) Other natural or manmade factors affecting its continued existence.[36]

While any of the above factors may serve as the basis for listing a species, the ESA specifically states that making a listing determination shall rely "solely on the basis of the best scientific and commercial data available."[37]

A species may be listed in one of two ways. The Services may decide to list a species on their own initiative, or a private party may petition one of the Services to list a species.[38] Either way, once the Services decide that listing is warranted for a particular species, they must engage in notice and comment rulemaking in order to formally list the species. If a species is being listed directly by one of the Services, then the listing Service must publish a general notice and the complete text of the proposed listing regulation in the Federal Register at least 90 days before the effective date of the regulation.[39] The listing Service must allow adequate time for public comment. Within one year of publishing the proposed regulation, the listing Service is required to publish in the Federal Register either a final determination on whether the species will be listed, a notice extending the amount of time needed to make a final determination, or a notice

[36] 16 U.S.C. § 1533(a)(1).
[37] 16 U.S.C. § 1533(b)(1)(A).
[38] 16 U.S.C. § 1533(b)(3)(A).
[39] 16 U.S.C. § 1533(b)(5)(A).

that the proposed regulation is being withdrawn.[40] If the proposed regulation is withdrawn, then the species will not be listed.

A similar process, with the addition of a few extra steps, is followed if a third party petitions one of the Services to list a species. Before publishing a proposed regulation in the Federal Register, the petitioned Service has 90 days after receiving the petition to determine whether it presents "substantial scientific or commercial information" showing that the petitioned action may be warranted.[41] If the petitioned Service concludes that the action is may be warranted, it will conduct a review of the species.[42] Then, twelve months after receiving the petition, the Service shall make a finding on whether to undertake the action.[43] If the Service does decide to proceed with the action, it will publish a proposed rule for listing in the Federal Register to begin the formal rulemaking process.[44]

A species may be listed under the ESA as either "threatened" or "endangered." A threatened species is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."[45] An "endangered species" is defined as "any species which is in danger of extinction throughout all or a significant portion of its range."[46] A species that is listed as threatened may have its status changed to endangered and vice versa.[47] If a species that was originally listed as threatened has its listing changed to endangered, that change is referred to as "uplisting."[48] Similarly, a species that was listed as endangered but has its status changed to threatened is referred to as being "downlisted."[49] FWS or NMFS may decide to directly change the status of a listed species, or a third party may petition the Services to do so. The Services may also remove a species from the Federal List, but only if the species has gone extinct or recovered to the point of no longer being threatened or endangered.[50] Removing a species from the Federal List is referred to as "delisting."[51]

A species listed as endangered will automatically receive all protections provided by the ESA. Most of those protections are also available to threatened species. Under the ESA,

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[40] 16 U.S.C. § 1533(b)(6)(A).
[41] 16 U.S.C. § 1533(b)(3)(A).
[42] *Id.*
[43] 16 U.S.C. § 1533(b)(3)(B).
[44] *Id.*
[45] 16 U.S.C. § 1532(20).
[46] 16 U.S.C. § 1532(6).
[47] 16 U.S.C. § 1533(a)(3)(A)(ii).
[48] Fish & Wildlife Service, *Listing and Classification*, USFWS (last visited Oct. 20, 2022), https://www.fws.gov/program/listing-and-classification.
[49] *Id.*
[50] 50 C.F.R. § 424.11(e).
[51] *Listing and Classification*.

the Services have the discretion to determine which protections will be provided to each threatened species.[52] This allows the Services to tailor protections for a threatened species according to its conservation needs. However, tailoring ESA protections for every species listed as threatened can be time consuming. In order to more efficiently provide protections to threatened species, FWS adopted what is known as the "Blanket 4(d) rule" which automatically applies the same protections to threatened species that are applied to endangered species.[53] The option for species-specific protection is still available under this rule, and is still utilized by NMFS for the species it lists as threatened. However, for the most part, FWS uses the Blanket 4(d) rule to automatically provide protections to threatened species. [54]

The Blanket 4(d) rule was rescinded by the ESA regulations adopted by the Trump administration in 2020,[55] but in 2021 the Biden administration announced its intent to reinstate the rule.[56] During 2022, a federal district court issued an opinion formally overturning the 2020 ESA regulations, including the regulation rescinding the Blanket 4(d) rule.[57] However, shortly afterward an appellate court overruled the lower court's decision and reinstated the 2020 rules.[58] The 2020 regulations will be discussed further below. Currently, if a species is listed as threatened instead of endangered, the listing Service will need to specify which ESA protections the species will receive.

Section 4 also governs the designation of critical habitat. Under the ESA, critical habitat is defined as:

> (i) the specific areas within the geographical area occupied by the species, at the time it is listed [...] on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and
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> (ii) specific areas outside the geographical area occupied by the species at the time it is listed [...] that are essential for the conservation of the species.[59]

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[52] 16 U.S.C. § 1533(d).
[53] 50 C.F.R. § 17.31.
[54] The Endangered Species Act: Overview and Implementation at 17.
[55] Endangered and Threatened Wildlife and Plants; Regulations for Prohibitions to Threatened Wildlife and Plants, 84 Fed. Reg. 44753 (Aug. 27, 2019).
[56] Fish & Wildlife Service. (June 4, 2021). *U.S. Fish and Wildlife Service and NOAA Fisheries to Propose Regulatory Revisions to Endangered Species Act* [Press release]. https://www.fws.gov/press-release/2021-06/us-fish-and-wildlife-service-and-noaa-fisheries-propose-regulatory-revisions?ref=u.s.-fish-and-wildlife-service-and-noaa-fisheries-to-propose-regulatory-&_ID=36925.
[57] *Ctr. for Biological Diversity v. Haaland*, No. 19-CV-05206 (N.D. Cal. July 5, 2022).
[58] *In re: Washington Cattlemen's Ass'n*, No. 22-70194 (9th Cir. Sept. 21, 2022).
[59] 16 U.S.C. § 1532(5).

In other words, critical habitat is those areas either within or outside of a listed species' current geographic range that are necessary for conserving that species. While the term "habitat" itself is not defined under the ESA, the United States Supreme Court has noted that at the very least, in order for an area to be designated as critical habitat for a species, the area must be capable of supporting that species.[60] Critical habitat may be designated for either endangered or threatened species.[61]

Finally, section 4 of the ESA directs the Services to develop recovery plans for each listed species.[62] These plans are intended to provide specific steps that can be taken in order to recover and ultimately delist a species. Recovery plans are required to incorporate "objective, measurable criteria" which will result in successful species recovery, as well as estimates of the time and cost needed to complete the recovery process.[63] Importantly, these plans are not regulatory documents. They are guidance documents that may be followed, but no agency or entity is required by the ESA to implement a recovery plan.[64]

b. Section 7

Section 7 of the ESA requires all federal agencies to ensure that any actions they take will not jeopardize the existence of any listed species or destroy critical habitat.[65] If an agency determines that its action may jeopardize a listed species or destroy critical habitat, it is required by section 7 to consult with the Services on how that potential harm could be avoided.[66] The consultation process federal agencies must go through in order to comply with the ESA is discussed below.

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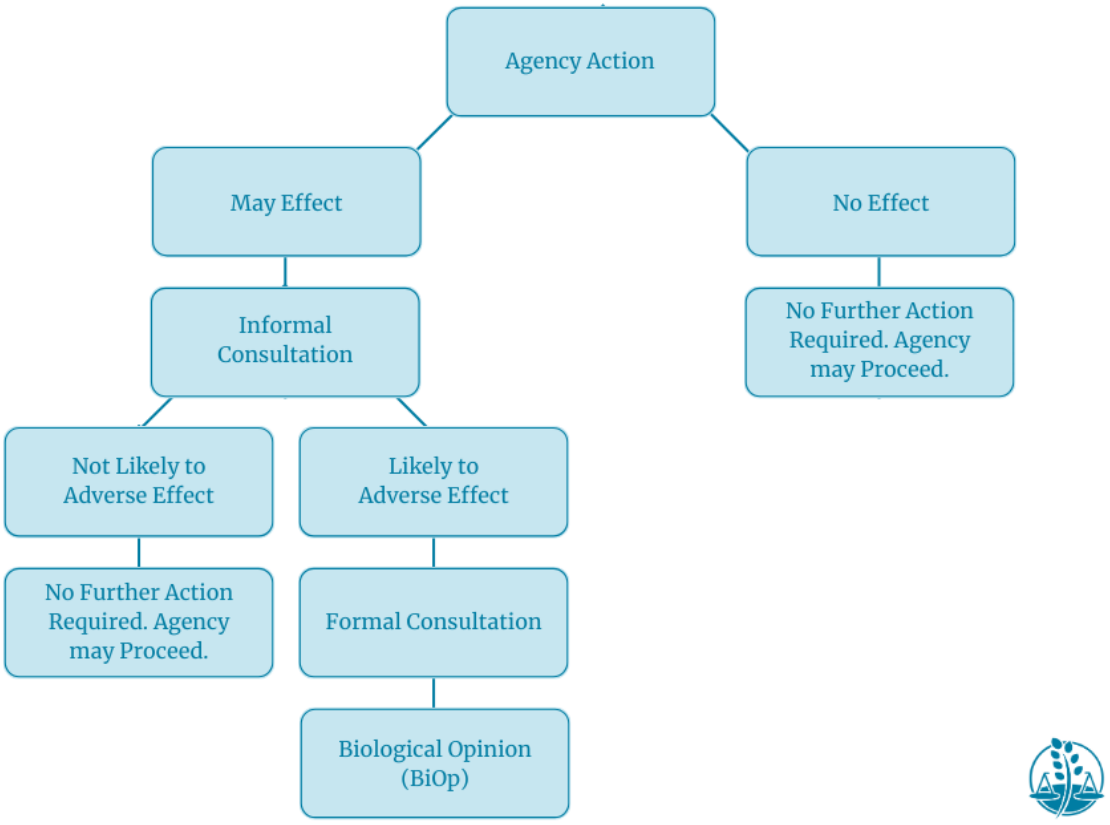
[60] *Weyerhaeuser Co. v. U.S. Fish and Wildlife Serv.*, 139 S. Ct. 361 (2018).
[61] 16 U.S.C. § 1533(a)(3)(A)(i).
[62] 16 U.S.C. § 1355(f).
[63] 16 U.S.C. § 1533(f)(1)(B).
[64] National Oceanic and Atmospheric Administration, *Recovery of Species Under the Endangered Species Act*, NOAA Fisheries (last visited October 21, 2022). https://www.fisheries.noaa.gov/national/endangered-species-conservation/recovery-species-under-endangered-species-act.
[65] 16 U.S.C. § 1536(a)(2).
[66] 50 C.F.R. § 402.14(g).



Informal Consultation

In order to begin ESA consultation, a federal agency must first determine if consultation is even necessary. The text of the ESA states that consultation is required for any action an agency has "authorized, funded, or carried out[.]"[67] Examples of agency actions given in the ESA's regulations include, but are not limited to: promulgation of regulations; granting a license, contract, lease, or permit; or actions directly or indirectly causing modification to the environment.[68] If an agency engages in any of those activities, or any other activity that constitutes an agency action, it can engage in informal consultation to determine whether the action will jeopardize a listed species or destroy critical habitat.[69]

[67] 16 U.S.C. § 1536(a)(2).
[68] 50 C.F.R. § 402.02.
[69] 50 C.F.R. § 402.13(a).

When an agency is in the planning stage of a project, it can reach out to FWS to engage in informal ESA consultation.[70] As this point, the agency taking the proposed action (otherwise known as the "action agency") and FWS will engage in discussions about what types of listed species occur in the proposed action area, and the possible effect the proposed action may have on those species.[71] It is during informal consultation when the action agency will determine whether its proposed action "may affect" any listed species or critical habitat.[72] A may affect finding includes actions that are "not likely to adversely affect" as well as actions that "are likely to adversely affect" listed species or critical habitat.[73] If the agency finds that the proposed action will have no effect, then informal consultation is the end of the road and no further action is needed.[74] If an agency determines that its proposed action may affect listed species or habitat, but that it is not likely to adversely affect species or habitat, and FWS agrees with that conclusion, then no further action is required.[75] However, if an agency concludes that its proposed action is likely to adversely affect listed species or critical habitat, then it is required to begin formal consultation.[76]

Formal Consultation

Formal consultation is a mandatory process for any proposed federal agency action that may adversely affect listed species or critical habitat.[77] The process begins with a written request from the action agency and concludes with the issuance of a biological opinion ("BiOp") from the consulting Service.[78] During the consultation period, the action agency and the Service will share information about the proposed action and the species or critical habitat likely to be affected.[79] This period can last up to 90 days, after which the consulting Service will prepare a BiOp.[80]

The ultimate goal of the formal consultation process is to ensure that the proposed agency action will neither jeopardize the continued existence of a listed species, or destroy or adversely modify critical habitat.[81] To reach that goal, the consulting Service

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[70] *Id.*; U.S. Fish & Wildlife Serv. & Nat'l Marine Fisheries Serv., *Endangered Species Consultation Handbook* 3-1 (1998), https://media.fisheries.noaa.gov/dam-migration/esa_section7_handbook_1998_opr5.pdf.
[71] *Endangered Species Consultation Handbook* at 3-1.
[72] 50 C.F.R. § 402.14(a).
[73] Fish & Wildlife Service, *Section 7 Consultation Technical Assistance*, USFWS Midwest (last visited Nov. 16, 2021), https://www.fws.gov/midwest/endangered/section7/s7process/step4.html.
[74] 50 C.F.R. § 402.13(c).
[75] *Id.*
[76] 50 C.F.R. § 402.14(a).
[77] *Id.*
[78] 50 C.F.R. § 402.14(c), (m)(1).
[79] 50 C.F.R. § 402.14(d).
[80] 50 C.F.R. § 402.14(e).
[81] 16 U.S.C. § 1536(a)(2).

will: (1) identify how and the extent to which the proposed action will affect listed species and critical habitat; (2) identify reasonable and prudent alternatives, if any, when a proposed action is likely to result in either jeopardy or adverse modification; (3) provide for certain levels of "incidental take"; (4) provide mandatory reasonable and prudent measures to minimize the impacts of incidental take; (5) identify ways that the action agency can conserve species or critical habitat; and (6) provide an administrative record of expects impacts to species that can help establish the species' environmental baseline for future BiOps.[82]

Jeopardy & Adverse Modification

Ultimately, the BiOp will result in either a "jeopardy" or "no jeopardy" / "adverse modification" or "no adverse modification" conclusion.[83] Under the ESA, jeopardy is defined as "an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."[84] Any agency action that negatively impacts that ability of a listed species to reproduce, significantly reduces the population of the species, or affects the geographical distribution of that species may receive a jeopardy finding.

Destruction or adverse modification of critical habitat is defined to mean "a direct or indirect alteration that appreciably diminishes the value of critical habitat as a whole for the conservation of a listed species."[85] Any agency action that significantly reduces the usefulness of critical habitat to conserve a listed species, such as by making the critical habitat no longer capable of supporting the species it was designated for, can result in a finding of adverse modification.

If the Services find that a proposed agency action will result in jeopardy, adverse modification of critical habitat, or both, then the BiOp will include a selection of reasonable and prudent alternatives.[86]

Reasonable and Prudent Alternatives

Reasonable and prudent alternatives are alternative methods of project implementation that would avoid the likelihood of jeopardy or adverse modification.[87] The consulting Service will include all proposed reasonable and prudent alternatives in the BiOp, and

[82] 50 C.F.R. § 402.14(h).
[83] 50 C.F.R. § 402.14(h)(1)(iv).
[84] 50 C.F.R. § 402.02.
[85] 50 C.F.R. § 402.02.
[86] 50 C.F.R. § 402.14(h)(2).
[87] 50 C.F.R. § 402.02.

will work with the action agency to develop them.[88] The ESA limits reasonable and prudent alternatives to: (1) alternatives the consulting Service believes will avoid the likelihood of jeopardy or adverse modification; (2) alternatives that can be implemented in a manner consistent with the intended purpose of the action; (3) alternatives that can be implemented within the scope of the action agency's legal authority and jurisdiction; and (4) alternatives that are economically and technologically feasible.[89] In other words, the reasonable and prudent alternatives must be actions that will accomplish the purpose of the originally proposed action, that the agency can reasonably carry out in a legal and economic fashion, and which will also avoid jeopardy and adverse modification.

Once reasonable and prudent alternatives have been proposed, the action agency may determine how to proceed. The action agency may decide to: (1) adopt the reasonable and prudent alternatives; (2) decide not to carry on with the proposed action; (3) request an exemption from the Endangered Species Committee;[90] (4) reinitiate consultation due to a modification of the action or the development of a reasonable and prudent alternative that was not previously considered; or (5) choose to take an entirely different action if it believes that doing so would satisfy its ESA requirements.[91] Whatever the action agency chooses to do, it must notify the consulting Service of its final decision.[92]

Incidental Take

Every BiOp includes an incidental take statement.[93] One of the main prohibitions of the ESA is "take" of any listed species. Under the ESA, "take" is broadly defined to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to

[88] 50 C.F.R. § 402.14(g)(5), (h)(2).
[89] 50 C.F.R. § 402.02.
[90] The Endangered Species Committee ("Committee"), sometimes referred to colloquially as the God Squad, has the power to grant federal projects an exemption from ESA requirements. The Committee is composed of seven members, including: the Secretary of Agriculture; the Secretary of the Army; the Charmain of the Council of Economic Advisors; the Administrator of the EPA; the Secretary of the Interior; the Administrator of the National Oceanic and Atmospheric Administration; and the one individual from each affected State who will be appointed by the President for each project the Committee considers. In order to request an exemption from the Committee, a federal agency must submit an application to either the Secretary of Commerce or the Secretary of the Interior depending on the species that will be impacted. An exemption will be granted if five of the seven Committee members vote in favor of the exemption.
[91] Fish & Wildlife Service, *Consultation | Frequently Asked Questions*, Endangered Species (Nov. 16, 2021), https://www.fws.gov/endangered/what-we-do/faq.html#:~:text=Reasonable%20and%20prudent%20alternatives%20are%20alternative%20methods%20of%20project%20implementation,adverse%20modification%20of%20critical%20habitat.
[92] *Id.*
[93] 16 U.S.C. § 1536(b)(4); 50 C.F.R. § 402.14(i)(1).

engage in any such conduct."[94] While a proposed agency action may not jeopardize the continued existence of a listed species, it could still result in the take of individual members of that species. Incidental take statements exempt federal agencies from the prohibition against take when carrying out an agency action, provided the agency complies with the proposed reasonable and prudent measures, as well as the implementing terms and conditions of the incidental take statement.[95]

In order to be exempted by an incidental take statement, any taking associated with an agency's action must meet the following requirements. The taking must: (1) not be likely to jeopardize the continued existence of any listed species, or destroy or modify any designated critical habitat; (2) be the result of an otherwise lawful activity; and (3) be incidental to the purpose of the agency action.[96] The first criteria will generally be considered met if the reasonable and prudent alternatives described in the BiOp are expected to eliminate the likelihood of jeopardy or adverse modification, or if the consulting Service has concluded that the proposed action will not result in jeopardy or adverse modification.[97]

An incidental take statement will include a statement of the anticipated incidental take the proposed project is likely to generate, and any reasonable and prudent measures the Service has identified to minimize such take.[98] The statement will also clarify that the action agency will be exempt from the ESA's prohibition on take only when the agency is able to comply with those reasonable and prudent measures.[99]

Reasonable and Prudent Measures

Reasonable and prudent measures are nondiscretionary actions identified in the incidental take statement that are meant to minimize the impact of incidental take.[100] If an agency does not comply with the reasonable and prudent measures identified in a BiOp, then any incidental take that results from the agency's action will not be exempt from the ESA prohibition on take, and the agency may be held responsible for an ESA violation.[101]

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[94] 16 U.S.C. § 1532(19).
[95] 50 C.F.R. § 402.14(i).
[96] 50 C.F.R. § 222.307(c)(2); U.S. Fish & Wildlife Serv. & Nat'l Marine Fisheries Serv., *Endangered Species Consultation Handbook* 4-45 (1998), https://www.fws.gov/endangered/esa-library/pdf/CH4.PDF.
[97] *Id.*
[98] 50 C.F.R. § 402.14(i)(1).
[99] *Endangered Species Consultation Handbook* at 4-45.
[100] 50 C.F.R. § 402.14(i)(1)(ii).
[101] *Endangered Species Consultation Handbook* at 4-53.

However, there are limits on what actions may be identified as reasonable and prudent measures. According to the ESA, reasonable and prudent measures "cannot alter the basic, design, location, scope, duration, or timing of the [proposed] action and may involve only minor changes."[102] In other words, reasonable and prudent measures must minimize the impact of any incidental take while not causing more than a minor change to the proposed project.

Next Steps

Once the action agency completes consultation with either a finding from the Services that the action will not result in jeopardy or adverse modification, or a completed BiOp, the agency can go forward with its proposed action. In certain circumstances, reinitiation of ESA consultation may be required as the project progresses. Circumstances requiring reinitiation include: (1) the amount of taking specified in the incidental take statement is exceeded; (2) new information reveals effect of the action that may affect listed species or critical habitat in a way not previously considered; (3) the action is modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the BiOp; or (4) if a new species is listed or critical habitat designated that may be affected by the action.[103] Should any of those things occur, the action agency will reach out to the Services to reinitiate consultation.

c. Section 9

Section 9 of the ESA outlines many of the specific prohibitions that apply to threatened and endangered species. According to section 9 of the ESA, it is unlawful for any person to "take" any member of an endangered species.[104] As previously mentioned, the term "take" means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."[105] While some of the actions included in the definition of take, such as kill or trap, are clear, other terms are not. Importantly, the terms "harass," and "harm" do not have the same meaning under the ESA as they do in a standard dictionary. For purposes of the ESA, "harass" is defined as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding feeding or sheltering."[106] Additionally, "harm" is further defined to mean "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures

[102] 50 C.F.R. § 402.14(i)(2).
[103] 50 C.F.R. § 402.16(a).
[104] 16 U.S.C. § 1538(a).
[105] 16 U.S.C. § 1532(19).
[106] 50 C.F.R. § 17.3.

fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering."[107] In other words, the ESA term "take" prohibits a wide range of actions from killing a member of an endangered species to altering the habitat of an endangered species in such a way that its ability to eat or reproduce is affected.

Violations of section 9 can result in either civil or criminal penalties.[108] The ESA allows civil penalties of up to $25,000 per violation, and criminal penalties of up to $50,000 and one year in prison per violation.[109] It is therefore important for farmers and landowners to be aware if a listed species is present on or near their property in order to avoid causing unlawful take.

There are certain instances in which activities may be exempted from section 9 prohibitions. As discussed above, an incidental take statement can exempt a federal agency from take prohibitions so long as the agency is otherwise operating according to the terms of the statement.[110] Section 10 of the ESA authorizes the Services to issue permits allowing actions otherwise prohibited by section 9 specifically for scientific purposes or to enhance the survival of the species.[111] The Services may also issue permits authorizing take of listed species that is incidental to otherwise lawful activities upon submission of a habitat conservation plan.[112] However, in the absence of an incidental take statement or permit exempting certain actions from section 9 prohibitions, any take of a listed species will be considered an ESA violation.

d. Section 10

Under section 10 of the ESA, the Services may issue permits authorizing activities that would otherwise be prohibited under the ESA.[113] Section 10 creates three main types of permits: Recovery and Interstate Commerce Permits, Enhancement of Survival Permits, and Incidental Take Permits.[114] Recovery and Interstate Commerce Permits, and Enhancement of Survival Permits are both issued under the same provision of section 10, but are generally issued to different types of permittees.[115] Recovery and Interstate Commerce Permits are typically issued to someone engaged in scientific activity, while Enhancement of Survival Permits are usually granted as part of a larger conservation

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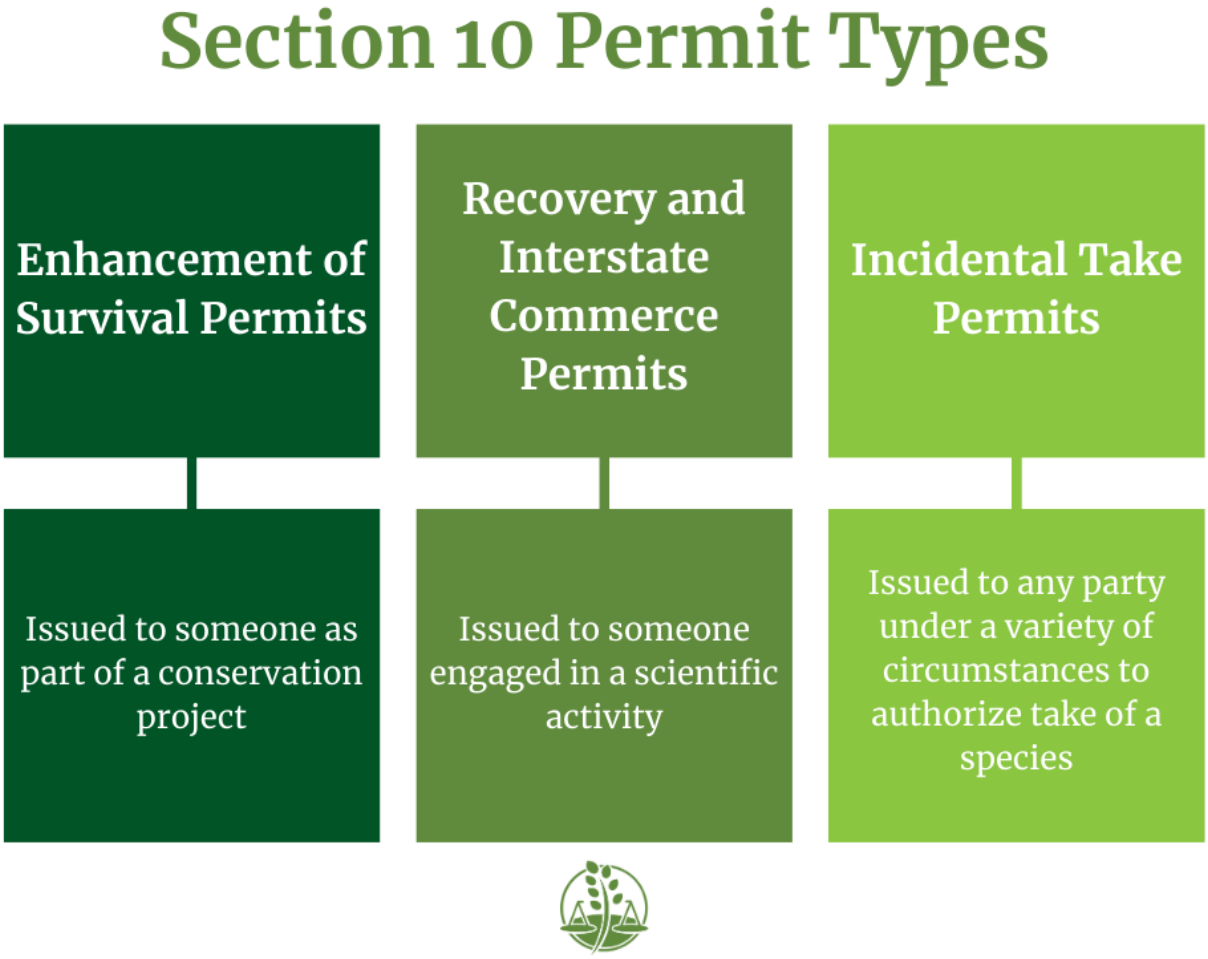
[107] 50 C.F.R. § 222.102.
[108] 16 U.S.C. § 1540.
[109] 16 U.S.C. § 1540(a), (b).
[110] 50 C.F.R. § 402.14(i)(5).
[111] 16 U.S.C. § 1539(a)(1)(A).
[112] 16 U.S.C. § 1539(a).
[113] *Id.*
[114] 50 C.F.R. § 17.22.
[115] 16 U.S.C. § 1539(a)(1).

project.[116] Incidental Take Permits are issued under a different provision of section 10 and can be granted to any party.[117] While all three permits may be issued for different reasons, each one authorizes otherwise prohibited take of listed species.



As mentioned above, Recovery and Interstate Commerce Permits are issued to allow the take of listed species in relation to scientific activities or activities aimed at enhancing the propagation or survival of listed species.[118] Generally, such permits are granted to parties conducting scientific research on a listed species in order to better understand the species' long-term survival needs.[119] Because Recovery and Interstate Commerce Permits are largely issued for the purposes of scientific research, they are usually not very relevant to landowners. Of greater interest to landowners are Enhancement of

[116] Fish & Wildlife Service, *Permits for Native Endangered and Threatened Species*, FWS (last visited Oct. 27, 2022), https://www.fws.gov/library/collections/permits-native-endangered-and-threatened-species.
[117] 16 U.S.C. § 1539(a)(1)(B).
[118] The Endangered Species Act: Overview and Implementation at 38; 16 U.S.C. § 1539(a)(1)(A).
[119] *Id.*

Survival Permits. Such permits are typically issued as part of a Safe Harbor Agreement ("SHA") between a landowner and FWS.[120] Under a SHA, a landowner agrees to maintain or improve habitat for endangered or threatened species in exchange for both an Enhancement of Survival Permit that authorizes incidental take of listed species, and written assurances from FWS that additional land use restrictions will not be required.[121] SHAs will be discussed in more detail below.

Incidental Take Permits ("ITP") authorize any taking normally prohibited by section 9 of the ESA so long as the taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.[122] Any party or individual can apply to either FWS or NMFS for an ITP, although such a permit is only needed in situations where a non-federal project is likely to result in the take of a listed species.[123] In order to apply for an incidental take permit, an applicant must fill out Form 3-200-56[124] and submit a document known as a Habitat Conservation Plan ("HCP").[125] The HCP must include the following: information about the likely impact of the proposed taking; the steps the applicant will take to "monitor, minimize, and mitigate" those impacts; the funding that will be available to carry out those steps; any procedures that will be used to deal with unforeseen circumstances that could not reasonably have been anticipated at the time the conservation plan is submitted; the alternative actions the applicant considered and the reasons why those alternative actions will not be utilized; and any other information that FWS or NMFS may require.[126] After reviewing an application for an ITP, the Services will generally grant the permit if they conclude that the proposed taking will be incidental, the applicant will work to mitigate the impact of the taking, there is adequate funding for the conservation plan, and the taking will not "appreciably reduce the likelihood of the survival and recovery of the species in the wild[.]"[127]

SHAs and HCPs are essential components of the ESA that allow private landowners the ability to partner with the Services on wildlife conservation. Both programs will be explored in more depth later in this manual.

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[120] *Permits for Native Endangered and Threatened Species*.
[121] Fish & Wildlife Service, *Safe Harbor Agreements for Private Landowners*, FWS (last visited Oct. 27, 2022), https://www.fws.gov/sites/default/files/documents/safe-harbor-agreements-fact-sheet.pdf.
[122] 16 U.S.C. § 1539(a)(1)(B).
[123] *Permits for Native Endangered and Threatened Species*.
[124] Form 3-200-56 is available online through the Fish and Wildlife Service official website. Click here to access the form,
[125] 50 C.F.R. § 17.22(b)(1).
[126] 50 C.F.R. § 17.22(b)(1)(iii).
[127] 50 C.F.R. § 17.22(b)(2)(i).

III. Influential Case Law

Along with statutory language and regulations, implementation of the ESA has been heavily influenced by case law. Since the ESA was originally enacted, there have been a handful of landmark cases which affect how the ESA is carried out. The following is a brief overview of some of the most important ESA cases.

a. TVA v. Hill

Tennessee Valley Authority v. Hill, 437 U.S. 153 (1978) is considered the seminal ESA case.[128] It was decided only five years after the ESA was initially enacted, and is regarded as setting the tone for how courts enforce the statute.[129]

When the Supreme Court issued its decision in *Tennessee Valley Authority v. Hill*, the Little Tennessee River was a stream that began in the hills of Georgia and ran to meet the Big Tennessee River near Knoxville.[130] The Tennessee Valley Authority had ("TVA") proposed turning the Little Tennessee River into a reservoir by building the Tellico Dam.[131] According to TVA, the Tellico Dam would generate hydroelectricity for thousands of homes, and create opportunities for recreation and shoreline development.[132] In 1967, Congress authorized funding for the project.[133]

In 1973, four months before the ESA was passed, a small fish known as the snail darter was discovered in the Little Tennessee.[134] The population of snail darter fish located in the Little Tennessee River was genetically distinct from other darter fish, and the only population of its kind known to exist.[135] This led to the snail darter being listed as endangered in 1975, and the portion of the Little Tennessee River which would be completely inundated by the Tellico Dam was listed as the snail darter's critical

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[128] Hannah Gosnell, *Section 7 of the Endangered Species Act and the Art of Compromise: the Evolution of a Reasonable and Prudent Alternative for the Animas-La Plata Project*, 41 Nat. Resources J. 561, 569 (2001). ("In fact, the case had such ramifications for implementation protocol that some have characterized the political history of the ESA as divided into two eras: before and after Tennessee Valley Authority v. Hill.")

[129] *Id.*

[130] *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 156 (1978).

[131] *Id* at 157.

[132] *Id.*

[133] *Id.*

[134] *Id* at 158-159.

[135] *Id* at 161; Amendment Listing the Snail Darter as an Endangered Species, 40 Fed. Reg. 47,505 (October 9, 1975), https://archives.federalregister.gov/issue_slice/1975/10/9/47492-47511.pdf#page=14.

habitat.[136] At that point, the Tellico Dam was almost complete, and TVA intended to complete the project.[137]

The plaintiffs in *Tennessee Valley Authority v. Hill* filed suit in 1976 seeking to prevent completion of the dam on the grounds that doing so would violate the ESA by directly causing the extinction of an endangered species.[138] In response, TVA argued that the ESA could not apply to a project that had begun before the Act became effective, and was largely completed before the snail darter was listed as an endangered species.[139] The district court that first heard the case agreed with TVA.[140] It recognized that completing the Tellico Dam would likely lead to extinction of the snail darter, but interpreted Congress's decision to continue funding the dam after the snail darter was listed as Congress's intention to exempt Tellico Dam from ESA requirements.[141]

The plaintiffs appealed the district court's decision to the Sixth Circuit Court of Appeals. The appellate court reversed the lower court's decision and granted an injunction, finding that construction of the Tellico Dam was a direct violation of the ESA.[142] That decision was then appealed to the Supreme Court.

The Supreme Court issued a 6-3 decision affirming the Sixth Circuit's conclusion that completing the Tellico Dam would violate the ESA because the completion would result in the likely extinction of an endangered species.[143] Although the Supreme Court recognized the hardship of halting a nearly completed dam that had cost tens of millions of dollars in public funds for a small, only recently discovered fish, the justices interpreted the plain language of section 7 of the ESA as Congress's decision "to halt and reverse the trend toward species extinction, whatever the cost."[144] Because the Tellico Dam would likely result in extinction of the snail darter, the project could not be completed. The Supreme Court's conclusion that the language of section 7 represented Congress's decision to grant such a high priority to the protection of endangered species has been the foundation of future ESA case law.

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[136] *Tennessee Valley Authority* at 162.
[137] *Id* at 158; 162.
[138] *Id* at 164.
[139] *Id* at 165.
[140] *Id* at 165-166.
[141] *Id*. ("The District Court found that closure of the dam and the consequent impoundment of the reservoir would "result in the adverse modification, if not complete destruction, of the snail darter's critical habitat," making it "highly probable" that "the continued existence of the snail darter" would be "jeopardize[d]." 419 F. Supp. 753, 757 (ED Tenn.). Despite these findings, the District Court declined to embrace the plaintiffs' position on the merits: that once a federal project was shown to jeopardize an endangered species, a court of equity is compelled to issue an injunction restraining violation of the Endangered Species Act.")
[142] *Id* at 168.
[143] *Id* at 172.
[144] *Id* at 184.

b. *Babbitt v. Sweet Home*

The ESA prohibits "take" of a listed species, which is defined to include "harm" to species.[145] The term "harm" is itself broadly defined to mean "an act which actually kills or injures fish or wildlife," and includes "significant habitat modification or degradation."[146] In the 1990s, a group of small landowners and logging companies filed a lawsuit challenging the statutory validity of the regulation defining "harm," particularly focusing on the inclusion of habitat modification and degradation in the definition.[147] The plaintiffs alleged that the definition of "harm" as applied to the listed cockaded woodpecker and northern spotted owl had injured them economically by preventing them from engaging in logging activities where those species were located.[148] They argued that Congress did not intend for the word "take" to include habitat modification.[149]

The district court disagreed with the plaintiffs, concluding that Congress had intended for an expansive interpretation of the word "take" which could include habitat modification.[150] On appeal, the Court of Appeals for the District of Columbia reversed the district court's decision, concluding that "harm" should be interpreted to apply only to a direct application of force taken against a listed species.[151] The Department of Interior appealed that decision to the Supreme Court.

Ultimately, the Supreme Court issued a 6-3 decision, concluding that the definition of "harm" was valid.[152] According to the Court, "harm" requires hurt, damage, or injury, without regard for whether the injury was direct or indirect.[153] Additionally, the Court recognized that the broad purpose of the ESA described in *Tennessee Valley Authority v. Hill* supported the decision to interpret "harm" broadly to include habitat modification.[154] Finally, the Court noted that Congress had chosen not to modify the definition of "harm" when it amended the ESA in 1982 despite the regulatory definition of "harm" being in place since 1975.[155] Based on that evidence, the Supreme Court found

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[145] 16 U.S.C. § 1538(a)(1)(B).
[146] 50 C.F.R. § 222.102.
[147] *Babbitt v. Sweet Home Chapter of Cmtys. for a Great Oregon*, 515 U.S. 687, 692 (1995).
[148] *Id.*
[149] *Id* at 693.
[150] *Id.* ("The District Court considered and rejected each of respondents' arguments, finding 'that Congress intended an expansive interpretation of the word 'take,' an interpretation that encompasses habitat modification.'" *Sweet Home Chapter of Cmtys. for a Great Oregon v. Lujan*, 806 F.Supp. 279, 285 (1992).)
[151] *Id* at 694.
[152] *Id* at 687.
[153] *Id* at 697-698.
[154] *Id.* at 698.
[155] *Id.* at 701-702.

that "harm" could encompass indirect and direct action, as well as habitat modification.[156]

The concept of incidental take – aka, indirect "harm" – and habitat modification continue to remain prohibited actions under the ESA.

c. Nat'l Ass'n of Home Builders v. Defenders of Wildlife

A major component of the ESA is the section 7 requirement that federal agencies consult with the Services on agency actions which may affect listed species.[157] By requiring consultation, the ESA makes federal agencies responsible for ensuring that their actions cause the least possible harm to listed species. The consultation requirement is also regarded as granting the Services a certain amount of oversight of actions carried out by other federal agencies.[158] In *Nat'l Ass'n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644 (2007), the Supreme Court considered the boundaries of section 7 authority.[159]

The Clean Water Act ("CWA") requires anyone who discharges a pollutant into a protected water to obtain a discharge permit from the Environmental Protect Agency ("EPA").[160] Under the CWA, EPA is authorized to transfer permitting authority to states who meet certain requirements.[161] The provision requires that EPA "shall" allow the transfer of authority provided that those requirements are met.[162] Because transferring authority is an agency action, the ESA requires EPA to engage in consultation prior to transfer.

The dispute at the heart of *Nat'l Ass'n of Home Builders v. Defenders of Wildlife* involved EPA's transfer of CWA permitting authority to the state of Arizona.[163] When Arizona first submitted its proposal that EPA transfer permitting authority, the EPA regional office raised concerns that the transfer may violate section 7 of the ESA.[164] EPA initiated consultation with FWS, however FWS responded that the ESA consultation requirement was inapplicable because EPA had no authority to consider any additional

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[156] *Id* at 704, 708.
[157] 16 U.S.C. § 1536(a)(1).
[158] Laurence Michael Bogert, *Even Heroes Have the Right to Bleed: The Endangered Species Act and Categorical Statutory Commands After National Association of Home Builders v. Defenders of Wildlife*, 44 Idaho L. Rev. 543, 545 (2008). ("[T]hirty-plus years of experience under the ESA has proven that the outcome of the section 7 consultation process is exceptionally dispositive of federal (and, in certain circumstances, private) activity interfacing with species listed under the ESA.")
[159] *Nat'l Ass'n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644 (2007).
[160] 33 U.S.C. § 1342.
[161] 33 U.S.C. § 1342(b).
[162] *Id*.
[163] *Nat'l Ass'n of Home Builders* at 644.
[164] *Id* at 653.

factors beyond the CWA criteria prior to transferring permitting power to Arizona.[165] In other words, so long as Arizona met the requirements outlined in the CWA, EPA had to transfer permitting authority regardless of what the impacts to listed species would be.

Environmental groups filed suit, arguing that the ESA imposed an independent consultation requirement on EPA's decision to approve the transfer.[166] In response, EPA argued that the ESA only imposed consultation requirements on discretionary decisions of federal agencies.[167] Because the transfer of authority was non-discretionary, the ESA consultation requirement did not apply.

Ultimately, the case landed before the Supreme Court. In a 5-4 decision, the Court upheld the determination from FWS that the ESA section 7 consultation requirement only applies to "actions in which there is discretionary Federal involvement or control."[168] Because the CWA required that EPA "shall" transfer permitting power if a state met the statutory criteria, it was a non-discretionary action that EPA was not required to consult over.[169]

The Supreme Court's finding that federal agencies do not need to initiate ESA consultation over non-discretionary actions remains a limitation on section 7 authority.

d. Weyerhauser Co. v. U.S. Fish and Wildlife Serv.

At the heart of the Supreme Court decision, *Weyerhaeuser Co. v. U.S. Fish and Wildlife Serv.*, 139 S. Ct. 361 (2018), was a 1544-acre parcel of land in Louisiana ("Unit 1") that FWS designated as critical habitat for the endangered dusky gopher frog in 2012.[170] Unit 1 contained dusky gopher frog breeding sites, though by 2012 it had been decades since any frogs had occupied the land.[171] Additionally, changes would have had to been made to the area before the dusky gopher frog could occupy Unit 1 as habitat.[172] Under the ESA, any time a species is listed as endangered, the listing agency is required to designate critical habitat for the species.[173] The definition of critical habitat includes areas that are both occupied and unoccupied by the species at the time of listing.[174] According to the ESA, areas that are unoccupied by members of an endangered species

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[165] *Id* at 654-655.
[166] *Id* at 655.
[167] *Id*.
[168] *Id* at 661.
[169] *Id* at 656.
[170] *Weyerhaeuser Co. v. U.S. Fish and Wildlife Serv.*, 139 S. Ct. 361, 366 (2018); Designation of Critical Habitat for Dusky Gopher Frog, 77 Fed. Reg. 35129-35131 (2012).
[171] *Weyerhaeuser Co*. at 366.
[172] *Id*.
[173] 16 U.S.C. § 1533(a)(3)(A)(i).
[174] 16 U.S.C. § 1532(5)(A).

at the time of listing may still be designated as critical habitat if the listing agency finds that the area is "essential for the conservation of the species."[175]

The owners of Unit 1, who had intended to use the area for commercial purposes, filed suit challenging FWS's decision to designate the land as critical habitat. In their lawsuit, the landowners argued that FWS had failed to appropriately weigh the benefits of designating Unit 1 as critical habitat against the economic impact that would result from the designation.[176] While both the district court and the Fifth Circuit Court of Appeals declined to review FWS's decision, the Supreme Court disagreed and ultimately ruled in favor of the landowners.[177]

In its decision, the Supreme Court concluded that an area can only be eligible for designation as critical habitat if it is habitat for the species.[178] The Court began by reviewing the phrase "critical habitat." It found that whenever FWS lists a species as endangered, the text of the ESA requires the Service to "designate any *habitat of such species* which is then considered to be critical habitat."[179] According to the court, the plain text of the ESA "does not authorize [FWS] to designate the area as *critical* habitat unless it is also *habitat* for the species."[180] In other words, if an area is incapable of supporting a species, it cannot be listed as critical habitat.

In its decision, the Supreme Court also noted that while the term "critical habitat" was defined in the ESA, the term "habitat" had no formal definition.[181] The Court declined to adopt one, leaving interpretation up to the Services.[182] During the Trump Administration, FWS adopted a final regulation in late 2020 defining "habitat" as "the abiotic and biotic setting that currently or periodically contains the resources and conditions necessary to support one or more life processes of a species." [183] However, the Biden Administration formally rescinded that rule in 2022, leaving the term "habitat" once again undefined.[184]

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[175] 16 U.S.C. § 1532(5)(A)(ii).
[176] *Weyerhaeuser Co*. at 367.
[177] *Id* at 367-368.
[178] *Id*. ("Even if an area otherwise meets the statutory definition of unoccupied critical habitat because the Secretary finds the area essential for the conservation of the species, Section 4(a)(3)(A)(i) does not authorize the Secretary to designate the area as *critical* habitat unless it is also *habitat* for the species.")
[179] *Id*.
[180] *Id*.
[181] *Id*.
[182] *Id* at 368-369.
[183] 50 C.F.R. § 424.02.
[184] Endangered and Threatened Wildlife and Plants; Regulations for Listing Endangered and Threatened Species and Designating Critical Habitat, 87 Fed. Reg. 37757 (June 24, 2022).

IV. 2019 and 2020 Regulations

In both 2019 and 2020, the Services issued a series of regulations that represented the most substantial overhaul of the ESA since the Act was originally passed in 1973. The new regulations affected various elements of the ESA, from how to determine whether a species should be listed, to the definition of "habitat." Ultimately, many of the changes proved to be controversial, and in 2021 the Services began taking steps to rescind several of the 2019 and 2020 regulations.

a. Regulatory Changes

As mentioned above, the 2019 and 2020 ESA regulations affected multiple components of the ESA. The following is a brief overview of the changes made by those regulations, and the developing situation as those regulations are challenged in court and rescinded by the Services.

Designation of Species as "Threatened" or "Endangered"

Section 4 of the ESA outlines the process by which species are added to the Federal List of Threatened and Endangered Species.[185] The regulations that became effective on September 26, 2019 altered that process.[186]

When determining whether to list a species, the ESA requires that the decision be made "solely on the basis of the best scientific and commercial data available."[187] Prior to the 2019 regulations, this language was regarded as specifically barring the Services from considering economic impacts when making a listing decision.[188] The pre-2019 regulations specifically stated that the Services were to make listing decisions "without reference to possible economic or other impacts."[189] However, the 2019 regulations eliminated that pre-existing regulatory language, effectively allowing the Services to take the economic impacts of listing a species when making a listing decision.[190]

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[185] 16 U.S.C. § 1533.
[186] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. 45020-45053 (Aug. 27, 2019).
[187] 16 U.S.C. § 1533(b)(1)(A).
[188] U.S. Congressional Research Service. The Endangered Species Act: Consideration of Economic Factors (RL30792; April 15, 2003). Text in: CRS Web; Accessed: November 17, 2021, https://www.everycrsreport.com/files/20030415_RL30792_9024220cc4c191142efcf5d549642bd3d24c2886.pdf.
[189] U.S. Congressional Research Service. Final Rules Changing Endangered Species Act Regulations (IF10944; Sept. 25, 2019), by Pervaze A. Sheikh et al. Text in: CRS Web; Accessed: November 17, 2021, https://sgp.fas.org/crs/misc/IF10944.pdf.
[190] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat at 45052; Final Rules Changing Endangered Species Act Regulations.

The 2019 regulations also addressed the factors that the Services could consider when determining whether to classify a species as "threatened." Under the ESA, a threatened species is defined as one that is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."[191] The 2019 regulations clarified that the "foreseeable future" extends in time only as far as the Services "can reasonably determine that both the future threats and the species' responses to those threats are likely."[192] In other words, the 2019 regulations require the Services to consider only those threats that are "likely" to occur within a reasonable period of time.

Finally, the 2019 regulations altered the listing process by clarifying the criteria that the Services could use to delist a species.[193] According to the Services, this clarification was meant to address concerns that the standard for delisting a species was higher than the standard for listing a species.[194] Under the 2019 regulations, the same criteria used to list a species will be used to delist a species.[195] If a listed species no longer meets the definition of either an endangered or threatened species, then it should be delisted.[196]

Designation of Critical Habitat

The 2019 regulations affected the designation of critical habitat by clarifying when the Services could designate unoccupied areas – areas that do not contain any members of the listed species – as critical habitat.[197] Under the 2019 rules, the Services could only designate uninhabited areas as critical habitat if those areas are "essential" to the conservation of the species.[198] Unoccupied habitat is only essential if: (1) the occupied habitat of the species is inadequate to ensure conservation; (2) the Services are reasonably certain that the uninhabited area will contribute to the conservation of the species; and (3) the area contains at least one of the physical or biological features essential to the conservation of the species.[199] The 2019 regulations go on to define "physical or biological features essential to the conservation of the species" as features that are essential to support the overall needs of the species, including water characteristics, soil type, geological features, prey, and vegetation.[200]

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[191] 16 U.S.C. § 1532(20).
[192] 50 C.F.R. § 424.11(d).
[193] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat at 45052.
[194] Final Rules Changing Endangered Species Act Regulations.
[195] *Id.*
[196] 50 C.F.R. § 424.11(e).
[197] *Id.*
[198] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat at 45053.
[199] *Id.*
[200] 50 C.F.R. § 424.02.

An additional rule published by FWS on December 18, 2020 further amended the process for designating critical habitat by establishing criteria for excluding certain areas from critical habitat designations.[201] Section 4 of the ESA requires that when designating critical habitat, the Services must take several considerations into account, including the economic impact of designation.[202] The 2020 rule established a non-exhaustive list of impacts that could be considered economic, including the economy of a particular area and the opportunity costs arising from critical habitat designation.[203] Section 4 of the ESA goes on to say that areas may be excluded from critical habitat designation if the benefits of exclusion outweigh the benefits of designation.[204] According to the 2020 rule, the Services should conduct an exclusion analysis if one is requested during the public comment period on the critical habitat designation.[205]

Amount of Protection Granted to Threatened Species

Perhaps one of the more controversial revisions adopted by the 2019 regulations is the elimination of the blanket 4(d) rule.[206] As previously discussed, the purpose of the blanket 4(d) rule was to automatically grant threatened species the same statutory protections given to endangered species, including the prohibition against "take."[207] Without the blanket 4(d) rule, the Services must determine which protections a threatened species will receive on a case-by-case basis.[208]

Although this change was controversial, it only applied to those species listed as threatened after September 26, 2019.[209] Additionally, only FWS had adopted the blanket 4(d) rule, so eliminating the rule brought FWS in-line with how NMFS approached granting protections for threatened species.[210]

Consultation with Federal Agencies

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[201] Endangered and Threatened Wildlife and Plants; Regulations for Designating Critical Habitat, 85 Fed. Reg. 82376-82389 (Dec. 18, 2020).
[202] 16 U.S.C. § 1533(b)(2).
[203] 50 C.F.R. § 17.90(a).
[204] 16 U.S.C. § 1533(b)(2).
[205] 50 C.F.R. § 17.90(c)(2)(i).
[206] M. Benjamin Cowan & Andrew Davitt, *A Closer Look at the New Endangered Species Act Regulations*, Locke Lord, LLP, (September 2019), https://www.lockelord.com/-/media/files/newsandevents/publications/2019/09/article20190920overviewesanewregulationscowandavit.pdf?sc_lang=en.
[207] U.S. Congressional Research Service. The Endangered Species Act: Overview and Implementation (R46677; February 9, 2021). Text in: CRS Web; Accessed: October 17, 2022, https://crsreports.congress.gov/product/pdf/R/R46677/1.
[208] *Id* at 17.
[209] Endangered and Threatened Wildlife and Plants; Regulations for Prohibitions to Threatened Wildlife and Plants, 84 Fed. Reg. 44753, 44760 (Sept. 26, 2019).
[210] The Endangered Species Act: Overview and Implementation at 17.

The last element of the ESA that the 2020 regulations addressed was agency consultation.[211] Under section 7 of the ESA, all federal agencies are required to ensure that any actions they authorize, fund, or carry out will not jeopardize the existence of any listed species or destroy critical habitat.[212] To do so, federal agencies will consult with either FWS or NMFS on the potential impact of the proposed action. The 2019 regulations made several changes to the consultation process, both by revising the definitions of key terms, and by establishing new standards and procedures.

Definition changes include:

- "*Effects of the action*": When federal agencies consult with the Services over the impact of a proposed project, they should only consider those impacts which are "caused by the proposed action."[213] Prior to the change, the Services were required to consider indirect effects, as well as those directly caused by the action.[214]
- "*Environmental baseline*": Under the 2019 regulations, this term refers to "the condition of the listed species or its designated critical habitat in the action area, without the consequences to the listed species or designated habitat caused by the proposed action."[215] The Services will refer to this baseline when evaluating the effects of an agency's proposed action.[216] Prior to the 2019 regulation, "environmental baseline" did not have a stand-alone definition, instead it was included under "effects of the action."[217] Along with developing a definition for the term, the 2019 regulations also clarified that the environmental baseline would include the effects from any on-going agency action that that were not within the action agency's discretion to modify.[218]

Criteria and procedural changes include:

- *Initiation of formal consultation*: The 2019 regulations specified what is necessary to initiate formal consultation by outlining the information that the action agency must provide to the Services.[219] The rule also allows the Services

[211] Endangered and Threatened Wildlife and Plants; Regulations for Interagency Cooperation, 84 Fed. Reg. 44976-45018 (Sept. 26, 2019).
[212] 16 U.S.C. § 1536(a)(2).
[213] 50 C.F.R. § 402.02.
[214] Final Rules Changing Endangered Species Act Regulations.
[215] 50 C.F.R. § 402.02.
[216] 50 C.F.R. § 402.14(g)(2).
[217] Final Rules Changing Endangered Species Act Regulations.
[218] 50 C.F.R. § 402.02.
[219] 50 C.F.R. § 402.14(c).

to adopt either some or all of the information provided by the action agency in the resulting biological opinion.[220]

- *Re-initiation of consultation*: The 2019 regulations do not require that re-initiation of consultation in response to new circumstances or information result in a new *formal* consultation process.[221] This opens the door for providing less formal consultation procedures.
- *Informal consultation*: Under the 2019 rules, the Services have 60 days to complete the informal consultation process, which can be extended to 120 days if all parties agree.[222]

Definition of "Habitat"

The final rule issued by FWS on December 15, 2020 added a definition of "habitat" to the regulations that implement section 4 of the ESA.[223] Prior to that rule, the term "habitat" had not been formally defined.[224] The decision to add a definition was made in response to *Weyerhaeuser Co. v. FWS*, where the Supreme Court found that in order for an area to be designated as critical habitat, it must first be habitat.[225] Therefore, the definition of "habitat" must be broader than the definition of "critical habitat." Under the 2020 rule, "habitat" is defined as "the abiotic and biotic setting that currently or periodically contains the resources and conditions necessary to support one or more life processes of a species."[226]

As of August 2022, this rule has been formally rescinded.[227]

b. Plans to Rescind

On January 20, 2021, the Biden Administration issued Executive Order 13990 which directed federal agencies to review a variety of rules, including the ESA regulations adopted by the Services in 2019 and 2020.[228] Pursuant to that order, the Services announced on June 4, 2021 that they had finished reviewing the regulations, and had

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[220] 50 C.F.R. § 402.14(h)(3)(i).
[221] 50 C.F.R. § 402.16.
[222] 50 C.F.R. § 402.13(c)(2).
[223] Endangered and Threatened Wildlife and Plants; Regulations for Listing Endangered and Threatened Species and Designating Critical Habitat, 85 Fed. Reg. 81411-81421 (Dec. 16, 2020).
[224] *Id* at 81411. ("The Services have not previously adopted a definition of the term "habitat" through regulations or policy; rather, we have traditionally applied the criteria from the definition of "critical habitat" based on the implicit premise that any specific area satisfying that definition was habitat.").
[225] *Weyerhaeuser Co. v. U.S. Fish and Wildlife Serv.*, 139 S. Ct. 361, 367-368 (2018).
[226] Endangered and Threatened Wildlife and Plants; Regulations for Listing Endangered and Threatened Species and Designating Critical Habitat at 81421.
[227] Endangered and Threatened Wildlife and Plants; Regulations for Listing Endangered and Threatened Species and Designating Critical Habitat, 87 Fed. Reg. 37757-37771 (June 24, 2022).
[228] Exec. Order 13990, 86 Fed. Reg. 7037 (Jan. 25, 2021).

made a series of decisions on how to proceed.[229] After review, the Services have decided to: rescind regulations that revised the FWS' process for considering exclusions from critical habitat designations; rescind the regulatory definition of habitat; revise regulations for listing species and designating critical habitat; revise regulations for interagency cooperation; and reinstate the blanket 4(d) rule.[230]

Since that announcement, the Services begun rulemaking procedures in order reach their stated goals. As previously mentioned, the definition for "habitat" has been formally rescinded by a final rule.[231] Once again, the term "habitat" is undefined for purposes of the ESA. The Services have also published a final rule rescinding the regulations adopted in December 2020 addressing how areas are excluded from critical habitat designations.[232] That 2020 rule has been entirely rescinded, and the Services have resumed using their previous approach to exclusions.[233]

Many of the ESA rules adopted by the Trump administration have also been challenged in court. In *Ctr. for Biological Diversity v. Haaland*, No. 19-cv-05206 (N.D. Cal. July 5, 2022), the plaintiffs filed suit asking the court to vacate several Trump administration ESA regulations including: the rule modifying how the Services add, remove, and reclassify endangered or threatened species; the rule which eliminated the blanket 4(d) rule; and the rule altering the interagency consultation process.[234] The district court granted the plaintiffs' request, formally overturning all three challenged rules.[235] In reaching that decision, the court noted that the Services had expressed no intent to keep the rules in place, and had instead announced that all three rules would be rescinded.[236] However, shortly after the district court issued that order, the Ninth Circuit Court of Appeals overturned the ruling.[237] According to the Ninth Circuit, the lower court had inappropriately vacated the regulations without considering the legal validity of the

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[229] U.S. Fish & Wildlife Serv. (June 4, 2021). *U.S. Fish and Wildlife Service and NOAA Fisheries to Propose Regulatory Revisions to Endangered Species Act* [Press release]. https://www.fws.gov/news/ShowNews.cfm?ref=u.s.-fish-and-wildlife-service-and-noaa-fisheries-to-propose-regulatory-&_ID=36925.

[230] *Id.*

[231] Endangered and Threatened Wildlife and Plants; Regulations for Listing Endangered and Threatened Species and Designating Critical Habitat, 87 Fed. Reg. 37757-37771 (June 24, 2022).

[232] Endangered and Threatened Wildlife and Plants; Regulations for Designating Critical Habitat, 87 Fed. Reg. 43433-43447 (Aug. 22, 2022).

[233] U.S. Fish & Wildlife Serv. (July 20, 2022). *U.S. Fish and Wildlife Service Rescinds Endangered Species Act Critical Habitat Exclusion Regulations* [Press release]. https://fws.gov/press-release/2022-07/service-rescinds-endangered-species-act-critical-habitat-exclusion.

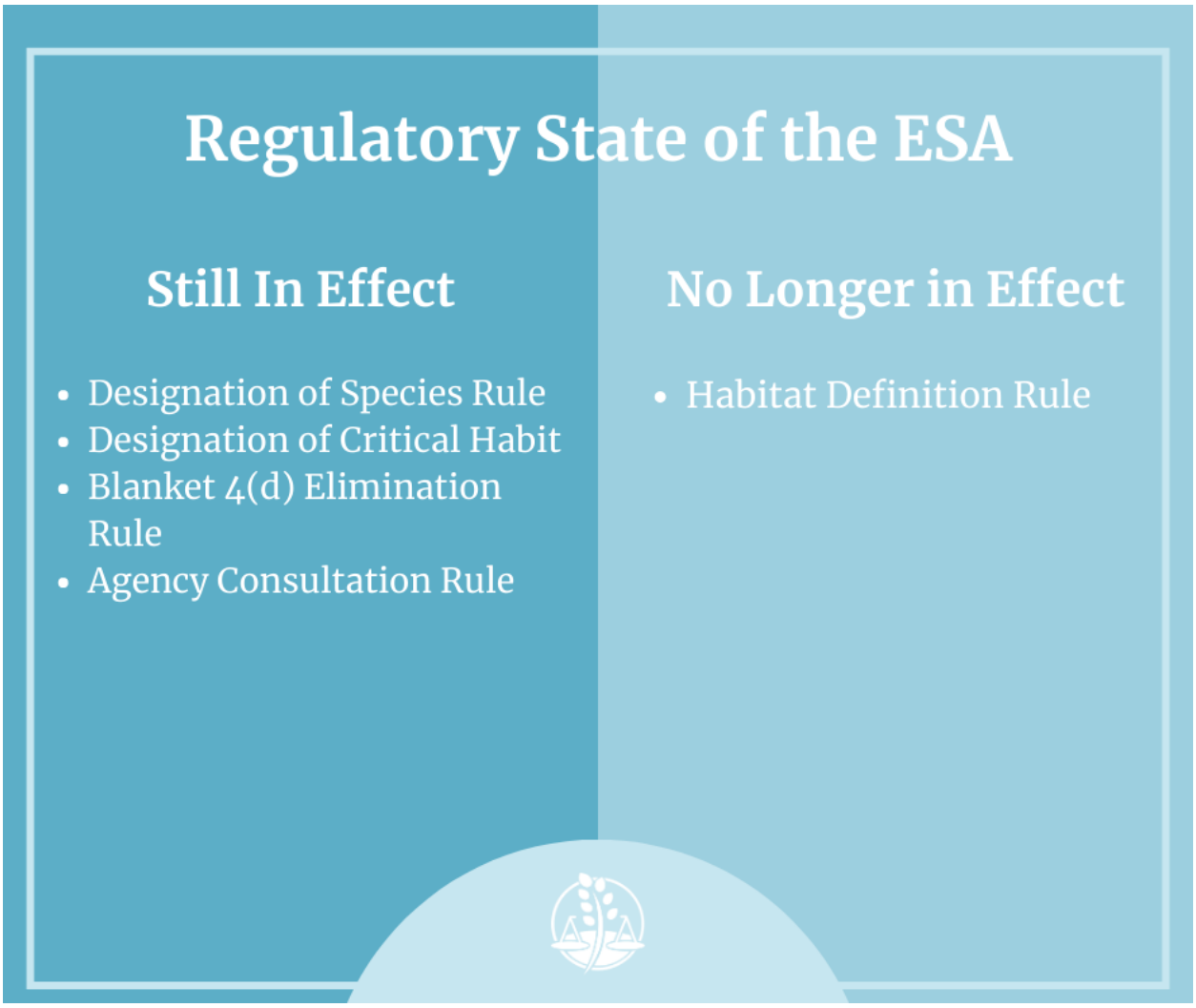
[234] *Ctr. for Biological Diversity v. Haaland*, No. 19-CV-05206-JST, 2022 WL 2444455, at *2 (N.D. Cal. July 5, 2022).

[235] *Id* at *5.

[236] *Id.*

[237] *In re Washington Cattlemen's Ass'n*, No. 22-70194, 2022 WL 4393033, at *1 (9th Cir. Sept. 21, 2022).

challenged rules.[238] As a result, the three challenged rules have been reinstated, and the lawsuit has been sent back to the district court for further litigation.[239] The regulations will remain in place while the lawsuit continues, unless the Services publish a formal rule officially rescinding them.



As the lawsuits continue, and the Services proceed with their rulemaking processes, this manual will be updated as necessary to reflect the current state of the ESA regulations.

V. ESA Impacts on Private Land

Up to this point, this manual has covered how the ESA functions through statutory text, regulatory actions, and relevant case law. In doing so, this manual has also explained

[238] *Id.*
[239] *Id.*

how federal agencies must ensure that their actions comply with the ESA, and briefly discussed steps that private landowners can take to avoid ESA violations. The rest of this manual will go into greater detail on how private landownership is affected by the ESA, and how private landowners can work with the Services to protect listed species while maintaining flexible land use.

a. Limitations on Private Land

According to the Congressional Research Service, the federal government manages about 640 million acres, or roughly 28% of the land in the United States.[240] Private landowners, on the other hand, own about 60% of the nation's land which amounts to about 1.3 billion acres.[241] Threatened and endangered species are found throughout the country, regardless of whether their habitat is privately or publicly managed. Because private landowners own a majority of the nation's acreage, they play an essential role in species conservation.

However, while private landowners are important for species conservation, they can also face some unwelcome impacts from ESA implementation. In particular, the prohibition on incidental take of species, and the challenges posed by critical habitat designations are common concerns.[242]

"Taking"

One of the primary limitations that the ESA places on private land is the prohibition on take of listed species. As has been previously discussed, the ESA prohibition on take applies to a broad range of activities. The ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, ore collect, or to attempt to engage in such conduct."[243] The term harm is further defined under the ESA's implementing regulations as "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering."[244] Finally, the ESA

[240] U.S. Congressional Research Service. Federal Land Ownership: Overview and Data (R42346; February 21, 2020), by Carol Hardy Vincent, et al. Text in: CRS Web; Accessed: November 22, 2021, https://sgp.fas.org/crs/misc/R42346.pdf.
[241] Gene Wunderlich, U.S. Dep't of Agriculture, Agriculture Information Bulletin No. 422: *Facts About U.S. Landownership* (1978), https://naldc.nal.usda.gov/download/CAT87209991/PDF.
[242] Robert Meltz, *Where the Wild Things Are: The Endangered Species Act and Private Property*, 24 Envtl. L. 369, 372-373 (1994).
[243] 16 U.S.C. § 1532(19).
[244] 50 C.F.R. § 222.102.

makes it clear that even an unintentional take is a violation of the Act, and can result in civil penalties.[245]

A look at the definitions of both "take" and "harm" make it clear that the ESA's prohibition on take impacts private landowners in two primary ways – by limiting actions that cause members of a listed species to be killed or injured, and by limiting actions that cause significant habitat modification or degradation. For example, Farmer McDonald owns a small soybean operation and routinely applies pesticides to his fields for the purpose of controlling common pests that would otherwise damage his crop. Unbeknownst to him, a hive of endangered rusty-patched bumble bees is located near one of his soybean fields. Despite applying the pesticide according to its label, some of it drifts off target and kills several of the bumblebees. Even though Farmer McDonald did not intend to cause a taking of the bumblebees, he would still be liable for violating the ESA because the Act prohibits both intentional and unintentional take of listed species. Similarly, Farmer McDonald would be liable for a taking if he went out to clear several trees from one of his fields and in doing so cut down the tree where the hive of rusty-patched bumblebees was located. By significantly modifying the habitat where the bumblebees were located, he committed a harm that would amount to a taking.

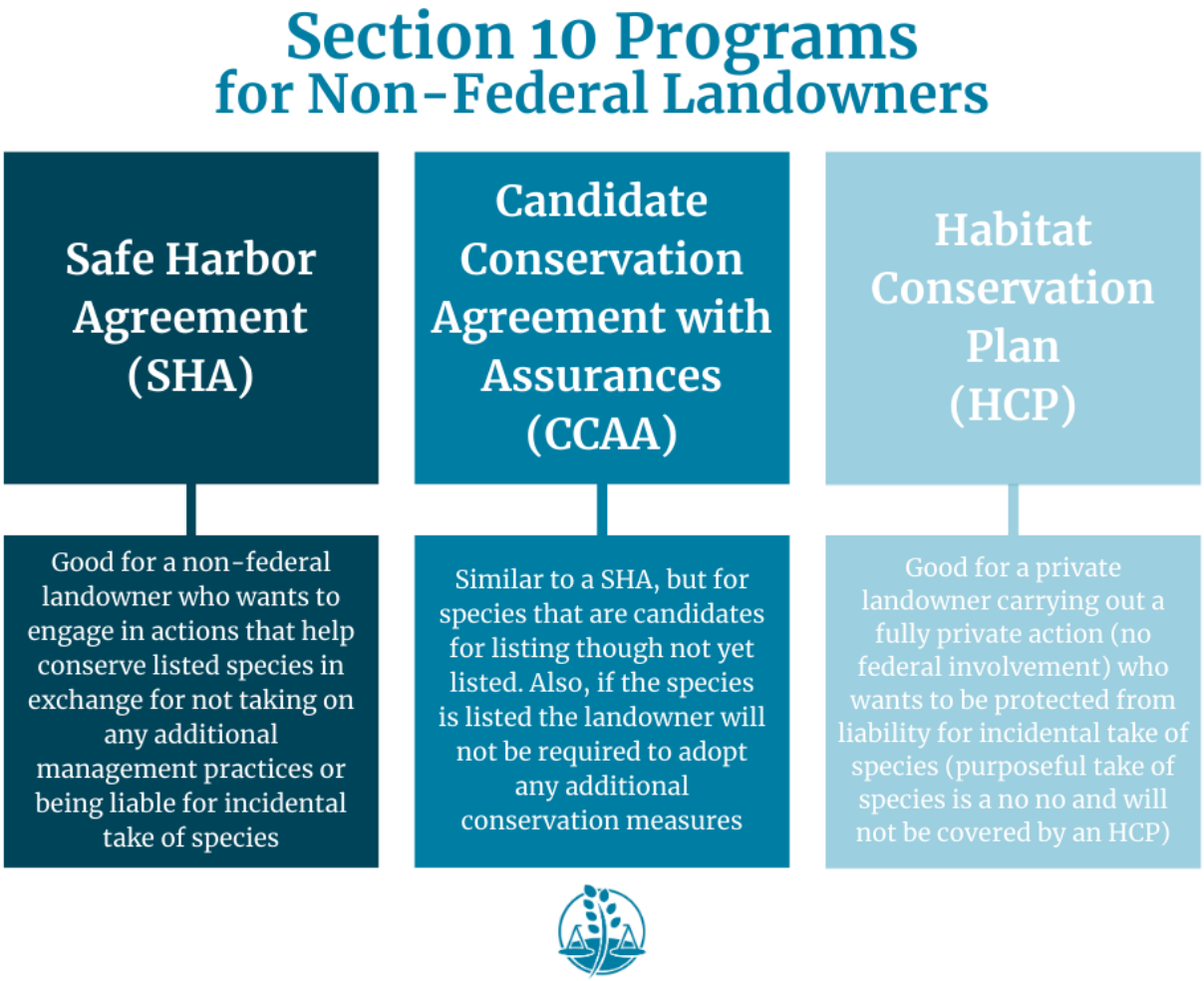
Critical Habitat

Private landowners also face challenges if their land becomes designated as critical habitat for a listed species. Although the ESA's prohibitions on modifying or destroying critical habitat are only applied to federal agencies,[246] private landowners still face restrictions if their land is designated as critical habitat.

For example, Farmer McDonald has a small marshy area on his property that he would like to drain in order to build a new barn. To do so, he needs to obtain a permit from the United States Army Corps of Engineers ("Corps") in order to dredge and drain the marshy area. Because the Corps is a federal agency, it must go through the ESA interagency consultation process whenever it issues a permit. In going through the consultation process, the Corps discovers that the marshy area in Farmer McDonald's field has been designated as critical habitat for the endangered tiger salamander. Because draining the area and constructing a barn would destroy the critical habitat, the Corps denies Farmer McDonald's permit application. Without the permit, Farmer McDonald will be unable to build his barn where he wants to and must find another location.

[245] 16 U.S.C. § 1540(a), (b).
[246] 16 U.S.C. § 1536(a)(2).

From the above examples, it is clear that the ESA presents a variety of challenges to private landowners. Due to the seriousness of the penalties that can accompany ESA violations, some landowners feel disincentivized to manage their land for the benefit of listed species.[247] With so much privately owned land in the United States, this can present a problem for conserving listed species. To address that issue, Congress and the Services have come up with multiple voluntary programs that allow private landowners to engage in activities that would otherwise be prohibited by the ESA (like incidental take) in exchange for wildlife conservation efforts on the part of the landowner.[248] A couple of these programs were briefly discussed in the previous portion of this manual that covered section 10 of the ESA. The following provides a more in-depth exploration of the voluntary ESA programs available to private landowners.



[247] Megan E. Hansen et al., *Cooperative Conservation: Determinants of Landowner Engagement in Conserving Endangered Species* (Center for Growth and Opportunity at Utah State University, Policy Paper No. 2018.003, 2018).
[248] *Id.*

b. Habitat Conservation Plans

Prior to 1982, the ESA did not have a function that would exempt any activities from the section 9 prohibitions on take, except for permits that authorized take for scientific research or certain conservation activities.[249] Recognizing that this caused a hardship for private landowners, Congress amended section 10 in 1982 to add an exemption for incidental take of listed species that resulted from lawful, non-federal activities.[250] The amendment allows private landowners to apply to FWS or NMFS for an Incidental Take Permit ("ITP") which grants the permit holder permission to engage in limited take of listed species that is incidental to, and not the purpose of, carrying out otherwise legal activities.[251] In order to obtain an ITP, applicants must develop a conservation plan, referred to as a Habitat Conservation Plan ("HCP"), that meets specific requirements.[252] Under this scheme, private landowners are able to engage in activities that could result in incidental take without fearing ESA violations, while also undertaking conservation efforts that help to promote the overall goals of the ESA.[253]

In 1998, the Services further adapted the HCP program to add what is known as the "no surprises" rule.[254] The idea behind the no surprises rule is essentially that a deal is a deal. So long as a landowner with an ITP properly implements the accompanying HCP, the Services will not impose additional requirements or restrictions.[255] Even if an unforeseen circumstance arises, the Services will not require the landowner to commit to any additional conservation measures beyond those agreed to in the HCP unless the landowner agrees.[256] By adding the no surprises rule, the Services further demonstrated that the purpose of the HCP program was to facilitate agreements between themselves and private landowners whereby private landowners could engage in activities on their land without violating the ESA, and the Services could continue to further the ESA's wildlife conservation goals.

Who Should Seek an HCP

While the HCP program is a useful tool, it will not be the right fit for all situations. Both FWS and NMFS have noted that they typically try to avoid processing unnecessary ITP

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[249] H.R. Rep. No. 567, 97th Cong., 2d Sess. 15 (1982). (Authorizing the Services to grant a permit for the take of species incidental to carrying out otherwise lawful activities).
[250] 16 U.S.C. § 10(a)(1)(B); Fish & Wildlife Service, *Habitat Conservation Plans*, FWS (last visited Nov. 03, 2022), https://www.fws.gov/service/habitat-conservation-plans.
[251] 16 U.S.C. § 10(a)(1)(B).
[252] 50 C.F.R. § 17.22(b)(1).
[253] *Habitat Conservation Plans*.
[254] 50 C.F.R. § 17.22(b)(5).
[255] Fish & Wildlife Service, *Habitat Conservation Plans and "No Surprises" Assurances: Frequently Asked Questions*, FWS (last visited Nov. 03, 2022), https://www.fws.gov/node/265320#no-surprises-assurances.
[256] *Id.*

applications.[257] It is therefore important for potential applicants to know when going through the HCP process would be appropriate.

To start, an ITP is only needed in situations where a non-federal project is likely to result in take of a listed species of fish or wildlife.[258] FWS has noted that an ITP is only needed if a non-federal party's activities "in an area where ESA-listed species are known to occur and where their activity or activities are reasonably certain to result in incidental take."[259] If the project is federal, or if it is unlikely to result in the take of any listed fish or wildlife species, then an ITP is not needed and initiating the HCP process would be unnecessary. Therefore, the HCP program is best suited for non-federal activities that are likely to result in an incidental take of listed fish or wildlife species.

Along with his agricultural operation, Farmer McDonald owns several dozen acres of forest land. At the moment, he is not managing the forest land in any particular way, but would like to start logging some of the land to supplement his income. However, Farmer McDonald knows that his forest land is home to a few endangered species and that the logging activity he would like to carry out is likely to result in some illegal take. The HCP program would be a good option for Farmer McDonald. In exchange for agreeing to some management activity in his forest land, Farmer McDonald should be able to carry out his desired logging activities without being liable for any take that results.

On the other hand, an HCP would not be appropriate for Farmer McDonald's proposal to build a barn that would require obtaining a federal permit to drain and dredge the marshy area that is designated as critical habitat for an endangered salamander. That is because Farmer McDonald needs a federal permit to construct his barn, and the HCP program is not appropriate for projects that include federal activity.

<u>The ITP Application Process and Developing an HCP</u>

The application process for an ITP was briefly discussed earlier in this document. There, it was noted that the ITP application process is seemingly straightforward – applicants fill out Form 3-200 and submit an HCP document for review. Typically, the Services are expected to grant ITP applications if they find that the proposed taking will be incidental to the overall action, the applicant will mitigate the impact of the taking, and the taking will not "appreciably reduce the likelihood of the survival and recovery of the species in

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[257] U.S. Fish & Wildlife Serv. & Nat'l Marine Fisheries Serv., *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* 3-2 (2016), https://www.fws.gov/sites/default/files/documents/habitat-conservation-planning-handbook-entire.pdf.
[258] U.S. Fish & Wildlife Serv. (2018) *Guidance on trigger for an incidental take permit under section 10 (a)(1)(B) of the Endangered Species Act where occupied habitat or potentially occupied habitat is being modified*. https://www.fws.gov/endangered/esa-library/pdf/Guidance-on-When-to-Seek-an-Incidental-Take-Permit.pdf
[259] *Id.*

the wild[.]"[260] This section will go into greater detail on the steps an applicant must take to get an ITP.

In general, the process of applying for an ITP and developing an HCP (collectively referred to as "the HCP process") can be divided into four phases: (1) preapplication; (2) development of the HCP and other environmental compliance documents; (3) processing the application, making a permit decision, and issuing the ITP; and (4) implementation of the HCP and compliance monitoring.[261] Applicants will usually work with the Services throughout the process to ensure that each step is properly completed.[262]

The first step in the HCP process is preapplication. During this phase, potential applicants are encouraged to meet with the Services to receive guidance on whether an ITP is appropriate, and if so, the type and scale of HCP that would best suit the applicant's needs.[263] The Services will also make sure the potential applicant understands the HCP process; discuss compliance with other environmental laws; and begin planning how the HCP will be developed by identifying the goals of the applicant, mapping out a realistic timeline for preparing the HCP, and determining key milestones in the planning process.[264] The two main goals of the preapplication phase are for the potential applicant to determine whether they would like to proceed with the HCP process, and to take time upfront to thoroughly plan how the HCP will be developed if the applicant chooses to proceed.[265]

During phase two, the applicant and the Services begin working through the timeline developed during the phase one to draft the HCP itself.[266] The goal of this step is for the applicant, with the guidance of the Services, to draft an HCP that will satisfy both statutory and regulatory requirements.[267] The draft of the HCP will need to include a variety of things, such as: an assessment of impacts likely to result from the proposed taking of listed species; measures the applicant will take to minimize and mitigate such impacts; alternative actions to the proposed taking that the applicant considered and reasons why those alternative actions were not taken; and any additional measures that the Services may require.[268] The Services will help the applicant to ensure that the draft HCP meets those requirements.

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[260] 50 C.F.R. § 17.22(b)(2)(i).
[261] *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* at 2-1.
[262] *Id.*
[263] *Id.*
[264] *Id.*
[265] *Id* at 2-3.
[266] *Id* at 2-2.
[267] *Id.*
[268] 50 C.F.R. § 17.22(b)(1)(iii).

At the same time, the Services will also begin developing the compliance documents that are needed for any other applicable environmental statute.[269] Most often, this means conducting intra-agency consultation and drafting a Biological Opinion as required by section 7 of the ESA, and completing a National Environmental Policy Act ("NEPA") analysis. NEPA is an environmental statute that requires federal agencies to assess the environmental effects of their proposed actions.[270] Because decisions on permit applications are an agency action that requires NEPA review, the Services must complete a NEPA analysis any time they approve an ITP.[271]

During phase three, the applicant formally submits the application to the Services for review.[272] The application will consist of Form 3-200, a complete description of the proposed activity, details about the species sought to be covered by the permit, and a completed draft of the HCP.[273] Following submission, the Services will review the application to make sure it meets statutory requirements. Once the reviewing Service is satisfied, it will publish the application, the HCP, and the NEPA analysis in the Federal Register for public review.[274] The length of time given for public review and comment will vary according to the complexity of the HCP and NEPA analysis, but usually lasts from 30 to 60 days.[275] For an HCP that is exceptionally long or precedent-setting, public review could last 90 days.[276]

After the public comments are received, the applicant's HCP is revised and finalized as necessary. At this point, if all the HCP criteria are met, and there are no disqualifying factors, the Services must issue the ITP. Prior to issuing an ITP, the Services must ensure that the proposed taking will be incidental to otherwise lawful activity, that the applicant will take reasonable measures to mitigate the impacts of the taking, that the applicant has adequate funding to carry out the conservation plan, and that the taking will not significantly reduce the likelihood of the survival and recovery of the species.[277] Disqualifying factors that could prevent an ITP from being issued include: knowledge of an applicant's civil penalty or criminal conviction relating to the activity for which they are requesting an ITP; failure of the applicant to provide all required information; failure to the applicant to provide truthful information in the application; or a

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[269] *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* at 2-2. ("During phase 2, the results of all of the upfront planning under phase 1 are applied while assisting the applicant with developing their HCP, as well as concurrently developing the environmental compliance documents (e.g., NEPA, NHPA, and intra-service section 7 consultation)[.]").
[270] 42 U.S.C. § 4332.
[271] *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* at 13-1.
[272] *Id* at 2-2.
[273] 50 C.F.R. § 17.22(b)(1)(iii).
[274] *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* at 14-13.
[275] *Id* at 14-14.
[276] *Id*.
[277] 16 U.S.C. § 1539(a)(2)(A).

conviction or entry of a guilty plea for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act.[278]

Implementation is the final step of the HCP process.[279] It is during this phase that the permittee may begin to simultaneously carry out the conservation activities agreed to in the HCP, as well as any activity authorized by the ITP.[280] During this time, the Services will continue to work with the permittee to ensure that the permittee meets the terms and conditions of both the ITP and the HCP.[281] Typically, the permittee is required to prepare an annual report to submit to the Services who will then review accordingly.[282] If, during the implementation of the HCP, there is a change in circumstances that could be addressed with new or altered conservation measures, the Services may suggest those measures to the permittee.[283] However, it is ultimately up to the permittee whether or not they would like to adopt new measures. The No Surprises assurances allow permittees to implement the HCP originally agreed to even if unforeseen circumstances arise.[284]

ITPs are generally only valid for a certain amount of time.[285] Some may have a term of years, or even decades, but eventually an ITP is likely to expire.[286] At that point, the permittee can seek to have the ITP renewed. To renew an ITP, a permittee must submit a renewal request to either FWS or NMFS at least 30 days before the ITP expires.[287] Once the request is submitted, the Services and the permittee can review the HCP to see if any revisions are warranted.[288] After a renewal agreement is reached, the plan will be published in the Federal Register.[289]

Applying for an ITP requires a landowner to work closely with the Services. From drafting the initial HCP to public review to implementation, the landowner and the Services work together every step of the way. The process is completely voluntary, and while getting the permit may take time, once a landowner becomes a permittee with a valid HCP, the No Surprises assurances prevent the landowner from needing to take on any additional conservation measures that they did not agree to. By providing a landowner with formal permission to make an incidental take of listed species, and

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[278] *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* at 16-6.
[279] *Id* at 2-3.
[280] *Id.*
[281] *Id* at 17-1.
[282] *Id* at 17-3.
[283] 50 C.F.R. § 17.22(b)(5).
[284] *Id.*
[285] 50 C.F.R. § 17.22(b)(4).
[286] *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* at 12-8.
[287] 50 C.F.R. § 13.22(a).
[288] *Habitat Conservation Planning and Incidental Take Permit Processing Handbook* at 17-8.
[289] *Id.*

assurances that additional conservation measures will not be forced upon the landowner later on, the HCP process furthers the conservation goals of the ESA by enabling private landowners to engage in activities on their property without being concerned about possible statutory violations.

c. Safe Harbor Agreements

A Safe Harbor Agreement ("SHA") is a voluntary agreement between a private or other non-federal property owner, and FWS or NMFS.[290] The Services created the SHA program in the late 1990s as a way to work with private landowners who were interested in conserving listed species.[291] Under an SHA, the property owner agrees to engage in actions that contribute to the recovery of listed species on non-federal land.[292] In return, the Services provide formal assurances that the property owner will not be required to take on any additional or different management practices without the property owner's consent.[293] Once the SHA expires, the property owner may return the land to the baseline conditions that existed at the beginning of the SHA.[294] Additionally, property owners who enter into an SHA will also be granted an Enhancement of Survival Permit that authorizes the incidental take of listed species that may result from actions taken by the property owner pursuant to the SHA, including returning the property to its baseline conditions after the SHA expires.[295] The length of an SHA can vary, with some lasting only a few years and others for decades.[296]

Who should apply for an SHA?

While the HCP program is aimed at non-federal landowners who are looking to carry out an activity that is likely to result in the incidental take of listed species, the SHA program is aimed at non-federal landowners interested in land management actions that contribute to the recovery of listed species.[297] Therefore, the only requirement for entering into an SHA is that the potential applicant be a non-federal landowner. This includes local governments, state agencies, businesses, tribal governments, conservation organizations, and private individuals.[298]

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[290] Fish & Wildlife Service, *Safe Harbor Agreements for Private Landowners*, FWS (last visited Nov. 14, 2022), https://www.fws.gov/sites/default/files/documents/safe-harbor-agreements-fact-sheet.pdf.
[291] Announcement of Final Safe Harbor Policy, 64 Fed. Reg. 32,717 (June 17, 1999), https://www.fws.gov/policy/library/1999/99fr32717.pdf.
[292] *Safe Harbor Agreements for Private Landowners*.
[293] *Id.*
[294] *Id.*
[295] *Id.*
[296] *Id.*
[297] Announcement of Final Safe Harbor Policy at 32,717.
[298] *Safe Harbor Agreements for Private Landowners*.

After learning that an endangered salamander species is present on his property, Farmer McDonald decides that he would like to better manage his property to promote conservation of the salamander. However, he is worried that doing so could increase the population of endangered salamanders located on his property which could lead to more ESA restrictions on his farming operation. In this case, an SHA would be a good fit for Farmer McDonald. An SHA would allow him to carry out conservation efforts for the salamander, while also granting him assurances that he will not be required to adopt any additional or different conservation measures or face any additional restrictions if his efforts increase the salamander population.

The SHA application process

In general, there are six basic steps an applicant will take to enter into an SHA.[299]

First, the applicant will need to contact either their nearest FWS Ecological Services field office or NMFS office depending on the type of species the applicant would like the SHA to cover.[300] For terrestrial and freshwater species, applicants will work with the FWS.[301] For marine wildlife and anadromous fish, applicants will work with NMFS.[302]

After reaching out to the appropriate Service, the applicant will then begin to gather the general information needed for an SHA.[303] The Services will work with the applicant to put together information such as a map of the applicant's property, information related to the listed species present on the property, potential management actions, and other relevant information.[304]

The third step requires the Services and the landowner to make a series of determinations that will be used to develop the draft SHA. Those determinations include the current baseline conditions for the property, voluntary actions that will provide a net conservation benefit for the species covered by the SHA, and any anticipated incidental take.[305] "Baseline conditions" refers to "population estimates and distribution and/or habitat characteristics and determined area of the enrolled property that sustain seasonal or permanent use by the covered species at the time the Safe Harbor Agreement is executed between the Services and the property owner."[306] In

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[299] Fish & Wildlife Service, *Safe Harbor Agreements*, FWS (last visited Nov. 14, 2022), https://www.fws.gov/service/safe-harbor-agreements.
[300] *Id.*
[301] *Safe Harbor Agreements for Private Landowners*.
[302] *Id.*
[303] *Safe Harbor Agreements*.
[304] Fish & Wildlife Service, *Safe Harbor Agreements | Frequently Asked Questions*, Endangered Species (last visited Nov. 22, 2021), https://www.fws.gov/endangered/landowners/landowners-faq.html.
[305] *Safe Harbor Agreements*.
[306] Announcement of Final Safe Harbor Policy at 32,722.

other words, the baseline conditions refer to the state of listed species and their habitat on the applicant's property at the time the SHA begins. The Services will use the baseline conditions to discuss land use goals with the property owner, assess habitat quality, and identify other information needed to develop the SHA.[307] Additionally, "net conservation benefits" refers to "the cumulative benefits of the management activities identified in a [SHA] that provide for an increase in a species' population and/or the enhancement, restoration, or maintenance of covered species' suitable habitat within the enrolled property[.]"[308] In order to draft the SHA, the Services must determine what voluntary actions the landowner can take that will either increase species population or enhance species habitat.

The Services will work with the property owner to draft the SHA so that it complies with the Services' Safe Harbor Policy.[309] In order to be in compliance, the SHA must do the following: (1) specify the species, habitat, and property covered by the Agreement; (2) include a complete description of the baseline conditions for each of the covered species; (3) identify the management actions that will be taken by the property owner to achieve the expected net conservation benefits, and the agreed upon timeline for carrying out those actions; (4) describe any incidental take associated with the management actions; (5) incorporate a notification requirement to provide the Services or appropriate State agencies with an opportunity to remove individuals of a covered species before any authorized incidental take occurs; (6) describe what activities are expected to return the covered property to its baseline conditions and the expected amount of incidental take that would result from doing so; (7) satisfy other requirements of section 10 of the ESA; and (8) identify a schedule for monitoring the implementation of the SHA.[310] The Services will not approve an SHA unless it fulfills these requirements.[311] In particular, the Services will not approve an SHA that fails to achieve any net conservation benefits.[312] In other words, the Services will only approve an SHA if the conservation activities the landowner agrees to undertake will contribute to the recovery of listed species.

Once the SHA is drafted, the Services work with the property owner to prepare the application for the Enhancement of Survival Permit.[313] These permits are issued under Section 10 of the ESA, and they allow the property owner to make incidental take of the species covered by the SHA while carrying out the management activities outlined in the

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[307] *Id* at 32,723.
[308] *Id* at 32,722.
[309] *Id.*
[310] *Id* at 32,723.
[311] 50 C.F.R. § 17.22(c)(2)(ii).
[312] *Id.*
[313] Announcement of Final Safe Harbor Policy at 32,722.

agreement, and while returning the property to its baseline conditions after the SHA has ended.[314] The application for the Enhancement of Survival Permit must include a copy of Form 3-200, the common and scientific names of the listed species to be covered by the Permit, a description of how incidental take is likely to occur under the SHA, and a copy of the SHA that is in compliance with the requirements of FWS' Safe Harbor policy.[315]

After the property owner has submitted the application for the Enhancement of Survival Permit, the Services begin their review.[316] This includes an internal review process, opportunity for public comment, ESA consultation, and NEPA analysis.[317] Internal review of the Permit application requires the Services to consider whether the application meets the general issuance criteria.[318] If the criteria are not met, then the Enhancement of Survival Permit may not be issued.[319] Those criteria require the Services to find that: (1) the proposed take will be incidental to otherwise lawful activity; (2) implementation of the SHA is expected to provide a net conservation benefit to the covered species; (3) the probable effects of the authorized take will not reduce the likelihood of survival of any listed species; (4) implementation of the SHA is consistent with all applicable laws and regulations; (5) implementation of the SHA will not be in conflict of any ongoing conservation programs for the species covered by the Agreement; and (6) the applicant has shown capability for and commitment to implementing the SHA.[320] The Services will also make the Permit application and SHA available for public comment.[321] Typically, the comment period will last 30 days, but can last up to 60 days for more complex Agreements.[322] Finally, the Services will use this time to engage in section 7 consultation to ensure that granting the Enhancement of Survival Permit will not jeopardize any listed species, and will perform NEPA analysis to determine the environmental impact of approving the Permit application.[323]

The sixth and final step of the SHA process occurs when the Services issue an Enhancement of Survival Permit to the property owner and the SHA is finalized.[324] At this point, the property owner can begin to undertake the management activities agreed to in the SHA, and will also be protected by the assurances provided to them under the

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[314] 16 U.S.C. § 10(a)(1)(A).
[315] 50 C.F.R. § 17.22(c)(1).
[316] NOAA Fisheries, *Safe Harbor Agreements for Private Landowners*, NOAA (last visited Nov. 14, 2022), https://media.fisheries.noaa.gov/dam-migration/6102019_safe-harbor-agreements-faq_508.pdf.
[317] *Safe Harbor Agreements*.
[318] 50 C.F.R. § 17.22(c)(2).
[319] *Id.*
[320] *Id.*
[321] Announcement of Final Safe Harbor Policy at 32,726.
[322] *Id.*
[323] *Id* at 32,725.
[324] *Safe Harbor Agreements*.

SHA that no additional conservation measures will be required unless the property owner agrees.[325]

Once an SHA is in place, it is considered to run with the land.[326] If a property owner decides to sell land covered by an SHA before the term of the Agreement is up, the Services will approach the new owner to ask if they would like to become party to the original SHA and Enhancement of Survival Permit.[327] If they agree, then the Services will regard the new owner as having all the rights and obligations as the original property owner.[328]

Overall, an SHA can be a useful tool for private property owners who would like to engage in wildlife conservation activities without worrying about ESA violations.

d. Candidate Conservation Agreement with Assurances

In 1999, FWS introduced its Candidate Conservation Agreement with Assurances ("CCAA") program.[329] Under the CCAA program, private landowners can enter into voluntary agreements with the Services to adopt conservation measures to protect candidate species in exchange for assurances from the Services that the landowner will not be required to take on additional conservation practices in the future.[330] The program is similar to the Candidate Conservation Agreement ("CCA") program which also allows entities to enter into voluntary agreements with the Services to adopt conservation measures for candidate species, but does not provide assurances against additional future conservation measures and is therefore used more often by federal agencies, states, and local governments than by private landowners.[331]

A candidate species is one that has been identified by FWS or NMFS as a candidate for listing under the ESA.[332] Typically, the Services will have enough information regarding the biological status of the species to determine that listing it as either threatened or endangered is likely appropriate, but are putting off formally listing the species in favor of higher priority listing activities.[333] Because these candidate species are not listed

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[325] *Id.*
[326] Fish & Wildlife Service, *Safe Harbor Agreements for Private Landowners*, FWS (last visited Nov. 22, 2021), https://www.fws.gov/endangered/esa-library/pdf/harborqa.pdf.
[327] Announcement of Final Safe Harbor Policy at 32,725.
[328] *Id.*
[329] Candidate Conservation Agreements with Assurances Policy, 81 Fed. Reg. 95,164 (December 27, 2016), https://www.govinfo.gov/content/pkg/FR-2016-12-27/pdf/2016-31061.pdf.
[330] Fish & Wildlife Service, *Candidate Conservation Agreements*, FWS (last visited Nov. 16, 2022), https://fws.gov/service/candidate-conservation-agreements.
[331] *Id.*
[332] Candidate Conservation Agreements with Assurances Policy at 95,171.
[333] Fish & Wildlife Service, *Candidate Species*, FWS (last visited Nov. 22, 2021), https://www.fws.gov/endangered/esa-library/pdf/candidate_species.pdf.

under the ESA, they receive none of the Act's legal protections. However, taking proactive conservation efforts to protect candidate species can, in some cases, speed the overall recovery time of the species, cause it to be listed as threatened instead of endangered, or even eliminate the need to list the species at all.[334]

Similar to an SHA, a property owner who enters into a CCAA will be granted an Enhancement of Survival permit under section 10 of the ESA.[335] The Permit authorizes incidental take of the species covered by the CCAA in the event that the species become listed.[336] While the Services recognize that the actions of a single property owner are usually not enough to eliminate the need to list a species, they also acknowledge that the collective result of conservation measures taken by multiple property owners may result in not needing to list the species.[337] Accordingly, the Services will enter into a CCAA when they can determine that the conservation measures will result in a net conservation benefit to improve the status of the covered species.[338]

Who Should Apply for a CCAA?

Any private landowner is potentially eligible to enter into a CCAA.[339] However, the CCAA program is best suited for private landowners that have a candidate species living on or near their property. A CCAA could be a good option for a landowner who knows of a particular candidate species that is present on or near their property and would like to take proactive steps to prevent the species from being listed while also receiving assurances that if the listing does occur, the landowner will not need to alter their land use behavior.

The blue-bellied bumblebee is a native species of pollinator that faces threats to its habitat and has been identified by FWS as a candidate for listing. Farmer McDonald is aware that the blue-bellied bumblebee is located in his area, and has even seen a hive of them on his property in the past. He would like to help conserve the bumblebee, but is also concerned that if the species is listed as endangered, he could face further ESA restrictions on his property. A CCAA would be a good option for Farmer McDonald. With a CCAA he can carry out conservation efforts for the blue-bellied bumblebee on his property, but will not face any additional regulation if the bee is ever officially listed.

The CCAA Application Process

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[334] *Candidate Conservation Agreements*.
[335] Candidate Conservation Agreements with Assurances Policy at 95,171.
[336] *Id*.
[337] *Id* at 95,170.
[338] *Id* at 95,165.
[339] Fish & Wildlife Service, *Candidate Conservation Agreements with Assurances*, FWS (last visited Nov. 16, 2022), https://fws.gov/service/candidate-conservation-agreements-assurances.

The CCAA process is known for its flexibility, which makes it well-suited to address both the needs of the candidate species and the landowner.[340] CCAAs can vary significantly in size, scope, complexity, and the types of management activities adopted by landowners.[341] As a result, a CCAA could look like an SHA, an HCP, or something completely different depending on the needs of the species and the needs of the landowner.

As with an HCP or an SHA, the first step in the CCAA process is for an interested landowner to contact their nearest FWS Field Office to discuss the possibility of entering into an agreement.[342] One of the first things the landowner and the Services will discuss is whether a CCAA is the appropriate tool for the particular situation.[343] In general, a CCAA will be most appropriate when the Services know enough about candidate species at issue to determine what conservation measures are likely to meet the CCAA standard that the conservation measures implemented by a property owner have the potential to contribute to removing the need to list the candidate species.[344] A CCAA will generally not be appropriate if the Services do not have enough information about the candidate species to determine what conservation measures would meet the CCAA standard.[345] CCAAs may also be inappropriate if the candidate species is so highly imperiled that any amount of take would increase its likelihood of extinction.[346]

If the Services and landowner agree that a CCAA would be appropriate, the Services must then evaluate the existing situation on the landowner's property in order to determine the proper approach.[347] Potential existing situations could include a property that already meets the CCAA standard, property that needs improvement to meet the CCAA standard, or property where there is already on-going take of the candidate species.[348]

Once the Services have determined the existing situation on the property, the parties can begin to draft the CCAA.[349] As previously mentioned, these agreements are extremely flexible and no two are exactly alike. However, each CCAA will contain the following components: a description of the parties involved in implementing the agreement; a description of the property that will be covered by the agreement;

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[340] *Candidate Conservation Agreements*.
[341] U.S. Fish & Wildlife Serv., *Candidate Conservation Agreements with Assurances Handbook*, 5 (2003), https://esadocs.defenders-cci.org/ESAdocs/misc/FWS_CCAA_draft_handbook.pdf.
[342] *Candidate Conservation Agreements with Assurances*.
[343] *Candidate Conservation Agreements with Assurances Handbook* at 8.
[344] *Id* at 9.
[345] *Id* at 11.
[346] *Id*.
[347] *Id* at 9; *Candidate Conservation Agreements with Assurances*.
[348] *Candidate Conservation Agreements with Assurances Handbook* at 9-11.
[349] *Candidate Conservation Agreements with Assurances*.

language describing the purpose of the agreement; information identifying the candidate species covered by the CCAA; current population levels of the covered species at the time of negotiation, and a description of the existing habitat on the landowner's property; the conservation measures and management activities the landowner agrees to implement; the expected benefits to the candidate species; the expected level of take should the candidate species be listed; the assurances provided to the landowner by the Services regarding future conservation activities; description of future monitoring activities; provisions allowing for amendment of the CCAA; the duration of the CCAA; procedures for how the CCAA may be terminated; and, where necessary, provisions concerning adaptive management strategies that the landowner can employ when implementing the CCAA.[350]

After the agreement has been drafted, the landowner can formally submit their application for a CCAA.[351] The application consists of the Enhancement of Survival Permit application Form 3-200-45, and a copy of the proposed CCAA.[352] Once the application is submitted, the Services will move onto the permit processing phase.[353] At this time they will conduct an intra-Service ESA consultation, go through NEPA analysis, and determine whether the CCAA meets the issuance criteria.[354]

During the ESA consultation, the Services will consider the potential impacts to both the candidate species that would be covered by the CCAA as well as already listed species.[355] Because candidate species have yet to be listed under the ESA, the law does not require the Services to consult over them. However, it is the policy of the Services to do so anyway because the species could be listed in the future.[356] Typically, the ESA consultation will not be a significant impediment to issuing a CCAA because the expected result is that a CCAA will benefit the candidate species.[357] Similarly, the NEPA analysis tends to find that a CCAA will have a positive effect on the environment, meaning that lengthy review is unnecessary.[358]

Finally, in order to grant the Enhancement of Survival Permit, the Services must make a written finding that the following criteria are met: the proposed take would be incidental to otherwise lawful activity; implementation of the CCAA is reasonably expected to provide a net conservation benefit to the candidate species; the probable effects of the

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[350] *Id* at 11-20.
[351] *Candidate Conservation Agreements with Assurances*.
[352] *Candidate Conservation Agreements with Assurances Handbook* at 20.
[353] *Id* at 21.
[354] *Id*.
[355] *Id* at 24-25.
[356] *Id*.
[357] *Id* at 25.
[358] *Id* at 23.

take will not significantly reduce the likelihood of survival of any species; implementation of the CCAA is consistent with all federal, state, and local law; implementation of the CCAA will not be in conflict with any other authorized conservation activities; and the applicant has shown a capacity for and commitment to implementing all terms of the CCAA.[359] In this capacity, the Services have defined "net conservation benefit" to mean "the cumulative benefits of the CCAA's specific conservation measures designed to improve the status of a covered species by removing or minimizing threats so that populations are stabilized, the number of individuals is increased, or habitat is improved."[360]

After the Services have gone through the necessary analysis and made the required findings, they will publish the application for the Enhancement of Survival Permit, and all the accompanying documents in the Federal Register for public review.[361] Typically, review lasts for 30 days.[362] After the review closes, the Services will address any comments they received, and prepare to issue the final permit and approve the CCAA.[363] Once the CCAA is approved and the Permit issued, the landowner can begin to implement the agreed upon conservation activities.[364]

The Services will monitor the landowner's implementation of the CCAA according to the monitoring terms set out in the agreement.[365] Usually the Services will monitor both for compliance, and to assess the response of the covered species to the conservation measures.[366] If, prior to the end of the CCAA, the property owner transfers ownership of their land to a new property owner, the new owner has the option of becoming a party to the original CCAA.[367] If the new owner does so, the Services will regard them as having the same rights, assurances, and obligations as the original property owner.[368]

Overall, the CCAA process can be useful for landowners who are aware of candidate species on or near their property and want to take steps to prevent the species from being listed while also receiving assurances that if the species is listed, the landowner will not be required to adopt any additional land management activities.

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[359] 50 C.F.R. 17.22(d)(2).
[360] Candidate Conservation Agreements with Assurances Policy at 95,171.
[361] *Id* at 95,173.
[362] *Id*; 50 C.F.R. 17.22(d)(2).
[363] *Candidate Conservation Agreements with Assurances Handbook* at 29.
[364] *Candidate Conservation Agreements with Assurances*.
[365] Candidate Conservation Agreements with Assurances Policy at 95,173.
[366] *Id.*
[367] *Id.*
[368] *Id.*

VI. Agriculture and the ESA

The last section of this manual will focus on how the ESA specifically impacts agriculture beyond the issues of private landownership that were discussed in the previous section. In particular, this section will take a closer look at a few key issues involving agriculture and the ESA.

a. ESA & Pesticides

One of the main ways that the ESA impacts agriculture is through its effects on pesticide registration and use.[369] In the United States, a pesticide is not available for legal use until it has been registered by the Environmental Protection Agency ("EPA") under the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA").[370] When EPA registers a pesticide under FIFRA, it approves a label that will be affixed to each pesticide container that provides instructions for how the pesticide should be used.[371] Each pesticide label approved by EPA carries the full force of law, meaning that violating the use instructions is a violation of federal law.[372] Because registering a pesticide under FIFRA is a federal action, EPA is required to engage in ESA consultation with the Services prior to making a final registration decision.[373] If the consultation results in a finding that registering the pesticide for use will jeopardize a listed species or destroy designated critical habitat, EPA may need to adopt mitigation measures that can affect the use instructions included in the label. Mitigation measures for pesticide use may be localized to a specific area or broad enough to be in place anywhere the pesticide is used.[374]

When EPA registers a pesticide for use under FIFRA, it must show that use of the pesticide will not cause "unreasonable adverse effects on the environment."[375] The term "unreasonable adverse effects on the environment" is defined to mean "any unreasonable risk to man or the environment taking into account the economic, social,

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[369] Emily Unglesbee, *What the Endangered Species Act Means for Ag Pesticide Use*, Progressive Farmer (Jan. 21, 2022), https://www.dtnpf.com/agriculture/web/ag/blogs/production-blog/blog-post/2022/01/21/endangered-species-act-means-ag-use.
[370] 7 U.S.C. § 136j(a)(1).
[371] United States Envtl. Protection Agency, *About Pesticide Registration*, Pesticide Registration Home (last visited Nov. 17, 2022), https://www.epa.gov/pesticide-registration/about-pesticide-registration.
[372] *Id.*
[373] United States Envtl. Protection Agency, *About the Endangered Species Protection Program*, Endangered Species Home, (last visited Nov. 17, 2022), https://www.epa.gov/endangered-species/about-endangered-species-protection-program.
[374] United States Envtl. Protection Agency, *Assessing Pesticides under the Endangered Species Act*, Endangered Species Home, (last visited Nov. 22, 2021), https://www.epa.gov/endangered-species/assessing-pesticides-under-endangered-species-act.
[375] 7 U.S.C. § 136a(c)(5).

and environmental costs and benefits of the use of any pesticide[.]"[376] In other words, EPA will only register a pesticide for use under FIFRA if it determines that the pesticide will not cause an unreasonable risk to either human beings or the environment. In addition, EPA must also consider whether registering a pesticide "may affect" any threatened or endangered species.[377] An agency action may affect listed species if the agency taking the action concludes that it is "likely to adversely affect" listed species or critical habitat.[378] In that case, the action agency must reach out to either FWS or NMFS to begin formal ESA consultation.[379]

Because EPA must satisfy both FIFRA and the ESA in order to register a pesticide, pesticide registrations are essentially subject to two levels of environmental review. In general, the FIFRA prohibition on "unreasonable adverse effects" is considered to be relatively narrow while the ESA "may affect" standard is broad and easy to trigger.[380] Accordingly, EPA is tasked with implementing FIFRA in a way that complies with the ESA to the fullest extent possible without unnecessarily burdening pesticide users. In order to accomplish this task, EPA developed the Endangered Species Protection Program ("ESPP") which allows EPA to balance its responsibilities under both FIFRA and the ESA.[381]

i. Endangered Species Protection Program

The main purpose of the ESPP is to allow EPA to carry out the requirements of both FIFRA and the ESA with the overall intention of providing appropriate protection to listed species while avoiding unnecessary burdens to pesticide users.[382] Under the ESPP, EPA will consider a pesticide's impacts to listed species and critical habitat during the pesticide registration process.[383] To do so, EPA develops an ecological risk assessment which includes a determination on whether use of the pesticide being evaluated for registration is likely to affect listed species or critical habitat.[384] If EPA ultimately finds that use of the pesticide is likely to harm either listed species or critical habitat, then

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[376] 7 U.S.C. § 136(bb).
[377] 50 C.F.R. § 402.14(a).
[378] 50 C.F.R. § 402.14(b).
[379] 50 C.F.R. § 402.14(a); *About Pesticide Registration*.
[380] Mary Jane Angelo, *The Killing Fields: Reducing the Casualties in the Battle Between U.S. Species Protection Law and U.S. Pesticide Law*, 32 Harv. Envtl. L. Rev. 95, 128 (2008). ("[…] ESA section 7 and its implementing regulations require consultation of some form whenever an action "may affect" a listed species, not only when a likely to adversely affect determination is made by the action agency.")
[381] *About the Endangered Species Protection Program*.
[382] Endangered Species Protection Program Field Implementation, 70 Fed. Reg. 66,392 (November 2, 2005), https://www.govinfo.gov/content/pkg/FR-2005-11-02/pdf/05-21838.pdf.
[383] *Id* at 66,399.
[384] *Id*.

EPA will adopt mitigation measures on a county-by-county basis.[385] EPA issues Endangered Species Protection Bulletins ("Bulletins") through the ESPP that provide use limitations for pesticides on a county level.[386] By tailoring use limitations, EPA can implement geographically-specific mitigation measures to protect listed species and critical habitat without unduly burdening pesticide users.[387]

If geographically specific use limitations are required to ensure that registering a pesticide meets ESA requirements, the pesticide label approved by EPA will contain language informing the user that the product may have a Bulletin available.[388] All Bulletins are available through EPA's "Bulletins Live! Two" portal which has a map showing where Bulletins are currently active.[389] Because the Bulletins are incorporated into pesticide labels, failing to follow a Bulletin is a violation of federal law. Additionally, unless the Services have issued an incidental take statement authorizing take that may occur from using a pesticide consistently with its labeling, pesticide users could be found liable for violating the ESA if their use of a pesticide causes take of a species even if the label was appropriately followed.[390] Typically, the Services will issue an incidental take statement if they conclude that use of the pesticide is likely to adversely affect a listed species, but will not result in jeopardy of the species.[391] However, if the Services conclude that jeopardy of a listed species could occur, they are unlikely to allow incidental take.[392]

By using the ESPP to develop Bulletins, EPA can efficiently adopt measures to protect endangered species. The geographic-specific nature of the Bulletins helps reduce the regulatory burden on pesticide users by ensuring that additional use restrictions are only in place in areas where listed species are present.

ii. EPA's New FIFRA-ESA Policy

In 2022, EPA announced that it was adopting a new policy to help meet its ESA obligations when taking actions under FIFRA.[393] The policy centers around a workplan which lays out the steps EPA plans to take to better meet its ESA responsibilities.[394]

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[385] *Id* at 66,400.
[386] *Id.*
[387] *Id.*
[388] *Id.*
[389] United States Envtl. Protection Agency, *Bulletins Live! Two – View the Bulletins*, Endangered Species, (last visited Nov. 22, 2021), https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins.
[390] Endangered Species Protection Program Field Implementation at 66,397.
[391] *Id.*
[392] *Id.*
[393] United States Envtl. Protection Agency, *Implementing EPA's Workplan to Protect Endangered and Threatened Species from Pesticides: Pilot Projects*, Endangered Species, (last visited Dec. 07, 2022),

According to EPA, the agency has long struggled to fulfill its ESA obligations related to FIFRA actions.[395] Every year, EPA carries out numerous FIFRA actions that qualify as agency actions under the ESA. These actions include not only registering new pesticides for use, but also making decisions on pesticide registration review.[396] Under FIFRA, EPA is tasked with reviewing each registered pesticide every 15 years to ensure that the pesticide continues to function as intended without creating unreasonably adverse effects to human health and the environment.[397] Additionally, EPA also makes a number of other FIFRA decisions on already registered pesticides, such as approving new uses and granting emergency use exemptions.[398] All three categories of FIFRA decision – registration of new pesticides, registration review, and other FIFRA decisions – require an ESA determination and possibly formal consultation with the Services.[399] As of November 2022, EPA claims to have only met its ESA obligations for less than 5% of its FIFRA actions which has led to a large, and growing, backlog.[400]

As a result of its failure to meet its ESA obligations for FIFRA actions, EPA has been subject to numerous lawsuits.[401] Many of these lawsuits have resulted in settlements that require EPA to complete its ESA responsibilities by a particular date, which has further complicated EPA's ability to address its backlog of FIFRA actions that need ESA determinations.[402] These lawsuits have also resulted in instability for pesticide users because the orders from judges may mean that EPA has to quickly adopt new mitigation measures that were not included in the original pesticide label, or even have to pull the label entirely for failing to meet ESA standards.[403] The new policy adopted by EPA is intended to help bring the agency's FIFRA actions into better ESA compliance, and create stronger pesticide labels that are more likely to withstand judicial scrutiny.[404]

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https://www.epa.gov/endangered-species/implementing-epas-workplan-protect-endangered-and-threatened-species-pesticides.

[394] *Id.*

[395] United States Envtl. Protection Agency, *Balancing Wildlife Protection and Responsible Pesticide Use: How EPA's Pesticide Program Will Meet its Endangered Species Act Obligations*, 4 (2022), https://www.epa.gov/system/files/documents/2022-04/balancing-wildlife-protection-and-responsible-pesticide-use_final.pdf.

[396] *Id.*

[397] 7 U.S.C. § 136a(g)(1)(A)(iii)(II).

[398] *Balancing Wildlife Protection and Responsible Pesticide Use: How EPA's Pesticide Program Will Meet its Endangered Species Act Obligations* at 21.

[399] *Id.*

[400] *Id.*

[401] United States Envtl. Protection Agency, *ESA Workplan Update: Nontarget Species Mitigation for Registration Review and Other FIFRA Actions*, 6 (2022), https://www.epa.gov/system/files/documents/2022-11/esa-workplan-update.pdf.

[402] *Balancing Wildlife Protection and Responsible Pesticide Use: How EPA's Pesticide Program Will Meet its Endangered Species Act Obligations* at 9.

[403] *Id.*

[404] *Id.*

The workplan released by EPA to help implement its new policy identifies four strategies that the agency will use to increase its ESA compliance, and steps EPA will take to fulfill each strategy.[405] The first strategy identified by the workplan is for EPA to meet its ESA obligations for all FIFRA actions.[406] To do so, EPA will prioritize its bringing its FIFRA actions into ESA compliance in the following order: actions with existing and future court-enforceable deadlines and the registrations of new conventional pesticide active ingredients; all remaining conventional pesticides up for registration review; and finally, all other FIFRA actions.[407] The second strategy is for EPA to improve the way it approaches identifying and requiring ESA protections intended to address the effects of pesticides on listed species.[408] According to EPA, these improvements will include: incorporating protections for listed species earlier in the FIFRA process; proactively adopting protections for species facing the greatest risk of harm from pesticides; identifying flexible options for pesticide users; coordinating species protection measures for pesticides that are used on the same crops and affect the same species; and creating opportunities to offset the residual effects on listed species through habitat restoration and other conservation measures.[409] The third strategy outlined in the workplan is for EPA to improve the efficiency and timeliness of its ESA-FIFRA process by bettering its collaborations with the Services and the United States Department of Agriculture.[410] EPA notes that this could include assessing all pesticides intended for similar uses at the same time, and working more closely with FWS or NMFS regional staff to better incorporate more localized data on species.[411] Finally, EPA's fourth strategy is to improve stakeholder engagement on ESA and FIFRA actions.[412]

At the time of writing, it is unclear what the overall impact of EPA's new ESA-FIFRA strategy will be. It seems likely that pesticide labels could contain further restrictions that users must adhere to in order to protect listed species. It also seems likely that this new approach could increase the amount of time it takes EPA to register new pesticides and complete registration review for previously registered pesticides. On the other hand, if EPA is able to create pesticide labels that fully meet ESA requirements, then pesticide users should expect that those labels will not be as vulnerable to lawsuits and judicial review. As EPA has more time to fully implement its policy, the effects will become more clear.

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[405] *Id* at 38.
[406] *Id* at 41.
[407] *Id.*
[408] *Id* at 53.
[409] *Id.*
[410] *Id* at 61.
[411] *Id.*
[412] *Id* at 62.

b. ESA & water allocations

One of the other ways that the ESA can affect agriculture is by impacting water allocations in waterbodies where listed species are located.[413] This issue becomes more pronounced in arid regions, such as the Western United States, or during periods of drought when there is less water available for multiple uses.[414]

In general, there are two primary methods for determining who has the right to use surface water in the United States: riparianism and prior appropriation.[415] Under a riparian system, the right to use surface water is typically limited to those landowners with land that is adjacent to a waterbody, otherwise known as riparian land.[416] A riparian water user has the right to use as much surface water as they need, so long as the water is put to a "reasonable use" and does not interfere with the reasonable use of downstream riparian users.[417] What is considered a reasonable use can vary from state to state, but will generally include agricultural uses.[418] Prior appropriation operates under the "first-in-time, first-in-right" rule which prioritizes water users depending on who was using the water first.[419] Generally, water users in a prior appropriation system will be required to put their water to a "beneficial use" in order to maintain their water right.[420] Agricultural uses are typically recognized as beneficial uses.[421] In many prior appropriation states, water used for irrigation is provided to farmers by an irrigation district, a type of public corporation organized under state law to implement irrigation projects.[422] Irrigation districts hold water rights in order to deliver water to their irrigators.[423]

Riparian systems tend to be used in the Eastern United States where water is more abundant, while prior appropriation tends to be used in the Western United States which is more arid.[424] However, some states, such as California and Oklahoma, have developed a hybrid system that uses both riparianism and prior appropriation to

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[413] Michael R. Moore et. al., *Water Allocation in the American West: Endangered Fish Versus Irrigated Agriculture*, 36 Nat. Resources J. 319 (1996).
[414] *Id* at 320.
[415] Frank J. Trelease, *Coordination of Riparian and Appropriative Rights to the Use of Water*, 33 Tex. L. Rev. 24 (1954).
[416] § 3:8. Justifications of riparian right, L. of Water Rights and Resources § 3:8.
[417] *Coordination of Riparian and Appropriative Rights to the Use of Water* at 26.
[418] § 3:60. Allocation—Reasonable use rule, L. of Water Rights and Resources § 3:60.
[419] Nisha D. Noroian, *Prior Appropriation, Agriculture and the West: Caught in A Bad Romance*, 51 Jurimetrics J. 181 (2011).
[420] Restatement (Second) of Torts Ten 41 3 Intro. Note (1979).
[421] *Prior Appropriation, Agriculture and the West: Caught in A Bad Romance* at 183.
[422] *Id* at 215.
[423] *Id.*
[424] Restatement (Second) of Torts Ten 41 3 Intro. Note (1979).

determine water rights.[425] What remains consistent across jurisdictions is that water allocations are generally governed by states and state law with little federal intervention.[426]

Although the ESA only requires federal agencies to ensure that their actions do not put listed species in jeopardy or cause adverse modifications to critical habitat, that does not mean that state water rights are unaffected by the ESA. Any water use that results in the direct or incidental take of a listed species could fall within the statute's reach.[427] Additionally, any water use that requires a federal permit or funding will be subject to the ESA's section 7 consultation requirements.[428] The ESA does not directly address state water rights. However, the Act does provide that it is "the policy of Congress that Federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species."[429]

In *U.S.A. v. Glenn-Colusa Irrigation Dist.*, 788 F. Supp. 1126 (E.D. Cal. 1992), a federal court in the Eastern District of California ordered the Glenn-Colusa Irrigation District ("GCID") to stop pumping water in the Sacramento River due to on-going ESA violations.[430] The GCID provides water to over 1000 landowner farms in the Sacramento Valley and has water rights on the Sacramento River that date back to 1883.[431] Over the course of GCID's history, it has installed various different fish screens to prevent fish, including listed salmonids, from being harmed by its operations.[432] In 1989, GCID applied to the United States Army Corps of Engineers ("Corps") for a permit that required ESA section 7 consultation with NMFS regarding the effects of the permit activity on listed salmon species.[433] The consultation resulted in a BiOp which found that issuing the permit was likely to cause jeopardy of listed salmon, but that the harm could be avoided if GCID installed a new fish screen.[434] The BiOp also included an incidental take statement providing an incidental take permit to GCID if an effective new fish screen were installed.[435] Following consultation, NMFS notified GCID that without an incidental take permit, it was liable for the taking of listed salmon species

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[425] *Id.*
[426] *Prior Appropriation, Agriculture and the West: Caught in A Bad Romance* at 190.
[427] 16 U.S.C. § 1538(a)(1)(B). (Prohibits the "take" of any endangered or threatened species. This prohibition applies to all actions, even if they arise purely from state law.)
[428] 16 U.S.C. § 1536(a)(2).
[429] 16 U.S.C. § 1531(c)(2).
[430] *U.S.A. v. Glenn-Colusa Irrigation Dist.*, 788 F. Supp. 1126, 1136 (E.D. Cal. 1992).
[431] Glenn-Colusa Irrigation District, *About Us*, GCID, (last visited Nov. 29, 2022), https://www.gcid.net/about-us/.
[432] *U.S.A. v. Glenn-Colusa Irrigation Dist.* at 1129, 1130.
[433] *Id* at 1130.
[434] *Id.*
[435] *Id* at 1130, 1131.

under the ESA.[436] GCID failed to apply for an incidental take permit, which caused the United States to file suit for ESA violations.[437] The United States asked the court to prevent GCID from pumping water from the Sacramento River until it received an incidental take permit.[438] Under the ESA, courts are required to enjoin any action that is in violation of the Act.[439] Because it was undisputed that GCID was causing the take of listed species, the court granted the injunction. Additionally, the court found that the ESA should not yield to state water rights.[440] According to the court:

> the [ESA] provides that federal agencies should cooperate with state and local authorities to resolve water resource issues regarding the conservation of endangered species. This provision does not require, however, that state water rights should prevail over the restrictions set forth in the Act. Such an interpretation would render the Act a nullity. The Act provides no exemption from compliance to persons possessing state water rights, and thus [GCID's] state water rights do not provide it with a special privilege to ignore the [ESA]. Moreover, enforcement of the Act does not affect [GCID's] water rights but only the manner in which it exercises those rights.[441]

The court's decision in *U.S.A. v. Glenn-Colusa Irrigation Dist.* is a good example of how the ESA can affect state water rights. Even though GCID was operating under state law, its take of listed salmon species brought it under the authority of the ESA. While GCID argued that its state law water rights should prevail, the court concluded that the ESA does not provide any exemption for possessors of state water rights. GCID was prevented from pumping water until it complied with the ESA.

While courts generally find that state water rights do not provide an exemption from ESA requirements, there are certain limitations on how the ESA may affect state water rights. In a more recent case from the Fifth Circuit Court of Appeals, the court considered whether the Texas Commission on Environmental Quality ("TCEQ") violated the ESA by issuing permits to divert water.[442] The plaintiffs in *Aransas Project v. Shaw*, 756 F.3d 801 (5th Cir. 2014), claimed that TCEQ committed a taking by issuing permits to use water which caused the deaths of several endangered whooping cranes.[443] According to the plaintiffs, the water usage allowed by the permits coupled with drought conditions depleted the availability of water for the cranes' habitat which negatively

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[436] *Id* at 1131.
[437] *Id.*
[438] *Id.*
[439] 16 U.S.C. § 1540(e)(6).
[440] *U.S.A. v. Glenn-Colusa Irrigation Dist.* at 1134.
[441] *Id.*
[442] *Aransas Project v. Shaw*, 756 F.3d 801 (5th Cir. 2014).
[443] *Id* at 805, 806.

impacted their food sources, ultimately leading to the deaths of multiple cranes.[444] The lower court in this case agreed with the plaintiffs and issued an order prohibiting TCEQ from issuing water rights permits until they consulted with the Services.[445] However, the Fifth Circuit disagreed with the lower court's conclusion. The Fifth Circuit found that TCEQ's issuance of water use permits was too far removed from the death of the whooping cranes to be the cause of the injury.[446] While the permits allowed water users to make diversions of surface water that reduced the amount of freshwater available to support the ecosystem that whooping cranes rely on, the Fifth Circuit noted that other factors, such as the drought conditions, had also contributed to the reduction of freshwater.[447] Ultimately, the Fifth Circuit concluded that there was both a lack of foreseeability or direct connection between TCEQ permitting and whooping crane deaths.[448] Therefore, TCEQ had not violated the ESA and was not required to engage in ESA consultation before continuing with its permitting activities.[449]

Both *U.S.A. v. Glenn-Colusa Irrigation Dist.* and *Aransas Project v. Shaw* demonstrate how the ESA affects state water rights. The court in *U.S.A. v. Glenn-Colusa Irrigation Dist.* clearly stated that water rights are not exempt from the ESA just because they arise under state law.[450] The prohibitions against taking apply to everyone, even state law water rights holders. However, the court in *Aransas Project v. Shaw* noted that there are limits to the ESA's reach. Simply issuing a permit to divert water is not enough to establish that a taking occurred. At the very least, there must be both foreseeability and a direct connection between issuing a water rights permit and the taking of a listed species for the ESA to apply.[451]

i. The Bureau of Reclamation and the ESA

Along with the ESA impacts to water rights discussed above, water users in Western states may also be subject to ESA considerations if their water is delivered by the Bureau of Reclamation ("Reclamation"). Originally founded in 1902, Reclamation operates several large water projects in Western states, including various dams and reservoirs.[452] Because Reclamation is a federal agency, it is required to engage in ESA consultation with the Services prior to taking agency action. This includes reconsidering existing

[444] *Id* at 807.
[445] *Id* at 807, 808.
[446] *Id* at 823.
[447] *Id.*
[448] *Id* at 824.
[449] *Id.*
[450] *U.S.A. v. Glenn-Colusa Irrigation Dist.* at 1134.
[451] *Aransas Project v. Shaw* at 817. ("Proximate cause and foreseeability are required to affix liability for ESA violations.")
[452] Glenn-Colusa Irrigation District, *About Us*, GCID, (last visited Nov. 29, 2022), https://www.gcid.net/about-us/.

contracts to deliver water, and reviewing existing water supply projects that have the potential to jeopardize listed species.[453] Along with ensuring that its actions do not jeopardize listed species, Reclamation must also ensure that its actions do not adversely modify critical habitat.[454] Over the years, courts have defined the extent of Reclamation's responsibilities under the ESA.[455] Routinely, courts have concluded that ESA requirements will trump Reclamation's commitments to supply water when there is insufficient water available for both endangered species protection and other uses.[456]

Just a little over a decade after the ESA was originally adopted, the Ninth Circuit Court of Appeals considered whether the ESA required Reclamation to operate a reservoir in such a way that conservation of two listed fish species was given priority over agricultural and municipal water use.[457] In *Carson-Truckee Water Conservancy Dist. v. Clark*, 741 F.2d 257 (9th Cir. 1984), the court noted that section 7 of the ESA requires federal agencies to prevent putting listed species into jeopardy, and to carry out programs for the conservation of listed species.[458] The court concluded that section 7 of the ESA directs federal agencies to actively pursue species conservation.[459] Therefore, the court found that the text of the ESA supported Reclamation's decision to manage the reservoir so that priority was given to the listed fish species over other uses.[460]

Carson-Truckee Water Conservancy Dist. v. Clark involved Reclamation's decision regarding the overall management of a reservoir. In *O'Neil v. United States*, 50 F.3d 677 (9th Cir. 1995), the Ninth Circuit considered whether an existing water contract between Reclamation and a water user obligated Reclamation to meet the full contractual amount of water when doing so would violate the ESA.[461] Ultimately, the court found that Reclamation had no such obligation.[462] If delivering the full contractual amount of water would violate the ESA by putting a listed species in jeopardy, Reclamation would not be required to supply the full amount.[463]

As the case law demonstrates, Reclamation's legal obligations to comply with the ESA has the potential to impact water allocations made for non-conservation purposes. This

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[453] Natural Resources Defense Council v. Houston, 146 F.3d 1118 (9th Cir. 1998); Pacific Coast Federation of Fishermen's Associations v. U.S. Bureau of Reclamation, 138 F.Supp. 2d 1228 (N.D. Cal. 2001).
[454] 16 U.S.C. § 1536(a)(2).
[455] Reed D. Benson, *Dams, Duties, and Discretion: Bureau of Reclamation Water Project Operations and the Endangered Species Act*, 33 Colum. J. Envtl. L. 1, 12 (2008).
[456] *Id* at 13.
[457] *Carson-Truckee Water Conservancy Dist. v. Clark*, 741 F.2d 257 (9th Cir. 1984).
[458] *Id* at 261.
[459] *Id* at 262.
[460] *Id*.
[461] *O'Neil v. United States*, 50 F.3d 677, 680 (9th Cir. 1995).
[462] *Id*.
[463] *Id* at 688, 689.

can be especially true during times of intense drought. In 2021, the West Coast of the United States experienced historic drought conditions.[464] The conditions were particularly bad in Southern Oregon and Northern California where the Klamath River Basin is located.[465] The basin includes Reclamation's Klamath Project, which delivers irrigation water to approximately 230,000 acres of farmland located in both Oregon and California.[466] The Klamath Project has a history of conflicts associated with water deliveries.[467] Along with providing water for agricultural uses, the Klamath Project also supplies water to nearby wildlife refuges which provide habitat for three listed fish species.[468] Because listed species rely on water from the Klamath Project, Reclamation operates the Project according to recent Biological Opinions ("BiOps") which contain limitations meant to prevent the species from becoming jeopardized.[469] In 2021, the drought conditions were so severe that Reclamation announced it would be unable to operate the Klamath Project in a manner consistent with its BiOps which require Reclamation to maintain a certain minimum level of water to protect the listed fish species.[470] Releasing any water from the Klamath Project for other purposes would have made it effectively impossible for Reclamation to maintain the minimum levels required by the ESA.[471] Therefore, the agency decided not to release any water from the Klamath Project during 2021.[472] While this decision was in line with ESA requirements, it presented a significant hardship to farmers who rely on water from the Klamath Project.

c. Proactive Species Conservation: The Monarch Butterfly

When considering how agriculture and the ESA affect one another, there is a general idea that the two are always in conflict. That assumption is far from the truth. The goal of the ESA is to enable species and habitat conservation. Agriculture can be a powerful tool for achieving that goal. Along with managing land to help conserve already listed species, farmers and ranchers can play a key role in helping to prevent species from being added to the list of Threatened and Endangered Species. Doing so furthers the ESA's overall conservation goals, and reduces agricultural regulation.

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[464] Rachel Ramirez, *The drought in California this summer was the worst on record*, CNN (Nov. 22, 2021), https://www.cnn.com/2021/10/14/us/california-summer-drought-worst-on-record/index.html.
[465] Sage Van Wing, et al., *Conversations about drought in the Klamath Basin*, OPB (Nov. 22, 2021), https://www.opb.org/article/2021/07/26/conversations-drought-in-klamath-basin/.
[466] U.S. Congressional Research Service. Drought in the Klamath River Basin (IN11689; June 8, 2021). Text in: CRS Web; Accessed: November 22, 2021, https://www.everycrsreport.com/files/2021-06-08_IN11689_1bda2c8e4c91ead375650781c605cfaba869d3d1.pdf.
[467] *Id* at 3.
[468] *Id* at 2.
[469] *Id* at 3.
[470] *Id*.
[471] *Id*.
[472] Bureau of Reclamation. (2021, May 12). *Extreme drought conditions force closure of Klamath Project's "A" Canal* [Press release]. https://www.usbr.gov/newsroom/#/news-release/3850.

A recent example of agriculture taking part in proactive species conservation is the case of the monarch butterfly. The monarch butterfly is a large, orange and black butterfly that is known for migrating back and forth between Canada and Mexico, where its populations overwinter.[473] There are two populations of monarch butterfly, an Eastern one with a migratory path takes that covers much of the Midwest, and a Western one located west of the Rocky Mountains.[474] Both populations depend on milkweed, the monarch butterfly's host plant and sole source of food, for survival.[475] Over the past several decades, both the Eastern and Western monarch butterfly populations have experienced a steep decline.[476] Some estimates suggest that the Eastern population of monarchs has dropped by 90 percent since 1995.[477]

In 2014, a coalition of environmental groups submitted to FWS a petition to list the monarch butterfly under the ESA.[478] In their petition, the groups identified loss of milkweed habitat as the main threat to the monarch butterfly.[479] They also stated that use of pesticides such as glyphosate, dicamba, and 2,4-D was one of the main reasons that milkweed was in decline.[480] After receiving a listing petition, FWS has 90 days to determine whether listing "may be warranted."[481] If FWS makes that conclusion, then it has twelve months to gather information and make a final listing decision.[482] Following submission of the 2014 petition to list the monarch, FWS determined within the 90-day window that listing may be warranted.[483] However, it then failed to make a final listing decision within twelve months.[484] The delay prompted the environmental groups who had submitted the petition to file a lawsuit against FWS seeking to compel a legally binding deadline by which the final listing decision would have to be made.[485] That case, *Ctr. for Food Safety v. Jewell*, No. 4:16-cv-00145 (D. Ariz. March 3, 2016), was ultimately settled after all parties agreed that FWS would make a final listing decision

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[473] U.S. Fish & Wildlife Serv., *Monarch Butterfly Fact Sheet*, FWS, (last visited Nov. 22, 2021), https://www.fws.gov/uploadedFiles/MonarchfactsheetSept152014%20(1).pdf.
[474] *Id.*
[475] *Id.*
[476] *Id.*
[477] *Id.*
[478] Center for Biological Diversity, et al. (2014). "Petition to Protect The Monarch Butterfly (*Danaus Plexippus Plexippus*) Under The Endangered Species Act." https://afbeducation.org/wp-content/uploads/2015/01/monarch-esa-petition.pdf.
[479] *Id* at 7.
[480] *Id* at 8.
[481] 16 U.S.C. § 1533(b)(3)(A).
[482] 16 U.S.C. § 1533(b)(3)(B).
[483] Complaint at 3, *Ctr. for Food Safety v. Jewell*, No. 4:16-cv-00145 (D. Ariz. March 3, 2016).
[484] *Id.*
[485] *Id.*

for the monarch butterfly by June 30, 2019, although a later agreement extended the date to December 15, 2020.[486]

Since the monarch butterfly became a candidate for listing, efforts have been underway to conserve monarch habitat, and boost monarch populations in the hopes of preventing it from being listed.[487] Much of these efforts have been voluntary, and have ranged from small scale efforts by individual landowners to projects that span across various states and involve several different state agencies all working together.[488]

From the beginning, agriculture played an important role in monarch butterfly conservation efforts. For example, in Iowa various agricultural groups such as the Iowa Farm Bureau Federation, and Iowa Cattlemen's Association, came together with other community members and Iowa State University to form the Iowa Monarch Conservation Consortium ("the Consortium").[489] The mission of the Consortium is to "enhance monarch butterfly reproduction and survival in Iowa through collaborative and coordinated efforts of farmers, private citizens and their organizations."[490] The Consortium developed the Iowa Monarch Conservation Strategy, which provided "the information and resources needed to sustain and advance monarch butterfly conservation," and put agriculture at the center of its approach.[491] Voluntary conservation efforts identified by the Iowa Monarch Conservation Strategy include: resources in farm bill programs to establish monarch habitat; establishing monarch habitat on farms in projects sponsored by the Consortium; using monarch-friendly weed management in ditches, roadsides, and other rights-of-way; and establishing monarch way stations in community gardens.[492] The Iowa Monarch Conservation Strategy recognizes that agriculture plays a key role in monarch butterfly conservation due to the potential for underutilized areas to be managed in a way that could increase monarch habitat without conflicting with agricultural production.[493]

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[486] U.S. Fish & Wildlife Serv., *Questions and Answers: Extension of deadline for 12-month finding on petition to list the monarch butterfly under the Endangered Species Act*, FWS, (last visited Nov. 23, 2021), https://www.fws.gov/savethemonarch/extension_faqs.html.
[487] U.S. Fish & Wildlife Serv. (2020, December 15). *U.S. Fish and Wildlife Service Finds Endangered Species Act Listing for Monarch Butterfly Warranted but Precluded* [Press release]. https://www.fws.gov/news/ShowNews.cfm?_ID=36817.
[488] *Id.*
[489] Iowa Monarch Conservation Consortium, *Consortium Members*, Iowa State University, (last visited Nov. 23, 2021), https://monarch.ent.iastate.edu/consortium-members.
[490] Iowa Monarch Conservation Consortium, *About the Iowa Monarch Conservation Consortium*, Iowa State University, (last visited Nov. 23, 2021), https://monarch.ent.iastate.edu/about-iowa-monarch-conservation-consortium.
[491] The Iowa Monarch Conservation Consortium, *Conservation Strategy for the Eastern Monarch Butterfly (*Danaus plexippus*) in Iowa* 8 (2018), https://monarch.ent.iastate.edu/files/file/iowa-monarch-conservation-strategy.pdf
[492] *Id.*
[493] *Id* at 41.

On December 15, 2020, FWS announced its listing decision for the monarch butterfly.[494] Ultimately, FWS concluded that adding the monarch butterfly to the list of threatened and endangered species is "warranted but precluded by higher priority actions."[495] Essentially, FWS concluded that the monarch butterfly was a candidate for listing under the ESA, but that there were other species which FWS identified as higher priorities for listing. FWS will focus on using its resources to list those higher priority species, and will review the status of the monarch butterfly each year to determine whether it should remain a candidate.[496] Although this is not the same as a finding that the monarch butterfly should not be listed under the ESA at all, it is a finding that concludes that while the monarch butterfly should be listed, it does not need to be listed immediately. In a press release accompanying its decision, FWS highlighted the voluntary conservation work and its role in restoring monarch habitat.[497]

While the monarch butterfly could still be listed under the ESA, the situation also demonstrates how agriculture can play a key role in species conservation.

VII. Conclusion

Any agricultural producer or private landowner who works in an area where threatened or endangered species are present should be familiar with the ESA and how it operates. The decades-old statute is critical to wildlife conservation in the United States, but can impact agriculture through limitations on both federal and private land use. Familiarity with the statute's provisions, and the programs offered to private land owners by FWS and NMFS can help producers avoid ESA violations while also helping to forward wildlife conservation.

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[494] Endangered and Threatened Wildlife and Plants; 12-Month Finding for the Monarch Butterfly, 85 Fed. Reg. 81,813 (December 17, 2020), https://www.govinfo.gov/content/pkg/FR-2020-12-17/pdf/2020-27523.pdf.
[495] *Id* at 81,813.
[496] *Id.*
[497] *U.S. Fish and Wildlife Service Finds Endangered Species Act Listing for Monarch Butterfly Warranted but Precluded.*

Veggie Wars: Legal Update on the Perishable Agricultural Commodities Act & Related Produce Laws

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Table of Contents

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VEGGIE WARS

PACA LAW UPDATE

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Western Agricultural and Environmental Law Conference

Hosted by

the National Agricultural Law Center

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Reno, Nevada

PACA Legal Update

- Basic Training
- Skirmishes between PACA Beneficiaries
- Personal Liability Land Mines
- Disarming Non-Dischargeability
- Factoring Companies – Friend, Foe, Frenemy?

BASIC TRAINING: What is PACA?

- Perishable Agricultural Commodities Act
- Administered by United States Department of Agriculture
- Federal law established in 1930

- Code of Conduct/Rules of Fair Trade For Produce Industry
- Licensing
- Complaint process
- Unfair conduct
  - **FOCUS: Section 5 – PACA Trust (1984 Amendments)**

PACA Unfair Conduct vs. PACA Trust

Section 2 Unfair Conduct – VIOLATIONS:	Section 5 PACA Trust – FOCUS OF CASE DECISIONS
Make, for a **fraudulent** purpose, any **false or misleading statement** in connection with any transaction involving any perishable agricultural	
Fail to **deliver** good under contract	
Discard, dump, or destroy without reasonable cause	
Unfair, unreasonable, discriminatory, or deceptive practice in connection with the **weighing, counting**	
Misrepresent by word, act, mark, stencil, label, statement, or deed, the character, kind, grade, quality, quantity, size, pack, weight, condition, degree of maturity, or State, country, or region of origin of any perishable agricultural commodity received, shipped	
Fail or refuse truly and correctly to **account** and make full **prompt payment**	
Fail to maintain the trust assets	

How and why was PACA enacted?

- In 1930, Congress originally enacted PACA to provide protections to produce sellers (selling on short payment terms) in cases where a buyer failed to make payment as provided by contract
- State court collection lawsuits did not adequately provide protection
- Public interest to protect food supply and interstate commerce
- Fair and ethical trading
- Ensure orderly trading through supply chain

Who is subject to PACA?

PACA LICENSEE

- Person or entity licensed by the USDA-PACA

OR

DEALER: PERSON OR ENTITY

- Dealer in "wholesale and jobbing quantities"
- Buys or sells 2,000 pounds of perishable agricultural commodities in any given day
- In interstate or foreign commerce

AND

RETAILERS

- Dealer in "wholesale and jobbing quantities"
- Purchase $230,000 or more worth of fresh or frozen fruits and vegetables in a calendar year
- May include restaurants

FROZEN FOOD BROKERS

- Dealer in "wholesale and jobbing quantities"
- Negotiate $230,000 or more worth of fresh or frozen fruits and vegetables in a calendar year

What are the PACA Trust Provisions

Seller's Rights:

- Puts sellers of fresh and frozen fruits and vegetables in a **super priority status** in PACA Trust Assets in the event their buyers become insolvent or file for bankruptcy protection

What are the PACA Trust Provisions

Buyer must hold in **trust** until supplier is fully paid:

- all inventories of food or products derived from perishable agricultural commodities
- any receivables or proceeds from the sale of such commodities or products

What is the "PACA Trust?"

- Statutory trust designed to protect unpaid suppliers of perishable agricultural commodities
- Creates a ***trust relationship*** between unpaid seller and buyer
- Provides sellers with "super-priority" collection rights

What is the "PACA Trust?"

The PACA Trust shares the same basic legal components as any trust relationship:

- Trustee: the person responsible for managing the trust: owners, officers, principals. The trustee has the highest standard of care known as a *fiduciary* duty. [Buyer]
- Beneficiary: the person who will benefit from the trust. [Supplier]
- Trust Assets: the property belonging to the trust.

Trustee's fiduciary duties

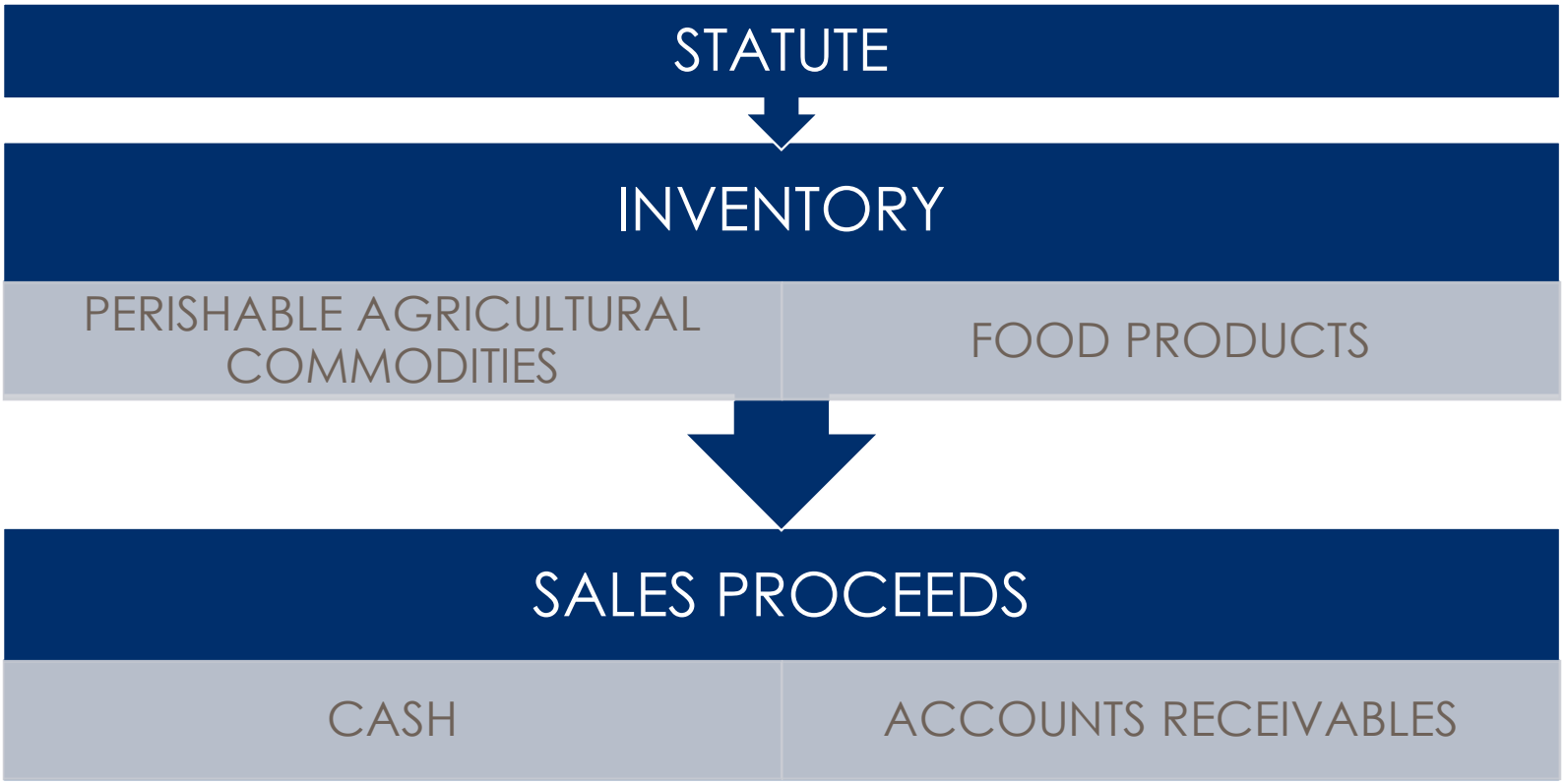
Trustee owes buyer *fiduciary duties*:

- Trustees are principals of the company in control of money
- Trustee will be liable to the Trust Beneficiary for not maintaining sufficient assets to timely and fully seller's PACA trust claim.
- Depending on degree of control of PACA trust assets, principals of buyer cannot discharge debt

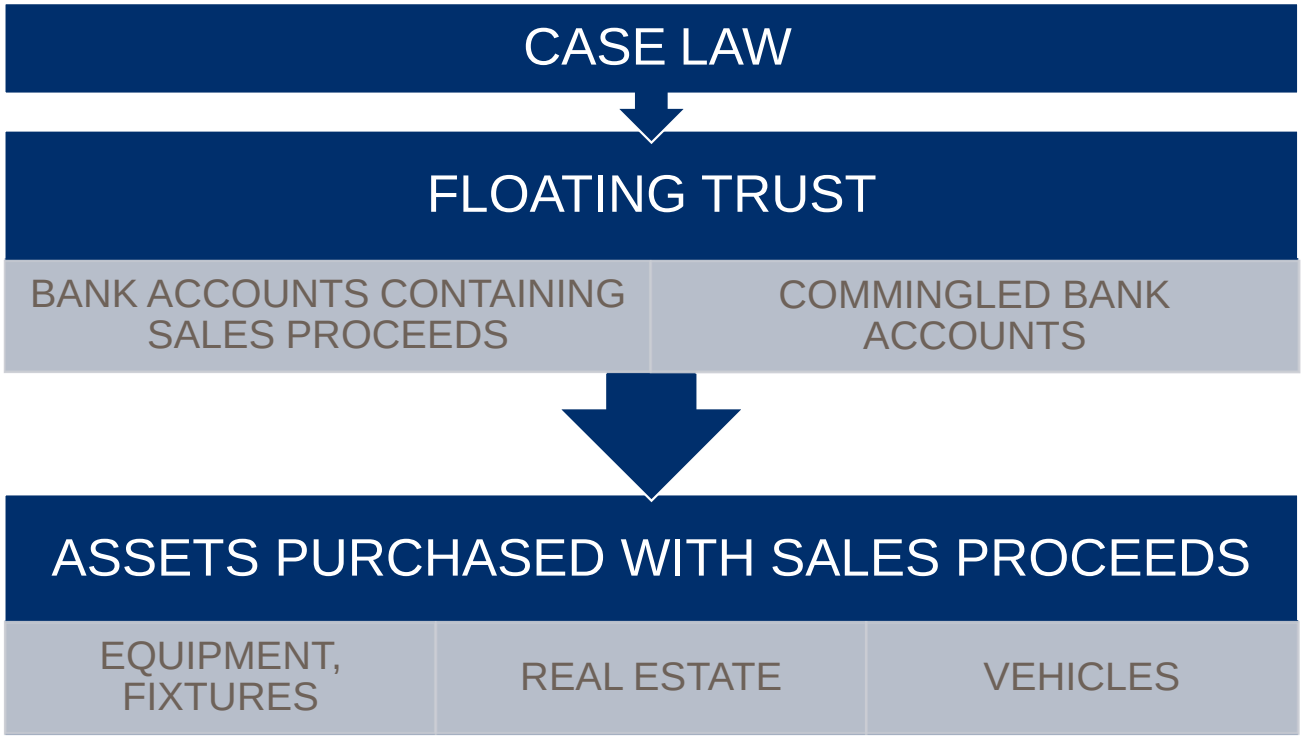
What are PACA Trust assets?

- Presumptively all the buyer's assets

What is a PACA Trust Asset?



What is a PACA Trust Asset?



What commodities are covered?

COVERED

- Fresh fruit and vegetables
- Frozen fruits and vegetables
- Adding chemicals to retard oxidation
- Water, blanching, hot oil spray
- Battering and coating

MAYBE

- Puree
- Dates
- Nuts

NOT COVERED

- Processing to change character
- Fresh fruit concentrate
- Dehydrated
- Cooked in oil

What are the elements of a valid PACA Trust claim?

COMMODITIES	• Covered fresh or frozen perishable agricultural commodities
INTERSTATE OR FOREIGN COMMERCE	• Perishable agricultural commodities moves or in contemplation of moving in interstate or foreign commerce
BUYER IS LICENSED OR SUBJECT TO LICENSE	• Dealers, wholesales, jobbers, commission merchants, brokers, and possibly retailers
PAYMENT TERMS	• Default PACA Prompt = 10 days • CANNOT exceed 30 days
NOTICE TO BUYER	•Send written notice of intent to preserve PACA Trust rights within 30 days of when payment is due •PACA LICENSEE: include statutory language on invoices

What is included in a PACA Trust claim?

Costs in connection with the sales transaction:

- Precooling and palletizing
- Gassing
- Freight
- Cold Storage
- Temperature recorders

- Attorney's fees (if provided for by contract, i.e. invoice or credit application)
- Interest/Finance charges

Preserving PACA Trust Rights

- *Send separate written notice to buyer of intent to preserve PACA trust rights within 30 days of when payment is due*. 7 U.S.C. sec. 499e(c)(3)
- PACA licensees include this exact language on the face of each invoice (7 U.S.C. sec. 499e(c)(4)):

The perishable agricultural commodities listed on this invoice are sold subject to the statutory trust authorized by Section 5(c) of the Perishable Agricultural Commodities Act, 1930 (7 U.S.C. §499e(c)). The seller of these commodities retains a trust claim over these commodities, all inventories of food or other products derived from these commodities, and any receivables or proceeds from the sale of these commodities until full payment is received.

Skirmishes between PACA beneficiaries

PACA Trust Creditors of Lenny Perry's Produce, Inc. v. Genecco Produce, Inc.
853 Fed.Appx. 769.(2d Cir. 2021)

- U.S.D.C., Western District of New York => Second Circuit
- Defendants-Appellants Genecco Produce, Inc. ("GPI") and principal appealed a judgment entered against them in favor of Plaintiff-Appellees, PACA trust creditors of the bankrupt produce buyer Lenny Perry's Produce ("LPP").
- Plaintiffs filed an adversary complaint to recover monies GPI owed to LPP.
- GPI and LPP each purchased and sold produce to the other resulting in GPI appearing in the bankruptcy as both a PACA Trust creditor and a PACA Trust debtor of LPP.
- Defendants argued that GPI's debt to LPP should be fully offset by its debts to LPP, a result which would lead to GPI recovering more than its pro rata share of the PACA Trust assets.
- By recommendation by Bankruptcy Court, the District Court for the Western District of New York held, inter alia, that (1) GPI's debt to LPP was an asset of the LPP PACA Trust that could not be completely offset by LPP's debt to GPI, but (2) GPI could, as a creditor of LPP, recover its pro rata share of the PACA Trust ("GPI's Share") and use that to offset its liability to the PACA Trust.
- The Second Circuit affirmed and returned the case the Bankruptcy Court for determination of a sum certain to be paid by GPI to the PACA Trust after the offset for GPI's Share.


Personal Liability Land Mines

S. Katzman Produce Inc. v. Yadid
999 F.3d 867 (2d Cir. 2021)

- U.S.D.C., Southern District of New York => Second Circuit
- Defendant Eliran Yadid appeals a judgment - jointly and severally liable with his codefendants Orel Produce, Inc., and his dad, Moshe Yadid to pay PACA creditors $473,268.82, plus interest and attorneys' fees.
- The court granted plaintiffs' MSJ holding Eliran liable on the ground that he was a person in control of the trust assets.
- Orel was wholly owned by Moshe, who was its only officer.
- Son claims Dad made all the decisions; took instructions from Dad.
- Son signed contracts and personally guaranteed equipment finance; signed checks including payments to produce suppliers; withdrew cash, paid himself a weekly $900 salary and transferred $40k 2018 into his personal bank account; claims dad instructed him and "he received no personal benefit."
- Son claims he worked part time, ran errands, made sales, signed checks when dad was unavailable.
- Son maintained near-daily text message contact with Plaintiff's controller as he attempted to work out Orel's debts; participated in meetings on behalf of Orel, without his father present, to make financial arrangements for the Company, and applied for a loan on behalf of Orel, overseeing the distribution of the loan proceeds.
- The suppliers contended that the son was an officer and director of the dealer corporations and had ordered produce from them and assured them that they would be paid.
- Under traditional trust principles: "[a]n individual who is in the position to control the trust assets and who does not preserve them for the beneficiaries has breached a fiduciary duty and is personally liable for that tortious act. ... [A] PACA trust in effect imposes liability on a trustee, whether a corporation or a controlling person of that corporation, who uses the trust assets for any purpose other than repayment of the supplier."
- Affirmed district court's ruling that Eliran as a matter of law is responsible for dissipation of $40,000 of Orel's assets.
- Genuine issues of fact to be tried as to whether he had sufficient control of Orel's assets to make him liable for misuse of PACA trust assets, and that summary judgment was thus inappropriate.


Disarming Non-Dischargeability

In re Forrest
47 F.4th 1229 (11th Cir. 2022)

- U.S.B.C., Middle District of Florida => Eleventh Circuit => **Petition for Certiorari filed 11-30-22**
- The Forrests were owners of Central Market of FL, Inc. – failed to pay for $261,504.15 for produce from Spring Valley Produce, Inc.
- The Forrests filed for Chapter 7 to discharge business debt.
- SVP filed adversary complaint objecting to discharge of debt under 11 U.S.C. § 523(a)(4) (defalcation while in a fiduciary capacity)
- Court looked at early Supreme Court cases - the Fiduciary Capacity Exception does not apply to trusts implied by contract but applies to technical trusts or trusts in the technical sense but doesn't define technical trust.
- Test to deterring fiduciary capacity:
  - ✓ A trustee, who holds
  - ✓ An identifiable trust res, for the benefit of
  - ✓ identifiable beneficiaries
  - ⊘ Fails trust-like duties of segregating trust assets and duty to refrain from using trust assets for non-trust purpose
- Resembles a constructive or resulting trust - PACA did not impose sufficient trust-like duties to create technical trust, and it did not impose duty to refrain from using trust-assets for non-trust purpose – not an exception to discharge.
- Affirmed.

Factoring Companies – Friend, Foe, or Frenemy?

In re Spiech Farms, LLC,
840 Fed.Appx. 861 (6th Cir. 2021)

- U.S.B.C., Western District of Michigan => U.S.D.C., Western District of Michigan => Sixth Circuit
- Produce Pay is an agricultural financing company providing capital financing and market and trade programs to growers and distributors.
- Spiech was already indebted to Chemical Bank for $4 million through existing secured loans, Spiech sought assistance from Produce Pay as a "multi-service finance company."
- Spiech and Produce Pay entered into a "Distribution Agreement" that allowed Spiech to obtain short-term loans from Produce Pay as a partial advance on payments that Spiech was supposed to receive from its existing customers.
- Chemical Bank learned that Produce Pay filed a financing against Spiech's assets and called the loans.
- Spiech filed for Chapter 11 bankruptcy relief.
- Produce Pay asserted a PACA Trust claim against the bankruptcy estate for $1,002,273.70 to recover the cash advances it made to Spiech.
- After evidentiary hearing, bankruptcy court rejected Produce Pay's claim and found that Produce Pay was not the supplier or seller produce because: (1) the Agreement did not explicitly identify what produce would be sold; (2) Produce Pay only learned what produce was "for sale" after it was registered on Produce Pay's on-line platform; (3) by the time Produce Pay "bought" the produce, it was already delivered to Spiech's customers; and (4) Produce Pay did not receive a document of title until after a customer possessed the produce and title transferred to the customer.
- Court looked to the Second, Fourth, Fifth, and Ninth Circuits' "transfer-of-risk test" to determine if it was a sale or a loan. The transfer-of-risk test entails four factors: "[1] the right of the creditor to recover from the debtor any deficiency if the assets assigned are not sufficient to satisfy the debt, [2] the effect on the creditor's right to the assets assigned if the debtor were to pay the debt from independent funds, [3] whether the debtor has a right to any funds recovered from the sale of assets above that necessary to satisfy the debt, and [4] whether the assignment itself reduces the debt."
- Court found that Spiech did not sell Produce Pay its accounts receivables because Produce Pay assumed no risks with receivables collections. Spiech was tasked with collecting the accounts receivables and remitting one-half to Produce Pay. If Spiech's customers defaulted and Spiech did not remit the proceeds to Produce Pay within 30 days, Spiech was responsible for paying Produce Pay an increased "commission," making default lucrative for Produce Pay and transferring the risk back to Spiech.
- Affirmed.

Produce Pay, Inc. v. Izguerra Produce, Inc.
39 F.4th 1158 (9th Cir. 2022)

- U.S.D.C., Central District of California => Ninth Circuit
- Produce Pay is an operator of an online platform for buying and selling wholesale produce.
- In its complaint, Plaintiff-Appellant Produce Pay alleged that Defendant-Appellee Izguerra Produce, Inc. violated several provisions of the PACA and it also brought several state-law claims.
- After dismissing Produce Pay's PACA claims, the district court declined to exercise supplemental jurisdiction over the state law claims. roduce Pay's on-line platform connects growers in Mexico with distributors.
- Produce Pay obtains title to produce, but produce is shipped directly to distributor.
- Upon receipt distributor inspects and informs Produce Pay how much of the produce is marketable; distributor then sells on consignment and remits net proceeds to Produce Pay.
- Produce Pay takes a "marketplacing commission"
- Izguerra agreed to be a distributor on Produce Pay's on-line platform. Izguerra bore risk of not selling at "expected price" and receivable uncollectibility.
- April 2019, Izguerra bought 1,600 25-pound cartons of avocados on the on-line platform; Produce Pay invoiced Izguerra for $70,560; outstanding balance was $63,786.56.
- The district court granted Izguerra's motion to dismiss with prejudice concluding that as a matter of law Produce Pay was not a seller of wholesale produce and thus not entitled to PACA protections.
- District court applied the transfer-of-risk test articulated and factoring relationship involving in S&H Packing & Sales Co. v. Tanimura Distributing, Inc., 883 F.3d 797, 813 (9th Cir. 2018) (en banc) and in In re Spiech Farms, LLC, 840 F. App'x 861, 863 (6th Cir. 2021).
- However, Produce Pay did not factor Izguerra's accounts receivable; it did not "loan" the avocados to Izguerra, did not take a security interest in Izguerra's receivables, and did not file a financing statement.
- Produce Pay properly and plausibly alleged the elements of a PACA claim: (1) the commodities sold were perishable agricultural commodities, (2) the purchaser was a commission merchant, dealer, or broker, (3) the transaction occurred in contemplation of interstate or foreign commerce, (4) the seller has not received full payment on the transaction, and (5) the seller preserved its trust rights by including statutory language referencing the trust on its invoice.
- Held that plaintiff plausibly pled that it was "seller" entitled to PACA's protections. Reserved and remanded.

Produce Alliance, LLC v. West Central Produce, Inc.
2022 WL 1285041, (9th Cir. 2022)

- U.S.D.C., Central District of California => Ninth Circuit
- West Central Produce entered into a Consent Order to allow for the orderly liquidation of West Central's PACA Trust Assets, and agreed to not remove, withdraw, transfer, conceal, pay, encumber, assign, sell or otherwise dissipate
- Consent Order defined Trust Assets to include "assets comingled with, purchased with maintain, or otherwise acquired with such proceeds"
- West Central acquired an assignment of certain produce suppliers' interest in PAA trust claims with checks from West Central bank accounts.
- Bank accounts contained funds that were commingled with the proceeds of non-Produce related goods.
- Assigned Litigation Rights became impressed with PACA trust because they were acquired with PACA trust assets.
- West Central then sold the Assigned Litigation Rights with a deep dispute to factoring company Produce Capital Group, Inc.
- ProCap asserted a PACA trust claim for $4.1 million.
- Court affirmed district court's order voiding the transaction because it violated the Consent Order.

Questions

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Perishable Agricultural Commodities Act

Harrison Pittman
Center Director

The Perishable Agricultural Commodities Act, or "PACA," was enacted in 1930 to regulate the marketing of perishable agricultural commodities in interstate and foreign commerce. The primary purposes of the PACA are to prevent unfair and fraudulent conduct in the marketing and selling of perishable agricultural commodities and to facilitate the orderly flow of perishable agricultural commodities in interstate and foreign commerce. It also provides important protections to sellers of "perishable agricultural commodities" that are relevant to many specialty crop producers.

PACA is administered and regulated by the Agricultural Marketing Service (AMS), an agency within the United States Department of Agriculture. AMS provides further information on PACA on its website, http://www.ams.usda.gov, as well as the National Agricultural Law Center at http://www.nationalaglawcenter.org/readingrooms/perishablecommodities/.

PACA is important for many specialty crop producers because it governs important aspects of transactions between sellers and buyers of fresh and frozen fruits and vegetables. In particular, the unfair conduct and the statutory trust provisions are particularly significant.

Key Definitions

PACA applies to "dealers", "commission merchants", and "brokers." In general, a "dealer" is "any person engaged in the business of buying or selling in wholesale or jobbing quantities . . . any perishable agricultural commodity" that has an invoice value in any calendar year in excess of $230,000.00. There are some exceptions to this definition that could become applicable under certain situations, but the general definition provided here is very instructive. A "commission merchant" is "any person engaged in the business of receiving . . . . any perishable agricultural commodity for sale, on commission, or for or on behalf of another." Finally, a "broker" is a person engaged in the business of negotiating sales and purchases of perishable agricultural commodities either for or on behalf of the seller or buyer. A person who is "an independent agent negotiating sales for or on behalf of the vendor" is not considered to be a broker, however, if "sales of such commodities negotiated by such person are sales of frozen fruits and vegetables having an invoice value not in excess of $230,000.00 in any calendar year."

Unfair Conduct

As noted, PACA prohibits certain types of conduct on the part of buyers and sellers, though issues arising in this arena commonly focus on the alleged conduct of commission merchants, dealers, and brokers. For example, it is unlawful for a commission merchant, dealer, or broker "to engage in or use any unfair, unreasonable, discriminatory, or deceptive practice in connection with the weighing, counting, or in any way determining the quantity of any perishable agricultural commodity received, bought, sold, shipped, or handled . . . ." It is also unlawful for a commission merchant, dealer, or broker to do any of the following:

- "to make, for a fraudulent purpose, any false or misleading statement in connection with any transaction involving any perishable agricultural commodity";
- "to fail, without reasonable cause, to perform any specification or duty, express or implied, arising out of any undertaking in connection with any such transaction"; and
- "to fail or refuse truly and correctly to account and make full payment promptly" with respect to any transaction.

PACA provides that a commission merchant, dealer, or broker that violates any of the unfair conduct provisions "shall be liable to the person or persons injured thereby for the full amount of damages . . . sustained in consequence of such violation." The injured person or persons may enforce such liability by bringing an action in federal district court or by filing a reparations proceeding against the commission merchant, dealer, or broker.

Licensing

The PACA requires that all commission merchants, dealers, and brokers obtain a valid and effective license from the USDA Secretary. PACA does not require growers who sell perishable agricultural commodities that they have grown to obtain a license, though sellers commonly choose to apply for a PACA license. From the grower's perspective, the license demonstrates that the buyer is a legitimate business person or business entity who can be trusted to honor contractual terms and PACA requirements.

The requirement of a PACA license by a commission merchant, dealer, or broker is akin to the requirement of a driver obtaining a driver's license. A commission merchant, dealer, or broker that fails to obtain a valid and effective license shall be subject to monetary penalties, though some leniency may be provided if the failure to obtain the license was not willful. Importantly, if a commission merchant, dealer, or broker has violated any of the unfair conduct provisions, that person's PACA license may be suspended or possibly revoked, which effectively negates their ability to engage in the fruit and vegetable industry. A person who knowingly operates without a PACA license may be fined up to $1,200 for each violation and up to $350 for each day the violation continues.

Statutory Trust

For specialty crop producers, the statutory trust is a very important aspect of PACA since it is specifically designed to protect sellers of perishable agricultural commodities in the event a

buyer becomes insolvent or otherwise refuses to pay for produce. The statutory trust provision under PACA specifically provides the following (emphasis added):

> [p]erishable agricultural commodities received by a commission merchant, dealer, or broker in all transactions, and all inventories of food or other products derived from perishable agricultural commodities, and any receivables or proceeds from the sale of such commodities or products, **shall be held** by such commission merchant, dealer, or broker **in trust for the benefit of all unpaid suppliers or sellers** of such commodities or agents involved in the transaction, **until full payment of the sums owing in connection with such transactions has been received** by such unpaid suppliers, sellers, or agents.

In other words, the buyer is required to maintain a statutory trust relative to fruits and vegetables received but not yet paid for. If a buyer becomes insolvent or declares bankruptcy, the statutory trust provides priority status to the unpaid seller against all other creditors in the world.

Consequently, the PACA statutory trust is often referred to as a "floating trust." Thus, a PACA trust beneficiary is not obligated to trace the assets to which the beneficiary's trust applies. When a controversy arises as to which assets are part of the PACA trust, the buyer has the burden of establishing which assets, if any, are not subject to the PACA trust. The PACA beneficiary only has the burden of proving the amount of its claim and that a floating pool of assets exists into which the produce-related assets have been commingled.

If a buyer files for bankruptcy, the trust assets do not become "property of the estate" because the buyer-debtor does not have an equitable interest in the trust assets. Rather, the buyer holds those assets for the benefit of the seller. Thus, a beneficiary of the PACA trust has priority over all other creditors with respect to the assets of the PACA trust.

However, the seller must take certain steps in order to protect his or her rights in the statutory trust. One method of preserving rights to the statutory trust is by simply including the following exact language on the face of the invoice:

> The perishable agricultural commodities listed on this invoice are sold subject to the statutory trust authorized by section 5(c) of the Perishable Agricultural Commodities Act, 1930 (7 U.S.C. § 499e(c)). The seller of these commodities retains a trust claim over these commodities, all inventories of food or other products derived from these commodities, and any receivables or proceeds from the sale of these commodities until full payment is received.

It should be noted that this method is available only to those sellers who are licensed under PACA. Hence, many sellers will elect to be licensed so that they can preserve their statutory trust rights in this manner. Unlicensed sellers (or licensed sellers who do not want to include the foregoing language on their invoices) may preserve their statutory trust rights through a different method. This method requires that the seller provide written notice that specifies it is a "notice of intent to preserve trust benefits". In addition, the written notice must include the name(s) and address(es) of the seller, commission merchant, or agent, and the debtor as well as the date of the transaction. The written notice must also identify the commodity at issue, the invoice price, payment terms, and the amount owed.

This written notice must be given within thirty calendar days

- after expiration of the time prescribed by which payment must be made, as set forth in the regulations issued by the Secretary;
- after expiration of such other time by which payment must be made, as the parties have expressly agreed to in writing before entering into the transaction; or
- after the time the supplier, seller, or agent has received notice that the payment instrument promptly presented for payment has been dishonored.

If the payment terms extend beyond thirty days, the seller will lose his or her rights to the statutory trust. PACA also provides that if the parties to the transaction "expressly agree to a payment time period different from that established by the Secretary, a copy of any such agreement shall be filed in the records of each party to the transaction and the terms of payment must be disclosed" on the documents relating to the transaction. But, as noted, if this agreement extends the time for payment for more than thirty days, however, the seller cannot qualify for coverage under the trust.

Prompt Payment

PACA also requires produce buyers to make full payment promptly, and the regulations implementing PACA expound on PACA. While there are additional rules embedded in the regulations, the most common payment requirement is that payment be made 10 days from date of acceptance of the goods for purchase.

For more information, please refer to the National Agricultural Law Center's Reading Room on PACA, available at: http://www.nationalaglawcenter.org/readingrooms/perishablecommodities/, or contact the National Agricultural Law Center.

Running on Empty & Into the Sun: Legal & political Update on the Colorado River Basin

James Eklund
Member, Sherman & Howard

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Bureau of Reclamation Releases Draft EIS for Colorado River

On April 11, 2023, the Bureau of Reclamation ("Reclamation") released a draft Supplemental Environmental Impact Statement ("draft SEIS") for the 2007 Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead ("2007 Interim Guidelines") which is currently the primary document governing water distribution in the Colorado River Basin ("the Basin"). Due to the prolonged drought impacting the region, Reclamation has proposed revising the 2007 Interim Guidelines for the "near-term" operation of both Glen Canyon and Hoover Dams starting in the 2024 operating year to address the ongoing drought, historically low reservoirs, and low-runoff conditions in the Basin.

Law of the River

The Colorado River is one of the principal landmarks of the Western United States. The river itself is 1,450 miles long, and the Basin covers over 250,000 square miles across seven U.S. states (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming) and Mexico. The Colorado River provides essential water supplies to around 40 million people, and supports 5.5 million acres of agricultural lands as well as hydroelectric power, habitat for various species, and recreational opportunities throughout the region. Most of the annual flow in the Basin is runoff from mountain snowmelt. As a result, snowpack that accumulates into April is used as a basis for predicting the majority of water available through out the remainder of the year.

Distribution and use of water from the Colorado River is governed by a body of law commonly referred to as the "Law of the River." This body of law is made up of a series of operating criteria, regulations, administrative decisions, federal statutes, interstate compacts, treaties with Mexico, and Supreme Court decisions. The Law of the River vests the responsibility for managing water from the river with Reclamation which is part of the Department of Interior.

The Colorado River Compact of 1922 ("the Compact"), a foundational document for the Law of the River, divides the Colorado River system into two sub-basins, the Upper and Lower Basins, divided between the seven Colorado River states. The Upper Basin states include Colorado, New Mexico, Utah, and Wyoming, while the Lower Basin States include Arizona, California, and Nevada. The Colorado River system contains two large reservoirs for storing river water – Lake Powell in Utah and Lake Mead in Nevada. Lake Powell operates through the Glen Canyon Dam, while Lake Mead operates through the Hoover Dam. Due to a combination of over-allocation of water and on-going drought, both Lakes Powell and Mead have been at historically low levels over the past several years.

Under the Compact, both the Upper and Lower Basins were allocated 7.5 million acre-feet ("MAF"; the amount of water it takes to cover one acre in 12" of water) of water per year, and an additional 1.5 MAF in annual flow was made available to Mexico via treaty in 1944. Within the Lower Basin, the Law of the River grants 4.4 MAF of the 7.5 MAF annual allotment to California, 2.8 MAF to Arizona, and 300,00 acre-feet ("AF") to Nevada. In the Upper Basin, water allotments are only made after water apportionments in

Mexico and the Lower Basin have been met. Colorado is the largest entitlement holder in the Upper Basin with rights to 51.57% of Upper Basin flows, while Utah receives 23%, Wyoming 14%, and New Mexico 11.25%.

Up until recently, the Law of the River was developed based on the assumption established in the 1922 Compact that the average annual flows of the Colorado River were 16.4 MAF every year. However, from 1096 to 2022, measurements showed that the river only averaged 14.6 MAF annually. From 2000 to 2022, Colorado River flows averaged less than 12.1 MAF annually as drought set in. During that time, consumptive use also increased as growing populations in the region lead to more demand. To address these issues, Reclamation developed the 2007 Interim Guidelines which outlined criteria for releases from both Lakes Mead and Powell according to "trigger levels" in both reservoirs, as well as a schedule for when apportionments in the Lower Basin should be curtailed. Under the guidelines, when elevations at Lake Mead dropped below 1,075 feet, Arizona and Nevada would have their allotments reduced by 320,000 AF and 13,000 AF respectively while California would continue to receive its total 4.4 MAF allotment. If Lake Mead dropped to below 1,050 feet – at which point hydroelectric operations at Hoover Dam would be compromised – Arizona's allotment would be reduced an additional 80,000 AF, Nevada's would be reduced an additional 3,000 AF, and California would continue to receive its total apportionment. The 2007 Interim Guidelines are temporary and are set to expire after December 31, 2026.

While the 2007 Guidelines were intended as a response to drought in the Basin, they have been unable to properly address the extreme drought conditions that have developed since 2007. Reclamation has proposed updated the Guidelines to prioritize actions the would stabilize declining storage levels in Lakes Powell and Mead and prevent collapse of the Colorado River system during the 2023 – 2026 period.

NEPA

The National Environmental Policy Act ("NEPA") was signed into law on January 1, 1970. According to the text of the statute, the purpose of NEPA is to "encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere to stimulate the health and welfare of man; [and] to enrich the understanding of the ecological systems and natural resources important to the Nation[.]" 42 U.S.C. § 4321. To achieve this goal, NEPA requires all federal agencies to go through an environmental review process prior to taking an agency action in order to assess the impacts that action will have on the environment.

When planning a new agency action, which can include a range of activities from drafting new regulations to issuing a permit, NEPA requires federal agencies to go through environmental review. That review can result in one of three different outcomes: Categorical Exclusion; Environmental Assessment/Finding of No Significant Impact ("EA/FONSI"); and Environmental Impact Statement ("EIS"). An agency action may be categorically excluded from NEPA review if the agency has concluded that the type of action normally does not have a significant effect on the human environment. 40 C.F.R. § 1508(d). If an agency determines that its action falls under a categorical exemption, it does not need to engage in any further NEPA review. If the action is not categorically exempted, the agency will move onto the next step in the NEPA process, developing an EA. An EA is a concise public document that reviews the expected impacts the action will have on the environment and determines whether the agency will issue a FONSI or prepare an EIS. 40 C.F.R. § 1508(h). If the agency issues a FONSI, the NEPA review process is

over. If the agency determines that it must prepare an EIS, it will continue its NEPA analysis. Importantly, NEPA does not require federal agencies to choose the most environmentally friendly option. The only requirement under NEPA is that agencies go through the environmentally review process.

An EIS is a detailed document which must include analysis of the environmental impacts of the proposed action; any adverse environmental effects which cannot be avoided should the proposal be implemented as originally planned; a range of alternatives to the proposed action that would accomplish the same purpose including a "no action" alternative; the relationship between local short-term uses of the environment and the maintenance of long-term productivity; and any irreversible commitments of resources necessary to implement the proposed action. 42 U.S.C. § 4332. A draft version of the EIS will be made available for public comment, after which the agency will develop a final version that will be published in the Federal Register. After an EIS is finalized, the agency may be required to draft a supplement EIS ("SEIS") if the agency either makes substantial changes to the proposed action that are relevant to its environmental concerns, or if there are significant new circumstances or information relevant to the environmental concerns that would affect the impacts of the proposed action. 23 C.F.R. § 771.130(a).

When Reclamation adopted the 2007 Interim Guidelines, the agency drafted an EIS document examining the environmental impacts of the Guidelines. Because Reclamation is considering modifying the 2007 Interim Guidelines to reflect changed circumstances in the region, it has developed a draft SEIS to examine the impacts of the proposed changes.

What's in the New Proposal?

The draft SEIS recently released by Reclamation is intended to reflect new information and changes in conditions since the 2007 Interim Guidelines were first adopted. Specifically, the draft SEIS proposes changes to the Interim Guidelines that are specifically designed to manage Lakes Powell and Mead at lower elevations to more reliably maintain water deliveries, infrastructure, and power generation, while also avoiding "dead pool" conditions where reservoir levels become so low that dams are unable to operate. In keeping with the requirement that NEPA analysis consider various alternatives, the draft SEIS provides three possible options for how to amend the 2007 Interim Guidelines: two Action Alternatives, and one No Action Alternative wherein Reclamation would do nothing to alter the Interim Guidelines. Currently, Reclamation has not indicated which alternative it prefers.

Under Action Alternative 1, Reclamation would base additional curtailments of water allotments on priority of water rights. In the Western United States, water rights are typically determined according to the doctrine of prior appropriation which is based on the principle of first-in-time, first-in-right. In other words, under prior appropriation water rights are based on who was using the water first. In the Lower Basin, California is generally regarded as having the most senior water rights. As such, California would continue to see no reductions to its 4.4 MAF apportionment under Action Alternative 1, while Arizona and Nevada would see increased reductions as water levels in Lake Mead decline. Depending on how much levels at Lake Mead fall, under Action Alternative 1, Arizona could see its allotment curtailed by up to 1.7 MAF while Nevada could see its apportionment reduced by up to 83,000 AF.

Under Action Alternative 2, Reclamation would allocate water cuts would be distributed in the same percentage across Lower Basin states, instead of according to priority of water rights. According to this model, each of the Lower Basin states would have its allotment reduced by the same percent amount as levels in Lake Mead decreased. For example, if Lake Mead's elevation drops to 1,075 feet, under Action Alternative 2 all Lower Basin states would see their allotments curtailed by 7.11%. As Lake Mead's elevation drops, the percentage would increase. Under Action Alternative 2, Arizona could see curtailments of up to 1.09 MAF, while Nevada could see reductions up to 69,000 AF, and California up to 975,000 AF.

Finally, under the No Action Alternative, Reclamation would continue to implement the 2007 Interim Guidelines with no changes. Keeping the Guidelines unaltered would mean that Arizona and Nevada would have their water allotments curtailed if Lake Mead fellow below 1,075 feet with additional curtailments if the reservoir dipped below 1,050 feet. California would see no changes to its 4.4 MAF allotment. According to the draft SEIS, the No Action Alternative would create the potential for water levels in both Lakes Powell and Mead to reach dead pool conditions.

Going Forward

The draft SEIS is currently available for public comment, and comments may be submitted through May 30, 2023. According to Reclamation, it expects to issue a final SEIS in late summer 2023 that will alter the 2007 Interim Guidelines for the 2024 water year which begins on October 1, 2023.

It is possible that prior to Reclamation finalizing the SEIS, the Colorado River states could reach a voluntary agreement on how to manage the Colorado River system to avoid reaching dead pool in Lakes Powell and Mead. In part, the draft SEIS has been developed as a result of the states failing to reach a water reduction agreement in 2022. Should an agreement between the states be reached, it is possible that agreement would govern water usage in the Basin for the 2024 water year instead of Reclamation's proposal.

James Eklund Analyzes New Environmental Impact Statement in Interview with Denver Gazette

James Eklund joined Denver Gazette Editor Luigi DelPuerto to discuss a draft Environmental Impact Statement released this week by the federal government.

According to the Gazette: Eklund "said the federal government's water analysis means the basin states need to come up with a plan they can all agree on. This time, he said, the federal government showed it, indeed, carries a big stick."

The plan comes up with three options: one was if the states took no action at all to solve the water crisis on the Colorado River, and two alternative options that make some drastic cuts that will involve pain for the entire Western part of the country.

The following are some of James' comments from the interview.

Our federal government released a draft Environmental Impact Statement yesterday that set out various options for managing the Colorado River in light of the water supply imbalance gripping the basin. I'm sure your readers have read about this in your pages. It's also good to note that the great snow we've received this year really doesn't solve that imbalance, which is really structural in nature.

This is the federal government's attempt to try and address that. I've done the math. This is 768 pages that lay out the foundation for critical leadership on the Colorado River. I'm still working my way through it and there are a lot of tables in the appendices that are very important to understanding the impacts and that pain you described.

I'm a big fan of Teddy Roosevelt. Teddy Roosevelt said, "Talk softly and carry a big stick," and for the past year, the feds have been talking loudly and carrying no stick. This draft EIS really, finally shows the stick and whether or not they have to use it is really up to the states and their water users. But if the federal inaction and failure to follow through on the threats they have made over the last year have lost our attention, I'm pretty sure they have our attention now.

The action alternatives involve a great deal of pain and disruption in the lower basin that will inevitably ripple upstream to Colorado and the upper basin, in the form of food security, because they grow 90 percent of the winter green vegetables.

We're talking about cutting water use by about the same amount of water the entire state of Colorado uses in an average year. So, talk about a lot of water. The second reason, the federal government has demonstrated with these two action alternatives that it is at least willing to

consider acting and upending, or modifying, the priority system we have kind of grown up with and evolved under.

That is another reason Coloradans should pay very close attention to this. Even though you won't find the name of Colorado mentioned in the EIS, at the end of the day, we are going to be impacted by the cuts imposed down there. And again, if the federal government is willing to do this to the largest state population-wise in our nation, they have demonstrated they're perfectly willing to take whatever action that is needed in a state like ours.

It's very important for us to realize the moment we're in. It's a big deal and it's an opportunity for leadership. We have not as seven basin states gotten together, showing the stick and really backing up the threats or the potential of backing up those threats, and it will make the water users, the states themselves, come back in a more concerted effort to find agreement and fill that vacuum, that void of leadership that has been generated over the last several years.

If we don't demonstrate what we can do in a voluntary, compensated, and temporary way, they are demonstrating with this EIS that they can do things that are involuntary, and uncompensated or low compensated, and potentially permanent. It would be really folly for us to walk away from this moment with the idea that that's their problem.

We have the tools to control our own destiny, … but we do have to act. If we don't that's where we're gong to get in trouble.

Full conservation available here.

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Management of the Colorado River: Water Allocations, Drought, and the Federal Role

Updated February 6, 2023

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SUMMARY

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February 6, 2023

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Management of the Colorado River: Water Allocations, Drought, and the Federal Role

The Colorado River Basin covers more than 246,000 square miles in seven U.S. states (Wyoming, Colorado, Utah, New Mexico, Arizona, Nevada, and California) and Mexico. Pursuant to federal law, the Bureau of Reclamation (part of the Department of the Interior) manages much of the basin's water supplies. Colorado River water is used primarily for agricultural irrigation and municipal and industrial (M&I) uses; it is also important for hydropower production, fish and wildlife, and recreational uses.

Apportioned Colorado River water is widely acknowledged to be in excess of the river's natural flows, and consumptive use plus other losses of these waters (i.e., evaporation) typically exceeds natural flows. This causes an imbalance in the basin's available water supply and demand. Stress on basin water supplies is exacerbated by a long-term drought dating to 2000.

River Management

The foundational document governing basin water management is the Colorado River Compact of 1922. Pursuant to the compact, the basin states established a framework to apportion water supplies between the river's Upper and Lower Basins, with the dividing line between the two basins located at Lee Ferry, AZ. Each basin was allocated 7.5 million acre-feet (MAF) annually under the compact, and an additional 1.5 MAF in annual flows was made available to Mexico under a 1944 treaty. Further agreements and court decisions addressed other issues, and subsequent federal legislation provided authority and funding for federal facilities that allowed users to develop their allocations. A 1963 Supreme Court ruling confirmed that Congress designated the Secretary of the Interior to manage the delivery of all water below Hoover Dam.

Reclamation and basin stakeholders closely track the status of two large reservoirs—Lake Powell in the Upper Basin and Lake Mead in the Lower Basin—as an indicator of basin storage conditions. Under criteria agreed upon by basin states, water releases from both lakes are tied to specific water storage levels. Since the onset of drought in the early 2000s, storage levels at these reservoirs have been falling. In 2021 and 2022, Reclamation declared the first-ever *Tier One* and *Tier Two* Shortages in the Lower Basin, respectively. These designations reduced water deliveries to contractors in Arizona and Nevada, as well as to Mexico. In the Upper Basin, Lake Powell's storage has continued to drop. This trend could soon jeopardize hydropower generation at Glen Canyon Dam, and has led to operational changes in the Upper Basin.

Efforts to Address Drought

The federal government has led multiple efforts to improve the basin's water supply outlook, resulting in collaborative agreements in 2003 and 2007 and the 2019 drought contingency plans (DCPs) for the Upper and Lower Colorado River Basins (authorized by Congress in the Colorado River Drought Contingency Plan Authorization Act, P.L. 116-14). The DCPs required new cutbacks to Lower Basin water deliveries based on specified storage levels in Lake Mead, committed Reclamation to supporting water conservation efforts, and put in place plans to coordinate Upper Basin operations to enhance Lake Powell storage levels and prevent the loss of hydropower generation.

The hydrologic outlook for the Colorado River Basin has deteriorated further since approval of the DCPs, and there remains widespread concern about the basin's long-term water supply. On June 14, 2022, Reclamation called on basin states to conserve an additional 2-4 MAF of water in 2023 and 2024. When these commitments failed to materialize, Reclamation initiated a process to revise its current operational guidelines for 2023 and 2024; this process could lead Reclamation to implement additional unilateral delivery curtailments without state input. In addition to these short-term water management decisions, decisionmakers face longer-term questions, such as whether to renew basin water management agreements (including the DCPs) expiring in 2026 and whether major changes to basin water management are warranted.

Congressional Role

Congress plays a multifaceted role in the federal management of the Colorado River Basin. Congress funds and oversees management of basin water and power facilities and has held oversight hearings on drought in the basin. Congress also has enacted legislation involving allocation of Colorado River waters (e.g., authorization of Indian water rights settlements; new water storage facilities) and authorities to mitigate water shortages (e.g., the DCPs and other related efforts). Further,

Congress may consider amending, extending, or repealing existing authorities or providing funding to mitigate the effects of the basin's water shortages. Most recently, in Section 50233 of P.L. 117-169 (popularly known as the Inflation Reduction Act), Congress provided $4.0 billion for drought mitigation in the West, with priority given to Colorado River Basin activities.

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Introduction

From its headwaters in Colorado and Wyoming to its terminus in the Gulf of California, the Colorado River Basin covers more than 246,000 square miles. The river runs through seven U.S. states (Wyoming, Colorado, Utah, New Mexico, Arizona, Nevada, and California) and Mexico. Pursuant to federal law, the Bureau of Reclamation (Reclamation, a bureau in the Department of the Interior [DOI]) plays a prominent role in the management of the basin's waters. In the Lower Basin (i.e., Arizona, Nevada, and California), Reclamation also serves as *water master* on behalf of the Secretary of the Interior, a role that elevates the status of the federal government in basin water management.[1] The federal role in managing Colorado River water is magnified by the multiple federally owned and operated water storage and conveyance facilities in the basin, which provide low-cost water and hydropower supplies to water users.

Colorado River water is used primarily for agricultural irrigation and municipal and industrial (M&I) purposes. The river's flow and stored water also are important for power production, fish and wildlife, and recreation, among other uses. A majority of basin water supplies (70%) are used to irrigate 5.5 million acres of land; basin waters also provide M&I water supplies to nearly 40 million people.[2] Much of the area that depends on the river for its water supplies is outside of the drainage area for the Colorado River Basin. Storage and conveyance facilities on the Colorado River provide trans-basin diversions that serve areas such as Cheyenne, WY; multiple cities in Colorado's Front Range (e.g., Fort Collins, Denver, Boulder, and Colorado Springs, CO); Provo, UT; Albuquerque and Santa Fe, NM; and Los Angeles, San Diego, and the Imperial Valley in Southern California (**Figure 1**). Colorado River hydropower facilities can provide up to 4,200 megawatts of electrical power per year.[3] The river also provides habitat for a wide range of species, including several federally endangered species. It flows through 7 national wildlife refuges and 11 National Park Service (NPS) units; these and other areas of the river support important recreational opportunities.[4]

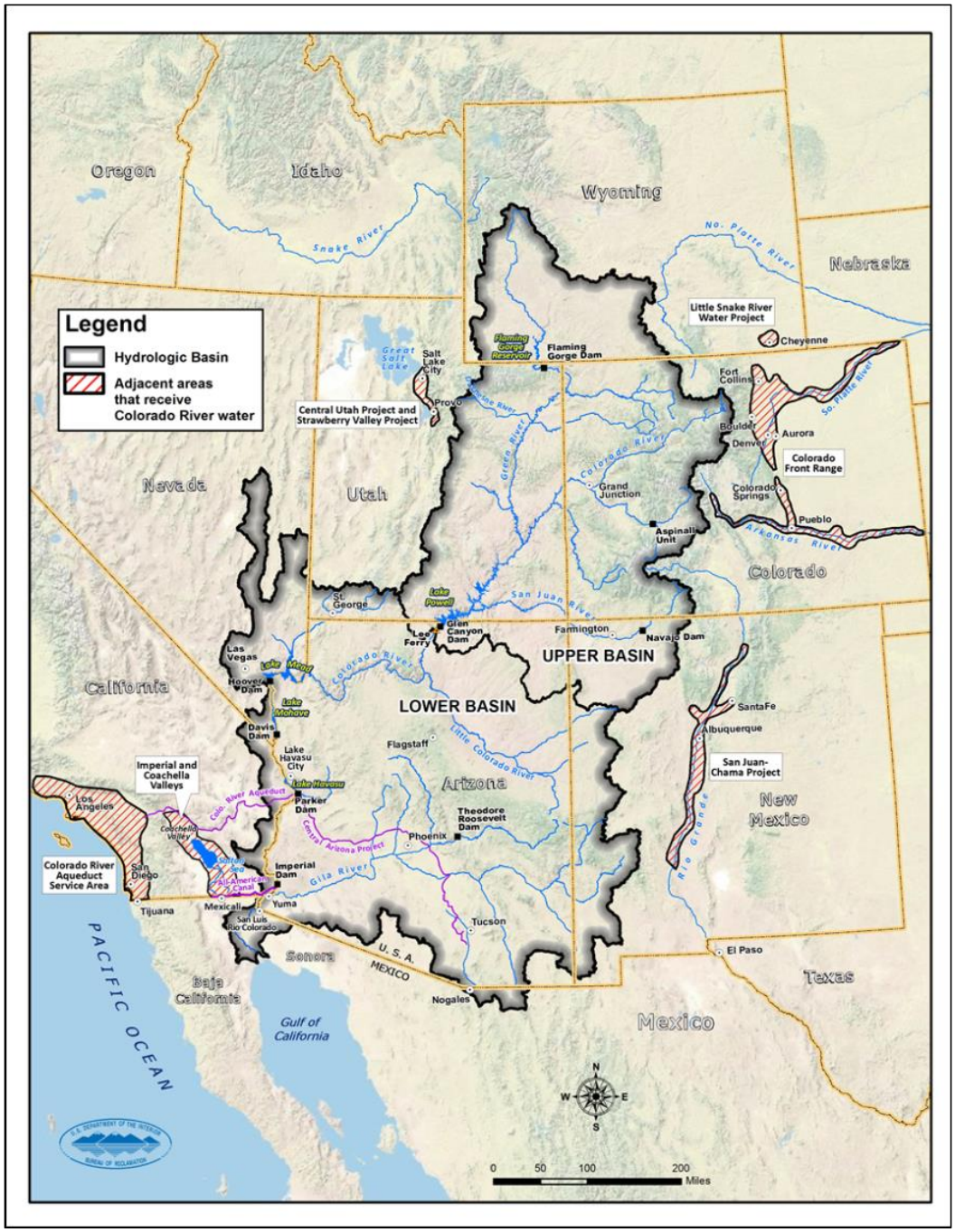
[1] As discussed later in the section, "The Law of the River: Foundational Documents and Programs," the Boulder Canyon Project Act of 1928 made the Secretary of the Interior responsible for the distribution (via contract) of all Colorado River water delivered below Hoover Dam (i.e., the Lower Basin), and authorized such regulations as necessary to enter into these contracts. Subsequent court decisions confirmed the Secretary's power to apportion surpluses and shortages among and within Lower Basin states; this forms the basis for the designation Lower Basin *water master*. No similar authorities and designation have been provided for the Upper Basin.

[2] U.S. Bureau of Reclamation (Reclamation), *Colorado River Basin Water Supply and Demand Study*, p. 4, December 2012, at https://www.usbr.gov/lc/region/programs/crbstudy/finalreport/index.html. Hereinafter, Reclamation, *2012 Supply/Demand Study*.

[3] Reclamation, *2012 Supply/Demand Study*, p. 3.

[4] Reclamation, *2012 Supply/Demand Study*, p. 3.

Figure 1. Colorado River Basin and U.S. Areas That Import Colorado River Water



Source: Bureau of Reclamation, *Colorado River Basin Water Supply and Demand Study*, 2012.

Precipitation and runoff in the basin are highly variable. Water conditions on the river depend largely on snowmelt in the basin's northern areas. Based on observed historical data (1906-2022), natural flows in the Colorado River Basin averaged about 14.6 million acre-feet (MAF) annually.[5] Flows have dipped

[5] Reclamation, "Colorado River Basin Natural Flow and Salt Data-Current Natural Flow Data 1906-2022," April 2022 24 Month Study, at https://www.usbr.gov/lc/region/g4000/NaturalFlow/provisional.html. Hereinafter, Reclamation, "Reclamation Flow

significantly during the current drought, which dates to 2000; annual natural flows from 2000 to 2022 averaged approximately 12.1 MAF per year.[6] Reclamation has noted that the 23-year period from 2000 to 2022 was the driest 23-year period in more than 100 years of record keeping, and among the driest periods in the past 1,200 years.[7] Climate change impacts, including warmer temperatures and altered precipitation patterns, may further increase the likelihood of prolonged drought in the basin.[8]

Pursuant to the multiple compacts, federal laws, court decisions and decrees, contracts, and regulatory guidelines governing Colorado River operations (collectively known as the *Law of the River*), Congress and the federal government play a prominent role in the management of the Colorado River. Specifically, Congress funds and oversees Reclamation's management of Colorado River Basin facilities, including facility operations and programs to protect and restore endangered and threatened species. Congress has also approved and continues to consider Indian water rights settlements involving Colorado River waters, and development of new and expanded water storage in the basin. In addition, Congress has approved supplemental funding to mitigate drought and stretch basin water supplies, and new authorities for Reclamation to combat drought and enter into agreements with states and Colorado River contractors. This report provides background on management of the Colorado River, with a focus on recent developments. It also discusses the congressional role in the management of basin waters.

The Law of the River: Foundational Documents and Programs

In the latter part of the 19th century, interested parties in the Colorado River Basin began to recognize that local interests alone could not solve the challenges associated with development of the Colorado River. Plans conceived by parties in California's Imperial Valley to divert water from the mainstream of the Colorado River were thwarted because these proposals were subject to the sovereignty of both the United States and Mexico.[9] The river also presented engineering challenges, such as deep canyons and erratic water flows, and economic hurdles that prevented local or state groups from building the necessary storage facilities and canals to provide an adequate water supply. In part because local or state groups could not resolve these "national problems," Congress considered options to control the Colorado River and resolve potential conflicts between the states.[10] In an effort to resolve these conflicts and avoid litigation, Congress gave its consent for the states and Reclamation to enter into an agreement to apportion Colorado River water supplies in 1921.[11]

Data."

[6] Reclamation, "1906-2022 Natural Flows."

[7] Reclamation, Department of the Interior, "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions," 87 *Federal Register* 37884, June 24, 2022. Hereinafter 87 FR 37884, 2022. For additional discussion on historic drought in the Colorado River, see Subhrendu Gangopadhyay, Connie A. Woodhouse, and Gregory J. McCabe, "Tree Rings Reveal Unmatched 2nd Century Drought in the Colorado River Basin," *Geophysical Research Letters*, vol. 49, no. 11 (June 2022).

[8] B. Udall and J. Overpeck, "The Twenty-First Century Colorado River Hot Drought and Implications for the Future," *Water Resources Research*, vol. 53 (February 17, 2017), pp. 2404-2418.

[9] Arizona v. California, 373 U.S. 546 (1963). Hereinafter, *Arizona v. California*.

[10] S. Doc. No. 67-142 (1922). For example, the states in the Upper Basin (Colorado, Wyoming, Utah, and New Mexico), where the majority of the river's runoff originates, feared that a storage facility making water available downstream might form a basis for claims to priority access to basin waters by Lower Basin states before Upper Basin states could develop means to access their share.

[11] Ch. 72, 42 Stat. 171 (1921). In lieu of litigation, interstate compacts have historically been a preferred means of allocating water among competing uses. Pursuant to the U.S. Constitution, Article I, Section 10, Clause 3, no such compacts can be entered

The below sections discuss the resulting agreement, the Colorado River Compact, and other documents and agreements that form the basis of the Law of the River, which governs Colorado River operations.[12]

Colorado River Compact

The Colorado River Compact of 1922, negotiated by the seven basin states and the federal government, was initially signed by all but one basin state (Arizona).[13] Under the compact, the states established a framework to apportion the water supplies between the Upper Basin and the Lower Basin, with the dividing line between the two basins located at Lee Ferry, AZ,[14] below the confluence of the Colorado and Paria Rivers near the Utah border.[15] Each basin was apportioned 7.5 MAF annually for beneficial consumptive use, and the Lower Basin was given the right to increase its beneficial consumptive use by an additional 1 MAF annually. The agreement also required that Upper Basin states not deplete more than a total of 75 MAF over any 10-year period (i.e., 7.5 MAF per year), thus allowing for averaging over time to make up for low-flow years. The compact did not address inter- or intrastate allocations of water (which it left to future agreements and legislation), nor did it address water to be made available to Mexico, the river's natural terminus, which was addressed in subsequent international agreements. The compact was not to become binding until it had been approved by the legislatures of each of the signatory states and by Congress.

Boulder Canyon Project Act

Congress approved and modified the Colorado River Compact in the Boulder Canyon Project Act (BCPA) of 1928.[16] The act ratified the 1922 compact, and authorized the construction of a federal facility to impound water in the Lower Basin (Boulder Dam, later renamed Hoover Dam) and of related facilities to deliver water in Southern California (e.g., the All-American Canal, which delivers Colorado River water to California's Imperial Valley). The act apportioned the Lower Basin's 7.5 MAF per year among the three Lower Basin states: 4.4 MAF per year to California, 2.8 MAF to Arizona, and 300,000 acre-feet (AF) to Nevada, with the states to divide any surplus waters among them. It also directed the Secretary of the Interior to serve as the sole contracting authority for Colorado River water use in the Lower Basin and authorized several storage projects for study in the Upper Basin.

Congress's approval of the compact in the BCPA was conditioned on a number of factors, including ratification by California and five other states (thereby allowing the compact to become effective without Arizona's concurrence), and California agreeing by act of its legislature to limit its water use to 4.4 MAF

into without the consent of Congress.

[12] The *Law of the River* is the commonly used shorthand for the multiple compacts, federal laws, court decisions and decrees, treaties, contracts, and regulatory guidelines collectively known under this heading.

[13] Because the Colorado River Compact of 1922 did not specify the apportionments for individual states, Arizona initially refused to sign and ratify the agreement out of concern that rapidly growing California would lay claim to most of the Lower Basin's share of water. Arizona eventually signed and ratified the compact in 1944. See below section on "Arizona Ratification and Arizona v. California Decision."

[14] *Lee Ferry* is the dividing line between basins designated in the compact. *Lees Ferry* (or *Lee's Ferry*), approximately 1 mile upstream from that point, is the location of the USGS streamgage that has measured flows dating to 1921. After the compact was signed, the Lees Ferry streamgage, along with a gage on the Paria River, became the measurements used to determine compliance with the compact.

[15] Arizona receives water under both the Upper and the Lower Basin apportionments, because parts of the state are in both basins.

[16] Boulder Canyon Project Act (BCPA), Ch. 42, 45 Stat. 1057 (1928), codified as amended at 43 U.S.C. §617.

per year and not more than half of any surplus waters. California met this requirement by passing the California Limitation Act of March 4, 1929, thus the compact became effective on that date.[17]

Arizona Ratification and *Arizona v. California* Decision

Arizona did not ratify the Colorado River Compact until 1944, at which time the state began to pursue a federal project to bring Colorado River water to its primary population centers in Phoenix and Tucson. California opposed the project, arguing that under the doctrine of prior appropriation,[18] California's historical use of the river trumped Arizona's rights to the Arizona allotment.[19] California also argued that Colorado River apportionments under the BCPA should include water developed on Colorado River tributaries, whereas Arizona claimed, among other things, that these apportionments included the river's mainstream waters only.

In 1952, Arizona filed suit against California in the U.S. Supreme Court to settle the issue.[20] Eleven years later, in the 1963 *Arizona v. California* decision,[21] the Supreme Court ruled in favor of Arizona, finding that Congress had intended to apportion the mainstream of the Colorado River (i.e., with tributary flows reserved to the states) and that California and Arizona each would receive one-half of surplus flows. Multiple federal laws pertaining to Colorado River basin management refer to the decree the Supreme Court issued in this case the following year and instruct compliance therewith.

The same Supreme Court decision held that Section 5 of the BCPA, which gave the Secretary authority to issue contracts for Lower Basin waters, controlled the apportionment of mainstem water in Lower Basin states.[22] The contracting clause gave the Secretary of the Interior authority to apportion Lower Basin shortages as he or she sees fit, in accordance with the BCPA and other priorities.[23] The ruling was notable in forgoing traditional Reclamation deference to state law under the Reclamation Act of 1902, and formed the basis for the Secretary of the Interior's unique role as *water master* for the Lower Basin.[24] The

[17] The Department of the Interior also requested that California prioritize its Colorado River rights among users before the Colorado River Compact became effective; the state established priority among these users for water in both "normal" and "surplus" years in the California Seven-Party Agreement, signed in August 1931.

[18] Historically, water in the western United States has been governed by some form of the *rule of prior appropriation*. Under this rule, the party that first appropriates water and puts it to *beneficial use* thereby acquires a vested right to continue to divert and use that quantity of water against claimants junior in time.

[19] Under the BCPA, Arizona and California also were to divide any excess, or surplus, supplies (i.e., amounts exceeding the 7.5 MAF basic apportionment). What was meant by the term *surplus*—and how much water California could claim under this authority—was a major point of disagreement between the two states.

[20] Article III of the Constitution states that in all cases in which a state shall be a party, the Supreme Court has original jurisdiction. U.S. Constitution, article III, §2, cl. 2.

[21] *Arizona v. California*, 373 U.S. 546, 573 (1963), hereinafter *Arizona v. California*. The 1963 Supreme Court decision in *Arizona v. California* is the first in a line of Supreme Court decisions and orders that address water allocation disputes within the Lower Basin. *Arizona v. California*, 373 U.S. 546, 601 (1963), 376 U.S. 340 (1964) (order issued), 383 U.S. 268 (1966) (amending judgment), 466 U.S. 144 (1984) (amending order), 530 U.S. 392 (2000) (subsequent determination), 531 U.S. 1 (2000) (supplemented), 547 U.S. 150 (2006) (consolidated decree); *cf. California v. United States*, 438 U.S. 645 (1978).

[22] *Arizona v. California* at 593-594.

[23] *Id.* at 594. "None of this is to say that in case of shortage, the Secretary cannot adopt a method of proration or that he may not lay stress upon priority of use, local laws and customs, or any other factors that might be helpful in reaching an informed judgment in harmony with the Act, the best interests of the Basin States, and the welfare of the Nation. It will be time enough for the courts to intervene when and if the Secretary, in making apportionments or contracts, deviates from the standards Congress has set for him to follow, including his obligation to respect 'present perfected rights' as of the date the Act was passed."

[24] Pursuant to Section 8 of the Reclamation Act of 1902 (32 Stat. 388), Reclamation is not to interfere with state laws, "relating to the control, appropriation, use, or distribution of water used in irrigation" and that "the Secretary of the Interior, in carrying out provisions of the Act, shall proceed in conformance with such laws." However, in regard to the projects of the Colorado River Basin, the *Arizona v. California* noted, "Subjecting the Secretary to the varying, possibly inconsistent, commands of the different

decision also held that Native American reservations on the Colorado River were entitled to priority under the BCPA.[25] Later decrees by the Supreme Court in 1964 and 1979 supplemented the 1963 decision.[26]

Following the *Arizona v. California* decision, Congress eventually authorized Arizona's conveyance project for Colorado River water, the Central Arizona Project (CAP), in the Colorado River Basin Project Act of 1968 (CRBPA).[27] As a condition for California's support of the project, Arizona agreed that, in the event of shortage conditions, California's 4.4 MAF has priority over CAP water supplies.[28]

1944 U.S.-Mexico Water Treaty[29]

In 1944, the United States signed a water treaty with Mexico (1944 U.S.-Mexico Water Treaty) to guide how the two countries share the waters of the Colorado River.[30] The treaty established water allocations for the two countries and created a governance framework (i.e., the International Boundary and Water Commission) to resolve disputes arising from the treaty's execution. The treaty requires the United States to provide Mexico with 1.5 MAF of Colorado River water annually, plus an additional 200,000 AF when a surplus is declared. During drought, the United States may reduce deliveries to Mexico in similar proportion to reductions of U.S. consumptive uses. The treaty has been supplemented by additional agreements between the United States and Mexico, known as *minutes*, regarding matters related to the treaty's execution and interpretation.[31]

Upper Basin Compact and Colorado River Storage Project Authorizations

Congress did not allow projects originally authorized for study in the Upper Basin under BCPA to move forward with federally funded construction until the Upper Basin states determined their individual water allocations, which occurred under the Upper Colorado River Basin Compact of 1948.[32] Because there was some uncertainty as to the exact amount of water that would remain in the system after Lower Basin

state legislatures could frustrate efficient operation of the project and thwart full realization of the benefits Congress intended this national project to bestow. We are satisfied that the Secretary's power must be construed to permit him, within the boundaries set down in the Act, to allocate and distribute the waters of the mainstream of the Colorado River." *Id*. at 587, 589–90.

[25] Indian reserved water rights were first recognized by the Supreme Court in *Winters v. United States* in 1908. *Winters v. United States*, 207 U.S. 564, 575-77 (1908). Under the *Winters* doctrine, when Congress reserves land (i.e., for an Indian reservation), it implicitly reserves water sufficient to fulfill the purpose of the reservation. Because the establishment of Indian reservations (and, therefore, of Indian water rights) generally predated large-scale development of water resources for non-Indian users, the water rights of tribes often are senior to those of non-Indian water rights. For more information on the resulting settlements, see below section, "Tribal Water Rights" and CRS Report R44148, *Indian Water Rights Settlements*.

[26] *Arizona v. California*, 376 U.S. 340, 341 (1964). The 1964 decree determined, among other things, that all water in the mainstream of the Colorado River below Lee Ferry and within the United States would be "water controlled by the United States" and that the Secretary would release water under only three types of designations for a year: "normal, surplus, and shortage." The 1979 supplemental decree determined the present perfected rights of various parties in the Lower Basin.

[27] Colorado River Basin Project Act of 1968, P.L. 90-537. Codified at 43 U.S.C. §1501 note.

[28] 43 U.S.C. §1521.

[29] For more information on the 1994 U.S.-Mexico Water Treaty and Colorado River water sharing issues with Mexico, see CRS Report R45430, *Sharing the Colorado River and the Rio Grande: Cooperation and Conflict with Mexico*.

[30] The treaty also included water-sharing provisions relating to the Lower Rio Grande and Tijuana Rivers. See Treaty Between the United States of America and Mexico Respecting Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande, U.S.-Mex., February 3, 1944, 59 State. 1219, at https://www.ibwc.gov/Treaties_Minutes/treaties.html. Mexico ratified it on October 16, 1945 and the United States ratified the treaty on November 1, 1945. It became effective on November 8, 1945.

[31] International Boundary & Water Commission, Minutes between the United States and Mexican Sections of the IBWC, https://www.ibwc.gov/Treaties_Minutes/Minutes.html. For more information on recent minutes, see section, "Minute 319 and Minute 323 Agreements with Mexico."

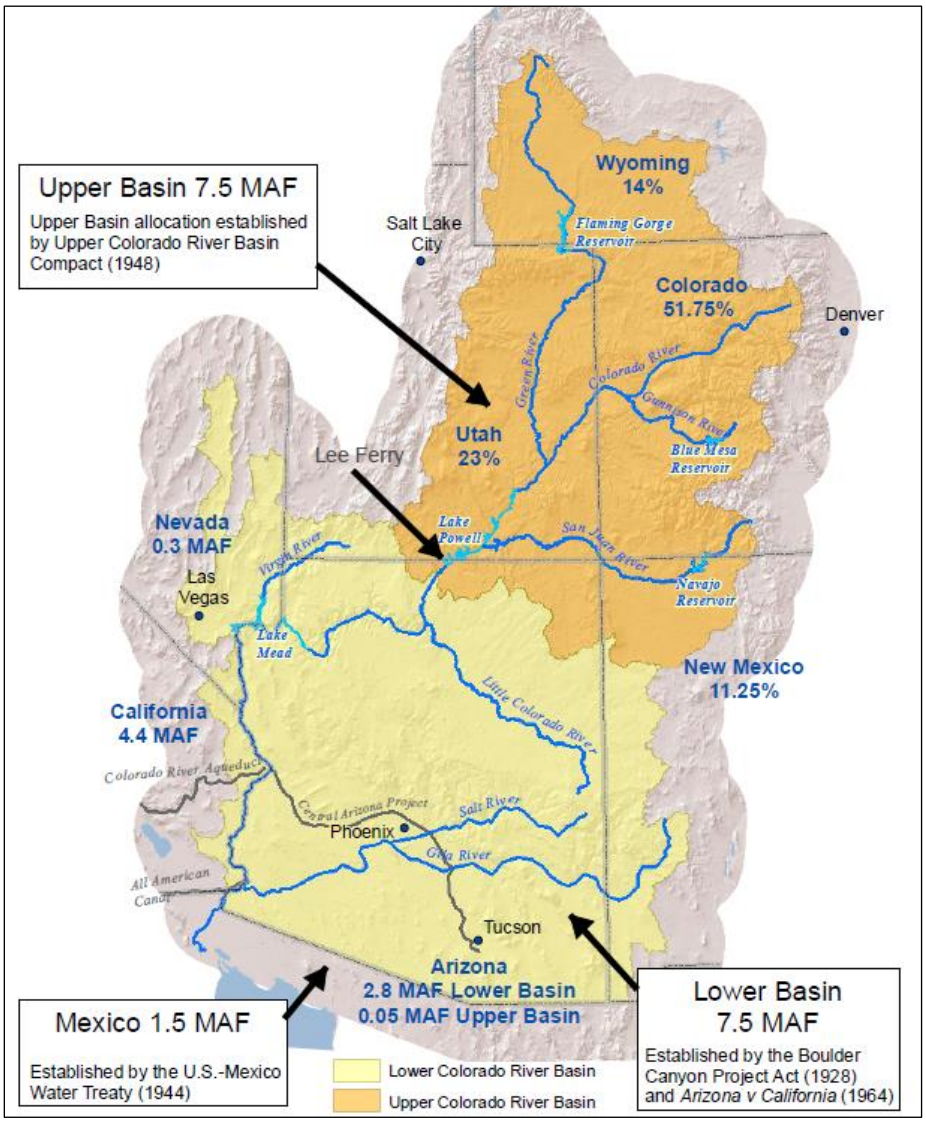
[32] Upper Colorado River Basin Compact, 1948.

obligations were met, the Upper Basin Compact established state allocations in terms of percentage: Colorado (where the largest share of runoff to the river originates) is the largest entitlement holder in the Upper Basin, with rights to 51.75% of any Upper Basin flows after Colorado River Compact obligations to the Lower Basin have been met. Other states also received percentage-based allocations, including Wyoming (14%), New Mexico (11.25%), and Utah (23%). Arizona was allocated 50,000 AF in addition to its Lower Basin apportionment, in recognition of the portion of the state in the Upper Basin. **Figure 2** shows basin allocations by state following approval of the Upper Basin Compact (i.e., the allocations that generally guide current water deliveries). The Upper Basin Compact also established the Upper Colorado River Commission, an interstate administrative water agency charged with administering the provisions of the Upper Basin Compact.[33]

[33] For more information, see Upper Colorado River Commission, "About the UCRC," at http://www.ucrcommission.com/about-us/.

Figure 2. Colorado River Basin Allocations

(shown as percentage of allocation or million acre-feet [MAF])



Source: Figure by the Congressional Research Service (CRS), using data from USGS, ESRI Data & Maps, 2017, Central Arizona Project, and ESRI World Shaded Relief Map.

Notes: Although both the Upper and Lower Basins were each allocated 7.5 MAF, there was uncertainty about how much water would remain in the Upper Basin after Colorado River Compact obligations to Lower Basin states were fulfilled. Therefore, outside of 50,000 AF provided annually to Arizona, the Upper Basin Compact includes apportionments in terms of percentage of the overall Upper Basin allocation.

Subsequent federal legislation paved the way for development of Upper Basin waters. The Colorado River Storage Project (CRSP) Act of 1956 authorized CRSP *initial units* of Glen Canyon, Flaming Gorge, Navajo, and Aspinall in the Upper Basin. The act also established the Upper Colorado River Basin Fund, which receives revenues collected in connection with the projects, to be made available for defraying the project's costs of operation, maintenance, and emergency expenditures.

The 1968 CRBPA amended CRSP to authorize several other Upper Basin projects (e.g., the Animas La Plata and Central Utah projects) as CRSP *participating projects*. It also directed that the Secretary of the Interior propose annual operational criteria for Colorado River Storage Project units (including the

releases of water from Lake Powell) that prioritize (1) treaty obligations to Mexico, (2) the Colorado River Compact requirement for the Upper Basin to not deplete more than 75 MAF to Lower Basin states over any 10-year period (i.e., 7.5 MAF per year), and (3) carryover storage to meet these needs. In the CRBPA, Congress also established the Upper Colorado River Basin Fund and the Lower Colorado River Basin Development Fund, authorized to utilize revenues from power generation from relevant Upper and Lower Basin facilities to fund certain expenses in the sub-basins.[34]

Water Storage and Operations

Due to the Colorado River Basin's large water storage projects, as much as 60 MAF, or about four times the Colorado River's annual flows, can be stored to insulate water users from annual variability in flows. Thus, storage and operations in the basin receive considerable attention, particularly at the basin's two largest dams and their storage reservoirs: Glen Canyon Dam/Lake Powell in the Upper Basin (26.2 MAF of storage capacity) and Hoover Dam/Lake Mead in the Lower Basin (26.1 MAF of storage capacity). The status of these projects is monitored closely by Reclamation and interested stakeholders as an indicator of basin health.

Glen Canyon Dam, completed in 1963 at the southern end of the Upper Basin, serves as the linchpin for Upper Basin storage and regulates flows from the Upper Basin to the Lower Basin, pursuant to the Colorado River Compact. It also generates approximately 5 billion kilowatt-hours (KWh) of electricity per year, which the Western Area Power Administration (WAPA) supplies to 5.8 million customers in Upper Basin States.[35] Other significant storage in the Upper Basin includes the initial units of the CRSP: the Aspinall Unit in Colorado (including Blue Mesa, Crystal, and Morrow Point dams on the Gunnison River, with combined storage capacity of more than 1 MAF),[36] the Flaming Gorge Unit in Utah (including Flaming Gorge Dam on the Green River, with a capacity of 3.8 MAF), and the Navajo Unit in New Mexico (including Navajo Dam on the San Juan River, with a capacity of 1 MAF). The Upper Basin is also home to 16 participating projects, which are authorized to use water for irrigation, M&I uses, and other purposes.[37]

In the Lower Basin, Hoover Dam, completed in 1936, provides the majority of the Lower Basin's storage and generates about 4 billion KWh of electricity per year for customers in California, Arizona, and Nevada.[38] Also important for Lower Basin Operations are Davis Dam/Lake Mohave, which regulates flows to Mexico under the 1944 Treaty, and Parker Dam/Lake Havasu, which impounds water for diversion into the Colorado River Aqueduct (thereby allowing for deliveries to urban areas in southern California) and CAP (allowing for diversion to users in Arizona). Further downstream on the Arizona/California border, Imperial Dam (a diversion dam) diverts Colorado River water to the All-

[34] Basin-wide operational commitments on the Colorado River were established in the 1970 Criteria for Coordinated Long-Range Operation of Colorado River Reservoirs, which coordinated the operation of reservoirs in the Upper and Lower Basins, including releases from Lake Powell and Lake Mead. These operating instructions have been modified by more recent operational agreements intended to mitigate the effects of long-term drought. For more information, see "The Criteria for Coordinated Long-Range Operation of the Colorado River reservoirs of 1970," at https://www.usbr.gov/lc/region/pao/lawofrvr.html#lroc.

[35] Reclamation, "Glen Canyon Unit," at https://www.usbr.gov/uc/rm/crsp/gc/.

[36] The Curecanti Unit was renamed the Aspinall Unit in 1980 in honor of U.S. Representative Wayne N. Aspinall of Colorado.

[37] In total, 16 of the 22 Upper Basin projects authorized as part of CRSP have been developed. (Of the six remaining projects, five were determined by Reclamation to be infeasible, and Congress deauthorized the the Pine River Extension Project.) For a complete list of projects, see Bureau of Reclamation, "Colorado River Storage Project," at https://www.usbr.gov/uc/rm/crsp/index.html.

[38] Reclamation, "Hoover Dam Frequently Asked Questions and Answers," at https://www.usbr.gov/lc/hooverdam/faqs/powerfaq.html, accessed August 3, 2022.

American Canal for use in some of the river's largest agricultural areas in California's Imperial and Coachella Valleys.

Annual Operations

Reclamation monitors Colorado River reservoir levels and projects them 24 months into the future in monthly studies (called *24-month studies*).[39] The studies take into account forecasted hydrology, reservoir operations, and diversion and consumptive use schedules to model a single scenario of reservoir conditions. The studies inform operating decisions by Reclamation looking one to two years into the future. They express water storage conditions at Lake Mead and Lake Powell in terms of elevation, as feet above mean sea level.

In addition to the 24-month studies, the CRBPA requires the Secretary to transmit to Congress and the governors of the basin states, by January 1 of each year, an *Annual Operating Plan* (AOP). In the AOP, Reclamation describes the actual operation for the preceding water year and the projected operation for the coming year. The AOP's projected January 1 water conditions for the upcoming calendar year establish a baseline for future annual operations.[40]

Since the adoption of new operational guidelines by Reclamation and basin states in 2007 (see below section, "2007 Interim Guidelines"), Reclamation has tied operations of Hoover and Glen Canyon Dams to specific pool elevations at Lake Mead and Lake Powell. For Lake Mead, the first level of shortage (a *Tier One Shortage Condition*) in the 2007 guidelines, under which Arizona's and Nevada's allocations are decreased (along with releases to Mexico), is triggered if Lake Mead falls below 1,075 feet. For Lake Powell, releases under tiered operations are based on storage levels in both Lake Powell and Lake Mead. Drought contingency plans (DCPs) for the Upper and Lower Basins, enacted in 2019, overlaid additional operational changes tied to elevations in both reservoirs. For Lake Mead, this included additional curtailments beyond those established in 2007.[41] For Lake Powell, the Upper Basin DCP incorporated a Drought Response Operations Agreement (DROA) that established a target lake elevation of 3,525 feet. It also provided for altered releases from Glen Canyon Dam and Upper Basin reservoirs below this level in order to protect Lake Powell from falling below an elevation that would no longer produce hydropower. These efforts are discussed more in the below section "Recent Developments and Agreements."

Recent Conditions

Falling water levels in Lake Mead have resulted in Reclamation announcing Lower Colorado River Basin delivery curtailments for Arizona and Nevada, in accordance with previous plans. In August 2021, Reclamation declared the first-ever Tier One Shortage Condition for the Lower Basin.[42] In August 2022, Reclamation announced the first-ever Tier Two Shortage, which resulted in additional water supply

[39] Current 24-month studies, as well as two- and five-year probable projections of Lake Mead and Powell elevations, are available at Reclamation, "Colorado River System Projections Overview," at https://www.usbr.gov/lc/region/g4000/riverops/coriver-projections.html.

[40] Current and historical AOPs are available at Reclamation, "Annual Operating Plan for Colorado River Reservoirs," at https://www.usbr.gov/uc/water/rsvrs/ops/aop/.

[41] For example, a new set of curtailments for Nevada and Arizona at lake elevations up to 1,090 feet (*Tier Zero*) was added pursuant to the 2019 DCP for the Lower Colorado River Basin. These agreements also added additional curtailment requirements to existing Tiers below Tier 1 (e.g., Tier 2, etc.). For more details, see **Table 1**.

[42] Reclamation, "Reclamation Announces 2022 Operating Conditions for Lake Powell and Lake Mead," press release, August 16, 2021, at https://www.usbr.gov/newsroom/#/news-release/3950. Hereinafter, Reclamation, August 2021 press release.

delivery cutbacks.[43] In March 2022, Lake Powell fell below the target elevation of 3,525 feet for the first time since the late 1960s.[44]

Mitigating the Environmental Effects of Colorado River Basin Development

Construction of most of the Colorado River's water supply infrastructure predated major federal environmental protection statutes, such as the National Environmental Policy Act (NEPA; 42 U.S.C. §§4321 *et seq.*) and the Endangered Species Act (ESA; 87 Stat. 884, 16 U.S.C. §§1531-1544). Thus, many of the environmental impacts associated with the development of basin resources were not originally taken into account. Over time, multiple efforts have been initiated to mitigate these effects. Some of the highest-profile efforts have been associated with water quality (in particular, salinity control) and the effects of facility operations on endangered and threatened species.

Salinity Control

Salinity and water quality are long-standing issues in the Colorado River Basin. Parts of the Upper Basin are covered by salt-bearing shale (which increases salt content of water inflows), and salinity content increases as the river flows downstream due to both natural leaching and return flows from agricultural irrigation. The 1944 U.S.-Mexico Water Treaty did not set water quality or salinity standards in the Colorado River Basin. However, after years of dispute between the United States and Mexico regarding the salinity of the water reaching Mexico's border, the two countries reached an agreement on August 30, 1973, with the signing of Minute 242 of the International Boundary and Water Commission.[45] The agreement guarantees Mexico that the average salinity of its treaty deliveries will be no more than 115 parts per million higher than the salt content of the water diverted to the All-American Canal at Imperial Dam in Southern California. To control the salinity of Colorado River water in accordance with this agreement, Congress passed the Colorado River Basin Salinity Control Act of 1974 (P.L. 93-320), which authorized desalting and salinity control facilities to improve Colorado River water quality. The most prominent of these facilities is the Yuma Desalting Plant, which was largely completed in 1992 but has never operated at capacity due to cost and other factors.[46] In 1974, the seven basin states also established water quality standards for salinity through the Colorado River Basin Salinity Control Forum.[47]

[43] Reclamation, "Interior Department Announces Actions to Protect Colorado River System, Sets 2023 Operating Conditions for Lake Powell and Lake Mead," press release, August 16, 2022, at https://www.usbr.gov/newsroom/news-release/4294.

[44] Reclamation, "Lake Powell to Temporarily Decline Below 3,525 Feet," press release, March 4, 2022, at https://www.usbr.gov/newsroom/#/news-release/4117. 3,525 feet is established as a target because it is 35 feet above 3,490 feet, or the level at which power production would cease.

[45] See International Boundary and Water Commission, *Minute 242, Permanent and Definitive Solution to the International Problem of the Salinity of the Colorado River*, August 30, 1973, at https://www.ibwc.gov/Treaties_Minutes/Minutes.html.

[46] The Yuma Desalting Plant's limited operations have been due in part to the cost of its operations (desalination can require considerable electricity to operate) and surplus flows in the Colorado River during some years compared to what was expected. In lieu of operating the plant, high-salinity irrigation water has been separated from the United States' required deliveries to Mexico and disposed of through a canal that enters Mexico and discharges into wetlands called the Ciénega de Santa Clara, near the Gulf of California. Whether and how the plant should be operated and how the impacts on the Ciénega de Santa Clara from the untreated irrigation runoff should be managed remain topics of some debate in the basin and between Mexico and the United States.

[47] Additional information about the forum and related salinity control efforts is available at Colorado River Basin, "Salinity Control Forum," at https://www.coloradoriversalinity.org/.

Endangered Species Efforts and Habitat Improvements

Congress enacted the ESA in 1973.[48] As the federal government listed some basin species under ESA in accordance with the act,[49] federal agencies and nonfederal stakeholders consulted with the U.S. Fish and Wildlife Service (FWS) to address the conservation of the listed species. As a result of these consultations, several major programs have been developed to protect and restore listed fish species on the Colorado River and its tributaries. Summaries of some of the key programs are below.

Upper Colorado Endangered Fish Recovery Program

The Upper Colorado Endangered Fish Recovery Program was established in 1988 to assist in the recovery of four species of endangered fish in the Upper Colorado River Basin.[50] Congress formally authorized this program in 2000.[51] The program is implemented through several stakeholders under a cooperative agreement signed by the governors of Colorado, Utah, and Wyoming; the Secretary of DOI; and the Administrator of WAPA. The recovery goals of the program are to reduce threats to species and improve their status so they are eventually delisted from the ESA. Some of the actions taken in the past include providing adequate instream flows for fish and their habitat, restoring habitat, reducing nonnative fish, augmenting fish populations with stocked fish, and conducting research and monitoring. Reclamation is the lead federal agency for the program and provides the majority of federal funds for implementation. Other funding includes a portion of Upper Basin hydropower revenues from WAPA and funding from FWS; the states of Colorado, Wyoming, and Utah; and water users, among others.

San Juan River Basin Recovery Implementation Program

The San Juan River Basin Recovery Implementation Program was established in 1992 to assist in the recovery of ESA-listed fish species on the San Juan River, the Colorado's largest tributary.[52] The program is a partnership implemented under a cooperative agreement between DOI and the states of Colorado and New Mexico, the Jicarilla Apache Nation, the Navajo Nation, the Southern Ute Indian Tribe, and the Ute Mountain Ute Indian Tribe.[53] It is concerned with the recovery of the Razorback sucker (*Xyrauchen texanus*) and Colorado pikeminnow (*Ptychocheilus Lucius*). Congress authorized this program in P.L. 106-392 with the aim to protect the genetic integrity and population of listed species, conserve and restore habitat (including water quality), reduce nonnative species, and monitor species. The program is coordinated by FWS, and Reclamation is responsible for operating the Animas-La Plata Project and Navajo Dam on the San Juan River in a way that reduces effects on the fish populations. The program is funded by a portion of revenues from hydropower revenues from WAPA in the Upper Basin, Reclamation, the Bureau of Indian Affairs, and participating states. Recovery efforts for listed fish are coordinated with the Upper Colorado Endangered Fish Recovery Program.

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[48] For background information on the Endangered Species Act, see CRS Report R46677, *The Endangered Species Act: Overview and Implementation*.

[49] Several listed species are found throughout the Colorado River Basin. Some are specifically found in the Colorado River, such as the Razorback sucker (*Xyrauchen texanus*), Bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus Lucius*), and Humpback chub (*Gila cypha*).

[50] The fish species are the humpback chub, bonytail, Colorado pikeminnow and razorback sucker. For more information, see Upper Colorado River Endangered Fish Recovery Program at http://www.coloradoriverrecovery.org/uc.

[51] P.L. 106-392.

[52] For more information, see U.S. Fish and Wildlife Service, "San Juan River Basin Recovery Implementation Program," at https://www.fws.gov/southwest/sjrip/.

[53] It also includes participation by water development interests in Colorado and New Mexico.

Glen Canyon Dam Adaptive Management Program

The Glen Canyon Dam Adaptive Management Program was established in 1997 in response to a directive from Congress under the Grand Canyon Protection Act of 1992 (P.L. 102-575) to operate Glen Canyon Dam "in such a manner as to protect, mitigate adverse impacts to, and improve the values for which Grand Canyon National Park and Glen Canyon National Recreation Area were established."[54] This program uses experiments to determine how water flows affect natural resources south of the dam. Reclamation is in charge of modifying flows for experiments, and the U.S. Geological Survey conducts monitoring and other studies to evaluate the effects of the flows.[55] The results are expected to better inform managers how to provide water deliveries and conserve species. The majority of program funding comes from hydropower revenues generated at Glen Canyon Dam.

Lower Colorado Multi-Species Conservation Program

The Multi-Species Conservation Program (MSCP) is a multistakeholder initiative to conserve 27 species (8 listed under ESA) along the Lower Colorado River while maintaining water and power supplies for farmers, tribes, industries, and urban residents.[56] The MSCP began in 2005 and is planned to last for at least 50 years.[57] The MSCP was created through consultation under ESA. To achieve compliance under ESA, federal entities involved in managing water supplies in the Lower Colorado River Basin met with resource agencies from Arizona, California, and Nevada; Native American Tribes; environmental groups; and recreation interests to develop a program to conserve species along a portion of the Colorado River. A biological opinion (BiOp) issued by the FWS in 1997 covering operations and maintenance activities conducted by Reclamation along the Colorado River from Lake Mead to the Southerly International Boundary. Consultation was reinitiated in 2002 and a new BiOp was issued later that year.[58] Nonfederal stakeholders also applied and received an incidental take permit under Section 10(a) of the ESA for their activities.[59] This resulted in a habitat conservation plan for the MSCP that formed the basis for the program.[60] A Lower Colorado River Multi-Species Conservation Program Implementing Agreement integrated the federal and nonfederal activities in the MSCP and was signed by stakeholders in 2005.[61]

The objective of the MSCP is to create habitat for listed species, augment the populations of species listed under ESA, maintain current and future water diversions and power production, and abide by the

[54] For more information, see Reclamation, Glen Canyon Dam Adaptive Management Program, "Glen Canyon Dam High Flow Experimental Release," at https://www.usbr.gov/uc/progact/amp/ltemp.html.

[55] Regardless of the status and results of flow experiments, the total annual volume of water released from Glen Canyon Dam remains dictated by the Law of the River, as described above.

[56] The stakeholders include 6 federal and state agencies, 6 tribes, and 36 cities and water and power authorities. Stakeholders serve more than 20 million residents in the region, and irrigate 2 million acres of farmland. For more information, see Lower Colorado River Multi-Species Conservation Program at https://www.lcrmscp.gov/.

[57] The program was formally authorized under Subtitle E of Title IX of P.L. 111-11.

[58] U.S. Fish and Wildlife Service, Reinitiation of Formal Section 7 Consultation on Lower Colorado River Operations and Maintenance - Lake Mead to Southerly International Boundary, Arizona, California and Nevada, April 30, 2002, https://www.usbr.gov/lc/region/g2000/BO2002operations.pdf.

[59] The incidental take permit is valid for 50 years from its date of issuance and covers the implementation of the Lower Colorado River Multi-Species Conservation Program, diversions of water from the river, demand for and receipt of hydropower, and flow and non-flow actions along the Colorado River with the geographic scope of the permit.

[60] Lower Colorado River Multi-Species Conservation Program, *Final Lower Colorado River Multi-Species Conservation Program Volume II: Habitat Conservation Plan*, December 17, 2004, at https://lcrmscp.gov/lcrm-prod/lcrm-prod/pdfs/hcp_volii_2004.pdf.

[61] Lower Colorado River Multi-Species Conservation Program Implementing Agreement at https://lcrmscp.gov/lcrm-prod/lcrm-prod/pdfs/imp_agr_2005.pdf.

incidental take authorizations for listed species under the ESA. The estimated total cost of the program over its lifetime is approximately $626 million in 2003 dollars ($903 million in 2019 dollars) and is to be split evenly between Reclamation (50%) and the states of California, Nevada, and Arizona (who collectively fund the remaining 50%).[62] The management and implementation of the MSCP is the responsibility of Reclamation, in consultation with a steering committee of stakeholders.

Hydropower Revenues Funding Colorado River Basin Activities

Hydropower revenues finance a number of activities throughout the Colorado River Basin. In the Lower Basin, the Colorado River Dam Fund uses power revenues generated by the Boulder Canyon Project (i.e., Hoover Dam) to fund operational and construction costs for related Reclamation facilities. A separate fund, the Lower Colorado River Basin Development Fund, collects revenues from the Central Arizona Project (CAP), as well as a surcharge on revenues from the Boulder Canyon and Parker-Davis Projects that was enacted under the Hoover Power Plant Act of 1984 (P.L. 98-381). These revenues are available without further appropriation toward defraying CAP operation and maintenance costs, salinity control efforts, and funding for Indian water rights settlements identified under the Arizona Water Settlements Act of 2004 (i.e., funding for water systems of the Gila River Indian Community and the Tohono O'odham Nation, among others). In the Upper Basin, the Upper Colorado River Basin Fund collects revenues from the initial units of the Colorado River Storage Project and funds operation and maintenance expenses, salinity control, the Glen Canyon Dam Adaptive Management Program, and endangered fish studies on the Colorado and San Juan rivers, among other things.

Source: Department of the Interior, *Department of the Interior Budget Appendix, Fiscal Year 2023 Budget Request*

Tribal Water Rights

Tribal water rights are often senior to other uses on the Colorado River,[63] and 18 of the 29 federally recognized tribes in the Colorado River Basin have recognized tribal water rights. Tribal water diversions based on these rights typically come out of individual state allocations.[64] According to Reclamation, as of December 2020 tribes held diversion rights to approximately 3.4 MAF per year of Colorado River water.[65] Previous studies noted that these tribes were using just over half of their quantified rights.[66] As of early 2023, the other 11 basin tribes had reserved water rights claims that have not been resolved; the total potential amount of these claims has not been estimated.[67]

Because of the magnitude of tribal water rights and their relative senior status, future decisions by parties involved in the settlement and development of tribal water rights in the Colorado River Basin will significantly influence the availability of basin water resources for various uses. Increased consumptive

[62] As of the end of 2021, more than $381 million had been spent on program implementation. Lower Colorado River Multi-Species Conservation Program, "Implementation and Funding," at https://www.lcrmscp.gov/about_us/implementation_and_funding, accessed August 3, 2022.

[63] Tribal water rights claims typically arise out of the right of many tribes to water resources dating to the establishment of their reservations. These water rights are often senior to those of non-Indian water rights holders because they date to the creation of the reservation (i.e., prior to the awarding of most state water rights). For more information on Indian water rights settlements, see CRS Report R44148, *Indian Water Rights Settlements*.

[64] This figure includes tribes with recognized claims, and those partially recognized and partially unresolved claims. For a full list of federally recognized tribes in the basin, see Colorado River Ten Tribes Partnership, *Colorado River Basin Ten Tribes Partnership Tribal Water Study*, December 2018, Appendix 1b. Hereinafter, Reclamation, *Ten Tribes Study*, 2018.

[65] Reclamation, *Review of the Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead*, December 2020, p. 14.

[66] Colorado River Research Group, *Tribes and Water in the Colorado River Basin*, June 2016. According to this study, tribal consumptive use in 2015 (including leasing of tribal water to non-tribal entities) totaled 1.7 MAF of the 2.9 MAF in recognized diversion rights at that time.

[67] The largest remaining claims were previously noted as being associated with the Ute Tribe in Utah and the Navajo Nation in the Upper Basin in Arizona. See *Ten Tribes Study*, Chapter 5.

water use by tribes with existing water rights, and/or future settlement of claims and additional consumptive use of basin waters by other tribes that do not currently possess these rights, would exacerbate competition for basin water resources. At the same time, some tribes have entered into arrangements to lease or conserve their waters to other users; new agreements along these lines have the potential to secure water supplies for some non-tribal users without other viable alternative sources of water.

Drought and the Supply/Demand Imbalance

The Colorado River Compact was based on the assumption (formed by the available record at the time) that average annual flows on the river were 16.4 MAF per year.[68] As previously noted, from 1906 to 2022, observed historical natural flows on the river at Lee Ferry, AZ—the common point of measurement for observed basin flows—averaged 14.6 MAF annually (**Figure 3**).[69] Natural flows from 2000 to 2022 (i.e., during the ongoing drought) averaged less than 12.1 MAF annually,[70] with this period noted to be the driest 23-year period on record.[71] At the same time, consumptive use and losses (e.g., evaporation) in the basin have regularly exceeded natural flows (in particular during the current drought).[72] Consumptive use in the basin generally increased from 1971 to 2002 but declined after the 2003 approval of the Quantitative Settlement Agreement (QSA), which in part led to a decrease of consumptive use in the Lower Basin (see below section, "Recent Developments and Agreements").[73] Despite this development, overall basin consumptive use and other losses continue to exceed natural flows in most years; the resulting "structural deficit" has caused a drawdown of basin storage (**Figure 4**).

The lack of a formal mechanism accounting for evaporative losses in the Lower Basin exacerbates the supply/demand disparity. A key difference between Upper and Lower Basin reporting involves how each basin accounts for consumptive use. In accordance with Articles I and V of the *Arizona v. California* decree,[74] a Lower Basin Water Accounting Report (published annually) reports only on *diversions from the system for consumptive use*. Conversely, the comparable Upper Basin accounting—the Upper Basin Consumptive Use and Losses Report (published every five years)—is prepared in response to congressional direction in the CRBPA, which directed "a detailed breakdown of the beneficial consumptive use of water on a State-by-State basis.[75] Reclamation defines "beneficial consumptive use" to include *any removal from the system for beneficial consumptive use*, which Reclamation defines to include both diversions and losses from mainstem reservoir evaporation that occur prior to diversions [76]

[68] National Research Council, Committee on the Scientific Bases of Colorado River Basin Water Management, Water Science and Technology Board, *Colorado River Basin Water Management: Evaluating and Adjusting to Hydroclimatic Variability*, 2007, at https://www.nap.edu/read/11857/chapter/1.

[69] Reclamation Flow Data.

[70] Reclamation Flow Data.

[71] 87 FR 37884, 2022.

[72] *Consumptive uses and losses* include reservoir evaporation and other consumptive use losses, which average an estimated 2 MAF per year. For more information on consumptive use, see Reclamation Consumptive Uses and Losses Reports at https://www.usbr.gov/uc/DocLibrary/reports.html and Reclamation Colorado River Water Accounting and Use Reports at https://www.usbr.gov/lc/region/g4000/wtracct.html.

[73] Consumptive use in the Lower Basin (excluding tributaries and evaporative losses) was in excess of 8.4 MAF in 2002 but had decreased to 6.8 MAF as of 2020.

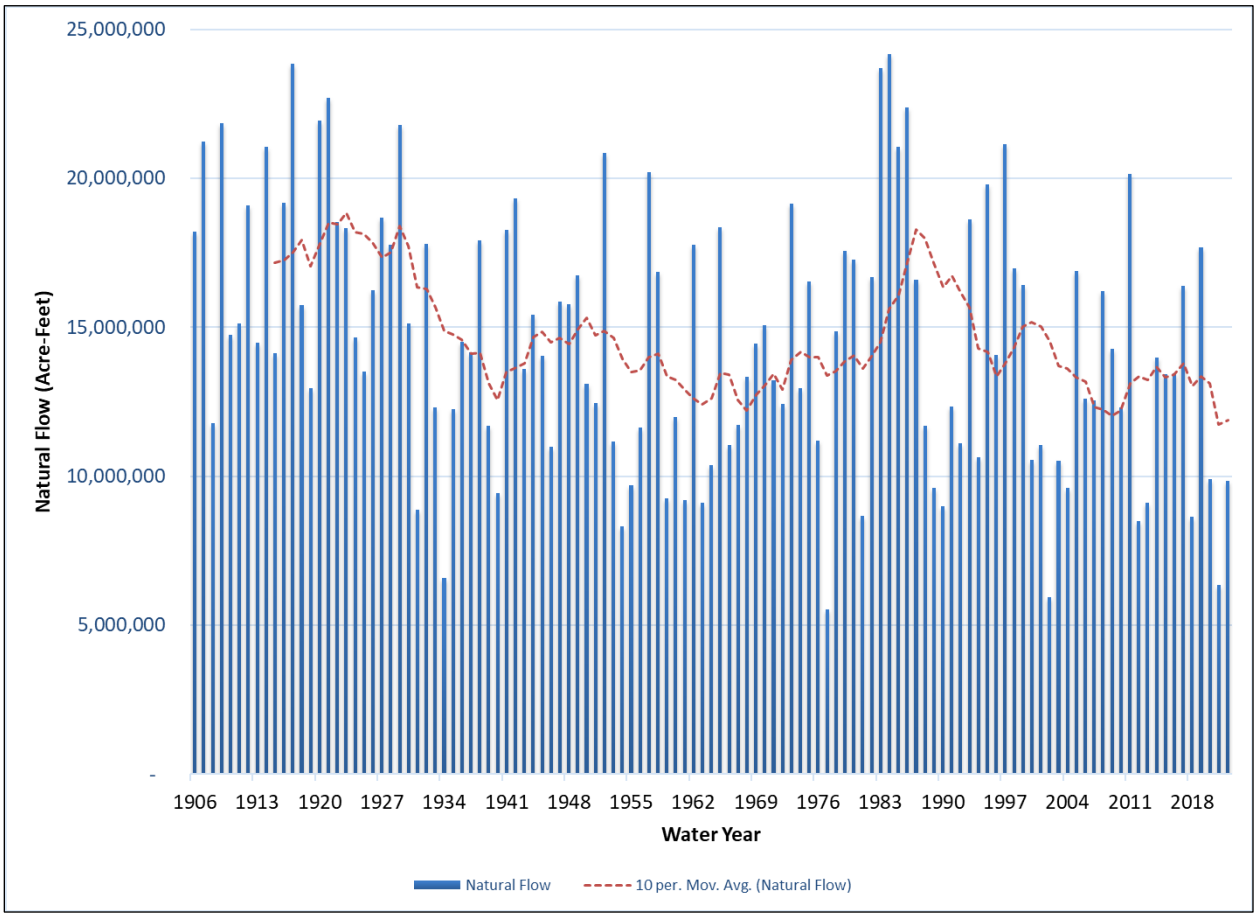
[74] See footnote 21.

[75] 43 U.S.C. §1551.

[76] See Bureau of Reclamation, Upper Colorado River Basin Consumptive Uses and Losses Report, 2016-2020, February 2022, p. 6.

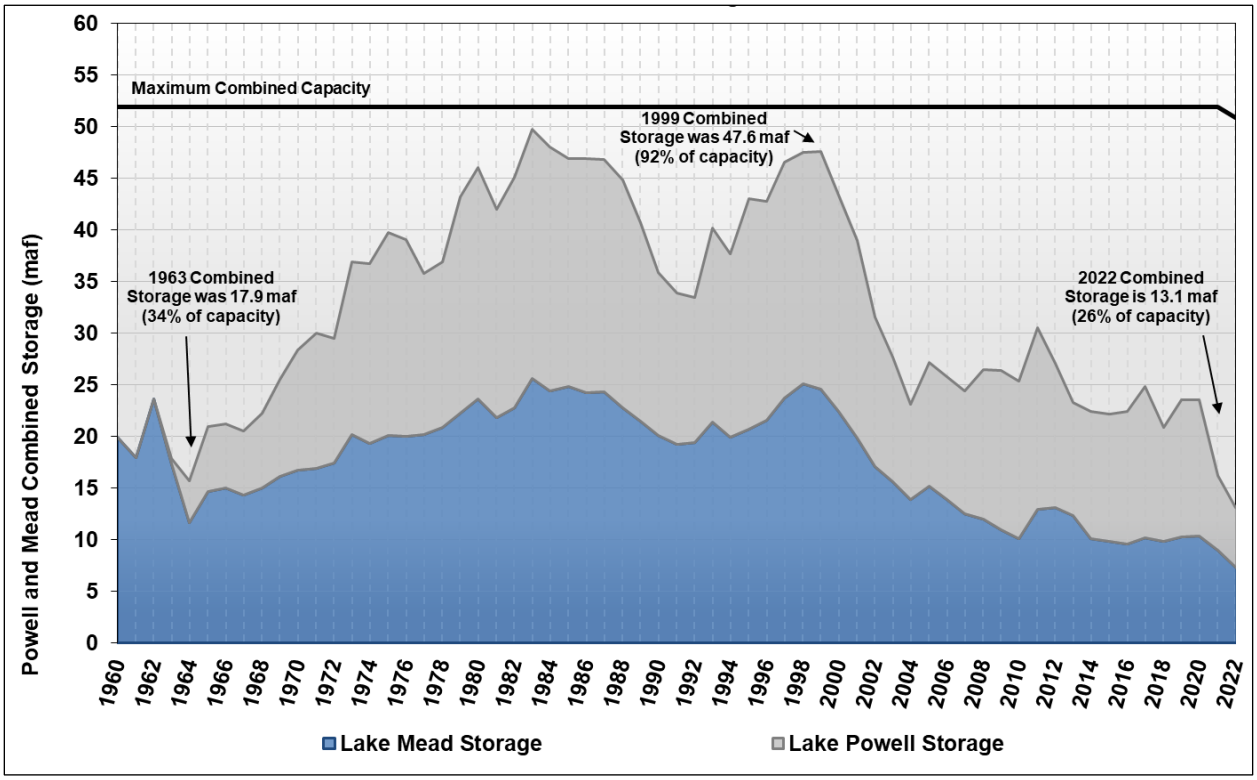
Thus, even though Lower Basin consumptive use is typically below the Compact threshold of 7.5 MAF, after accounting for evaporative losses, the total amount of water regularly exceeds this thresholds.

Figure 3. Colorado River Natural Flow at Lees Ferry, Arizona, with 10-Year Moving Average, 1906-2022



Source: Bureau of Reclamation data, *General Modeling Information*, at https://www.usbr.gov/lc/region/g4000/riverops/model-info.html.

Figure 4. Combined Storage at Lakes Mead and Powell, 1960-2022



Source: Bureau of Reclamation, *Notice of Intent to Prepare a Supplemental Environmental Impact Statement*, Public Webinar, November 9, 2022.

Note: Total storage = 52.3 million acre-feet.

Recent studies have concluded that Colorado River flows are unlikely to return to 20th century averages and that future water supply risk is high.[77] Overall, natural flows have declined by approximately 20% over the last century, and one study attributed more than half of this decline to increasing temperatures resulting from climate change.[78] Although there is potential for some precipitation increases in the region due to climate change, such potential increases are not expected to counteract projected drying resulting from rising temperatures.[79] As a result, most research has projected continuing reduction in runoff through the mid-21st century.[80]

[77] B. Udall and J. Overpeck, "The Twenty-First Century Colorado River Hot Drought and Implications for the Future," *Water Resources Research*, vol. 53 (February 17, 2017), pp. 2404-2418.

[78] Milley, P.S.D. and K.A. Dunne, "Colorado River flow dwindles as warming-driven loss," *Science*, vol. 367, no. 6483 (March 13, 2020), pp. 1252-1255. Hereinafter, Milley, 2020. Also see M. Xiao, B. Udall, and D. P. Lettenmaier, "On the Causes of Declining Colorado River Streamflows," *Water Resources Research* 54 (2018), pp. 6739–6756.

[79] Milley, 2020.

[80] Lukas, Jeff, and Elizabeth Payton, eds. *Colorado River Basin Climate and Hydrology: State of the Science*. Western Water Assessment, University of Colorado Boulder, 2020.

Recent Developments and Agreements

Drought conditions throughout the basin have raised concerns about potential negative impacts on water supplies. Concerns center on what sort of changes to the current water management regime might result if the Secretary of the Interior were to determine that a shortage condition exists in the Lower Basin. Some in Upper Basin States are also concerned about the potential for a *compact call* of Lower Basin states on Upper Basin states. This is the commonly used term for the Lower Basin states' hypothetical attempt to force deliveries of Colorado River water under the compact.[81]

Drought and other uncertainties related to water rights priorities (e.g., potential tribal water rights claims) spurred the development of several efforts that generally attempted to relieve pressure on basin water supplies, stabilize storage levels, and provide assurances of available water supplies. Some of the most prominent developments since the year 2000 (i.e., the beginning of the current drought) are discussed below.

2003 Quantitative Settlement Agreement

Prior to the 2003 finalization of the QSA, California had been using approximately 5.2 MAF of Colorado River on average each year (with most of its excess water use attributed to urban areas). Under the QSA, which is an agreement between several California water districts and DOI, California agreed to reduce its use to the required 4.4 MAF under the Law of the River.[82] It sought to accomplish this aim by quantifying Colorado River entitlement levels of several water contractors; authorizing efforts to conserve additional water supplies (e.g., the lining of the All-American Canal); and providing for several large-scale, long-term agriculture-to-urban water transfers. The QSA also committed the state to a path toward restoration and mitigation related to the Salton Sea in southern California.[83]

A related agreement between Reclamation and the Lower Basin states, the Inadvertent Overrun and Payback Policy (IOPP), went into effect concurrently with the QSA in 2004.[84] IOPP is an administrative mechanism that provides an accounting of inadvertent overruns in consumptive use compared to the annual entitlements of water users in the Lower Basin. These overruns must be "paid back" in the calendar year following the overruns, and the paybacks must be made only from "extraordinary conservation measures" above and beyond normal consumptive use.[85]

2004 Arizona Water Settlements Act

The 2004 Arizona Water Settlements Act (AWSA, P.L. 108-451) altered the allocation of CAP water in Arizona. It ratified three water rights settlements (one in each title) between the federal government and the State of Arizona, the Gila River Indian Community (GRIC), and the Tohono O'odham Nation,

[81] For more background, see Anne Castle and John Fleck, "The Risk of Curtailment under the Colorado River Compact," November 20, 2019, at https://ssrn.com/abstract=3483654.

[82] California Quantification Settlement Agreement by and Among Imperial Irrigation District, the Metropolitan Water District of Southern California, and Coachella Valley Water District, October 10, 2003.

[83] The Salton Sea is an inland water body in Southern California that was historically sustained by Colorado River irrigation runoff from the Imperial and Coachella Valleys, but is shrinking. Toxic dust from exposed seabed is a major concern for surrounding areas. For more information on the Salton Sea, see CRS Report R46625, *Salton Sea Restoration*.

[84] Reclamation, *Record of Decision for the Colorado River Water Delivery Agreement*, October 10, 2003, pp 16-19. Hereinafter, Reclamation, *Colorado River Water Delivery Agreement.*

[85] Reclamation, *Colorado River Water Delivery Agreement*.

respectively.[86] For the state and its CAP water users, the settlement resolved a final repayment cost for CAP by reducing the water users' reimbursable repayment obligation from about $2.3 billion to $1.7 billion. Additionally, Arizona agreed to new tribal and non-tribal allocations of CAP water so that approximately half of CAP's annual allotment would be available to Native American tribes in Arizona, at a higher priority than most other uses. The tribal communities were authorized to lease the water, so long as the water remains within the state via the state's water banking authority. The act authorized funds to cover the cost of infrastructure required to deliver the water to the Indian communities, much of it derived from power receipts accruing to the Lower Colorado River Basin Development Fund. It also authorized funding for the study of a potential New Mexico Unit of CAP.

2007 Interim Guidelines/Coordinated Operations for Lake Powell and Lake Mead

Another development in the basin was the 2007 adoption of the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead (2007 Interim Guidelines). Development of the agreement began in 2005, when, in response to drought in the Southwest and the decline in basin water storage, the Secretary of the Interior instructed Reclamation to develop coordinated strategies for Colorado River reservoir operations during drought or shortages.[87] The resulting guidelines included criteria for releases from Lakes Mead and Powell determined by "trigger levels" in both reservoirs, as well as a schedule of Lower Basin curtailments at different operational tiers (**Table 1**). Under the guidelines, Arizona and Nevada, which have junior rights to California, would face reduced allocations if Lake Mead elevations dropped below 1,075 feet. At the time, it was thought that the 2007 Guidelines would significantly reduce the risk of Lake Mead falling to 1,025 feet.

The 2007 agreement also included for the first time a mechanism by which parties in the Lower Basin were able to store conserved water in Lake Mead, known as Intentionally Created Surplus (ICS). Reclamation accounts for this water annually, and the users storing the water may access the surplus in future years, in accordance with the Law of the River. As of 2020, the portion of Lake Mead water in storage that was classified as ICS was 2.99 MAF.[88] That is, as of the end of the 2021 water year, approximately one-third of the water stored in Lake Mead was previously conserved ICS volume.

The 2007 guidelines are considered "interim" because they are scheduled to expire in 20 years (i.e., at the end of 2026). Thus, Reclamation began coordinating a review on the effectiveness of the 2007 guidelines in 2020, and in 2022 formally initiated the review process for post-2026 operations.[89] The review is expected to encompass negotiations related to renewal of the Upper and Lower Basin DCPs, which are an overlay on the 2007 guidelines (see below section, "2019 Drought Contingency Plans").

[86] Congress passed the Colorado River Basin Project Act of 1968 and authorized construction of CAP despite significant uncertainty related to tribal water rights related to the Colorado River. The Gila River, Arizona's largest tributary of the Colorado River, runs directly through the Gila River Indian Community, which encompasses approximately 372,000 acres south of and adjacent to Phoenix. Additionally, the Tohono O'odham Nation possessed reserved water rights near Tucson with the potential to disrupt that city's water supplies.

[87] Prior to this time, the Secretary of the Interior had the authority to declare a shortage, but no shortage criteria had been publicly announced or published. (Criteria for surplus operations were put in place in 2001.)

[88] Bureau of Reclamation, *Colorado River Accounting and Water Use Report, Calendar Year 2021*, at https://www.usbr.gov/lc/region/g4000/wtracct.html.

[89] Department of the Interior, Reclamation, "Request for Input on Development of Post-2026 Colorado River Reservoir Operational Strategies for Lake Powell and Lake Mead Under Historically Low Reservoir Conditions," 87 *Federal Register* 37884-37888, June 24, 2022.

System Conservation Program

In 2014, Reclamation and several major basin water supply agencies (Central Arizona Water Conservation District, Southern Nevada Water Authority, Metropolitan Water District of Southern California, and Denver Water) executed a memorandum of understanding to provide funding for voluntary conservation projects and reductions of water use. The activities outlined in the memorandum had the goal of developing new *system water*,[90] to be applied toward storage in Lake Mead, by the end of 2019.[91] Congress formally authorized federal participation in these efforts, known as the Pilot System Conservation Program, in the Energy and Water Development and Related Agencies Appropriations Act, 2015 (P.L. 113-235, Division D).[92] The Energy and Water Development and Related Agencies Appropriations Act, 2019 (P.L. 115-244, Division A) extended the authority through the end of FY2022, with the stipulation that Upper Basin agreements could not proceed without the participation of the Upper Basin states through the Upper Colorado River Commission. The authority was most recently extended through FY2024 in Division CC of the Consolidated Appropriations Act, FY2023 (P.L. 117-328).[93] Reclamation estimated that as of the end of 2019, the Lower Basin program had conserved more than 175,000 AF of water in Lake Mead, at an average cost of $170 per AF.[94] Additional projects also were carried out in the Upper Basin by the Upper Colorado River Basin Commission; these efforts ended in 2018.[95]

Minute 319 and Minute 323 Agreements with Mexico[96]

In 2017, the United States and Mexico signed Minute 323, which extended and replaced elements of a previous agreement related to implementation of the 1944 U.S.-Mexico Water Treaty, Minute 319, signed in 2012.[97] Minute 323 includes, among other things, options for Mexico to hold water in reserve in U.S. reservoirs for emergencies and water conservation efforts, as well as U.S. commitments for flows to support the ecological health of the Colorado River Delta. It also extended the initial Mexican cutback commitments made under Minute 319 (which were similar in structure to the 2007 cutbacks negotiated for Lower Basin states) and established a Binational Water Scarcity Contingency Plan that included additional cutbacks that would be triggered if DCPs are approved by U.S. basin states (see the following section, "2019 Drought Contingency Plans").

[90] *System water* refers to water that is provided to increase water supplies as a whole, without being directed toward additional consumptive use for specific contractors or water users.

[91] Agreement Among the United States of America, Through the Department of the Interior, Bureau of Reclamation, the Central Arizona Water Conservation District, the Metropolitan Water District of Southern California, Denver Water, and the Southern Nevada Water Authority, for a Pilot Program for Funding the Creation of Colorado River System Water Through Voluntary Water Conservation and Reductions in Use, Agreement No. 14-XX-30-W0574, July 30, 2014, at https://www.usbr.gov/lc/region/programs/PilotSysConsProg/PilotSCPFundingAgreement7-30-2014.pdf.

[92] P.L. 113-235, §206.

[93] P.L. 115-244, §205.

[94] Lower Colorado Region, "Pilot System Conservation Program," at https://www.usbr.gov/lc/region/programs/PilotSysConsProg/pilotsystem.html. Accessed January 17, 2023.

[95] For more information, see Upper Colorado River Commission, "System Conservation Pilot Program," at http://www.ucrcommission.com/system-conservation-pilot-program/.

[96] For more information on the 1994 U.S.-Mexico Water Treaty and Colorado River water sharing issues with Mexico, see CRS Report R45430, *Sharing the Colorado River and the Rio Grande: Cooperation and Conflict with Mexico*, by Nicole T. Carter, Stephen P. Mulligan, and Charles V. Stern.

[97] International Boundary & Water Commission, "Minutes between the United States and Mexican Sections of the IBWC," at https://www.ibwc.gov/Treaties_Minutes/Minutes.html.

2019 Drought Contingency Plans

Ongoing drought conditions and the potential for water supply shortages prompted discussions and negotiations focused on how to conserve additional basin water supplies. After several years of negotiations, on March 19, 2019, Reclamation and the Colorado River Basin states finalized DCPs for both the Upper Basin and the Lower Basin. These plans, which are an overlay of the 2007 Interim Guidelines discussed above, required final authorization by Congress to be implemented. Congress approved the plans on April 16, 2019, in the Colorado River Drought Contingency Plan Authorization Act (P.L. 116-14); like the 2007 guidelines, these plans are scheduled to be in place through 2026. At the time of their enactment, the combined efforts represented by the DCPs were expected to cut the risk of Colorado River reservoirs reaching critically low elevations by approximately 50 %.[98] Each of the basin-level DCPs is discussed below in more detail.

Upper Basin Drought Contingency Plan

The Upper Basin DCP aims to protect against Lake Powell reaching critically low elevations through coordinated Upper Basin reservoir operations; it also authorizes storage of conserved water in the Upper Basin that would serve as the foundation for a water use reduction effort (i.e., a *Demand Management Program*) that may be developed in the future.[99]

Under the Upper Basin DCP's Drought Response Operations Agreement (DROA), the Upper Basin states agree to operate system units to keep the surface of Lake Powell above 3,525 feet, which is 35 feet above "minimum power pool" (i.e., 3,490 feet, the minimum elevation needed to run the dam's hydroelectric plant). Under DROA, the two main mechanisms to do this are altering the timing of releases from Glen Canyon Dam and operating "initial unit" reservoirs on the mainstem of the Colorado River (e.g., Navajo Reservoir, Blue Mesa Reservoir, and Flaming Gorge Reservoir) to protect Lake Powell elevations, potentially through storage drawdown. Operational changes may occur either through DROA's emergency provisions, which allow the Secretary of the Interior to make supplemental water deliveries at his or her discretion (after consultation with basin states), or through a planning process establishing formal triggers for Upper Basin water deliveries to Lake Powell, based on agreed-upon hydrological targets.

The other primary component of the Upper Basin DCP, the Upper Basin DCP Demand Management Program, has yet to be formally established. It would entail willing seller/buyer agreements allowing for temporary paid reductions in water use that would provide for more storage volume in Lake Powell. As noted, the Upper Colorado River Commission operated an Upper Basin System Conservation Pilot Program from 2015 to 2018; that program compensated water users for temporary, voluntary efforts that resulted in additional water conserved in Lake Powell. A future Upper Basin DCP Demand Management Program may expand on some of those efforts.

Due to falling lake levels, Reclamation implemented drought response operations under DROA that led to reduced storage in other Upper Basin mainstem reservoirs in 2021 and 2022.[100] Separately, Reclamation also began planning efforts under DROA, known as the *Drought Response Operations Plan,* and released

[98] U.S. Congress, House Committee on Natural Resources, Subcommittee on Water, Oceans, and Wildlife, *Oversight Hearing on the Colorado River Drought Contingency Plan*, 116th Cong., 1st sess., March 28, 2019, H.Hrg. 116-10 (Washington: GPO, 2019). Hereinafter, "2019 House Natural Resources DCP Hearing."

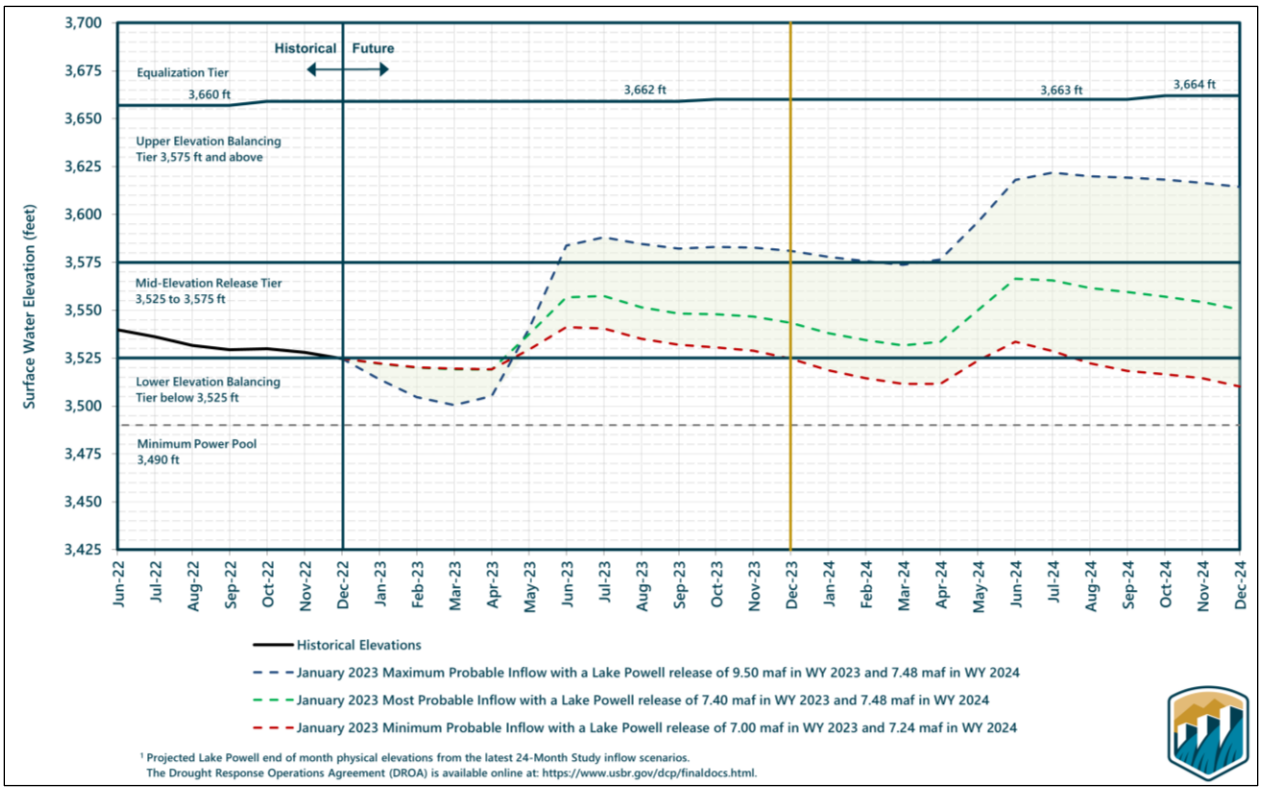
[99] While such a mechanism exists for the Lower Basin, a comparable program has not been developed in the Upper Basin.

[100] For example, in 2021, 180,000 AF was transferred to Lake Powell from Flaming Gorge Reservoir (125,000 AF), Blue Mesa Reservoir (36,000 AF), and Navajo Reservoir (20,000 AF).

a draft plan in early 2022.[101] These efforts are expected to supplement Lake Powell storage, although the exact magnitude is uncertain and there remains a possibility of the lake level dropping to minimum power pool by 2024 (**Figure 5**).

Figure 5. Lake Powell End of Month Elevation Projections

(January 2023 24-month study inflow scenarios)



Source: U.S. Bureau of Reclamation, "24-Month Study Projections," January 2023, at https://www.usbr.gov/lc/region/g4000/riverops/24ms-projections.html.

Notes: WY=Water Year. DROA= Drought Response Operations Agreement.

Lower Basin Drought Contingency Plan

The Lower Basin DCP is designed to require Arizona, California, and Nevada to curtail deliveries and thereby contribute additional water to Lake Mead storage at predetermined "trigger" elevations. It is also designed to create additional flexibility to incentivize voluntary conservation of water to be stored in Lake Mead, thereby increasing lake levels. Under the DCP, Nevada and Arizona (which were already set to have their supplies curtailed beginning at 1,075 feet under the 2007 Interim Guidelines) have committed to contributing additional supplies to maintain higher lake levels (i.e., beyond previous commitments). These reductions begin at 1,090 feet and would reach their maximums when reservoir levels drop below 1,045 feet. At the same time, the Lower Basin DCP includes—for the first time—delivery cutbacks for California. These curtailments begin with a 200,000 AF delivery reduction at Lake Mead elevations between 1,040 and 1,045 feet and would increase by 50,000 AF for each additional 5 foot drop in Lake Mead elevation below 1,040 feet, to as much as 350,000 AF at elevations of 1,025 feet or lower.

[101] For more information, see Reclamation, Colorado River Basin Drought Contingency Plans, at "Drought Response Operations Agreement," at https://www.usbr.gov/dcp/droa.html.

The curtailments in the Lower Basin DCP are in addition to those agreed to under the 2007 Interim Guidelines and under Minute 323 with Mexico. Specific and cumulative reductions are shown in **Table 1**. In addition to the state-level reductions, under the Lower Basin DCP Reclamation also agreed to pursue efforts to add 100,000 AF or more of system water within the basin. Some of the largest and most controversial reductions under the Lower Basin DCP were committed to by Arizona, where pursuant to previous changes under the 2004 AWSA, a large group of agricultural users were already facing major cutbacks to their CAP water supplies prior to the enactment of DCP.

Table 1. Lower Basin Water Delivery Curtailment Volumes Under Existing Agreements

(values in thousands of acre-feet)

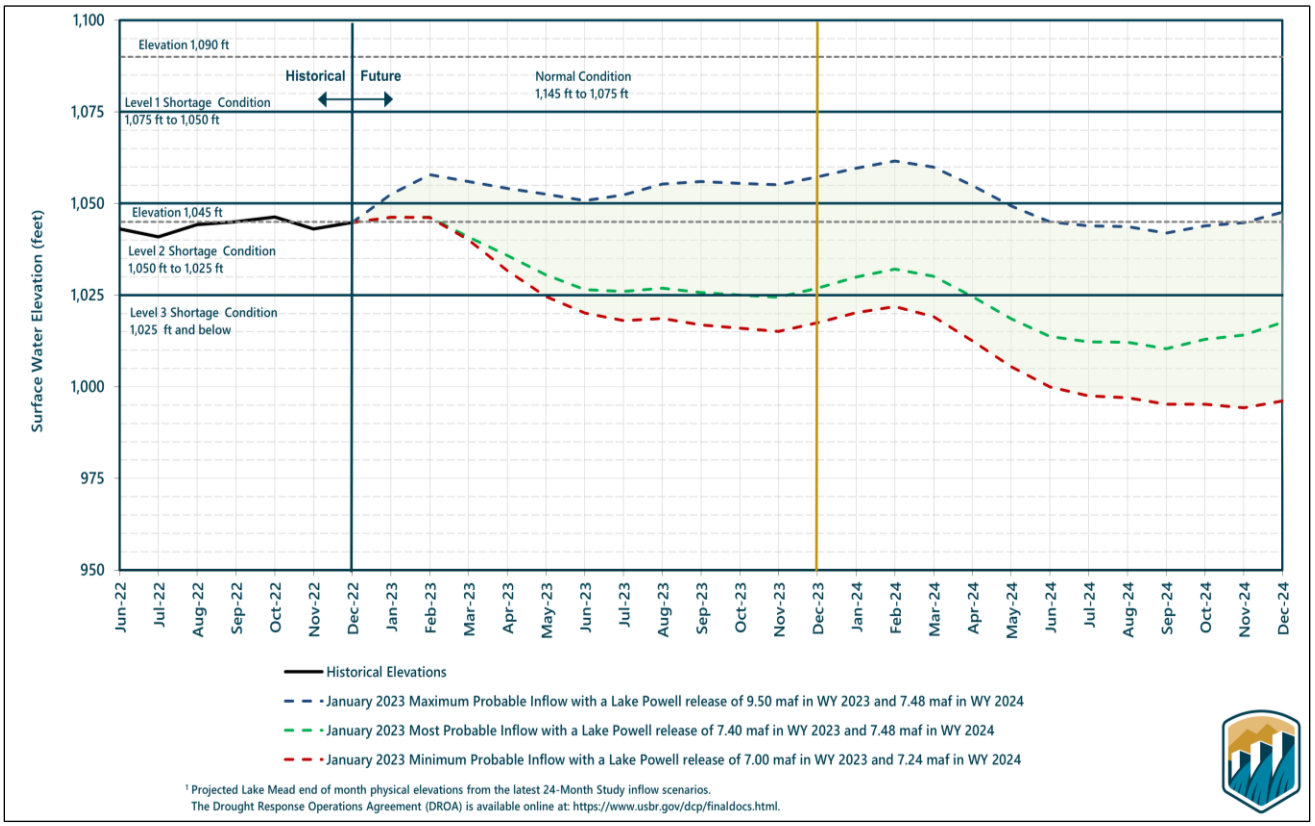
Lake Mead Elevation (ft)	2007 Interim Shortage Guidelines		Minute 323 Delivery Reductions	DCP Curtailment			Binational Water Scarcity Conting. Plan	Total Volume of Curtailment (% of Lower Colorado River Apportionment)				
	AZ	NV	Mexico	AZ	NV	CA	Mexico	AZ	NV	CA	Lower Basin	Mexico
1,090 - >1,075	0	0	0	192	8	0	41	192 (6.8%)	8 (2.6%)	0 (0%)	200	41
1,075 - >1,050	320	13	50	192	8	0	30	512 (18.2%)	21 (7%)	0 (0%)	533	80
1,050 - >1,045	400	17	70	192	8	0	34	592 (21.1%)	25 (8.3%)	0 (0%)	617	104
1,045 - >1,040	400	17	70	240	10	200	76	640 (22.8%)	27 (9.0%)	200 (4.5%)	867	146
1,040 - >1,035	400	17	70	240	10	250	84	640 (22.8%)	27 (9.0%)	250 (5.6%)	917	154
1,035 - >1,030	400	17	70	240	10	300	92	640 (22.8%)	27 (9.0%)	300 (6.8%)	967	162
1,030 - 1,025	400	17	70	240	10	350	101	640 (22.8%)	27 (9.0%)	350 (7.9%)	1,017	171
<1,025	480	20	125	240	10	350	150	720 (22.8%)	30 (10.0%)	350 (7.9%)	1,100	275

Sources: Table by CRS, using data in the 2007 Interim Shortage Guidelines, Minute 323 between Mexico and the United States, *Lower Basin Drought Contingency Plan*, and the Binational Water Scarcity Contingency Plan in Minute 323 between Mexico and the United States.

At the time of the act's passage, Reclamation noted that the Lower Basin DCP significantly reduced the risk of Lake Mead elevations falling below critical elevation of 1,020 feet.[102] Combined with the commitments from Mexico, total planned cutbacks under shortage scenarios (i.e., all commitments to date, combined) were expected to decrease Lower Basin consumptive use by 241,000 AF to 1.375 MAF per year, depending on the curtailments triggered by Lake Mead's elevation.[103] Despite these efforts, Lake Mead has continued to decline since the Lower Basin DCP was finalized and is projected to continue to decline (**Figure 6**). These developments have triggered additional Lower Basin conservation efforts.

Figure 6. Lake Mead End of Month Elevation Projections

(January 2023 24-month study inflow scenarios)



Source: U.S. Bureau of Reclamation, "24-Month Study Projections," January 2023, at https://www.usbr.gov/lc/region/g4000/riverops/24ms-projections.html.

500+ Plan

The Lower Basin DCP included a provision that if Reclamation's modeling (which includes all of the aforementioned conservation efforts) indicates a possibility of Lake Mead reaching an elevation at or below 1,030 feet, the Secretary of the Interior and the Lower Basin states would consult on additional measures to avoid and protect Lake Mead from declining below 1,020

[102] 2019 House Natural Resources DCP Hearing.

[103] For a summary of the curtailments that add up to this amount, see "1,090 - >1,075" row of **Table 1**.

feet.[104] This provision was triggered in Reclamation's August 2021 24-month study, which projected the possibility for such a scenario by 2023 under its "Probable Minimum Inflow" scenario.[105] In response, in December 2021, Lower Basin parties and the DOI agreed to a new set of actions in a memorandum of understanding known as the *500+ Plan*. This plan calls for contributions of up to $100 million by Lower Basin entities ($40 million from the Arizona Department of Water Resources and $20 million each from the Central Arizona Water Conservation District, the Metropolitan Water District of Southern California, and the Southern Nevada Water Authority), plus another $100 million from the federal government, which collectively would fund actions intended to result in the conservation of an additional 500,000 AF in Lake Mead in 2022 and 2023 (i.e., 1 MAF).[106] Federal funding for these conservation efforts was made available through a combination of discretionary appropriations to Reclamation, as well as supplemental funding in the Infrastructure Improvement and Jobs Act (P.L. 117-58). However, actual conservation under this effort has not been reported on.

Potential for Additional Actions

At a June 14, 2022, Senate hearing, the Commissioner of Reclamation announced that basin states would need to conserve between 2 MAF and 4 MAF in 2023 to protect Lake Mead and Lake Powell storage volumes over the near-term period (2023-2026).[107] These amounts would be *in addition* to the previous commitments discussed above. The estimate was the result of a 2022 Protection Volume Analysis by Reclamation.[108] The Commissioner noted that if these targets were not met with voluntary actions by August 2022, DOI was prepared to act unilaterally.[109]

No major commitments were announced in response to Reclamation's June request, and Reclamation did not implement delivery curtailments beyond those previously agreed to.[110] In late October 2022, Reclamation announced its intent to revise the 2007 Interim Guidelines in 2023 and 2024 (i.e., prior to post-2026 operational changes to the guidelines, which are proceeding separately) so as to address continued low runoff conditions in the basin. Reclamation published this Notice in the Federal Register in November.[111] The revisions are expected to

[104] Reclamation, *Agreement Concerning Colorado River Drought Contingency Management and Operations*, May 19, 2020, at https://www.usbr.gov/dcp/docs/final/Companion-Agreement-Final.pdf.

[105] Reclamation, Operation Plan for Colorado River System Reservoirs, August 2021 24-Month Study, Minimum Probable Inflow, at https://www.usbr.gov/lc/region/g4000/24mo/2021/AUG21_MIN.pdf. 24-Month Study Reports are available at Reclamation, *Operation Plan for Colorado River System Reservoirs (24-Month Study)*, at https://www.usbr.gov/lc/region/g4000/24mo/index.html.

[106] Similar to the aforementioned efforts under the System Conservation Program, funding for increased efficiency and decreased deliveries (e.g., through fallowing programs) are expected to be among the efforts funded through the 500+ Plan.

[107] U.S. Congress, Senate Committee on Energy and Natural Resources, *Short And Long Term Solutions To Extreme Drought In The Western U.S.*, Statement of the Honorable Camille Touton, 117th Cong., 2nd sess., June 14, 2022. Hereinafter "2022 Drought Hearing."

[108] See Reclamation, *Colorado River System Mid Term Projections*, June 16, 2022, at https://www.usbr.gov/ColoradoRiverBasin/documents/20220616-ColoradoRiverSystemMid-termProjections-Presentation.pdf.

[109] 2022 Drought Hearing.

[110] In a July 18, 2022, letter to Reclamation, the Upper Colorado River Commission declined to contribute a specific volume of cutbacks to these efforts, instead laying out a five-point plan as the basis for its water conservation efforts. Letter from Charles Cullom, Director, Upper Colorado River Commission, to Camille Touton, Commissioner, U.S. Bureau of Reclamation, July 18, 2022, at http://www.ucrcommission.com/wp-content/uploads/2022/07/2022-July-18-Letter-to-Reclamation.pdf.

[111] Notice of Intent to Prepare Supplemental Environmental Impact Statement for December 2007 Record of Decision Entitled Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell

consider a "consensus-based" set of actions developed by the states, as well as implementation of additional curtailments that Reclamation would develop unilaterally, potentially to "complement" consensus-based commitments.[112] The latter could involve reduced releases from both Glen Canyon and Hoover dams, thereby affecting downstream reservoir elevations and deliveries to basin contractors, among other things.

On January 31, 2023, all of the basin states but California submitted a combined proposal for a "Consensus Based Modeling Alternative" (CBMA) pursuant to the November Notice;[113] California submitted its own response separately. [114] The CBMA proposal would assess 1.543-1.943 million acre-feet (MAF) per year in new delivery reductions on Lower Colorado River Basin contractors (i.e., reductions in addition to previous commitments).[115] Reductions would be phased in through two mechanisms: 1) the assessment of 1.543 MAF of evaporative losses on Lower Basin state contractors (referred to in the CBMA as "Infrastructure Protection Volume," or IPV), which would be assessed based on recent consumptive use levels;[116] and 2) additional operational tier changes and delivery reductions tied to Lake Mead elevations of 1,050 feet and lower.[117] The CBMA's cumulative reductions compared to current levels appear to be relatively greater for California than for Arizona and Nevada .[118] For its part, California's proposal would include 1.0-1.95 MAF per year in new delivery reductions for Lower Basin contractors, depending on Lake Mead elevations. These reductions would be phased in on a schedule starting with 1.0 MAF in reductions at a Lake Mead elevation of 1,045 feet, with additional reductions beyond that amount at 1,025 ft. For the first 1.0 MAF, California proposal's reductions would be proportionally greater for Arizona and Nevada than on itself .[119] Both proposals would also institute changes on Lake Powell's operational tiers, so as to allow for more water to be left in that reservoir, although they would do so in different ways.

Issues for Congress

Funding and Oversight of Existing Facilities and Programs

The principal role of Congress as it relates to storage facilities on the Colorado River is funding and oversight of facility operations, construction, and programs to protect and restore listed species (e.g., Glen Canyon Dam Adaptive Management Program and the Upper Colorado River

and Lake Mead (Nov 17, 2022), at https://www.federalregister.gov/documents/2022/11/17/2022-25004/notice-of-intent-to-prepare-a-supplemental-environmental-impact-statement-for-december-2007-record. Hereinafter "November 2022 Notice."

[112] November 2022 Notice.

[113] Letter from Colorado River Basin State Representatives of Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming to Tanya Trujillo, Assistant Secretary, Water & Science, U.S. Department of the Interior, January 31, 2023. Hereinafter "CBMA Proposal."

[114] Letter from Colorado River Board of California to Deputy Interior Secretary Tommy Beaudreau et al., U.S. Department of the Interior, January 31, 2023. Hereinafter "California Proposal."

[115] CBMA Proposal.

[116] CBMA Proposal This amount also assumes the assessment of evaporative losses on Mexico.

[117] These reductions would move the current Tier 3 reduction schedule (which begins at 1,025 feet) up to a Lake Mead elevation of 1,050 feet, and would institute additional delivery reductions at Lake Mead elevations of 1,030 feet or lower.

[118] CRS analysis of CBMA Proposal.

[119] The proposal does not specify the allocation of reductions in excess of 1.0 MAF.

Endangered Fish Program). In the Upper Basin, Colorado River facilities include the 17 active participating units in the Colorado River Storage Projects, as well as the Navajo-Gallup Water Supply Project. In the Lower Basin, major facilities include the Salt River Project and Theodore Roosevelt Dam, Hoover Dam and All-American Canal, Yuma and Gila Projects, Parker-Davis Project, Central Arizona Project, and Robert B. Griffith Project (now Southern Nevada Water System).

Congressional appropriations in support of Colorado River projects and programs typically account for a portion of overall project budgets. For example, in FY2020, approximately 40% of Lower Colorado River Region's overall budget was funded with discretionary appropriations, with the remainder of funding coming from power revenues (which are made available without further appropriation) and nonfederal partners.[120] In recent years, Congress has also authorized and appropriated funding that has targeted the Colorado River Basin in general (e.g., the Pilot System Conservation Plan). Congress may choose to extend or amend authorities specific to the basin or alter basin funding levels.

While discretionary appropriations for the Colorado River are of ongoing interest to Congress, Congress has also addressed Colorado River funding outside of the regular appropriations process. In the 117th Congress, in Section 50233 of P.L. 117-169 (popularly known as the Inflation Reduction Act, IRA), Congress provided $4.0 billion for projects that mitigate drought in the 17 arid and semiarid *reclamation states* in the West,[121] with priority given to Colorado River Basin activities. This funding is available through FY2026 and is expected to be used for a variety of activities, including some of the previously authorized activities discussed above, as well as compensation for new efforts. Reclamation announced initial plans for this funding on October 12, 2022, in the form of a new program, the *Lower Colorado River Basin System Conservation and Efficiency Program*.[122] The program has three components:

- Under the first component (1a), Colorado River water delivery contractors or entitlement holders submitted proposals resulting in water remaining in Lake Mead at a set price of $330 per acre-foot for a one-year agreement, $365 per acre-foot for a two-year agreement, and $400 per acre-foot for a three-year agreement. These proposals were due in November 2022.
- For the second component (1b), Reclamation accepted proposals for additional water conservation and efficiency projects that could involve a variety of pricing options as proposed by Colorado River water delivery contractors or entitlement holders. These proposals were due in November 2022.
- The third component (2) would allow for proposals to be submitted in early 2023 for long-term system efficiency improvements that will result in multi-year system conservation. These proposals were expected to be solicited in early 2023.

The magnitude of water savings that might result from these voluntary agreements is unclear. If the agreements are successful, future federal funding similar to that provided in the IRA may continue to be requested to mitigate the effect of long-term drought in the basin and the shift away from current water consumption levels.

[120] Reclamation, *Lower Colorado Region Annual Report, Fiscal Years 2019 & 2020*.

[121] "Reclamation states" refers to the 17 states designated by Congress to be in the Reclamation service area, pursuant to the Reclamation Act of 1902, as amended. 34 Stat. 259.

[122] Reclamation, "Biden-Harris Administration Announces New Steps for Drought Mitigation Funding from Inflation Reduction Act," Press Release, October 12, 2022, at https://www.usbr.gov/newsroom/news-release/4353.

In addition to the aforementioned new program being implemented with IRA funding, the Administration also announced that $250 million of the act's funding would go toward Salton Sea restoration activities over the 2022-2026 timeframe.[123] Restoration of the Sea is a high priority of the Imperial Irrigation District, one of the largest water rights holders on the Colorado River.[124]

Tribal Water Rights Settlements and Leasing

Many tribal water rights are senior to other water rights in the basin, and thus are likely to play an important role in the future of the Colorado River. The extent to which tribes develop their water rights, or are willing and able to market their water to other users, has ramifications for water availability in the basin. The 117th Congress authorized a new Indian water rights settlement related to one tribe's rights to Colorado River water (the Hualapai Settlement, P.L. 117-349) and enacted a new authority for the Colorado River Indian Tribes, one of the largest water rights holders on the river, to enter into agreements to lease a portion of the tribes' Colorado River water (the Colorado River Indian Tribes Water Resiliency Act of 2022, P.L. 117-343).[125] As previously noted, Congress has approved Indian water rights settlements associated with more than 2.5 MAF of tribal diversion rights on the Colorado River; a portion of this water has been developed to date. Congress may be asked to consider new settlements that would add to this total.

New Facilities and Other Alterations

Some states may pursue further development of their unused Colorado River water (i.e., rather than cutting their use). For example, one project that would develop Upper Basin waters, the proposed Lake Powell Pipeline (LPP), would direct approximately 86,000 AF of Utah's Upper Basin Colorado River Basin annual apportionment from Lake Powell to Washington County, UT (i.e., the St. George, UT, area, which is technically located within the Lower Basin drainage area).[126] The pipeline would begin near Glen Canyon Dam in Arizona and would run through Arizona and Utah to Sand Hollow Reservoir near St. George, UT. Reclamation is the lead agency for the project under NEPA and is coordinating an Environmental Impact Statement (EIS) for the most recently proposed version of the project.[127]

The debate over the Lake Powell Pipeline is illustrative of the issues future water development proposals may face in the basin. Supporters argue that the pipeline is needed to provide a secondary water source for the St. George area (in addition to its primary water source from the Virgin River). However, environmental groups have argued that the proposed development and diversion of additional Upper Basin waters is ill-advised in light of climate change and the basin's over-allocation.[128] The six other Colorado River Basin states have raised concerns related

[123] Reclamation, "Inflation Reduction Act Funds Landmark Agreements to Accelerate Salton Sea Restoration," Press Release, November 28, 2022, at https://www.usbr.gov/newsroom/news-release/4380.

[124] See footnote 83.

[125] Prior to the legislation's enactment, these tribes, who were awarded their water rights under the *Arizona v. California* decree, were not able to lease their water. This is not the case for most other tribes with Colorado River water rights.

[126] While St. George, UT, is technically within the Lower Colorado River Basin's drainage, Utah's state allocation comes out of waters available to the Upper Basin. Thus, the LPP would utilize Upper Basin waters.

[127] For project NEPA documents and studies, see https://www.usbr.gov/uc/DocLibrary/EnvironmentalImpactStatements/LakePowellPipeline/index.html#intro.

[128] Letter from Utah Rivers Council et al. to Rick Baxter, Program Manager, Bureau of Reclamation Provo Area Office, September 8, 2020.

to the proposed LPP's "legal and operational issues," and have criticized the use of the LPP NEPA process as a de facto forum for resolving a conflict among basin states. The six states previously requested that Reclamation refrain from issuing a final EIS until these issues can be resolved on a consensus basis.[129]

Some groups that oppose new infrastructure development on the Colorado River also have proposed demolition of *existing* infrastructure, in particular Glen Canyon Dam. They argue that removing the dam would be beneficial to listed species and the Grand Canyon's ecosystem and would be a cheaper and less politically problematic option than drying up Upper Basin farms to save Lake Powell.[130] For their part, water and power users and most governmental entities oppose these efforts for their potential economic damage. Reclamation reports that it is accelerating maintenance actions at Glen Canyon Dam to determine the reliability of using river bypass tubes at the dam to enable Lower Basin releases at storage levels below minimum power pool.[131] Reclamation is also studying the efficacy of physical modifications to Glen Canyon Dam to allow for releases below critical elevations.[132] Removing or significantly altering Glen Canyon Dam may require authorization by Congress.

Post-2026 Operations/Agreements

Congress is likely to remain interested in the status of long-term drought in the basin and in the implementation of the DCPs and other related agreements, including their ability to stem further delivery curtailments and add water to the basin's storage reservoirs.[133] Congress also may be interested in broader basin planning. Federally led efforts to extend the 2007 Interim Guidelines (including the DCPs), which expire at the end of 2026, will frame future management of the Colorado River. At the same time, new agreements that would protect water supplies in the short-term, such as the 500+ Plan, an Upper Basin DPC Demand Management Program, and DROA Drought Plans, could themselves result in additional congressional involvement in funding, oversight, and/or enactment of new authorities.

Concluding Observations

There is wide acknowledgement that existing directives for managing Colorado River Basin waters are inadequate and do not account for the basin's current and projected hydrology. The original basis for the Colorado River Compact assumed more water than turned out to be available for consumptive uses, and a drought dating to 2000 has exacerbated this issue. Although recent agreements have marginally reduced usage, basinwide consumptive use (including evaporation) has continued to exceed natural flows in most years of the past several decades. The resulting drawdown of basin storage has left Lakes Mead and Powell at historically low levels

[129] Letter from Colorado River Basin States Representatives of Arizona, California, Colorado, Nevada, New Mexico, and Wyoming to Secretary of the Interior David Bernhardt, September 8, 2020.

[130] Save the Colorado, "Save the Colorado's Policies for Renegotiation of the 2007 Interim Guidelines for Management of the Colorado River," Press Release, November 29, 2022.

[131] Reclamation, "Interior Department Announces Actions to Protect Colorado River System, Sets 2023 Operating Conditions for Lake Powell and Lake Mead," August 16, 2022. Hereinafter, "Reclamation August 2022 Press Release."

[132] Reclamation, August 2022 Press Release.

[133] For instance, 2021 and 2022 hearings on drought in the western United States included extensive discussion of drought conditions in the Colorado River Basin. See U.S. Congress, House Committee on Natural Resources, Subcommittee on Water, Oceans, and Wildlife, *The Status of Drought Conditions Throughout the Western United States*, 117th Cong., 1st sess., May 25, 2021 and U.S. Congress, Senate Committee on Energy and Natural Resources, *Short and Long-Term Solutions to Extreme Drought in the Western United States*, 117th Cong., 2nd sess., June 14, 2022.

that threaten both hydropower production and water deliveries throughout the basin. Water flow projections based on climate change estimate that flows will continue to decrease, whereas new demands and diversions (e.g., development of tribal water rights) suggest that competition for this water will continue to increase.

Despite agreement that some level of water delivery cutbacks will be necessary to protect power generation and reservoir storage, there remain considerable differences of opinion as to what form these actions should take, and whether they should be formulated at the federal or nonfederal (consensus-based) level. The question of which entities will face water delivery cutbacks and of what magnitude, as well as what sort of mitigation might accompany these efforts, take on an added level of urgency due to the river's economic importance to many areas. The relative importance of established water rights priorities in the basin, compared to priority for health, safety, and other uses, is a central issue currently facing decisionmakers. Other questions, including what changes to infrastructure (e.g., alterations to dam and water delivery infrastructure), accounting (e.g., whether and how to account for evaporation in the Lower Basin), and/or the basis for basin water management (e.g., water allocations based on inflows rather than set amounts) are also likely to figure into future discussions and negotiations.

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Disclaimer

Navigating Foreign Ownership Laws in the Wild, Wild West: Latest Trends and Developments

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Foreign Ownership of Agricultural Land: FAQs & Resource Library

Over the past decade, foreign ownership of agricultural land have grown. As a result, an interest in restricting and monitoring foreign ownership of U.S. agricultural land is growing significantly among federal and state lawmakers. This page is intended to provide resources and answers to some frequently asked questions concerning foreign ownership and investments in private agricultural land.

This information is provided for educational purposes only. If you have concerns that go beyond the scope of what has been discussed in any of the questions below, we encourage you to seek legal advice from a licensed attorney in your area. The questions are meant to provide general information only, and do not constitute any legal advice offered by the National Agricultural Law Center, nor act as a substitute for legal advice and counsel. *This resource was last updated April 25, 2023.*

IN GENERAL

Q: What is a "foreign ownership law"?

In general, a "foreign ownership law" is a law that restricts certain foreign individuals, foreign entities, or foreign governments from acquiring, transferring, holding, or investing in U.S. real estate, specifically including private agricultural land located within the U.S. For purposes of this resource, the following questions and accompanying answers focus on privately held agricultural land.

STATE LAWS

Q: Are there any states that ban foreign ownership of agricultural land?

There are no states with an absolute prohibition on foreign ownership, however, approximately eighteen states specifically forbid or limit nonresident aliens, foreign business entities, or foreign governments from acquiring or owning an interest in private agricultural land within the boundaries of their state.

Some states, such as Arizona, Hawaii, Idaho and Oregon have laws that prohibit foreign ownership of public real estate and farmland; however, only Oregon specifically restricts foreign individuals from purchasing public lands within the state. *See* Or. Rev. Stat. Ann. § 273.255 which permits "[a]ny individual who…is a citizen of the United States, or has declared an intention to become a citizen, may apply to purchase state lands." Mississippi has a law (Miss. Code Ann. § 29-1-75) restricting nonresident aliens and corporations from purchasing or owning public lands within the state, which is set to expire on July 1, 2026.

Q: How many states have foreign ownership laws?

Approximately eighteen states have laws that seek to restrict to some degree foreign ownership or investments in private agricultural land within the boundaries of their state.

Q: What states have a foreign ownership law?

Currently, states that have a law prohibiting or restricting foreign ownership and investments in private farmland include: Arkansas, Idaho, Indiana, Iowa, Kansas, Kentucky, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Oklahoma, Pennsylvania, South Carolina, South Dakota, Utah, Virginia, and Wisconsin.

Other states, such as Georgia, Maryland, and New Jersey have enacted statutes that permit foreign persons to purchase or hold real estate within their state to some degree. However, these states' laws condition land ownership rights on certain factors. For example, New Jersey's law expressly provide land ownership rights to "alien friends" who are domiciled and have a residency within the U.S. *See* N.J. Stat. Ann. § 46:3-18. Maryland provides real property rights to an "alien who is not an enemy." *See* Md. Code Ann., Real Prop. § 14-101. Although these laws do not contain language that strictly prohibits foreign ownership of real property within their state, these statutes could be construed as a restriction on foreign investments that are not expressly permitted under these states' laws.

Q: Do states have similar foreign ownership laws?

Even though approximately eighteen states have foreign ownership laws, each state has taken its own approach to restricting foreign ownership of farmland within its borders. For example, some states define "agricultural land" and "farming" differently from other states, restrict only certain types of foreign investors, or allow foreign purchasers to acquire a certain acreage amount of farmland.

Q: Why do states' foreign ownership laws vary?

State laws restricting foreign ownership vary widely and without a generalized or uniform approach likely because many of these states' laws developed at different "political flashpoints" in our nation's history. These flashpoints include:

1. Colonial Period/Signing of the Declaration of Independence
2. Late 1880's through the turn of the century, including the enactment of the Territorial Land Act of 1887 (*e.*, westward expansion of the U.S.)
3. Early 20th century through post-WWII
4. 1970s, which resulted in the enactment of the federal reporting statute known as the Agricultural Foreign Investment Disclosure Act ("AFIDA") of 1978
5. 2021 – Present

Q: What type of foreign investors are restricted under these state laws?

Because each state has taken its own approach to its foreign ownership law, many states restrict different types of foreign investors, such as foreign individuals or nonresident aliens, foreign businesses and corporations, or foreign governments. Additionally, some states restrict certain parties associated with a restricted foreign investor, such as an agent or trustee. For example, Indiana's foreign ownership law restricts only foreign business entities from purchasing agricultural land while Oklahoma's law restricts nonresident individuals and foreign businesses and corporations.

Q: How are states' foreign ownership laws enforced? What are the penalties for noncompliance?

Some states' foreign ownership laws contain provisions that assign enforcement authority to the state's attorney general or "a district attorney of the county where the foreign-owned land is located." Other states provide private enforcement of its foreign ownership law, meaning a resident of the state in which the farmland is located can file a lawsuit to enforce the restriction against a foreign party. These enforcement provisions generally direct the enforcing parties to file an escheat or forfeiture action against a foreign party suspected of violating a state's foreign ownership law. If the land escheats or forfeits to the state, meaning the state takes title of the land, the foreign party is penalized by losing their legal interest in the agricultural land. Other states prescribe civil (monetary) penalties for noncompliance of its foreign ownership law.

Q: What states have recently proposed laws?

From 2021 through 2022, the following states have proposed legislation that seeks to restrict certain foreign investments in real property and agricultural land located within the boundaries of their state:

- Alabama (SB 14)
- Arizona (SB 1342)
- Arkansas (SB 312) (original version)
- California (SB 1084)
- Indiana (SB 388)
- Iowa (HF 2311; HF 2467)
- Missouri (HB 506; HB 1136; HB 1296; HB 1947; SB 243; SB 791)
- Oklahoma (HB 1497; SB 1469; SB 1534; SJR 45)
- South Carolina (H 4845)
- Tennessee (SB 1070; HB 1451)
- Texas (HB 58; HB 69; HB 303; HB 305)

In 2023, the majority of states have proposed, or have plans to propose, at least one piece of legislation that seeks to prohibit or restrict foreign investments and landholdings in land—specifically private farmland—located within their state to some degree. Some states that are considering legislation do not have a law that restricts foreign ownership of land in their state while other states are considering proposals that would amend their current foreign ownership

law. These proposed measures are available on your state legislature's website by searching pending legislation. Generally, you can retrieve these proposals by searching "foreign ownership".

Q: Were any of these proposals enacted into law?

In 2021, Arkansas' SB 312 (enrolled version) was enacted into law, but the original version of the bill sought to restrict foreign investments in the state's agricultural land. The original version of the bill included identical language and provisions contained in Missouri's foreign ownership law, but this version is entirely different from the bill that was enacted. The version of SB 312 that was enacted is a reporting requirement law. Accordingly, this law simply requires certain foreign investors to submit to the Arkansas Department of Agriculture a copy of their federal Agricultural Foreign Investment Disclosure Act ("AFIDA") report they submit to the U.S. Department of Agriculture ("USDA"). AFIDA, as discussed in detail below, is a federal reporting statute that requires certain foreign investors to disclose their U.S. agricultural landholdings.

In 2022, Indiana was the only state to enact a law restricting certain foreign investments in the state's agricultural land. In the same year, both chambers of California' state legislature unanimously passed a bill (SB 1084) that would restrict foreign governments from owning agricultural land within the state, but Governor Newsom vetoed the bill.

As of April 2023, Arkansas, Idaho, Utah, and Virginia have enacted a foreign ownership law during their legislative session. North Dakota (HB 1135) amended its foreign ownership law to extend their restriction to foreign governments and foreign government-controlled entitites. Proposals in Montana (SB 203) and Tennessee (HB 40) have been passed by the legislature but are not yet fully enacted.

Q: Are there any states considering proposals to prevent foreign participation in farm programs?

Currently, Kentucky is the only state considering such a measure. Kentucky's HB 500 seeks to restrict certain foreign individuals, business entities, and governments from obtaining an interest in the state's farmland, but the proposal also seeks to restrict these foreign parties from participating in any program administered by the state's Department of Agriculture, Agricultural Development Board, and the Kentucky Agricultural Finance Corporation.

Q: Are foreign ownership laws and corporate farming laws the same?

There are similarities in foreign ownership laws and corporate farming laws in that they both restrict certain corporations from acquiring, purchasing, or otherwise obtaining land that is used or usable for agricultural production. However, corporate farming laws restrict the power of foreign or domestic corporations from engaging in farming or agriculture. Proponents of corporate farming laws assert that these laws are aimed at protecting the economic viability of family farms from threats of competition with domestic and foreign corporate-owned or managed farms. Alternatively, proponents of foreign ownership laws generally assert these laws

seek to restrict only foreign investments in agricultural land as a way to discourage or prevent foreign competition in agriculture, increased production costs, and possible threats to the agricultural supply chain. Like foreign ownership laws, corporate farming laws vary from state to state, but each establish a general prohibition on corporate farming activities. Currently, eleven states have statutes or constitutional amendments that prohibit or limit corporate farming: Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Utah, and Wisconsin.

AGRICULTURAL FOREIGN INVESTMENT DISCLOSURE ACT ("AFIDA")

Q: Is there a federal foreign ownership law?

Currently, no federal law exists that restricts foreign persons, entities, or governments from acquiring or holding U.S. agricultural land. While there are approximately eighteen states that specifically forbid or limit foreign ownership of farmland within their state, the federal government only *monitors* certain foreign acquisitions and landholdings in agricultural land through the Agricultural Foreign Investment Disclosure Act ("AFIDA") of 1978. The statutory text of AFIDA is in the U.S. Code at 7 U.S.C. § 3501 et seq.

Q: What is AFIDA?

Enacted by Congress in 1978, AFIDA established a nationwide system for collecting certain information about foreign investments and ownership of U.S. agricultural land. Under AFIDA, a "foreign person who acquires or transfers any interest…in agricultural land" is required to disclose their interest in the land to the U.S. Department of Agriculture ("USDA"). Thus, a foreign person who acquires, holds, transfers, or disposes an interest in agricultural land within the U.S. is required to disclose certain information concerning such transactions and investments. This data is compiled into an annual publication that reports the amount of cropland, pastureland, forestland, and other types of agricultural land that is foreign owned.

Q: Why did Congress enact AFIDA?

According to a U.S. House Report from the Committee on Agriculture (H.R. Rep. No. 95-1570, 2d Sess. (1978)) discussing AFIDA prior to its enactment, Congress was concerned with the economic strains many family farmers were experiencing and the declining number of family-farm operations across the nation. According to the report, "[i]ncreased land prices, higher taxes, escalating costs of agricultural inputs, greater transportation expenses, and other operating costs have combined with low farm product prices to push many farm families to the brink of economic disaster." The Committee determined that "[i]ncreased foreign investments which forces up prices of U.S. agricultural land is seen by many as" a factor that adds to the economic pressures affecting family-farm operations.

However, the House Report asserts that determining the impact of foreign ownership and investments in farmland "is difficult to gauge…because of the lack of data on the nature, magnitude, and scope of foreign investment activity." Specifically, the Committee pointed to a study conducted by the General Accounting Office ("GAO")—published on June 12, 1978—that

found that no accurate data exists on foreign ownership of agricultural land, and that none was likely to be produced through the current state and local recording efforts. As a result, Congress enacted AFIDA to collect this data in order to monitor foreign investments in U.S. agricultural land.

Q: Are there federal regulations?

Section 3507 of AFIDA directed USDA to implement regulations "for the purposes of carrying out the provisions" of AFIDA. These regulations are located in the Code of Federal Regulations at 7 C.F.R Part 781.

Q: Is there an agency handbook?

Yes. The Farm Service Agency ("FSA") has published a handbook to assist the agency in administering the policies, procedures, and requirements of AFIDA. This handbook is available on FSA's website.

Q: How do foreign persons report their U.S. agricultural landholdings?

In general, foreign persons are required to disclose their interest(s) in U.S. farmland by delivering a FSA-153 report to the FSA county office in the county where the tract of land is located within 90 days after the date of such acquisition or transfer. However, some transactions are complex or require multiple filings, usually when a tract of land is located in multiple counties, or a foreign person has acquired separate tracts in multiple counties. In these instances, FSA's AFIDA handbook explains that USDA may grant permission to a foreign person to file their reports directly with the agency.

Q: How are AFIDA disclosures used?

The information collected from these disclosures is compiled into an annual report and made public by FSA. As of the date of this writing, the most recent report contains data on foreign ownership of U.S. farmland through December 31, 2020. This report and all previous AFIDA reports are available on FSA's website. Section 3505 of AFIDA requires FSA to deliver, every 6 months, a copy of the disclosures to each state department of agriculture (or appropriate state agency) involving agricultural land within its state during the 6-month period.

Q: Are there state-level reporting requirements?

Yes. Some states (Arkansas, Illinois, Indiana, Iowa, Kansas, Maine, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin) require foreign persons and entities to report their purchase or ownership interest in farmland within their state. These state reporting statutes often correspond with the federal reporting law under AFIDA. Pennsylvania does not have reporting requirements separate from AFIDA; rather, the state has enacted a law that requires the Pennsylvania Department of Agriculture to review AFIDA data to ensure compliance with the state's restriction on foreign ownership of agricultural land. In Virginia, foreign persons and entities are not required to report their agricultural landholdings, but state

law requires the Virginia Department of Agriculture and Consumer Services to compile an annual report that contains certain information concerning foreign ownership and investments in the state's agricultural land. State-level reporting statutes are compiled on the NALC's website.

Q: Who must report under AFIDA?

AFIDA explicitly states that "[a]ny foreign person who acquires or transfers any interest…in agricultural land" is required to disclose the transaction to USDA. 7 U.S.C. § 3501(a). Foreign persons with a direct or indirect interest in agricultural land are required to disclose this interest under AFIDA.

Q: What is a "direct" and "indirect" interest in agricultural land under AFIDA?

A direct interest in farmland means the foreign person has title to land. On the other hand, foreign persons generally have an indirect interest when they hold an ownership interest in an entity, such as a business or corporation, that has title to the agricultural land. In either case, individuals and entities that fall within the scope of "foreign persons" under AFIDA are likely required to disclose their ownership or leasehold interest.

Q: What is a "foreign person" under AFIDA?

AFIDA defines "foreign person" as an individual who is not: "a citizen or national of the United States"; "a citizen of the Northern Mariana Islands or the Trust Territory of the Pacific Islands"; or someone "now lawfully admitted to the United States for permanent residence, or paroled into the United States, under the Immigration and Nationality Act." 7 U.S.C. § 3508(3)(A).

Additionally, the term "foreign person" includes foreign governments and entities organized under the laws of a foreign government or its principal place of business is located outside the U.S. Further, a U.S. entity is considered a "foreign person" under AFIDA if a foreign individual, entity, or government holds "a significant interest or substantial control" over the domestic entity. 7 U.S.C. § 3508(3)(C). Therefore, a "foreign person" subject to the reporting requirement under AFIDA includes nonresident individuals, foreign businesses and corporations, and foreign governments.

Q: What is a "significant interest or substantial control"?

Foreign persons have a "significant interest or substantial control" of a domestic entity when a foreign person or multiple foreign persons who are "acting in concert" collectively hold 10% or more interest in the domestic entity. Foreign persons that "may not be acting in concert" have a "significant interest or substantial control" when they own an interest of 50% or more in a domestic entity. See 7 C.F.R. § 781.2(k).

Q: How does AFIDA define "agricultural land"?

Under AFIDA, the term "agricultural land" means "any land located in one or more States and used for agricultural, forestry, or timber production purposes." 7 U.S.C. § 3508(1). AFIDA's

associated regulations further define "agricultural land" as land totaling 10 or more acres in the aggregate that is used for forestry production or land currently used, or used within the past 5 years, for farming, ranching, or timber production. 7 C.F.R. § 781.2(b). Land totaling less than 10 acres in the aggregate that generates annual gross receipts exceeding $1,000 from the sale of agricultural or timber products is considered "agricultural land." Land used for forestry production is considered "agricultural land" when 10% of the land is "stocked by trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated." 7 C.F.R. § 781.2(b).

In general, farming, ranching, and timber production means growing crops, livestock, or trees. Under AFIDA, farming, ranching, and timber production includes activities listed under the U.S. Department of Labor's Standard Industrial Classification Manual except for the activities set forth in Major Group 07 (Agricultural Services), Industry Group 085 (Forestry Services), and Industry Group 091 (Commercial Fishing). Some activities listed in these classifications include soil preparation services, crop services, other animal services, contracted timber production services, forestry marketing and management plans, and catching or taking of certain fish for a commercial purpose. Accordingly, engaging in these types of activities would not warrant an AFIDA disclosure.

Q: How does AFIDA define "any interest" in agricultural land?

Under AFIDA, "any interest" in agricultural land means "all interest acquired, transferred or held in agricultural lands by a foreign person." 7 C.F.R. § 781.2(c). An "interest" also includes leaseholds that are 10 or more years. There are certain types of ownership or investment interests in agricultural land that are excluded from the meaning of "any interests," such as security interests, leases less than 10 years, contingent future interests, and interests solely in mineral rights. For a complete list of the types of interests excluded from AFIDA's reporting requirement, see 7 C.F.R. § 781.2(c)(1)-(6).

Q: What information must a foreign person include in their disclosure?

The information a foreign person must include in their disclosure is listed at 7 U.S.C. § 3501(a) – (b), (e), (f), 7 C.F.R. § 781.3, and form FSA-153. Depending on the type of foreign person involved in a transaction for agricultural land, USDA may require the party to provide further information.

Q: What are the penalties for noncompliance under AFIDA?

Foreign persons that are determined by USDA to have violated AFIDA by either failing to report, submitting an incomplete report, or reporting false or misleading information may be subject to a fine up to 25% of the foreign person's interest in the agricultural land. Late filings may be penalized at 0.1% of the fair market value of the foreign person's interest in the land for each week the violation continues, up to 25%.

Q: What type of land is under foreign ownership?

AFIDA divides "agricultural land" into four different categories for the report: (1) cropland, (2) pasture, (3) forestland, and (4) other agricultural acreage. According to the most recent AFIDA data, which contains foreign interests through December 31, 2021, 47% of the reported foreign interests in U.S. land are timber or forest, 29% in cropland, and 22% in pastureland and other agricultural land.

Q: How much U.S. agricultural land do foreign persons own?

As of December 31, 2021, foreign persons reported holding an interest in over 40 million acres of U.S. agricultural land. This accounts for 3.1% of all privately held U.S. agricultural land and 1.8% of all land within the U.S. In the prior year's data, foreign persons reported interests in nearly 37.6 million acres (or 2.9%) of private agricultural land.

Q: What countries are represented by foreign investors of farmland?

There are foreign investors from over 100 different countries that have an interest in U.S. land. Canadian investors own the largest amount of agricultural and non-agricultural acreage in the U.S. at 12.8 million acres, which represents 31% of all foreign-owned land. Investors from the Netherlands own 12% of all foreign-owned land, Italy is at 7%, and the United Kingdom and Germany each representing 6%.

Q: How much U.S. land does China own?

The most recent AFIDA data reports that China owns 194,179 agricultural acres within the U.S. According to this report, China owns 383,935 acres of agricultural and non-agricultural land, which is less than 1% of all foreign-owned acres.

Q: What state has the highest agricultural acreage of foreign ownership?

The most recent AFIDA data reports that Texas has the most foreign-held agricultural land at 4,719,144 acres, which is 3.1% of all the state's private agricultural land. Texas is followed by Maine (3,504,096 acres), Alabama (1,780,937 acres), Colorado (1,766,890 acres), and Oklahoma (1,529,397 acres). To view all foreign investments by state, see Report 1 (pp. 12-13) of FSA's most recent AFIDA report.

Q: What state has the highest percentage of foreign ownership?

Through December 31, 2021, Maine has 20.1% of its private agricultural land held by foreign persons. Hawaii has the second highest percentage of foreign-held agricultural land (9.2%), followed by Alabama (6.3%), Florida (6.3%), and Louisiana (5.8%). Thus, these states account for approximately 20.9% of foreign-owned agricultural land within the U.S.

Q: Is Congress considering amendments to any provisions of AFIDA?

Yes, there has been a few proposals introduced in Congress that seek to amend certain provisions of AFIDA. For example, the Farmland Security Act of 2022 (S. 4667) would establish a public database that updates foreign investments in U.S. agricultural land in real time. Another proposal, the Securing America's Land from Foreign Interference Act (S. 4703), seeks to revise the penalty provision under AFIDA. Under current law, persons determined by USDA to have violated AFIDA are subject to a fine up to 25% of the foreign person's interest in the agricultural land. This bill seeks to amend this provision by directing USDA to impose a fine no less than 10%, or more than 25%, of the fair market value of a violator's interest in the agricultural land.

Other measures seeking to amend certain provisions of AFIDA include the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 2023 (S. 4661) and the Security and Oversight for International Landholdings Act ("SOIL Act") of 2022 (S. 4821).

Another bill known as the United States Innovations and Competition Act of 2021 (H.R. 4521) sought to amend AFIDA by including a new section to the law that would require USDA to establish and update every 90 days a database listing foreign landholdings of agricultural land within the U.S. However, this provision was not included in the final version of the bill that was passed in Congress.

On December 29, 2022, a spending package for FY23 known as the Consolidated Appropriations Act, 2023 ("CAA") (H.R. 2617) was signed into law. Section 773 of the legislation contained amendments to AFIDA.

Q: What changes did the Consolidated Appropriations Act, 2023 bring to AFIDA?

First, the CAA requires USDA to report to Congress on "foreign investments in agricultural land in the United States, including the impact foreign ownership has on family farms, rural communities, and the domestic food supply." A similar type of report was required under the original language of AFIDA at 7 U.S.C. § 3504, but that provision was repealed in 1998. As required under the CAA, USDA will again be required to report certain data and analysis concerning foreign ownership and investments in U.S. farmland to Congress.

Second, the law requires USDA, within three years, to establish a process so that "foreign persons" required to report their agricultural landholdings under AFIDA can submit their disclosure electronically. Currently, foreign persons required to disclose their interests in U.S. farmland to USDA must generally complete and submit form FSA-153 to the FSA office in the county where the land is located. Thus, under the direction of the CAA, USDA must make disclosures available for online submission.

Third, the CAA directs USDA to establish "an internet database that contains disaggregated data from each disclosure submitted." The database will include data from every disclosure submitted to USDA since the implementation of AFIDA, and all future disclosures submitted to the agency. The law requires USDA to organize the database information into two separate categories of

foreign persons: (1) foreign individuals and (2) foreign persons that are not individuals or a government (i.e., foreign business entities). For investments of a foreign individual, the database will indicate and be organized based on the citizenship of the individual. If the "foreign person" is a foreign business, the data will be organized based on (i) the nature of the business entity; (ii) the country where foreign business entity is organized; and (iii) its principal place of business. Although the CAA requires USDA to establish a database that provides information concerning foreign ownership and investments in U.S. agricultural land, the law requires the agency to implement a "process to ensure the protection of personally identifiable information."

Q: What other actions has Congress taken concerning AFIDA?

Aside from these legislative proposals, Congress has also requested an investigation in foreign farmland ownership. On October 1, 2022, U.S. House Republicans sent a letter to the Governmental Accountability Office ("GAO") requesting a study on foreign transactions and acquisitions in U.S. agricultural land and its "impact on national security, trade, and food security." The group of policymakers also requested this study to evaluate USDA's procedures for collecting AFIDA data and whether these procedures ensure accurate disclosure of foreign ownership in U.S. farmland. The letter—including a complete list of issues House Republicans want GAO to address in a study—is available on the Republican's House Committee on Agriculture website.

FEDERAL PROPOSALS

Q: Is there a federal foreign ownership restriction?

Currently, no federal law exists that restricts foreign persons from acquiring or holding U.S. agricultural land. The federal government only monitors foreign investments in U.S. agricultural land through AFIDA.

Q: Has Congress proposed a federal restriction?

Yes, there were numerous proposals introduced in the 117th Congress (2021-2022) that sought to increase oversight and restrict foreign investments and acquisitions of U.S. land. Some of these measures sought to only prohibit the Chinese government and Chinese-owned entities from owning or investing in agricultural land, such as the Countering Communist China Act (H.R. 4792) and the Prohibition of Agricultural Land for the People's Republic of China (H.R. 7892). Other measures (H.R. 4502; H.R. 8239; H.R. 8294) sought to compel USDA to take steps to prevent companies owned by China, Russia, North Korea, and Iran from purchasing agricultural land within the U.S. The 117th Congress also considered measures that sought to restrict foreign investments not only in agricultural land, but all public and private real estate located in the U.S., such as the Securing America's Land from Foreign Interference Act (S. 4703/H.R. 3847) and the Protecting our Land Act (H.R. 8652).

Currently, the 118th Congress (2023-2024) is considering several proposals that seek to restrict certain foreign purchases and acquisitions of U.S. land. Some of these measures were considered during the previous legislative session, but have been reintroduced during the current

congressional session, such as the Prohibition of Agricultural Land for the People's Republic of China Act (H.R. 809), the protecting our Land Act (H.R. 212), and the Securing America's Land from Foreign Interference Act (H.R. 344).

The Protecting our Land Act seeks to require the President to "direct the heads of Federal departments and agencies to promulgate rules and regulations to prohibit the purchase of public of private real estate…by a foreign adversary, a state sponsor of terrorism,…any agent or instrumentality…or any person owned or controlled by, or affiliated with" such foreign parties. The Securing America's Land from Foreign Interference Act would direct the President to "take such actions as may be necessary to prohibit the purchase of public and private real estate…by members of the Chinese Communist Party and entities that are under the ownership, control, or influence" of the Chinese government.

Additionally, the Promoting Agriculture Safeguards and Security Act ("PASS Act") of 2023 (S. 168/H.R. 683) has been reintroduced in the 118th Congress.

This measure would require the President to prohibit transactions that "would result in control by a covered foreign person of or investment by a covered foreign person in a United States business engaged in agriculture or private real estate used in agriculture." Under the PASS Act, a "covered foreign person" includes individuals or entities and its subsidiaries that are domiciled or acting on behalf of China, Russia, Iran, or North Korea.

Other measures that have been introduced in the 118th Congress include the This Land Is Our Land Act (S. 684), which seeks to restrict certain foreign individuals and entities domiciled in or associated with China from obtaining an interest in farmland, and the Saving American Farms from Adversaries Act (H.R. 840), which would require the President to take actions necessary "to prohibit the purchase of public or private real estate…by any foreign person" for a five-year period.

Q: What about the 2023 Farm Bill?

Because federal policymakers have become increasingly concerned about foreign investments in U.S. agricultural land, coupled with the number federal foreign ownership proposals being considered in Congress, it is likely a foreign ownership restriction will be proposed as part of the upcoming 2023 Farm Bill. The information provided here will be updated once more information is available.

MISCELLANEOUS

Q: Can foreign persons participate and receive benefits through USDA programs? What about foreign persons participating in USDA programs?

There are some USDA-administered programs, such as certain Disaster Assistance Programs and Market Facilitation Program, which foreign persons are not eligible to participate. Other farm programs, like the Agricultural Risk Coverage and Price Loss Coverage programs, exclude foreign persons from receiving program benefits unless they satisfy the "foreign person rule." To

satisfy this rule, a foreign person must contribute significant capital, land, and labor to a farming operation in order to receive program benefits.

Q: Is Congress considering any proposals to prevent foreign participation in farm programs?

Yes, there is legislation that has been introduced in the 117th Congress (2021-2022) that seeks to restrict foreign persons from participating in certain USDA-administered programs. For example, the Countering Communist China Act (H.R. 4792) seeks to restrict farmland owned by China or companies owned by China from participating in USDA programs. Another bill, known as the Farm Credit for Americans Act of 2022 (S. 4954), seeks to amend the Farm Credit Act by making foreign persons ineligible for "any credit or financial services provided by a Farm Credit System institution."

Q: Has Congress proposed legislation to increase oversight of foreign investments in agriculture?

During the 117th Congress, a number of bills were introduced that sought to amend the Defense Production Act ("DPA") of 1950 to place the Secretary of USDA in the Committee on Foreign Investment in the United States ("CFIUS"). The proposals that sought to add USDA as a member of CFIUS include:

- Foreign Adversary Risk Management Act ("FARM" Act) (H.R. 5490)
- Agricultural Security Risk Act (H.R. 3413/S.1755)
- Food Security is National Security Act (S. 3089)
- Promoting Agriculture Safeguards and Security Act ("PASS" Act) (H.R. 8274/S. 4786)
- Security and Oversight for International Landholdings Act ("SOIL Act") of 2022 (S. 4821)

Some of these measures have been reintroduced in the 118th Congress, such as the FARM Act (S. 68/H.R. 513) and the PASS Act (S. 168/H.R. 683)

Q: What is CFIUS?

CFIUS is a multi-government agency entity that is authorized by the DPA (50 U.S.C. § 4565) to review certain transactions involving foreign investments and acquisitions of American companies and real estate to determine whether there is a threat to national security. Essentially, CFIUS has the power to suspend, renegotiate, and impose conditions to transactions (whether pending or already completed) that may pose a risk to the national security of the U.S. In other words, the Committee uses these measures to mitigate any threat to national security that arises from a transaction. Transactions that may pose a risk to the national security, for example, are investments and acquisitions of critical infrastructure, such as transportation, telecommunication, public health, and energy. CFIUS also closely reviews investments in critical technologies. In general, these technologies are created or used by certain U.S. businesses and industries that are essential to the nation's economic and national security.

Q: How does adding USDA as a member of CFIUS increase oversight of foreign investments in agriculture?

Specifically, these bills seek to require CFIUS to consider agriculture-specific criteria when determining whether a foreign investment poses a risk to the United States national security. For example, some proposals incorporate provisions that direct CFIUS to review or investigate transactions that could result in foreign control of a U.S. business that engages in agriculture. Other proposals seek to include "security of food and agriculture systems" and "biotechnology related to the agriculture sector" as "critical infrastructure under the DPA. As a result, this would place the agricultural industry and food supply chains as areas CFIUS can consider as it relates to national security, meaning agriculture and food security will be considered as matters of national security. According to some sponsors of these bills, placing USDA as a CFIUS member will provide leverage to protect the interests of the agricultural industry in foreign investments and acquisitions of U.S. agricultural businesses.

Q: Why are there foreign investments in states that have enacted a foreign ownership law?

Each state that currently restricts foreign ownership includes exceptions to their restriction. In other words, states' laws exempt certain foreign parties, agricultural practices, landholdings, and land use activities from the restriction. Many of these states' laws include an acreage limit or cap to its restriction. In other words, a state's foreign ownership law will only restrict a foreign investment in farmland if the investment exceeds a specified number of acres. For example, Wisconsin's foreign ownership law caps foreign ownership to 640 acres before the restriction applies.

Some states also permit foreign persons to convert agricultural land into some use other than farming. Other states have an "estate exception" for situations where a foreign person obtains ownership of agricultural land by inheritance or through the terms of a person's will. Further, other states' laws permit foreign persons to acquire and hold title to farmland resulting from their enforcement of a lien against the property.

Additionally, foreign persons obtain an interest in real estate using different types of business entities and trusts that invests in property, such as a real estate investment trust ("REIT").

Q: What is a REIT?

In general, a REIT is an entity that invests, owns, and operates real estate that generates income. Created in 1960 with the enactment of the REIT Act (a provision of the Cigar Excise Tax Extension Act), REITs were established to provide real estate investors the same benefits offered to mutual funds investing in stocks. REITs invest in various types of real property, such as office buildings, housing units, farmland, and forestland. The income generated from REIT-owned property is then distributed to its investors. Thus, REITs provide persons the ability to invest in real estate without having to hold the property directly.

Investing in REITs are sometimes attractive to foreign investors for a couple of reasons. First, a foreign person investing in a REIT is not taxed on their worldwide income, just the dividends

from their REIT investment. Second, investing in REITs permit foreign investors the ability to hold an ownership interest in U.S. property without having to manage the day-to-day activities of the property. In other words, foreign persons do not have to reside—or spend a significant number of days—in the U.S. to profit on income-producing U.S. property.

Utah Enacts Law Prohibiting Certain Foreign Investments in Land

On March 13, 2023, Utah Governor Spencer Cox signed into law House Bill 186 ("HB 186")—also known as the "Restrictions on Foreign Acquisitions of Land Act"—which seeks to restrict certain foreign purchases of real property located within the state. In 2023, the majority of states have proposed at least one piece of legislation that seeks to prohibit or restrict foreign investments and landholdings in land—specifically private farmland—located within their state to some degree. Utah is the first state in 2023 to enact a foreign ownership law. By enacting HB 186, Utah joins fourteen other states that have laws that specifically forbid or limit certain foreign investors from acquiring or owning an interest in land located within their state.

House Bill 186

Like the other fourteen states that have a foreign ownership law, Utah takes its own approach to restricting foreign investments. In general, HB 186 prohibits a "restricted foreign entity" from acquiring an "interest in land" within the state. The definitions contained in any piece of legislation are important because they provide context to how the words or phrases are to be understood throughout the legislative text. This is especially true for legislation that seeks to restrict certain foreign investors from purchasing specific types of real estate within the state.

HB 186 defines "interest in land" as "any right, title, lien, claim, interest, or estate with respect to land." Because "interest" is broadly defined, a "restricted foreign entity" is most likely in violation of the restriction prescribed under HB 186 if they acquire any property interest, including leaseholds and security interests in Utah land.

The law defines "land" to mean all real estate located in the state. Furthermore, the law specifies that "land" includes various types of real property, such as private land, public land, waters of the state, subsurface land, and agricultural land. Under Utah state law, "agricultural land" is "land devoted to the raising of useful plants and animals with a reasonable expectation of profit, including: (i) forages and sod crops; (ii) grains and feed crops; (iii) livestock…; (iv) trees and fruits; or (v) vegetables, nursery, floral, and ornamental stock…." *See* Utah Code Ann. §§ 4-46-102(1); 59-2-502(4)(a).

Under HB 186, a "restricted foreign entity" means a military company required to be identified by the U.S. Department of Defense ("DOD") under Section 1260H of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 ("NDAA 2021"). Under Section 1260H, DOD is required to identify Chinese military companies operating directly or indirectly in the U.S. The NDAA 2021 defines "Chinese military company" as an entity: (i) "directly or indirectly owned, controlled, or beneficially owned by…the People's Liberation Army or any other organization subordinate to the Central Military Commission of the Chinese Communist Party; (ii) contributing to the Chinese "defense industrial base"; or (iii) "engaged in providing commercial services, manufacturing, producing or exporting".

A business entity that is affiliated with or a holding company of a company identified under DOD's list is considered a "restricted foreign entity" under HB 186. In other words, subsidiaries or shell corporations for the listed entities are also restricted from acquiring Utah land.

Further, a country that has a listed company as part of their "commercial or defense industrial base" is also considered a "restricted foreign entity". In general, a "defense industrial base" is a collection of businesses that provide goods and services to satisfy the needs of a country's military. Because some or all the companies identified under DOD's list are part of China's defense industrial base, the country China is a "restricted foreign entity" and is prohibited from acquiring land within Utah. The restriction under HB 186 extends to China's governmental entities, committees, and agencies.

Although HB 186 restricts China, its governmental entities and institutions, and Chinese military companies identified by DOD from acquiring an interest in land located in Utah, there are some exceptions to the restriction. Specifically, HB 183 exempts restricted foreign entities that acquired an interest in land before May 3, 2023:

- By purchase, grant, gift, donation, devise, or bequest;
- As security for the repayment of a debt; or
- As a party to a contract for the transfer or conveyance of an interest in land to the restricted foreign entity.

Also, the law permits a restricted foreign entity that acquires land on or after May 3, 2023, by grant, gift, donation, devise, or bequest to hold that property up to five years from the date of acquisition, but the foreign party must divest or transfer their interest in the land before the five-year period expires. If a restricted foreign party fails to do so, their interest in the land escheats to the state, meaning the state takes ownership of the land. However, HB 186 does not specify who has authority to bring an escheat action against a restricted foreign entity suspected of violating this provision. Some states that have enacted foreign ownership laws authorize the state's attorney general to bring an escheat action against a suspected violator of the law, but Utah's law is unclear on the procedure for enforcement of this provision.

Under Utah's HB 186, the law provides that a "deed or other written instrument…purporting to convey an interest in land to a restricted foreign entity in violation of [this law] is invalid." While this provision penalizes a restricted foreign entity for acquiring land in violation of the law by invalidating their ownership, this provision could possibility raises title issues. Essentially, the law does not specify what happens to title to the land after a conveyance is deemed invalid. As a result, it is unclear who owns the land once a transaction is invalidated.

Conclusion

Utah may not be the only state in 2023 to enact a law that restricts certain foreign acquisitions of land within their state. Since the beginning of 2023, the majority of states have proposed at least one piece of legislation to prohibit or restrict foreign investments and landholdings in land—specifically private farmland—located within their state to some degree. NALC is tracking each

states' foreign ownership proposal(s) and will update its Statutes Regulation Ownership of Agricultural Land compilation when there are changes to a state's law.

Idaho Enacts Law Limiting Foreign Investments in Agricultural Land

On April 3, 2023, Idaho Governor Brad Little signed into law House Bill 173 ("H 173") which seeks to restrict certain foreign purchases of farmland located within the state. In 2023, the majority of states have proposed at least one piece of legislation that seeks to prohibit or restrict foreign investments and landholdings in land, specifically agricultural land, within the boundaries of their states to some degree. Idaho is one of four states—along with Arkansas, Utah, and Virginia—to enact a foreign ownership law in 2023.

Background

Ownership of U.S. land, specifically agricultural lands, by foreign persons or entities has been an issue that traces to the origins of the United States. Today, approximately eighteen states specifically forbid or limit nonresident aliens, foreign businesses and corporations, and foreign governments from acquiring or owning an interest in agricultural land within their state. To see a compilation of the various restrictions enacted by each state, check out the National Agricultural Law Center's "Statutes Regulating Ownership of Agricultural Land" chart.

Although these states have instituted restrictions, each state has taken its own approach. In other words, a uniform approach to restricting foreign ownership has not yet been established because state laws vary widely. For instance, each state's statute may define "agricultural land" and "farming" differently, only restrict certain types of foreign investors, make distinctions between resident and nonresident aliens, allow foreign purchasers to acquire up to a certain acreage amount of farmland, and provide different enforcement procedures and penalties for alleged violators.

Most states have not enacted restrictions or prohibitions on foreign ownership of privately held agricultural land. Rather, most of these states expressly allow foreign ownership of real property within their state. Before the enactment of H 173, Idaho was a prime example of such a state. In general, these states provide foreign persons and entities the same real property rights as natural born citizens of their state. For example, Idaho state law previously permitted an "alien" to "take, hold, and dispose of property, real or personal." Idaho Code Ann. § 55-103 (effective to April 2, 2023; repealed by H 173). Accordingly, with the enactment of H 173, certain foreign investors are prohibited from acquiring the state's farmland.

H 173

Like the other seventeen states that have a foreign ownership law, Idaho takes its own approach to restricting foreign investments. Specifically, H 173 prohibits a "foreign government" and a "foreign state-controlled enterprise" from purchasing, acquiring, or holding a "controlling interest" in Idaho "agricultural land, water rights, mining claims, or mineral rights…." Although all foreign ownership laws prohibit or restrict foreign ownership of agricultural land, many states' laws exempt certain foreign interests in oil, gas, and other mineral rights in the land.

Unlike those states, H 173 expressly prohibits certain foreign acquisitions in not just agricultural land, but rights and claims to minerals and water on any land located within Idaho.

In general, the definitions contained in any piece of legislation are important because they provide context to how the words or phrases are to be understood throughout the legislative text. This is especially true for legislation that seeks to restrict certain foreign investors from purchasing specific types of real estate within the state. H 173 defines "agricultural land" as "land actively devoted to agricultural purposes" as provided in I.C. § 63-604, and "mineral right" as defined under I.C. § 47-701. A "water right" is a legal right to the "use of water for beneficial purposes." I.C. § 42-230(e). Further, the law defines "mineral claim" as "a portion of land containing minerals that a miner has a right to occupy and possess for the purpose of extracting minerals."

H 173 defines "foreign government" as a government other than the U.S. government and the governments of any U.S. state, territory, or possession. A "state-controlled enterprise" includes business entities and wealth or investments funds which a foreign government has a controlling interest. Under the law, a "controlling interest" means: (i) an ownership interest in an entity that is more than 50%, or (ii) 50% or less ownership interest in an entity, but a foreign government "directs the business and affairs of the entity without the requirement or consent of any other party." Accordingly, an entity is a "state-controlled enterprise" restricted from acquiring Idaho agricultural land if a foreign government owns 50.1% or more interest in the enterprise, or an interest 50% or less in the business entity whose business decisions are controlled by a foreign government.

Like every foreign ownership law, H 173 contains exceptions to the restriction prescribed under the law. Even so, the exceptions under Idaho's law are limited compared to several states' foreign ownership laws. First, the law includes a "grandfather clause," which exempts certain persons from the requirements of a law by allowing these persons to continue with the activities that were permissible before the implementation of the new law. Under H 173, foreign governments and foreign state-controlled enterprises that held an interest in agricultural land, water and mineral rights, and mining claims before April 2, 2023, may continue to own those rights and lands without being in violation of the law.

Second, the restriction prescribed under H 173 does not apply to a "foreign pension fund." The law defines "foreign pension fund" as an entity or trust—created under the laws of a foreign government—which provides retirement or pension fund benefits. This definition expressly excludes trusts and entities "owned by or subject to a controlling interest of a sovereign wealth fund" (i.e., a state-owned investment fund). Thus, private foreign investment and trust companies are the types of entities generally exempt from the restriction under H 173.

Although H 173 now restricts foreign governments and state-controlled enterprises from acquiring farmland within the state, the law is silent on enforcement. Many states' foreign ownership laws contain an enforcement provision. These states generally authorize their state's attorney general to bring legal action against a suspected violator. Usually, if a foreign party is found to be in violation of the restriction, these states' laws direct a judge to order the agricultural land be sold through judicial foreclosure or public auction. Essentially, H 173 does

not contain a similar provision, meaning there are no specific procedure for the enforcement of the restriction prescribed under the law.

Conclusion

Arkansas, Idaho, Utah, and Virginia may not be the only states in 2023 to enact a law that restricts certain foreign acquisitions of land within their state. In fact, proposals in Montana (SB 203) and North Dakota (HB 1135) have been passed by the legislature but are not yet fully enacted. NALC is tracking each states' foreign ownership proposal(s) and will update its *Statutes Regulating Ownership of Agricultural Land* compilation when there are changes to a state's law.

Prop 65: What Happens in California Isn't Staying in California

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Label-Free: Court Concludes No Warning Label for Glyphosate

A federal judge in the Eastern District of California has upheld the court's earlier decision that the state of California cannot require that cancer warning labels be placed on glyphosate-based products under California's Safe Drinking Water and Toxic Enforcement Act of 1986, commonly known as Proposition 65. The opinion, ***Nat'l Ass'n of Wheat Growers v. Becerra*, No. 2:17-cv-02401 (E.D. Cal.)**, was issued June 22, 2020 and concludes that it would be a violation of the First Amendment of the United States Constitution to do so.

Proposition 65

The California state law known as Proposition 65 requires the Governor of California to publish a list of chemicals known to the state to cause cancer. The California Office of Environmental Health Hazard Assessment ("OEHHA") is the state agency with authority to administer Proposition 65 and maintains the list of known carcinogens. As part of that list, OEHHA is required to include any chemical identified by the International Agency for Research on Cancer ("IARC") identifies as a carcinogen.

Proposition 65 also requires any person in the course of doing business to provide a "clear and reasonable" warning if they knowingly expose another person to one of the chemicals listed as a known carcinogen. Although the text of the statute does not specify what qualifies as a "clear and reasonable" warning, it gives two examples of "safe harbor" warnings which will satisfy the warning requirements of Proposition 65 when placed on products that contain chemicals listed under the statute. Both of these warnings are broad and state that the products on which they are placed are known to cause cancer.

Background

In 2015, IARC issued a report which identified glyphosate as a "probable human carcinogen." As a result, glyphosate was listed under Proposition 65 and any product containing glyphosate was required to bear a warning label stating that the product was known to cause cancer. Glyphosate is one of the widest used pesticides in the United States. It is the primary ingredient of Roundup, a pesticide developed by Monsanto Company ("Monsanto"), now owned by Bayer. Roundup is registered under the Federal Insecticide, Fungicide, and Rodenticide Act and approved for use on over 100 food crops.

This case was originally filed in 2017 by a coalition of agriculture groups including Monsanto. In the original complaint, the plaintiffs argued that requiring Proposition 65 warning labels to be placed on all products containing glyphosate would violate the United States Constitution. First, the plaintiffs claimed that requiring warning labels to be put on any products containing glyphosate would violate the Free Speech Clause of the First Amendment by compelling speech that is "false and misleading." Second, the plaintiffs alleged that OEHHA has violated Article VI, Clause 2 of the United States Constitution, commonly known as the Supremacy Clause, which provides that state laws that conflict with federal law

are preempted and have no legal effect. The plaintiffs asked the court to issue an injunction, a court order that would prevent required labeling for pesticide products.

In 2018, the court issued such an order. The 2018 order was a preliminary injunction, meaning that the order was issued to maintain the status quo of the issues being litigated. To get a preliminary injunction, a party must show that it will suffer irreparable harm unless the injunction is issued. When making that determination, a court will consider whether the plaintiff is likely to succeed on the merits, whether the plaintiff is likely to suffer irreparable harm without the injunction, whether the balance of equities and hardships is in the plaintiff's favor, and whether an injunction is in the public interest. In this case, the court felt irreparable harm would take place if manufacturers were required to put Proposition 65 warning labels on glyphosate products before the case was fully resolved.

In its June 22 order, the court has granted a permanent injunction, meaning that the underlying issues have been resolved and glyphosate products will not require Proposition 65 labels going forward.

Court Opinion

In its opinion, the court concluded that requiring glyphosate products to bear Proposition 65 labels was a violation of the First Amendment of the United States Constitution. Although Proposition 65 itself does not violate the First Amendment, the court found that it was unconstitutional as applied to glyphosate.

In reaching this conclusion, the court first noted that the label required by Proposition 65 was "compelled commercial speech." This means that the labels are speech that is legally required within the realm of commerce. In this case, Proposition 65 would have required any business to provide warnings if they knowingly exposed another person to glyphosate. In the vast majority of cases, the First Amendment prevents the government from either preventing or requiring a private party to make speech. However, the government *can* compel speech in certain circumstances, such as to protect public healthy and safety. Proposition 65 labels fall into the category of compelled commercial speech that is typically permitted because it protects public health and safety.

When reviewing challenges to Proposition 65 labels, the government has the burden of showing that the commercial speech it was compelling was "purely factual and uncontroversial." If the government cannot show do so, it must show that the speech is "neither misleading nor connected to unlawful activity." If the government cannot prove either of those things, then requiring the speech will violate the First Amendment, and may not be compelled.

Here, the court concluded that the Proposition 65 warning labels claiming that glyphosate was a known carcinogen failed both tests. According to the court, it was not factual to state that glyphosate was known to cause cancer when only IARC had identified glyphosate as a "probable human carcinogen." The court noted that other entities, including the Environmental Protection Agency and the World Health Organization, have concluded that glyphosate does not cause cancer or that there is not enough data to conclude that glyphosate is carcinogenic. Therefore, it would not be "factual" to state that glyphosate is known to cause cancer, failing the first of the government's tests. The court used the same reasoning to conclude that the government did not meet the second test, and it would be "misleading" to state that glyphosate is known to cause cancer.

Because the government did not meet either test, the court determined that it would be a violation of the First Amendment to require Proposition 65 labels be placed on products containing glyphosate.

Going Forward

Following this decision, glyphosate is not subject to the warning requirements of Proposition 65. This means that anyone doing business in the state of California knowing that they will be exposing others to glyphosate, will not have to provide a warning. That includes a variety of people, ranging from retailers selling Roundup, groundskeeping businesses and those who employ them, and growers selling produce that has been exposed to glyphosate.

At this time, it is unknown whether the defendants will appeal this case. They have 30 days from the date that the judgement is filed in this case to appeal the court's decision. If they do appeal, they will do so to the Ninth Circuit.

This case does not affect any other litigation involving glyphosate, or any settlement that may be reached in other glyphosate cases.

HEALTH AND SAFETY CODE - HSC

DIVISION 20. MISCELLANEOUS HEALTH AND SAFETY PROVISIONS [24000 - 26275]

(Division 20 enacted by Stats. 1939, Ch. 60.)

CHAPTER 6.6. Safe Drinking Water and Toxic Enforcement Act of 1986 [25249.5 - 25249.14]

(Chapter 6.6 added November 4, 1986, by initiative Proposition 65, Sec. 2.)

25249.5. Prohibition On Contaminating Drinking Water With Chemicals Known to Cause Cancer or Reproductive Toxicity. No person in the course of doing business shall knowingly discharge or release a chemical known to the state to cause cancer or reproductive toxicity into water or onto or into land where such chemical passes or probably will pass into any source of drinking water, notwithstanding any other provision or authorization of law except as provided in Section 25249.9.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.6. Required Warning Before Exposure To Chemicals Known to Cause Cancer Or Reproductive Toxicity. No person in the course of doing business shall knowingly and intentionally expose any individual to a chemical known to the state to cause cancer or reproductive toxicity without first giving clear and reasonable warning to such individual, except as provided in Section 25249.10.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.7. (a) A person who violates or threatens to violate Section 25249.5 or 25249.6 may be enjoined in any court of competent jurisdiction.
(b) (1) A person who has violated Section 25249.5 or 25249.6 is liable for a civil penalty not to exceed two thousand five hundred dollars ($2,500) per day for each violation in addition to any other penalty established by law. That civil penalty may be assessed and recovered in a civil action brought in any court of competent jurisdiction.

(2) In assessing the amount of a civil penalty for a violation of this chapter, the court shall consider all of the following:

(A) The nature and extent of the violation.

(B) The number of, and severity of, the violations.

(C) The economic effect of the penalty on the violator.

(D) Whether the violator took good faith measures to comply with this chapter and the time these measures were taken.

(E) The willfulness of the violator's misconduct.

(F) The deterrent effect that the imposition of the penalty would have on both the violator and the regulated community as a whole.

(G) Any other factor that justice may require.

(c) Actions pursuant to this section may be brought by the Attorney General in the name of the people of the State of California, by a district attorney, by a city attorney of a city having a population in excess of 750,000, or, with the consent of the district attorney, by a city prosecutor in a city or city and county having a full-time city prosecutor, or as provided in subdivision (d).
(d) Actions pursuant to this section may be brought by a person in the public interest if both of the following requirements are met:

(1) The private action is commenced more than 60 days from the date that the person has given notice of an alleged violation of Section 25249.5 or 25249.6 that is the subject of the private action to the Attorney General and the district attorney, city attorney, or prosecutor in whose jurisdiction the violation is alleged to have occurred, and to the alleged violator. If the notice alleges a violation of Section 25249.6, the notice of the alleged violation shall include a certificate of merit executed by the attorney for the noticing party, or by the noticing party, if the noticing party is not represented by an attorney. The certificate of merit shall state that the person executing the certificate has consulted with one or more persons with relevant and appropriate experience or expertise who has reviewed facts, studies, or other data regarding the exposure to the listed chemical that is the subject of the action, and that, based on that information, the person executing the certificate believes there is a reasonable and meritorious case for the private action. Factual information sufficient to establish the basis of the certificate of merit, including the information identified in paragraph (2) of subdivision (h), shall be attached to the certificate of merit that is served on the Attorney General.

(2) Neither the Attorney General, a district attorney, a city attorney, nor a prosecutor has commenced and is diligently prosecuting an action against the violation.

(e) (1) (A) If, after reviewing the factual information sufficient to establish the basis for the certificate of merit and meeting and conferring with the noticing party regarding the basis for the certificate of merit, the Attorney General believes there is no merit to the action, the Attorney General shall serve a letter to the noticing party and the alleged violator stating the Attorney General believes there is no merit to the action.

(B) If the Attorney General does not serve a letter pursuant to subparagraph (A), this shall not be construed as an endorsement by the Attorney General of the merit of the action.

(2) A person bringing an action in the public interest pursuant to subdivision (d) and a person filing an action in which a violation of this chapter is alleged shall notify the Attorney General that the action has been filed. Neither this subdivision nor the procedures provided in subdivisions (f) to (k), inclusive, affect the requirements imposed by statute or a court decision

in existence on January 1, 2002, concerning whether a person filing an action in which a violation of this chapter is alleged is required to comply with the requirements of subdivision (d).

(f) (1) A person filing an action in the public interest pursuant to subdivision (d), a private person filing an action in which a violation of this chapter is alleged, or a private person settling a violation of this chapter alleged in a notice given pursuant to paragraph (1) of subdivision (d), shall, after the action or violation is subject either to a settlement or to a judgment, submit to the Attorney General a reporting form that includes the results of that settlement or judgment and the final disposition of the case, even if dismissed. At the time of the filing of a judgment pursuant to an action brought in the public interest pursuant to subdivision (d), or an action brought by a private person in which a violation of this chapter is alleged, the plaintiff shall file an affidavit verifying that the report required by this subdivision has been accurately completed and submitted to the Attorney General.

(2) A person bringing an action in the public interest pursuant to subdivision (d), or a private person bringing an action in which a violation of this chapter is alleged, shall, after the action is either subject to a settlement, with or without court approval, or to a judgment, submit to the Attorney General a report that includes information on any corrective action being taken as a part of the settlement or resolution of the action.

(3) The Attorney General shall develop a reporting form that specifies the information that shall be reported, including, but not limited to, for purposes of paragraph (2) of subdivision (e), the date the action was filed, the nature of the relief sought, and for purposes of this subdivision, the amount of the settlement or civil penalty assessed, other financial terms of the settlement, and any other information the Attorney General deems appropriate.

(4) If there is a settlement of an action brought by a person in the public interest under subdivision (d), the plaintiff shall submit the settlement, other than a voluntary dismissal in which no consideration is received from the defendant, to the court for approval upon noticed motion, and the court may approve the settlement only if the court makes all of the following findings:

(A) The warning that is required by the settlement complies with this chapter.

(B) The award of attorney's fees is reasonable under California law.

(C) The penalty amount is reasonable based on the criteria set forth in paragraph (2) of subdivision (b).

(5) The plaintiff subject to paragraph (4) has the burden of producing evidence sufficient to sustain each required finding. The plaintiff shall serve the motion and all supporting papers on the Attorney General, who may appear and participate in a proceeding without intervening in the case.

(6) Neither this subdivision nor the procedures provided in paragraph (2) of subdivision (e) and subdivisions (g) to (k), inclusive, affect the requirements imposed by statute or a court decision in existence on January 1, 2002, concerning whether claims raised by a person or public prosecutor not a party to the action are precluded by a settlement approved by the court.

(g) The Attorney General shall maintain a record of the information submitted pursuant to subdivisions (e) and (f) and shall make this information available to the public.
(h) (1) The basis for the certificate of merit required by subdivision (d) is discoverable only to the extent that the information is relevant to the subject matter of the action and not subject to the attorney-client privilege, the attorney work product privilege, or any other legal privilege.

(2) Upon the conclusion of an action brought pursuant to subdivision (d) with respect to a defendant, if the trial court determines that there was no actual or threatened exposure to a listed chemical, the court may, upon the motion of that alleged violator or upon the court's own motion, review the basis for the belief of the person executing the certificate of merit, expressed in the certificate of merit, that an exposure to a listed chemical had occurred or was threatened. The information in the certificate of merit, including the identity of the persons consulted with and relied on by the certifier, and the facts, studies, or other data reviewed by those persons, shall be disclosed to the court in an in-camera proceeding at which the moving party shall not be present. If the court finds that there was no credible factual basis for the certifier's belief that an exposure to a listed chemical had occurred or was threatened, then the action shall be deemed frivolous within the meaning of Section 128.5 of the Code of Civil Procedure. The court shall not find a factual basis credible on the basis of a legal theory of liability that is frivolous within the meaning of Section 128.5 of the Code of Civil Procedure.

(i) The Attorney General may provide the factual information submitted to establish the basis of the certificate of merit on request to a district attorney, city attorney, or prosecutor within whose jurisdiction the violation is alleged to have occurred, or to any other state or federal government agency, but in all other respects the Attorney General shall maintain, and ensure that all recipients maintain, the submitted information as confidential official information to the full extent authorized in Section 1040 of the Evidence Code.
(j) In an action brought by the Attorney General, a district attorney, a city attorney, or a prosecutor pursuant to this chapter, the Attorney General, district attorney, city attorney, or prosecutor may seek and recover costs and attorney's fees on behalf of a party who provides a notice pursuant to subdivision (d) and who renders assistance in that action.
(k) Any person who serves a notice of alleged violation pursuant to paragraph (1) of subdivision (d) for an exposure identified in subparagraph (A), (B), (C), or (D) of paragraph (1) shall complete, as appropriate, and provide to the alleged violator at the time the notice of alleged violation is served, a notice of special compliance procedure and proof of compliance form pursuant to subdivision (l) and shall not file an action for that exposure against the alleged violator, or recover from the alleged violator in a settlement any payment in lieu of penalties or any reimbursement for costs and attorney's fees, if all of the following conditions have been met:

(1) The notice given pursuant to paragraph (1) of subdivision (d) was served on or after the effective date of the act amending this section during the 2013–14 Regular Session and alleges that the alleged violator failed to provide clear and reasonable warning as required under Section 25249.6 regarding one or more of the following:

(A) An exposure to alcoholic beverages that are consumed on the alleged violator's premises to the extent onsite consumption is permitted by law.

(B) An exposure to a chemical known to the state to cause cancer or reproductive toxicity in a food or beverage prepared and sold on the alleged violator's premises primarily

intended for immediate consumption on or off premises, to the extent of both of the following:

(i) The chemical was not intentionally added.

(ii) The chemical was formed by cooking or similar preparation of food or beverage components necessary to render the food or beverage palatable or to avoid microbiological contamination.

(C) An exposure to environmental tobacco smoke caused by entry of persons (other than employees) on premises owned or operated by the alleged violator where smoking is permitted at any location on the premises.

(D) An exposure to chemicals known to the state to cause cancer or reproductive toxicity in engine exhaust, to the extent the exposure occurs inside a facility owned or operated by the alleged violator and primarily intended for parking noncommercial vehicles.

(2) Within 14 days after service of the notice, the alleged violator has done all of the following:

(A) Corrected the alleged violation.

(B) (i) Agreed to pay a civil penalty for the alleged violation of Section 25249.6 in the amount of five hundred dollars ($500), to be adjusted quinquennially pursuant to clause (ii), per facility or premises where the alleged violation occurred, of which 75 percent shall be deposited in the Safe Drinking Water and Toxic Enforcement Fund, and 25 percent shall be paid to the person that served the notice as provided in Section 25249.12.

(ii) On April 1, 2019, and at each five-year interval thereafter, the dollar amount of the civil penalty provided pursuant to this subparagraph shall be adjusted by the Judicial Council based on the change in the annual California Consumer Price Index for All Urban Consumers, published by the Department of Industrial Relations, Division of Labor Statistics and Research, for the most recent five-year period ending on December 31 of the year preceding the year in which the adjustment is made, rounded to the nearest five dollars ($5). The Judicial Council shall quinquennially publish the dollar amount of the adjusted civil penalty provided pursuant to this subparagraph, together with the date of the next scheduled adjustment.

(C) Notified, in writing, the person that served the notice of the alleged violation, that the violation has been corrected. The written notice shall include the notice of special compliance procedure and proof of compliance form specified in subdivision (l), which was provided by the person serving notice of the alleged violation and which shall be completed by the alleged violator as directed in the notice.

(3) The alleged violator shall deliver the civil penalty to the person that served the notice of the alleged violation within 30 days of service of that notice, and the person that served the notice of violation shall remit the portion of the penalty due to the Safe Drinking Water and Toxic Enforcement Fund within 30 days of receipt of the funds from the alleged violator.

(l) The notice required to be provided to an alleged violator pursuant to subdivision (k) shall be presented as follows:

* *

NOTICE OF INCOMPLETE TEXT: The Proof of Compliance form
appears in the published bill.
See Sec. 1, Chapter 187 (pp. 7–8), Statutes of 2019.

* *

(m) An alleged violator may satisfy the conditions set forth in subdivision (k) only one time for a violation arising from the same exposure in the same facility or on the same premises.
(n) Nothing in subdivision (k) shall prevent the Attorney General, a district attorney, a city attorney, or a prosecutor in whose jurisdiction the violation is alleged to have occurred from filing an action pursuant to subdivision (c) against an alleged violator. In any such action, the amount of any civil penalty for a violation shall be reduced to reflect any payment made by the alleged violator for the same alleged violation pursuant to subparagraph (B) of paragraph (2) of subdivision (k).
(o) If a violation of this chapter is alleged or the application or construction of provisions of this chapter is at issue in a proceeding in the Supreme Court, court of appeal, or the appellate division of the superior court, each party shall serve a copy of the party's brief or petition and brief, on the Attorney General. Service on the Attorney General shall be accomplished by serving the brief, or petition and brief, on the Proposition 65 coordinator at the service address designated on the Attorney General's internet website for Proposition 65 enforcement reporting. A brief shall not be accepted or filed unless the proof of service shows service on the Attorney General. A party failing to comply with this subdivision shall be given a reasonable opportunity to cure the failure before the court imposes sanction, and, in that instance, the court shall allow the Attorney General reasonable additional time to file a brief in the matter.
(Amended by Stats. 2019, Ch. 187, Sec. 1. (AB 1123) Effective January 1, 2020. Note: See published chaptered bill for complete section text. The Proof of Compliance form appears on pages 7 to 8 of Stats. 2019, Ch. 187. Note: This section was added on Nov. 4, 1986, by initiative Prop. 65.)

25249.8. List Of Chemicals Known to Cause Cancer Or Reproductive Toxicity.
(a) On or before March 1, 1987, the Governor shall cause to be published a list of those chemicals known to the state to cause cancer or reproductive toxicity within the meaning of this chapter, and he shall cause such list to be revised and republished in light of additional knowledge at least once per year thereafter. Such list shall include at a minimum those substances identified by reference in Labor Code Section 6382(b)(1) and those substances identified additionally by reference in Labor Code Section 6382(d).
(b) A chemical is known to the state to cause cancer or reproductive toxicity within the meaning of this chapter if in the opinion of the state's qualified experts it has been clearly shown through scientifically valid testing according to generally accepted principles to cause cancer or reproductive toxicity, or if a body considered to be authoritative by such experts has formally identified it as causing cancer or reproductive toxicity, or if an agency of the state or federal government has formally required it to be labeled or identified as causing cancer or reproductive toxicity.

(c) On or before January 1, 1989, and at least once per year thereafter, the Governor shall cause to be published a separate list of those chemicals that at the time of publication are required by state or federal law to have been tested for potential to cause cancer or reproductive toxicity but that the state's qualified experts have not found to have been adequately tested as required.
(d) The Governor shall identify and consult with the state's qualified experts as necessary to carry out his duties under this section.
(e) In carrying out the duties of the Governor under this section, the Governor and his designates shall not be considered to be adopting or amending a regulation within the meaning of the Administrative Procedure Act as defined in Government Code Section 11370.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.

25249.9. Exemptions from Discharge Prohibition.
(a) Section 25249.5 shall not apply to any discharge or release that takes place less than twenty months subsequent to the listing of the chemical in question on the list required to be published under subdivision (a) of Section 25249.8.
(b) Section 25249.5 shall not apply to any discharge or release that meets both of the following criteria:
(1) The discharge or release will not cause any significant amount of the discharged or released chemical to enter any source of drinking water.
(2) The discharge or release is in conformity with all other laws and with every applicable regulation, permit, requirement, and order.
In any action brought to enforce Section 25249.5, the burden of showing that a discharge or release meets the criteria of this subdivision shall be on the defendant.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.10. Exemptions from Warning Requirement.
Section 25249.6 shall not apply to any of the following:
(a) An exposure for which federal law governs warning in a manner that preempts state authority.
(b) An exposure that takes place less than twelve months subsequent to the listing of the chemical in question on the list required to be published under subdivision (a) of Section 25249.8.
(c) An exposure for which the person responsible can show that the exposure poses no significant risk assuming lifetime exposure at the level in question for substances known to the state to cause cancer, and that the exposure will have no observable effect assuming exposure at one thousand (1000) times the level in question for substances known to the state to cause reproductive toxicity, based on evidence and standards of comparable scientific validity to the evidence and standards which form the scientific basis for the listing of such chemical pursuant to subdivision (a) of Section 25249.8. In any action brought to enforce Section 25249.6, the burden of showing that an exposure meets the criteria of this subdivision shall be on the defendant.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987.)

25249.11. Definitions.

For purposes of this chapter:
(a) “Person” means an individual, trust, firm, joint stock company, corporation, company, partnership, limited liability company, and association.
(b) “Person in the course of doing business” does not include any person employing fewer than 10 employees in his or her business; any city, county, or district or any department or agency thereof or the state or any department or agency thereof or the federal government or any department or agency thereof; or any entity in its operation of a public water system as defined in Section 116275.
(c) “Significant amount” means any detectable amount except an amount which would meet the exemption test in subdivision (c) of Section 25249.10 if an individual were exposed to such an amount in drinking water.
(d) “Source of drinking water” means either a present source of drinking water or water which is identified or designated in a water quality control plan adopted by a regional board as being suitable for domestic or municipal uses.
(e) “Threaten to violate” means to create a condition in which there is a substantial probability that a violation will occur.
(f) “Warning” within the meaning of Section 25249.6 need not be provided separately to each exposed individual and may be provided by general methods such as labels on consumer products, inclusion of notices in mailings to water customers, posting of notices, placing notices in public news media, and the like, provided that the warning accomplished is clear and reasonable. In order to minimize the burden on retail sellers of consumer products including foods, regulations implementing Section 25249.6 shall to the extent practicable place the obligation to provide any warning materials such as labels on the producer or packager rather than on the retail seller, except where the retail seller itself is responsible for introducing a chemical known to the state to cause cancer or reproductive toxicity into the consumer product in question.
(Amended by Stats. 1996, Ch. 1023, Sec. 238. Effective September 29, 1996. Note: This section was added on Nov. 4, 1986, by initiative Prop. 65.)

25249.12. (a) The Governor shall designate a lead agency and other agencies that may be required to implement this chapter, including this section. Each agency so designated may adopt and modify regulations, standards, and permits as necessary to conform with and implement this chapter and to further its purposes.
(b) The Safe Drinking Water and Toxic Enforcement Fund is hereby established in the State Treasury. The director of the lead agency designated by the Governor to implement this chapter may expend the funds in the Safe Drinking Water and Toxic Enforcement Fund, upon appropriation by the Legislature, to implement and administer this chapter.
(c) In addition to any other money that may be deposited in the Safe Drinking Water and Toxic Enforcement Fund, all of the following amounts shall be deposited in the fund:
(1) Seventy-five percent of all civil and criminal penalties collected pursuant to this chapter.

(2) Any interest earned upon the money deposited into the Safe Drinking Water and Toxic Enforcement Fund.

(d) Twenty-five percent of all civil and criminal penalties collected pursuant to this chapter shall be paid to the office of the city attorney, city prosecutor, district attorney, or Attorney General,

whichever office brought the action, or in the case of an action brought by a person under subdivision (d) of Section 25249.7, to that person.
(Amended by Stats. 2003, Ch. 228, Sec. 22. Effective August 11, 2003. Note: This section was added on Nov. 4, 1986, by initiative Prop. 65.)

25249.13. Preservation Of Existing Rights, Obligations, and Penalties. Nothing in this chapter shall alter or diminish any legal obligation otherwise required in common law or by statute or regulation, and nothing in this chapter shall create or enlarge any defense in any action to enforce such legal obligation. Penalties and sanctions imposed under this chapter shall be in addition to any penalties or sanctions otherwise prescribed by law.
(Added November 4, 1986, by initiative Proposition 65. Operative January 1, 1987. Note: Sections 25250 to 25259 are in Articles 13 to 17 of Chapter 6.5, following Section 25249.2.)

25249.14. The Governor's Office of Business and Economic Development shall post in a conspicuous location on its Internet Web site, and include with any informational materials provided to businesses relating to a business's obligations under state law, a disclaimer that states the following:
Proposition 65, officially known as the Safe Drinking Water and Toxic Enforcement Act of 1986, requires businesses to provide a clear and reasonable warning before knowingly and intentionally exposing anyone to chemicals that are known to the state to cause cancer or birth defects or other reproductive harm. It is important to know that a product that receives certification from the United States Food and Drug Administration, or another federal agency or state agency, is not necessarily exempt from California requirements for chemical exposure warnings. Businesses should be aware of the levels of harmful chemicals in their products and of applicable Proposition 65 requirements. For more information on Proposition 65 and how to comply with its requirements, please visit https://oehha.ca.gov.
(Added by Stats. 2017, Ch. 510, Sec. 2. (AB 1583) Effective January 1, 2018.)

STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT
SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986

CHEMICALS KNOWN TO THE STATE TO CAUSE CANCER OR REPRODUCTIVE TOXICITY
April 21, 2023

The Safe Drinking Water and Toxic Enforcement Act of 1986 requires that the Governor revise and republish at least once per year the list of chemicals known to the State to cause cancer or reproductive toxicity. The identification number indicated in the following list is the Chemical Abstracts Service (CAS) Registry Number. No CAS number is given when several substances are presented as a single listing. The date refers to the initial appearance of the chemical on the list. For easy reference, chemicals which are shown underlined are newly added. Chemicals or endpoints shown in strikeout were placed on the Proposition 65 list on the date noted, and have subsequently been removed.

Chemical	Type of Toxicity	CAS No.	Date Listed
A-alpha-C (2-Amino-9H-pyrido [2,3-b]indole)	Cancer	26148-68-5	January 1, 1990
Abiraterone acetate	developmental, female, male	154229-18-2	April 8, 2016
Acetaldehyde	cancer	75-07-0	April 1, 1988
Acetamide	cancer	60-35-5	January 1, 1990
Acetazolamide	developmental	59-66-5	August 20, 1999
Acetochlor	cancer	34256-82-1	January 1, 1989
Acetohydroxamic acid	developmental	546-88-3	April 1, 1990
2-Acetylaminofluorene	cancer	53-96-3	July 1, 1987
Acifluorfen sodium	cancer	62476-59-9	January 1, 1990
Acrylamide	cancer	79-06-1	January 1, 1990
Acrylamide	developmental, male	79-06-1	February 25, 2011
Acrylonitrile	cancer	107-13-1	July 1, 1987
Actinomycin D	cancer	50-76-0	October 1, 1989
Actinomycin D	developmental	50-76-0	October 1, 1992
AF-2;[2-(2-furyl)-3-(5-nitro-2-furyl)] acrylamide	cancer	3688-53-7	July 1, 1987
Aflatoxins	cancer	---	January 1, 1988
Alachlor	cancer	15972-60-8	January 1, 1989
Alcoholic beverages	cancer	---	April 29, 2011
Alcoholic beverages, when associated with alcohol abuse	cancer	---	July 1, 1988
Aldrin	cancer	309-00-2	July 1, 1988
All-trans retinoic acid	developmental	302-79-4	January 1, 1989
~~Allyl chloride,~~ Delisted October 29, 1999	~~cancer~~	~~107-05-1~~	~~January 1, 1990~~
Aloe vera, non-decolorized whole leaf extract	cancer	---	December 4, 2015
Alprazolam	developmental	28981-97-7	July 1, 1990
Altretamine	developmental, male	645-05-6	August 20, 1999
Amantadine hydrochloride	developmental	665-66-7	February 27, 2001
Amikacin sulfate	developmental	39831-55-5	July 1, 1990
2-Aminoanthraquinone	cancer	117-79-3	October 1, 1989
p-Aminoazobenzene	cancer	60-09-3	January 1, 1990
o-Aminoazotoluene	cancer	97-56-3	July 1, 1987

Chemical	Type of Toxicity	CAS No.	Date Listed
4-Aminobiphenyl (4-amino-diphenyl)	cancer	92-67-1	February 27, 1987
2-Amino-4-chlorophenol	cancer	95-85-2	September 13, 2019
1-Amino-2,4-dibromo-anthraquinone	cancer	81-49-2	August 26, 1997
3-Amino-9-ethylcarbazole hydrochloride	cancer	6109-97-3	July 1, 1989
2-Aminofluorene	cancer	153-78-6	January 29, 1999
Aminoglutethimide	developmental	125-84-8	July 1, 1990
Aminoglycosides	developmental	---	October 1, 1992
1-Amino-2-methylanthraquinone	cancer	82-28-0	October 1, 1989
2-Amino-5-(5-nitro-2-furyl)-1,3,4-thiadiazole	cancer	712-68-5	July 1, 1987
4-Amino-2-nitrophenol	cancer	119-34-6	January 29, 1999
Aminopterin	developmental, female	54-62-6	July 1, 1987
Amiodarone hydrochloride	developmental, female, male	19774-82-4	August 26, 1997
Amitraz	developmental	33089-61-1	March 30, 1999
Amitrole	cancer	61-82-5	July 1, 1987
Amoxapine	developmental	14028-44-5	May 15, 1998
Amsacrine	cancer	51264-14-3	August 7, 2009
~~tert-Amyl methyl ether,~~ Delisted December 13, 2013	~~developmental~~	~~994-05-8~~	~~December 18, 2009~~
Anabolic steroids	female, male	---	April 1, 1990
Analgesic mixtures containing phenacetin	cancer	---	February 27, 1987
Androstenedione	cancer	63-05-8	May 3, 2011
Angiotensin converting enzyme (ACE) inhibitors	developmental	---	October 1, 1992
Aniline	cancer	62-53-3	January 1, 1990
Aniline hydrochloride	cancer	142-04-1	May 15, 1998
o-Anisidine	cancer	90-04-0	July 1, 1987
o-Anisidine hydrochloride	cancer	134-29-2	July 1, 1987
Anisindione	developmental	117-37-3	October 1, 1992
Anthraquinone	cancer	84-65-1	September 28, 2007
Antimony oxide (Antimony trioxide)	cancer	1309-64-4	October 1, 1990
Aramite	cancer	140-57-8	July 1, 1987
Areca nut	cancer	---	February 3, 2006
Aristolochic acids	cancer	---	July 9, 2004
Arsenic (inorganic arsenic compounds)	cancer	--	February 27, 1987
Arsenic (inorganic oxides)	developmental	---	May 1, 1997
Asbestos	cancer	1332-21-4	February 27, 1987
Aspirin (NOTE: It is especially important not to use aspirin during the last three months of pregnancy, unless specifically directed to do so by a physician because it may cause problems in the unborn child or complications during delivery.)	developmental, female	50-78-2	July 1, 1990
Atenolol	developmental	29122-68-7	August 26, 1997
Atrazine	developmental, female	1912-24-9	July 15, 2016
Auramine	cancer	492-80-8	July 1, 1987
Auranofin	developmental	34031-32-8	January 29, 1999
Avermectin B1 (Abamectin)	developmental	71751-41-2	December 3, 2010
Azacitidine	cancer	320-67-2	January 1, 1992
Azaserine	cancer	115-02-6	July 1, 1987

Chemical	Type of Toxicity	CAS No.	Date Listed
Azathioprine	cancer	446-86-6	February 27, 1987
Azathioprine	developmental	446-86-6	September 1, 1996
Azobenzene	cancer	103-33-3	January 1, 1990
Barbiturates	developmental	---	October 1, 1992
Beclomethasone dipropionate	developmental	5534-09-8	May 15, 1998
Benomyl	developmental, male	17804-35-2	July 1, 1991
Benthiavalicarb-isopropyl	cancer	177406-68-7	July 1, 2008
Benz[a]anthracene	cancer	56-55-3	July 1, 1987
Benzene	cancer	71-43-2	February 27, 1987
Benzene	developmental, male	71-43-2	December 26, 1997
Benzidine [and its salts]	cancer	92-87-5	February 27, 1987
Benzidine-based dyes	cancer	---	October 1, 1992
Benzodiazepines	developmental	---	October 1, 1992
Benzo[b]fluoranthene	cancer	205-99-2	July 1, 1987
Benzo[j]fluoranthene	cancer	205-82-3	July 1, 1987
Benzo[k]fluoranthene	cancer	207-08-9	July 1, 1987
Benzofuran	cancer	271-89-6	October 1, 1990
Benzophenone	cancer	119-61-9	June 22, 2012
Benzo[a]pyrene	cancer	50-32-8	July 1, 1987
Benzotrichloride	cancer	98-07-7	July 1, 1987
Benzphetamine hydrochloride	developmental	5411-22-3	April 1, 1990
Benzyl chloride	cancer	100-44-7	January 1, 1990
Benzyl violet 4B	cancer	1694-09-3	July 1, 1987
Beryllium and beryllium compounds	cancer	---	October 1, 1987
Betel quid with tobacco	cancer	---	January 1, 1990
Betel quid without tobacco	cancer	---	February 3, 2006
Bevacizumab	developmental, female	216974-75-3	March 8, 2019
2,2-Bis(bromomethyl)-1,3-propanediol	cancer	3296-90-0	May 1, 1996
Bis(2-chloroethyl)ether	cancer	111-44-4	April 1, 1988
N,N-Bis(2-chloroethyl)-2-naphthylamine (Chlornapazine)	cancer	494-03-1	February 27, 1987
Bischloroethyl nitrosourea (BCNU) (Carmustine)	cancer	154-93-8	July 1, 1987
Bischloroethyl nitrosourea (BCNU) (Carmustine)	developmental	154-93-8	July 1, 1990
Bis(chloromethyl)ether	cancer	542-88-1	February 27, 1987
Bis(2-chloro-1-methylethyl)ether, technical grade	cancer	---	October 29, 1999
Bisphenol A (BPA)	female	80-05-7	May 11, 2015
Bisphenol A (BPA)	developmental	80-05-7	December 18, 2020
Bitumens, extracts of steam-refined and air refined	cancer	---	January 1, 1990
Bracken fern	cancer	---	January 1, 1990
Bromacil lithium salt	developmental	53404-19-6	May 18, 1999
Bromacil lithium salt	male	53404-19-6	January 17, 2003
Bromate	cancer	15541-45-4	May 31, 2002
Bromochloroacetic acid	cancer	5589-96-8	April 6, 2010
1-Bromo-3-chloropropane	cancer	109-70-6	January 27, 2023
Bromodichloroacetic acid	cancer	71133-14-7	July 29, 2016
Bromodichloromethane	cancer	75-27-4	January 1, 1990
Bromoethane	cancer	74-96-4	December 22, 2000
Bromoform	cancer	75-25-2	April 1, 1991
1-Bromopropane (1-BP)	cancer	106-94-5	August 5, 2016

Chemical	Type of Toxicity	CAS No.	Date Listed
1-Bromopropane (1-BP)	developmental, female, male	106-94-5	December 7, 2004
2-Bromopropane (2-BP)	female, male	75-26-3	May 31, 2005
Bromoxynil	developmental	1689-84-5	October 1, 1990
Bromoxynil octanoate	developmental	1689-99-2	May 18, 1999
Butabarbital sodium	developmental	143-81-7	October 1, 1992
1,3-Butadiene	cancer	106-99-0	April 1, 1988
1,3-Butadiene	developmental, female, male	106-99-0	April 16, 2004
1,4-Butanediol dimethanesulfonate (Busulfan)	cancer	55-98-1	February 27, 1987
1,4-Butanediol dimethanesulfonate (Busulfan)	developmental	55-98-1	January 1, 1989
Butylated hydroxyanisole	cancer	25013-16-5	January 1, 1990
Butyl benzyl phthalate (BBP)	developmental	85-68-7	December 2, 2005
1-Butyl glycidyl ether	cancer	2426-08-6	January 27, 2023
~~n-Butyl glycidyl ether~~, Delisted April 4, 2014	~~male~~	~~2426-08-6~~	~~August 7, 2009~~
beta-Butyrolactone	cancer	3068-88-0	July 1, 1987
Cacodylic acid	cancer	75-60-5	May 1, 1996
Cadmium	developmental, male	---	May 1, 1997
Cadmium and cadmium compounds	cancer	---	October 1, 1987
Caffeic acid	cancer	331-39-5	October 1, 1994
Cannabis (marijuana) smoke	developmental	---	January 3, 2020
Captafol	cancer	2425-06-1	October 1, 1988
Captan	cancer	133-06-2	January 1, 1990
Carbamazepine	developmental	298-46-4	January 29, 1999
Carbaryl	cancer	63-25-2	February 5, 2010
Carbaryl	developmental, female, male	63-25-2	August 7, 2009
Carbazole	cancer	86-74-8	May 1, 1996
Carbon black (airborne, unbound particles of respirable size)	cancer	1333-86-4	February 21, 2003
Carbon-black extracts	cancer	---	January 1, 1990
Carbon disulfide	developmental, female, male	75-15-0	July 1, 1989
Carbon monoxide	developmental	630-08-0	July 1, 1989
Carbon tetrachloride	cancer	56-23-5	October 1, 1987
Carboplatin	developmental	41575-94-4	July 1, 1990
N-Carboxymethyl-N-nitrosourea	cancer	60391-92-6	January 25, 2002
Catechol	cancer	120-80-9	July 15, 2003
Ceramic fibers (airborne particles of respirable size)	cancer	---	July 1, 1990
Certain combined chemotherapy for lymphomas	cancer	---	February 27, 1987
Chenodiol	developmental	474-25-9	April 1, 1990
Chloral	cancer	75-87-6	September 13, 2013
Chloral hydrate	cancer	302-17-0	September 13, 2013
Chlorambucil	cancer	305-03-3	February 27, 1987
Chlorambucil	developmental	305-03-3	January 1, 1989
~~Chloramphenicol~~, Delisted January 4, 2013	~~cancer~~	~~56-75-7~~	~~October 1, 1989~~
Chloramphenicol sodium succinate	cancer	982-57-0	September 27, 2013
Chlorcyclizine hydrochloride	developmental	1620-21-9	July 1, 1987
Chlordane	cancer	57-74-9	July 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
Chlordecone (Kepone)	cancer	143-50-0	January 1, 1988
Chlordecone (Kepone)	developmental	143-50-0	January 1, 1989
Chlordiazepoxide	developmental	58-25-3	January 1, 1992
Chlordiazepoxide hydrochloride	developmental	438-41-5	January 1, 1992
Chlordimeform	cancer	6164-98-3	January 1, 1989
Chlorendic acid	cancer	115-28-6	July 1, 1989
Chlorinated paraffins (Average chain length, C12; approximately 60 percent chlorine by weight)	cancer	108171-26-2	July 1, 1989
p-Chloroaniline	cancer	106-47-8	October 1, 1994
p-Chloroaniline hydrochloride	cancer	20265-96-7	May 15, 1998
~~Chlorodibromomethane~~, Delisted October 29, 1999	~~cancer~~	~~124-48-1~~	~~January 1, 1990~~
Chloroethane (Ethyl chloride)	cancer	75-00-3	July 1, 1990
1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU) (Lomustine)	cancer	13010-47-4	January 1, 1988
1-(2-Chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU) Lomustine)	developmental	13010-47-4	July 1, 1990
1-(2-Chloroethyl)-3-(4-methyl-cyclohexyl) -1-nitrosourea (Methyl-CCNU)	cancer	13909-09-6	October 1, 1988
Chloroform	cancer	67-66-3	October 1, 1987
Chloroform	developmental	67-66-3	August 7, 2009
Chloromethyl methyl ether (technical grade)	cancer	107-30-2	February 27, 1987
3-Chloro-2-methylpropene	cancer	563-47-3	July 1, 1989
1-Chloro-4-nitrobenzene	cancer	100-00-5	October 29, 1999
2-Chloronitrobenzene	cancer	88-73-3	September 13, 2019
4-Chloro-*o*-phenylenediamine	cancer	95-83-0	January 1, 1988
Chloroprene	cancer	126-99-8	June 2, 2000
2-Chloropropionic acid	male	598-78-7	August 7, 2009
Chlorothalonil	cancer	1897-45-6	January 1, 1989
p-Chloro-*o*-toluidine	cancer	95-69-2	January 1, 1990
p-Chloro-*o*-toluidine, strong acid salts of	cancer	---	May 15, 1998
5-Chloro-*o*-toluidine and its strong acid salts	cancer	---	October 24, 1997
Chlorotrianisene	cancer	569-57-3	September 1, 1996
p-chloro-*α,α,α*-trifluorotoluene (*para*-Chlorobenzotrifluoride, PCBTF)	cancer	98-56-6	June 28, 2019
Chlorozotocin	cancer	54749-90-5	January 1, 1992
Chlorpyrifos	developmental	2921-88-2	December 15, 2017
~~Chlorsulfuron~~, Delisted June 6, 2014	~~developmental, female, male~~	~~64902-72-3~~	~~May 14, 1999~~
Chromium (hexavalent compounds)	cancer	---	February 27, 1987
Chromium (hexavalent compounds)	developmental, female, male	---	December 19, 2008
Chrysene	cancer	218-01-9	January 1, 1990
C.I. Acid Red 114	cancer	6459-94-5	July 1, 1992
C.I. Basic Red 9 monohydrochloride	cancer	569-61-9	July 1, 1989
C.I. Direct Blue 15	cancer	2429-74-5	August 26, 1997
C.I. Direct Blue 218	cancer	28407-37-6	August 26, 1997
C.I. Disperse Yellow 3	cancer	2832-40-8	February 8, 2013
C.I. Solvent Yellow 14	cancer	842-07-9	May 15, 1998

Chemical	Type of Toxicity	CAS No.	Date Listed
Ciclosporin (Cyclosporin A; Cyclosporine)	cancer	59865-13-3; 79217-60-0	January 1, 1992
Cidofovir	cancer, developmental, female, male	113852-37-2	January 29, 1999
Cinnamyl anthranilate	cancer	87-29-6	July 1, 1989
Cisplatin	cancer	15663-27-1	October 1, 1988
Citrus Red No. 2	cancer	6358-53-8	October 1, 1989
Cladribine	developmental	4291-63-8	September 1, 1996
Clarithromycin	developmental	81103-11-9	May 1, 1997
Clobetasol propionate	developmental, female	25122-46-7	May 15, 1998
Clofibrate	cancer	637-07-0	September 1, 1996
Clomiphene citrate	cancer	50-41-9	May 24, 2013
Clomiphene citrate	developmental	50-41-9	April 1, 1990
Clorazepate dipotassium	developmental	57109-90-7	October 1, 1992
CMNP (pyrazachlor)	cancer	6814-58-0	August 25, 2015
Cobalt metal powder	cancer	7440-48-4	July 1, 1992
Cobalt [II] oxide	cancer	1307-96-6	July 1, 1992
Cobalt sulfate	cancer	10124-43-3	May 20, 2005
Cobalt sulfate heptahydrate	cancer	10026-24-1	June 2, 2000
Cocaine	developmental, female	50-36-2	July 1, 1989
Coconut oil diethanolamine condensate (cocamide diethanolamine)	cancer	---	June 22, 2012
Codeine phosphate	developmental	52-28-8	May 15, 1998
Coke oven emissions	cancer	---	February 27, 1987
Colchicine	developmental, male	64-86-8	October 1, 1992
Conjugated estrogens	cancer	---	February 27, 1987
Conjugated estrogens	developmental	---	April 1, 1990
Creosotes	cancer	---	October 1, 1988
p-Cresidine	cancer	120-71-8	January 1, 1988
Cumene	cancer	98-82-8	April 6, 2010
Cupferron	cancer	135-20-6	January 1, 1988
Cyanazine	developmental	21725-46-2	April 1, 1990
Cycasin	cancer	14901-08-7	January 1, 1988
Cycloate	developmental	1134-23-2	March 19, 1999
~~Cyclohexanol~~, Delisted January 25, 2002	~~male~~	~~108-93-0~~	~~November 6, 1998~~
Cycloheximide	developmental	66-81-9	January 1, 1989
Cyclopenta[cd]pyrene	cancer	27208-37-3	April 29, 2011
Cyclophosphamide (anhydrous)	cancer	50-18-0	February 27, 1987
Cyclophosphamide (anhydrous)	developmental, female, male	50-18-0	January 1, 1989
Cyclophosphamide (hydrated)	cancer	6055-19-2	February 27, 1987
Cyclophosphamide (hydrated)	developmental, female, male	6055-19-2	January 1, 1989
Cyhexatin	developmental	13121-70-5	January 1, 1989
Cytarabine	developmental	147-94-4	January 1, 1989
Cytembena	cancer	21739-91-3	May 15, 1998
D&C Orange No. 17	cancer	3468-63-1	July 1, 1990
D&C Red No. 8	cancer	2092-56-0	October 1, 1990
D&C Red No. 9	cancer	5160-02-1	July 1, 1990
D&C Red No. 19	cancer	81-88-9	July 1, 1990
Dacarbazine	cancer	4342-03-4	January 1, 1988
Dacarbazine	developmental	4342-03-4	January 29, 1999
Daminozide	cancer	1596-84-5	January 1, 1990

Chemical	Type of Toxicity	CAS No.	Date Listed
Danazol	developmental	17230-88-5	April 1, 1990
Dantron (Chrysazin; 1,8-Dihydroxyanthraquinone)	cancer	117-10-2	January 1, 1992
Daunomycin	cancer	20830-81-3	January 1, 1988
Daunorubicin hydrochloride	developmental	23541-50-6	July 1, 1990
2,4-D butyric acid	~~developmental~~, male	94-82-6	June 18, 1999
DDD (Dichlorodiphenyl-dichloroethane)	cancer	72-54-8	January 1, 1989
DDE (Dichlorodi-phenyldichloroethylene)	cancer	72-55-9	January 1, 1989
DDT (Dichlorodi-phenyltrichloroethane)	cancer	50-29-3	October 1 , 1987
o,p'-DDT	developmental, female, male	789-02-6	May 15, 1998
p,p'-DDT	developmental, female, male	50-29-3	May 15, 1998
DDVP (Dichlorvos)	cancer	62-73-7	January 1, 1989
Demeclocycline hydrochloride (internal use)	developmental	64-73-3	January 1, 1992
Des-ethyl atrazine (DEA)	developmental, female	6190-65-4	July 15, 2016
Des-isopropyl atrazine (DIA)	developmental, female	1007-28-9	July 15, 2016
N,N'-Diacetylbenzidine	cancer	613-35-4	October 1, 1989
2,4-Diaminoanisole	cancer	615-05-4	October 1, 1990
2,4-Diaminoanisole sulfate	cancer	39156-41-7	January 1, 1988
2,4-Diamino-6-chloro-*s*-triazine (DACT)	developmental, female	3397-62-4	July 15, 2016
4,4'-Diaminodiphenyl ether (4,4'-Oxydianiline)	cancer	101-80-4	January 1, 1988
2,4-Diaminotoluene	cancer	95-80-7	January 1, 1988
~~Diaminotoluene (mixed)~~, Delisted November 20, 2015	~~cancer~~	---	~~January 1, 1990~~
Diazepam	developmental	439-14-5	January 1, 1992
Diazoaminobenzene	cancer	136-35-6	May 20, 2005
Diazoxide	developmental	364-98-7	February 27, 2001
Dibenz[a,h]acridine	cancer	226-36-8	January 1, 1988
Dibenz[a,j]acridine	cancer	224-42-0	January 1, 1988
Dibenzanthracenes	cancer	---	December 26, 2014
Dibenz[a,c]anthracene	cancer	215-58-7	December 26, 2014
Dibenz[a,h]anthracene	cancer	53-70-3	January 1, 1988
Dibenz[a,j]anthracene	cancer	224-41-9	December 26, 2014
7H-Dibenzo[c,g]carbazole	cancer	194-59-2	January 1, 1988
Dibenzo[a,e]pyrene	cancer	192-65-4	January 1, 1988
Dibenzo[a,h]pyrene	cancer	189-64-0	January 1, 1988
Dibenzo[a,i]pyrene	cancer	189-55-9	January 1, 1988
Dibenzo[a,l]pyrene	cancer	191-30-0	January 1, 1988
Dibromoacetic acid	cancer	631-64-1	June 17, 2008
Dibromoacetonitrile	cancer	3252-43-5	May 3, 2011
1,2-Dibromo-3-chloropropane (DBCP)	cancer	96-12-8	July 1, 1987
1,2-Dibromo-3-chloropropane (DBCP)	male	96-12-8	February 27, 1987
2,3-Dibromo-1-propanol	cancer	96-13-9	October 1, 1994
Di-*n*-butyl phthalate (DBP)	developmental, female, male	84-74-2	December 2, 2005
Dichloroacetic acid	cancer	79-43-6	May 1, 1996
Dichloroacetic acid	developmental, male	79-43-6	August 7, 2009

Chemical	Type of Toxicity	CAS No.	Date Listed
p-Dichlorobenzene	cancer	106-46-7	January 1, 1989
3,3'-Dichlorobenzidine	cancer	91-94-1	October 1, 1987
3,3'-Dichlorobenzidine dihydrochloride	cancer	612-83-9	May 15, 1998
1,1-Dichloro-2,2-bis(*p*-chlorophenyl)ethylene (DDE)	developmental, male	72-55-9	March 30, 2010
1,4-Dichloro-2-butene	cancer	764-41-0	January 1, 1990
3,3'-Dichloro-4,4'-diaminodiphenyl ether	cancer	28434-86-8	January 1, 1988
1,1-Dichloroethane	cancer	75-34-3	January 1, 1990
Dichloromethane (Methylene chloride)	cancer	75-09-2	April 1, 1988
1,4-Dichloro-2-nitrobenzene	cancer	89-61-2	September 13, 2019
2,4-Dichloro-1-nitrobenzene	cancer	611-06-3	September 13, 2019
Dichlorophene	developmental	97-23-4	April 27, 1999
1,2-Dichloropropane	cancer	78-87-5	January 1, 1990
1,3-Dichloro-2-propanol (1,3-DCP)	cancer	96-23-1	October 8, 2010
1,3-Dichloropropene	cancer	542-75-6	January 1, 1989
Dichlorphenamide	developmental	120-97-8	February 27, 2001
Diclofop-methyl	cancer	51338-27-3	April 6, 2010
Diclofop methyl	developmental	51338-27-3	March 5, 1999
Dicumarol	developmental	66-76-2	October 1, 1992
Dieldrin	cancer	60-57-1	July 1, 1988
~~Dienestrol~~, Delisted January 4, 2013	~~cancer~~	~~84-17-3~~	~~January 1, 1990~~
Diepoxybutane	cancer	1464-53-5	January 1, 1988
Diesel engine exhaust	cancer	---	October 1, 1990
Diethanolamine	cancer	111-42-2	June 22, 2012
Di(2-ethylhexyl)phthalate (DEHP)	cancer	117-81-7	January 1, 1988
Di(2-ethylhexyl)phthalate (DEHP)	developmental, male	117-81-7	October 24, 2003
1,2-Diethylhydrazine	cancer	1615-80-1	January 1, 1988
Diethylstilbestrol (DES)	cancer	56-53-1	February 27, 1987
Diethylstilbestrol (DES)	developmental	56-53-1	July 1, 1987
Diethyl sulfate	cancer	64-67-5	January 1, 1988
Diflunisal	developmental, female	22494-42-4	January 29, 1999
~~Diglycidyl ether~~, Delisted April 4, 2014	~~male~~	~~2238-07-5~~	~~August 7, 2009~~
Diglycidyl resorcinol ether (DGRE)	cancer	101-90-6	July 1, 1989
Di-*n*-hexyl phthalate (DnHP)	female, male	84-75-3	December 2, 2005
Dihydroergotamine mesylate	developmental	6190-39-2	May 1, 1997
Dihydrosafrole	cancer	94-58-6	January 1, 1988
Di-isodecyl phthalate (DIDP)	developmental	68515-49-1/26761-40-0	April 20, 2007
Diisononyl phthalate (DINP)	cancer	---	December 20, 2013
Diisopropyl sulfate	cancer	2973-10-6	April 1, 1993
Diltiazem hydrochloride	developmental	33286-22-5	February 27, 2001
3,3'-Dimethoxybenzidine (*o*-Dianisidine)	cancer	119-90-4	January 1, 1988
3,3'-Dimethoxybenzidine dihydrochloride	cancer	20325-40-0	October 1, 1990
3,3'-Dimethoxybenzidine-based dyes metabolized to 3,3'-dimethoxybenzidine	cancer	---	June 11, 2004
N,N-Dimethylacetamide	cancer	127-19-5	September 13, 2019
N,N-Dimethylacetamide	developmental, male	127-19-5	May 21, 2010
4-Dimethylaminoazobenzene	cancer	60-11-7	January 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
trans-2-[(Dimethylamino)methyl-imino]-5-[2-(5-nitro-2-furyl)vinyl]-1,3,4-oxadiazole	cancer	55738-54-0	January 1, 1988
7,12-Dimethylbenz(a)anthracene	cancer	57-97-6	January 1, 1990
3,3'-Dimethylbenzidine (ortho-Tolidine)	cancer	119-93-7	January 1, 1988
3,3'-Dimethylbenzidine-based dyes metabolized to 3,3'-dimethylbenzidine	cancer	---	June 11, 2004
3,3'-Dimethylbenzidine dihydrochloride	cancer	612-82-8	April 1, 1992
Dimethylcarbamoyl chloride	cancer	79-44-7	January 1, 1988
N,N-Dimethylformamide	cancer	68-12-2	October 27, 2017
1,1-Dimethylhydrazine (UDMH)	cancer	57-14-7	October 1, 1989
1,2-Dimethylhydrazine	cancer	540-73-8	January 1, 1988
2,6-Dimethyl-N-nitrosomorpholine (DMNM)	cancer	1456-28-6	February 8, 2013
Dimethyl sulfate	cancer	77-78-1	January 1, 1988
N,N-Dimethyl-*p*-toluidine	cancer	99-97-8	May 2, 2014
Dimethylvinylchloride	cancer	513-37-1	July 1, 1989
m-Dinitrobenzene	male	99-65-0	July 1, 1990
o-Dinitrobenzene	male	528-29-0	July 1, 1990
p-Dinitrobenzene	male	100-25-4	July 1, 1990
3,7-Dinitrofluoranthene	cancer	105735-71-5	August 26, 1997
3,9-Dinitrofluoranthene	cancer	22506-53-2	August 26, 1997
1,3-Dinitropyrene	cancer	75321-20-9	November 2, 2012
1,6-Dinitropyrene	cancer	42397-64-8	October 1, 1990
1,8-Dinitropyrene	cancer	42397-65-9	October 1, 1990
Dinitrotoluene (technical grade)	female, male	---	August 20, 1999
2,4-Dinitrotoluene	cancer	121-14-2	July 1, 1988
2,4-Dinitrotoluene	male	121-14-2	August 20, 1999
2,6-Dinitrotoluene	cancer	606-20-2	July 1, 1995
2,6-Dinitrotoluene	male	606-20-2	August 20, 1999
Dinitrotoluene mixture, 2,4-/2,6-	cancer	---	May 1, 1996
Dinocap	developmental	39300-45-3	April 1, 1990
Dinoseb	developmental, male	88-85-7	January 1, 1989
Di-*n*-propyl isocinchomeronate (MGK Repellent 326)	cancer	136-45-8	May 1, 1996
1,4-Dioxane	cancer	123-91-1	January 1, 1988
Diphenylhydantoin (Phenytoin)	cancer	57-41-0	January 1, 1988
Diphenylhydantoin (Phenytoin)	developmental	57-41-0	July 1, 1987
Diphenylhydantoin (Phenytoin), sodium salt	cancer	630-93-3	January 1, 1988
Direct Black 38 (technical grade)	cancer	1937-37-7	January 1, 1988
Direct Blue 6 (technical grade)	cancer	2602-46-2	January 1, 1988
Direct Brown 95 (technical grade)	cancer	16071-86-6	October 1, 1988
Disodium cyanodithioimido-carbonate	developmental	138-93-2	March 30, 1999
Disperse Blue 1	cancer	2475-45-8	October 1, 1990
Diuron	cancer	330-54-1	May 31, 2002
Doxorubicin hydrochloride (Adriamycin)	cancer	25316-40-9	July 1, 1987
Doxorubicin hydrochloride (Adriamycin)	developmental, male	25316-40-9	January 29, 1999
Doxycycline (internal use)	developmental	564-25-0	July 1, 1990
Doxycycline calcium (internal use)	developmental	94088-85-4	January 1, 1992

Chemical	Type of Toxicity	CAS No.	Date Listed
Doxycycline hyclate (internal use)	developmental	24390-14-5	October 1, 1991
Doxycycline monohydrate (internal use)	developmental	17086-28-1	October 1, 1991
~~2,4-DP (dichloroprop)~~, Delisted January 25, 2002	~~developmental~~	~~120-36-5~~	~~April 27, 1999~~
Emissions from combustion of coal	cancer	---	August 7, 2013
Emissions from high-temperature unrefined rapeseed oil	cancer	---	January 3, 2014
Endrin	developmental	72-20-8	May 15, 1998
Environmental tobacco smoke (ETS)	developmental	---	June 9, 2006
Epichlorohydrin	cancer	106-89-8	October 1, 1987
Epichlorohydrin	male	106-89-8	September 1, 1996
Epoxiconazole	cancer	135319-73-2	April 15, 2011
Ergotamine tartrate	developmental	379-79-3	April 1, 1990
Erionite	cancer	12510-42-8/66733-21-9	October 1, 1988
Estradiol 17B	cancer	50-28-2	January 1, 1988
Estragole	cancer	140-67-0	October 29, 1999
Estrogens, steroidal	cancer	---	August 19, 2005
Estrogen-progestogen (combined) used as menopausal therapy	cancer	---	November 4, 2011
Estrone	cancer	53-16-7	January 1, 1988
Estropipate	cancer, developmental	7280-37-7	August 26, 1997
Ethinylestradiol	cancer	57-63-6	January 1, 1988
Ethionamide	developmental	536-33-4	August 26, 1997
Ethoprop	cancer	13194-48-4	February 27, 2001
Ethyl acrylate	cancer	140-88-5	July 1, 1989
Ethyl alcohol in alcoholic beverages	developmental	---	October 1, 1987
Ethylbenzene	cancer	100-41-4	June 11, 2004
~~Ethyl tert-butyl ether~~, Delisted December 13, 2013	~~male~~	~~637-92-3~~	~~December 18, 2009~~
Ethyl dipropylthiocarbamate	developmental	759-94-4	April 27, 1999
Ethyl-4,4'-dichlorobenzilate	cancer	510-15-6	January 1, 1990
Ethylene dibromide	cancer	106-93-4	July 1, 1987
Ethylene dibromide	developmental, male	106-93-4	May 15, 1998
Ethylene dichloride (1,2-Dichloroethane)	cancer	107-06-2	October 1, 1987
Ethylene glycol (ingested)	developmental	107-21-1	June 19, 2015
Ethylene glycol monoethyl ether	developmental, male	110-80-5	January 1, 1989
Ethylene glycol monoethyl ether acetate	developmental, male	111-15-9	January 1, 1993
Ethylene glycol monomethyl ether	developmental, male	109-86-4	January 1, 1989
Ethylene glycol monomethyl ether acetate	developmental, male	110-49-6	January 1, 1993
Ethyleneimine (Aziridine)	cancer	151-56-4	January 1, 1988
Ethylene oxide	cancer	75-21-8	July 1, 1987
Ethylene oxide	female	75-21-8	February 27, 1987
Ethylene oxide	developmental, male	75-21-8	August 7, 2009
Ethylene thiourea	cancer	96-45-7	January 1, 1988
Ethylene thiourea	developmental	96-45-7	January 1, 1993
~~2-Ethylhexanoic acid~~, Delisted December 13, 2013	~~developmental~~	~~149-57-5~~	~~August 7, 2009~~
2-Ethylhexyl acrylate	cancer	103-11-7	December 17, 2021
Ethyl methanesulfonate	cancer	62-50-0	January 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
Etodolac	developmental, female	41340-25-4	August 20, 1999
Etoposide	cancer	33419-42-0	November 4, 2011
Etoposide	developmental	33419-42-0	July 1, 1990
Etoposide in combination with cisplatin and bleomycin	cancer	---	November 4, 2011
Etretinate	developmental	54350-48-0	July 1, 1987
Fenoxaprop ethyl	developmental	66441-23-4	March 26, 1999
Fenoxycarb	cancer	72490-01-8	June 2, 2000
Filgrastim	developmental	121181-53-1	February 27, 2001
Fluazifop butyl	developmental	69806-50-4	November 6, 1998
Flunisolide	developmental, female	3385-03-3	May 15, 1998
Fluorouracil	developmental	51-21-8	January 1, 1989
Fluoxymesterone	developmental	76-43-7	April 1, 1990
Flurazepam hydrochloride	developmental	1172-18-5	October 1, 1992
Flurbiprofen	developmental, female	5104-49-4	August 20, 1999
Flutamide	developmental	13311-84-7	July 1, 1990
Fluticasone propionate	developmental	80474-14-2	May 15, 1998
Fluvalinate	developmental	69409-94-5	November 6, 1998
Folpet	cancer	133-07-3	January 1, 1989
Formaldehyde (gas)	cancer	50-00-0	January 1, 1988
2-(2-Formylhydrazino)-4-(5-nitro-2-furyl)thiazole	cancer	3570-75-0	January 1, 1988
Fumonisin B_1	cancer	116355-83-0	November 14, 2003
Furan	cancer	110-00-9	October 1, 1993
Furazolidone	cancer	67-45-8	January 1, 1990
Furfuryl alcohol	cancer	98-00-0	September 30, 2016
Furmecyclox	cancer	60568-05-0	January 1, 1990
Fusarin C	cancer	79748-81-5	July 1, 1995
Gallium arsenide	cancer	1303-00-0	August 1, 2008
Ganciclovir	cancer, developmental, male	82410-32-0	August 26, 1997
Ganciclovir sodium	developmental, male	107910-75-8	August 26, 1997
Gasoline engine exhaust (condensates/extracts)	cancer	---	October 1, 1990
Gemfibrozil	cancer	25812-30-0	December 22, 2000
Gemfibrozil	female, male	25812-30-0	August 20, 1999
Gentian violet (Crystal violet)	cancer	548-62-9	November 23, 2018
Glass wool fibers (inhalable and biopersistent)	cancer	---	July 1, 1990
Glu-P-1 (2-Amino-6-methyldipyrido [1,2- a:3',2'-d]imidazole)	cancer	67730-11-4	January 1, 1990
Glu-P-2 (2-Aminodipyrido [1,2-a:3',2'-d]imidazole)	cancer	67730-10-3	January 1, 1990
Glycidaldehyde	cancer	765-34-4	January 1, 1988
Glycidol	cancer	556-52-5	July 1, 1990
Glycidyl methacrylate	cancer	106-91-2	January 27, 2023
Glyphosate	cancer	1071-83-6	July 7, 2017
Goldenseal root powder	cancer	---	December 4, 2015
Goserelin acetate	developmental, female, male	65807-02-5	August 26, 1997
Griseofulvin	cancer	126-07-8	January 1, 1990
Gyromitrin (Acetaldehyde methylformylhydrazone)	cancer	16568-02-8	January 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
Halazepam	developmental	23092-17-3	July 1, 1990
Halobetasol propionate	developmental	66852-54-8	August 20, 1999
Haloperidol	developmental, female	52-86-8	January 29, 1999
Halothane	developmental	151-67-7	September 1, 1996
HC Blue 1	cancer	2784-94-3	July 1, 1989
Heptachlor	cancer	76-44-8	July 1, 1988
Heptachlor	developmental	76-44-8	August 20, 1999
Heptachlor epoxide	cancer	1024-57-3	July 1, 1988
Herbal remedies containing plant species of the genus *Aristolochia*	cancer	---	July 9, 2004
Hexachlorobenzene	cancer	118-74-1	October 1, 1987
Hexachlorobenzene	developmental	118-74-1	January 1, 1989
Hexachlorobutadiene	cancer	87-68-3	May 3, 2011
Hexachlorocyclohexane (technical grade)	cancer	---	October 1, 1987
Hexachlorodibenzodioxin	cancer	34465-46-8	April 1, 1988
Hexachloroethane	cancer	67-72-1	July 1, 1990
2,4-Hexadienal (89% trans, trans isomer; 11% cis, trans isomer)	cancer	---	March 4, 2005
Hexafluoroacetone	developmental, male	684-16-2	August 1, 2008
Hexamethylphosphoramide	cancer	680-31-9	January 1, 1988
Hexamethylphosphoramide	male	680-31-9	October 1, 1994
n-Hexane	male	110-54-3	December 15, 2017
2,5-Hexanedione	male	110-13-4	December 4, 2015
Histrelin acetate	developmental	---	May 15, 1998
Hydramethylnon	developmental, male	67485-29-4	March 5, 1999
Hydrazine	cancer	302-01-2	January 1, 1988
Hydrazine sulfate	cancer	10034-93-2	January 1, 1988
Hydrazobenzene (1,2-Diphenylhydrazine)	cancer	122-66-7	January 1, 1988
Hydrogen cyanide (HCN) and cyanide salts (CN salts)	male	---	July 5, 2013
1-Hydroxyanthraquinone	cancer	129-43-1	May 27, 2005
Hydroxyurea	developmental	127-07-1	May 1, 1997
Idarubicin hydrochloride	developmental, male	57852-57-0	August 20, 1999
Ifosfamide	developmental	3778-73-2	July 1, 1990
Iodine-131	developmental	10043-66-0	January 1, 1989
Imazalil	cancer	35554-44-0	May 20, 2011
Indeno[1,2,3-cd]pyrene	cancer	193-39-5	January 1, 1988
Indium phosphide	cancer	22398-80-7	February 27, 2001
Indium tin oxide	cancer	50926-11-9	March 19, 2021
IQ (2-Amino-3-methylimidazo [4,5-f] quinoline)	cancer	76180-96-6	April 1, 1990
Iprodione	cancer	36734-19-7	May 1, 1996
Iprovalicarb	cancer	140923-17-7/ 140923-25-7	June 1, 2007
Iron dextran complex	cancer	9004-66-4	January 1, 1988
Isobutyl nitrite	cancer	542-56-3	May 1, 1996
Isoprene	cancer	78-79-5	May 1, 1996
Isopyrazam	cancer	881685-58-1	July 24, 2012
~~Isosafrole~~, Delisted December 8, 2006	~~cancer~~	~~120-58-1~~	~~October 1, 1989~~
Isotretinoin	developmental	4759-48-2	July 1, 1987
Isoxaflutole	cancer	141112-29-0	December 22, 2000

Chemical	Type of Toxicity	CAS No.	Date Listed
Kresoxim-methyl	cancer	143390-89-0	February 3, 2012
Lactofen	cancer	77501-63-4	January 1, 1989
Lasiocarpine	cancer	303-34-4	April 1, 1988
Lead	developmental, female, male	---	February 27, 1987
Lead and lead compounds	cancer	---	October 1, 1992
Lead acetate	cancer	301-04-2	January 1, 1988
Lead phosphate	cancer	7446-27-7	April 1, 1988
Lead subacetate	cancer	1335-32-6	October 1, 1989
Leather dust	cancer	---	April 29, 2011
Leucomalachite green	cancer	129-73-7	April 21, 2023
Leuprolide acetate	developmental, female, male	74381-53-6	August 26, 1997
Levodopa	developmental	59-92-7	January 29, 1999
Levonorgestrel implants	female	797-63-7	May 15, 1998
Lindane and other hexachloro-cyclohexane isomers	cancer	---	October 1, 1989
Linuron	developmental	330-55-2	March 19, 1999
Lithium carbonate	developmental	554-13-2	January 1, 1991
Lithium citrate	developmental	919-16-4	January 1, 1991
Lorazepam	developmental	846-49-1	July 1, 1990
Lovastatin	developmental	75330-75-5	October 1, 1992
Lynestrenol	cancer	52-76-6	February 27, 2001
Malathion	cancer	121-75-5	May 20, 2016
Malonaldehyde, sodium salt	cancer	24382-04-5	May 3, 2011
Mancozeb	cancer	8018-01-7	January 1, 1990
Maneb	cancer	12427-38-2	January 1, 1990
Marijuana smoke	cancer	---	June 19, 2009
Me-A-alpha-C (2-Amino-3-methyl-9H-pyrido[2,3-b]indole)	cancer	68006-83-7	January 1, 1990
Mebendazole	developmental	31431-39-7	August 20, 1999
Medroxyprogesterone acetate	cancer	71-58-9	January 1, 1990
Medroxyprogesterone acetate	developmental	71-58-9	April 1, 1990
Megestrol acetate	cancer	595-33-5	March 28, 2014
Megestrol acetate	developmental	595-33-5	January 1, 1991
MeIQ (2-Amino-3,4-dimethyl-imidazo[4,5-f]quinoline)	cancer	77094-11-2	October 1, 1994
MeIQx (2-Amino-3,8-dimethyl-imidazo[4,5-f]quinoxaline)	cancer	77500-04-0	October 1, 1994
Melphalan	cancer	148-82-3	February 27, 1987
Melphalan	developmental	148-82-3	July 1, 1990
Menotropins	developmental	9002-68-0	April 1, 1990
Mepanipyrim	cancer	110235-47-7	July 1, 2008
Meprobamate	developmental	57-53-4	January 1, 1992
2-Mercaptobenzothiazole	cancer	149-30-4	October 27, 2017
Mercaptopurine	developmental	6112-76-1	July 1, 1990
Mercury and mercury compounds	developmental	---	July 1, 1990
Merphalan	cancer	531-76-0	April 1, 1988
Mestranol	cancer	72-33-3	April 1, 1988
Metam potassium	cancer	137-41-7	December 31, 2010
Methacycline hydrochloride	developmental	3963-95-9	January 1, 1991
Metham sodium	cancer	137-42-8	November 6, 1998
Metham sodium	developmental	137-42-8	May 15, 1998

Chemical	Type of Toxicity	CAS No.	Date Listed
Methanol	developmental	67-56-1	March 16, 2012
Methazole	developmental	20354-26-1	December 1, 1999
Methimazole	developmental	60-56-0	July 1, 1990
Methotrexate	developmental	59-05-2	January 1, 1989
Methotrexate sodium	developmental	15475-56-6	April 1, 1990
5-Methoxypsoralen with ultraviolet A therapy	cancer	484-20-8	October 1, 1988
8-Methoxypsoralen with ultraviolet A therapy	cancer	298-81-7	February 27, 1987
Methyl acrylate	cancer	96-33-3	December 17, 2021
2-Methylaziridine (Propyleneimine)	cancer	75-55-8	January 1, 1988
Methylazoxymethanol	cancer	590-96-5	April 1, 1988
Methylazoxymethanol acetate	cancer	592-62-1	April 1, 1988
Methyl bromide, as a structural fumigant	developmental	74-83-9	January 1, 1993
Methyl carbamate	cancer	598-55-0	May 15, 1998
Methyl chloride	developmental	74-87-3	March 10, 2000
Methyl chloride	male	74-87-3	August 7, 2009
3-Methylcholanthrene	cancer	56-49-5	January 1, 1990
5-Methylchrysene	cancer	3697-24-3	April 1, 1988
4,4'-Methylene bis(2-chloroaniline)	cancer	101-14-4	July 1, 1987
4,4'-Methylene bis(N,N-dimethyl) benzenamine	cancer	101-61-1	October 1, 1989
4,4'-Methylene bis(2-methylaniline)	cancer	838-88-0	April 1, 1988
4,4'-Methylenedianiline	cancer	101-77-9	January 1, 1988
4,4'-Methylenedianiline dihydrochloride	cancer	13552-44-8	January 1, 1988
Methyleugenol	cancer	93-15-2	November 16, 2001
Methylhydrazine and its salts	cancer	---	July 1, 1992
2-Methylimidazole	cancer	693-98-1	June 22, 2012
4-Methylimidazole	cancer	822-36-6	January 7, 2011
Methyl iodide	cancer	74-88-4	April 1, 1988
Methyl isobutyl ketone	cancer	108-10-1	November 4, 2011
Methyl isobutyl ketone (MIBK)	developmental	108-10-1	March 28, 2014
Methyl isocyanate (MIC)	developmental, female	624-83-9	November 12, 2010
~~Methyl isopropyl ketone~~, Delisted April 4, 2014	~~developmental~~	~~563-80-4~~	~~February 17, 2012~~
Methyl mercury	developmental	---	July 1, 1987
Methylmercury compounds	cancer	---	May 1, 1996
Methyl methanesulfonate	cancer	66-27-3	April 1, 1988
Methyl-n-butyl ketone	male	591-78-6	August 7, 2009
Methyl-n-butyl ketone	developmental	591-78-6	December 4, 2015
2-Methyl-1-nitroanthraquinone (of uncertain purity)	cancer	129-15-7	April 1, 1988
N-Methyl-N'-nitro-N-nitrosoguanidine	cancer	70-25-7	April 1, 1988
N-Methylolacrylamide	cancer	924-42-5	July 1, 1990
N-Methylpyrrolidone	developmental	872-50-4	June 15, 2001
α-Methyl styrene (alpha-Methylstyrene)	cancer	98-83-9	November 2, 2012
~~α-Methyl styrene~~, Delisted April 4, 2014	~~female~~	~~98-83-9~~	~~July 29, 2011~~
Methyltestosterone	developmental	58-18-4	April 1, 1990
Methylthiouracil	cancer	56-04-2	October 1, 1989
Metiram	cancer	9006-42-2	January 1, 1990
Metiram	developmental	9006-42-2	March 30, 1999

Chemical	Type of Toxicity	CAS No.	Date Listed
Metronidazole	cancer	443-48-1	January 1, 1988
Michler's ketone	cancer	90-94-8	January 1, 1988
Midazolam hydrochloride	developmental	59467-96-8	July 1, 1990
Minocycline hydrochloride (internal use)	developmental	13614-98-7	January 1, 1992
Mirex	cancer	2385-85-5	January 1, 1988
Misoprostol	developmental	59122-46-2	April 1, 1990
Mitomycin C	cancer	50-07-7	April 1, 1988
Mitoxantrone hydrochloride	cancer	70476-82-3	January 23, 2015
Mitoxantrone hydrochloride	developmental	70476-82-3	July 1, 1990
Molinate	developmental, female, male	2212-67-1	December 11, 2009
Molybdenum trioxide	cancer	1313-27-5	March 19, 2021
MON 4660 (dichloroacetyl-1- oxa-4-azaspiro(4,5)-decane)	cancer	71526-07-3	March 22, 2011
MON 13900 (furilazole)	cancer	121776-33-8	March 22, 2011
3-Monochloropropane-1,2- diol (3-MCPD)	cancer	96-24-2	October 8, 2010
Monocrotaline	cancer	315-22-0	April 1, 1988
MOPP (vincristine-prednisone-nitrogen mustard-procarbazine mixture)	cancer	113803-47-7	November 4, 2011
5-(Morpholinomethyl)-3- [(5-nitrofurfuryl-idene)- amino]-2-oxazolidinone	cancer	139-91-3	April 1, 1988
Mustard Gas	cancer	505-60-2	February 27, 1987
MX (3-chloro-4-(dichloromethyl) 5-hydroxy-2(5H)-furanone)	cancer	77439-76-0	December 22, 2000
Myclobutanil	developmental, male	88671-89-0	April 16, 1999
beta-Myrcene	cancer	123-35-3	March 27, 2015
Nabam	developmental	142-59-6	March 30, 1999
Nafarelin acetate	developmental	86220-42-0	April 1, 1990
Nafenopin	cancer	3771-19-5	April 1, 1988
Nalidixic acid	cancer	389-08-2	May 15, 1998
Naphthalene	cancer	91-20-3	April 19, 2002
1-Naphthylamine	cancer	134-32-7	October 1, 1989
2-Naphthylamine	cancer	91-59-8	February 27, 1987
Neomycin sulfate (internal use)	developmental	1405-10-3	October 1, 1992
Netilmicin sulfate	developmental	56391-57-2	July 1, 1990
Nickel (Metallic)	cancer	7440-02-0	October 1, 1989
Nickel acetate	cancer	373-02-4	October 1, 1989
Nickel carbonate	cancer	3333-67-3	October 1, 1989
Nickel carbonyl	cancer	13463-39-3	October 1, 1987
Nickel carbonyl	developmental	13463-39-3	September 1, 1996
Nickel compounds	cancer	---	May 7, 2004
Nickel (soluble compounds)	developmental, male	---	October 26, 2018
Nickel hydroxide	cancer	12054-48-7; 12125-56-3	October 1, 1989
Nickelocene	cancer	1271-28-9	October 1, 1989
Nickel oxide	cancer	1313-99-1	October 1, 1989
Nickel refinery dust from the pyrometallurgical process	cancer	---	October 1, 1987
Nickel subsulfide	cancer	12035-72-2	October 1, 1987
Nicotine	developmental	54-11-5	April 1, 1990

Chemical	Type of Toxicity	CAS No.	Date Listed
Nifedipine	developmental, female, male	21829-25-4	January 29, 1999
Nimodipine	developmental	66085-59-4	April 24, 2001
Niridazole	cancer	61-57-4	April 1, 1988
Nitrapyrin	cancer	1929-82-4	October 5, 2005
Nitrapyrin	developmental	1929-82-4	March 30, 1999
Nitrilotriacetic acid	cancer	139-13-9	January 1, 1988
Nitrilotriacetic acid, trisodium salt monohydrate	cancer	18662-53-8	April 1, 1989
5-Nitroacenaphthene	cancer	602-87-9	April 1, 1988
~~5-Nitro-*o*-anisidine~~, Delisted December 8, 2006	~~cancer~~	~~99-59-2~~	~~October 1, 1989~~
o-Nitroanisole	cancer	91-23-6	October 1, 1992
para-Nitroanisole	cancer	100-17-4	September 13, 2019
Nitrobenzene	cancer	98-95-3	August 26, 1997
Nitrobenzene	male	98-95-3	March 30, 2010
4-Nitrobiphenyl	cancer	92-93-3	April 1, 1988
6-Nitrochrysene	cancer	7496-02-8	October 1, 1990
Nitrofen (technical grade)	cancer	1836-75-5	January 1, 1988
2-Nitrofluorene	cancer	607-57-8	October 1, 1990
Nitrofurantoin	male	67-20-9	April 1, 1991
Nitrofurazone	cancer	59-87-0	January 1, 1990
1-[(5-Nitrofurfurylidene)-amino]- 2-imidazolidinone	cancer	555-84-0	April 1, 1988
N-[4-(5-Nitro-2-furyl)-2-thiazolyl] acetamide	cancer	531-82-8	April 1, 1988
Nitrogen mustard (Mechlorethamine)	cancer	51-75-2	January 1, 1988
Nitrogen mustard (Mechlorethamine)	developmental	51-75-2	January 1, 1989
Nitrogen mustard hydrochloride (Mechlorethamine hydrochloride)	cancer	55-86-7	April 1, 1988
Nitrogen mustard hydrochloride (Mechlorethamine hydrochloride)	developmental	55-86-7	July 1, 1990
Nitrogen mustard N-oxide	cancer	126-85-2	April 1, 1988
Nitrogen mustard N-oxide hydrochloride	cancer	302-70-5	April 1, 1988
Nitromethane	cancer	75-52-5	May 1, 1997
2-Nitropropane	cancer	79-46-9	January 1, 1988
1-Nitropyrene	cancer	5522-43-0	October 1, 1990
4-Nitropyrene	cancer	57835-92-4	October 1, 1990
N-Nitrosodi-*n*-butylamine	cancer	924-16-3	October 1, 1987
N-Nitrosodiethanolamine	cancer	1116-54-7	January 1, 1988
N-Nitrosodiethylamine	cancer	55-18-5	October 1, 1987
N-Nitrosodimethylamine	cancer	62-75-9	October 1, 1987
p-Nitrosodiphenylamine	cancer	156-10-5	January 1, 1988
N-Nitrosodiphenylamine	cancer	86-30-6	April 1, 1988
N-Nitrosodi-*n*-propylamine	cancer	621-64-7	January 1, 1988
N-Nitroso-N-ethylurea	cancer	759-73-9	October 1, 1987
N-Nitrosohexamethyleneimine	cancer	932-83-2	November 23, 2018
3-(N-Nitrosomethylamino)-propionitrile	cancer	60153-49-3	April 1, 1990
4-(N-Nitrosomethylamino)-1-(3-pyridyl)1-butanone	cancer	64091-91-4	April 1, 1990
N-Nitrosomethyl-*n*-butylamine	cancer	7068-83-9	December 26, 2014
N-Nitrosomethyl-*n*-decylamine	cancer	75881-22-0	December 26, 2014

Chemical	Type of Toxicity	CAS No.	Date Listed
N-Nitrosomethyl-*n*-dodecylamine	cancer	55090-44-3	December 26, 2014
N-Nitrosomethylethylamine	cancer	10595-95-6	October 1, 1989
N-Nitrosomethyl-*n*-heptylamine	cancer	16338-99-1	December 26, 2014
N-Nitrosomethyl-*n*-hexylamine	cancer	28538-70-7	December 26, 2014
N-Nitrosomethyl-*n*-nonylamine	cancer	75881-19-5	December 26, 2014
N-Nitrosomethyl-*n*-octylamine	cancer	34423-54-6	December 26, 2014
N-Nitrosomethyl-*n*-pentylamine	cancer	13256-07-0	December 26, 2014
N-Nitrosomethyl-*n*-propylamine	cancer	924-46-9	December 26, 2014
N-Nitrosomethyl-*n*-tetradecylamine	cancer	75881-20-8	December 26, 2014
N-Nitrosomethyl-*n*-undecylamine	cancer	68107-26-6	December 26, 2014
N-Nitroso-N-methylurea	cancer	684-93-5	October 1, 1987
N-Nitroso-N-methylurethane	cancer	615-53-2	April 1, 1988
N-Nitrosomethylvinylamine	cancer	4549-40-0	January 1, 1988
N-Nitrosomorpholine	cancer	59-89-2	January 1, 1988
N-Nitrosonornicotine	cancer	16543-55-8	January 1, 1988
N-Nitrosopiperidine	cancer	100-75-4	January 1, 1988
N-Nitrosopyrrolidine	cancer	930-55-2	October 1, 1987
N-Nitrososarcosine	cancer	13256-22-9	January 1, 1988
o-Nitrotoluene	cancer	88-72-2	May 15, 1998
Nitrous oxide	developmental, female	10024-97-2	August 1, 2008
Norethisterone (Norethindrone)	cancer	68-22-4	October 1, 1989
Norethisterone (Norethindrone)	developmental	68-22-4	April 1, 1990
Norethisterone acetate (Norethindrone acetate)	developmental	51-98-9	October 1, 1991
Norethisterone (Norethindrone) /Ethinyl estradiol	developmental	68-22-4 / 57-63-6	April 1, 1990
Norethisterone(Norethindrone)/ Mestranol	developmental	68-22-4 / 72-33-3	April 1, 1990
Norethynodrel	cancer	68-23-5	February 27, 2001
Norgestrel	developmental	6533-00-2	April 1, 1990
Ochratoxin A	cancer	303-47-9	July 1, 1990
Oil Orange SS	cancer	2646-17-5	April 1, 1988
Oral contraceptives, combined	cancer	---	October 1, 1989
Oral contraceptives, sequential	cancer	---	October 1, 1989
Oryzalin	cancer	19044-88-3	September 12, 2008
Oxadiazon	cancer	19666-30-9	July 1, 1991
Oxadiazon	developmental	19666-30-9	May 15, 1998
Oxazepam	cancer	604-75-1	October 1, 1994
Oxazepam	developmental	604-75-1	October 1, 1992
~~p,p'-Oxybis(benzenesulfonyl hydrazide)~~, Delisted December 13, 2013	~~developmental~~	~~80-51-3~~	~~August 7, 2009~~
Oxydemeton methyl	female, male	301-12-2	November 6, 1998
Oxymetholone	cancer	434-07-1	January 1, 1988
Oxymetholone	developmental	434-07-1	May 1, 1997
Oxytetracycline (internal use)	developmental	79-57-2	January 1, 1991
Oxytetracycline hydrochloride (internal use)	developmental	2058-46-0	October 1, 1991
Oxythioquinox (Chinomethionat)	cancer	2439-01-2	August 20, 1999
Oxythioquinox (Chinomethionat)	developmental	2439-01-2	November 6, 1998
Paclitaxel	developmental, female, male	33069-62-4	August 26, 1997
Palygorskite fibers (> 5μm in length)	cancer	12174-11-7	December 28, 1999
Panfuran S	cancer	794-93-4	January 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
Paramethadione	developmental	115-67-3	July 1, 1990
Parathion	cancer	56-38-2	May 20, 2016
Penicillamine	developmental	52-67-5	January 1, 1991
Pentabromodiphenyl ether mixture [DE-71 (technical grade)]	cancer	---	July 7, 2017
Pentachlorophenol	cancer	87-86-5	January 1, 1990
Pentachlorophenol and by-products of its synthesis (complex mixture)	cancer	---	October 21, 2016
Pentobarbital sodium	developmental	57-33-0	July 1, 1990
Pentosan polysulfate sodium	cancer	---	April 18, 2014
Pentostatin	developmental	53910-25-1	September 1, 1996
Perfluorononanoic acid (PFNA) and its salts	male	---	December 31, 2021
Perfluorooctane sulfonate (PFOS)	developmental	1763-23-1	November 10, 2017
Perfluorooctane sulfonic acid (PFOS) and its salts and transformation and degradation precursors	cancer	---	December 24, 2021
Perfluorooctanoic acid (PFOA)	cancer	335-67-1	February 25, 2022
Perfluorooctanoic acid (PFOA)	developmental	335-67-1	November 10, 2017
Pertuzumab	developmental	380610-27-5	January 27, 2017
Phenacemide	developmental	63-98-9	July 1, 1990
Phenacetin	cancer	62-44-2	October 1, 1989
Phenazopyridine	cancer	94-78-0	January 1, 1988
Phenazopyridine hydrochloride	cancer	136-40-3	January 1, 1988
Phenesterin	cancer	3546-10-9	July 1, 1989
Phenobarbital	cancer	50-06-6	January 1, 1990
Phenolphthalein	cancer	77-09-8	May 15, 1998
Phenoxybenzamine	cancer	59-96-1	April 1, 1988
Phenoxybenzamine hydrochloride	cancer	63-92-3	April 1, 1988
Phenprocoumon	developmental	435-97-2	October 1, 1992
o-Phenylenediamine and its salts	cancer	95-54-5	May 15, 1998
Phenyl glycidyl ether	cancer	122-60-1	October 1, 1990
~~Phenyl glycidyl ether~~, Delisted April 4, 2014	~~male~~	~~122-60-1~~	~~August 7, 2009~~
Phenylhydrazine and its salts	cancer	---	July 1, 1992
o-Phenylphenate, sodium	cancer	132-27-4	January 1, 1990
o-Phenylphenol	cancer	90-43-7	August 4, 2000
Phenylphosphine	~~developmental~~ male	638-21-1	August 7, 2009
PhiP(2-Amino-1-methyl-6-phenylimidazol[4,5-b]pyridine)	cancer	105650-23-5	October 1, 1994
Pimozide	developmental, female	2062-78-4	August 20, 1999
Pioglitazone	cancer	111025-46-8	April 18, 2014
Pipobroman	developmental	54-91-1	July 1, 1990
Pirimicarb	cancer	23103-98-2	July 1, 2008
Plicamycin	developmental	18378-89-7	April 1, 1990
Polybrominated biphenyls	cancer	---	January 1, 1988
Polybrominated biphenyls	developmental	---	October 1, 1994
Polychlorinated biphenyls	cancer	---	October 1, 1989
Polychlorinated biphenyls	developmental	---	January 1, 1991
Polychlorinated biphenyls (containing 60 or more percent chlorine by molecular weight)	cancer	---	January 1, 1988
Polychlorinated dibenzo-*p*-dioxins	cancer	---	October 1, 1992
Polychlorinated dibenzofurans	cancer	---	October 1, 1992
Polygeenan	cancer	53973-98-1	January 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
Ponceau MX	cancer	3761-53-3	April 1, 1988
Ponceau 3R	cancer	3564-09-8	April 1, 1988
Potassium bromate	cancer	7758-01-2	January 1, 1990
Potassium dimethyldithiocarbamate	developmental	128-03-0	March 30 1999
Pravastatin sodium	developmental	81131-70-6	March 3, 2000
Prednisolone sodium phosphate	developmental	125-02-0	August 20, 1999
Primidone	cancer	125-33-7	August 20, 1999
Procarbazine	cancer	671-16-9	January 1, 1988
Procarbazine hydrochloride	cancer	366-70-1	January 1, 1988
Procarbazine hydrochloride	developmental	366-70-1	July 1, 1990
Procymidone	cancer	32809-16-8	October 1, 1994
Progesterone	cancer	57-83-0	January 1, 1988
Pronamide	cancer	23950-58-5	May 1, 1996
Propachlor	cancer	1918-16-7	February 27, 2001
1,3-Propane sultone	cancer	1120-71-4	January 1, 1988
Propargite	cancer	2312-35-8	October 1, 1994
Propargite	developmental	2312-35-8	June 15, 1999
Propazine	developmental, female	139-40-2	July 15, 2016
beta-Propiolactone	cancer	57-57-8	January 1, 1988
Propoxur	cancer	114-26-1	August 11, 2006
Propylene glycol mono-*t*-butyl ether	cancer	57018-52-7	June 11, 2004
Propylene oxide	cancer	75-56-9	October 1, 1988
Propylthiouracil	cancer	51-52-5	January 1, 1988
Propylthiouracil	developmental	51-52-5	July 1, 1990
Pulegone	cancer	89-82-7	April 18, 2014
Pymetrozine	cancer	123312-89-0	March 22, 2011
Pyridine	cancer	110-86-1	May 17, 2002
Pyrimethamine	developmental	58-14-0	January 29, 1999
Quazepam	developmental	36735-22-5	August 26, 1997
Quinoline and its strong acid salts	cancer	---	October 24, 1997
Quizalofop-ethyl	male	76578-14-8	December 24, 1999
Radionuclides	cancer	---	July 1, 1989
Reserpine	cancer	50-55-5	October 1, 1989
Residual (heavy) fuel oils	cancer	---	October 1, 1990
Resmethrin	cancer	10453-86-8	July 1, 2008
Resmethrin	developmental	10453-86-8	November 6, 1998
Retinol/retinyl esters, when in daily dosages in excess of 10,000 IU, or 3,000 retinol equivalents. (NOTE: Retinol/retinyl esters are required and essential for maintenance of normal reproductive function. The recommended daily level during pregnancy is 8,000 IU.)	developmental	---	July 1, 1989
Ribavirin	developmental	36791-04-5	April 1, 1990
Ribavirin	male	36791-04-5	February 27, 2001
Riddelliine	cancer	23246-96-0	December 3, 2004
Rifampin	developmental, female	13292-46-1	February 27, 2001
~~Saccharin~~, Delisted April 6, 2001	~~cancer~~	~~81-07-2~~	~~October 1, 1989~~
~~Saccharin, sodium~~, Delisted January 17, 2003	~~cancer~~	~~128-44-9~~	~~January 1, 1988~~
Safrole	cancer	94-59-7	January 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
Salted fish, Chinese-style	cancer	---	April 29, 2011
Secobarbital sodium	developmental	309-43-3	October 1, 1992
Sedaxane	cancer	874967-67-6	July 1, 2016
Selenium sulfide	cancer	7446-34-6	October 1, 1989
Sermorelin acetate	developmental	---	August 20, 1999
Shale-oils	cancer	68308-34-9	April 1, 1990
Silica, crystalline (airborne particles of respirable size)	cancer	---	October 1, 1988
Simazine	developmental, female	122-34-9	July 15, 2016
Sodium dimethyldithiocarbamate	developmental	128-04-1	March 30 1999
Sodium fluoroacetate	male	62-74-8	November 6, 1998
Soots, tars, and mineral oils(untreated and mildly treated oils and used engine oils)	cancer	---	February 27, 1987
Spirodiclofen	cancer	148477-71-8	October 8, 2010
Spironolactone	cancer	52-01-7	May 1, 1997
Stanozolol	cancer	10418-03-8	May 1, 1997
Sterigmatocystin	cancer	10048-13-2	April 1, 1988
Streptomycin sulfate	developmental	3810-74-0	January 1, 1991
Streptozocin (streptozotocin)	developmental, female, male	18883-66-4	August 20, 1999
Streptozotocin (streptozocin)	cancer	18883-66-4	January 1, 1988
Strong inorganic acid mists containing sulfuric acid	cancer	---	March 14, 2003
Styrene	cancer	100-42-5	April 22, 2016
Styrene oxide	cancer	96-09-3	October 1, 1988
Sulfallate	cancer	95-06-7	January 1, 1988
Sulfasalazine (Salicylazosulfapyridine)	cancer	599-79-1	May 15, 1998
Sulfasalazine (Salicylazosulfapyridine)	male	599-79-1	January 29, 1999
Sulfur dioxide	developmental	7446-09-5	July 29, 2011
Sulindac	developmental, female	38194-50-2	January 29, 1999
Talc containing asbestiform fibers	cancer	---	April 1, 1990
Tamoxifen and its salts	cancer	10540-29-1	September 1, 1996
Tamoxifen citrate	developmental	54965-24-1	July 1, 1990
Temazepam	developmental	846-50-4	April 1, 1990
Teniposide	developmental	29767-20-2	September 1, 1996
Terbacil	developmental	5902-51-2	May 18, 1999
Teriparatide	cancer	52232-67-4	August 14, 2015
Terrazole	cancer	2593-15-9	October 1, 1994
Testosterone and its esters	cancer	58-22-0	April 1, 1988
Testosterone cypionate	developmental	58-20-8	October 1, 1991
Testosterone enanthate	developmental	315-37-7	April 1, 1990
Tetrabromobisphenol A	cancer	79-94-7	October 27, 2017
3,3′,4,4′-Tetrachloroazobenzene	cancer	14047-09-7	July 24, 2012
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	cancer	1746-01-6	January 1, 1988
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	developmental	1746-01-6	April 1, 1991
1,1,1,2-Tetrachloroethane	cancer	630-20-6	September 13, 2013
1,1,2,2-Tetrachloroethane	cancer	79-34-5	July 1, 1990
Tetrachloroethylene (Perchloroethylene)	cancer	127-18-4	April 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
p-a,a,a-Tetrachlorotoluene	cancer	5216-25-1	January 1, 1990
Tetrachlorvinphos	cancer	22248-79-9	May 20, 2016
Tetracycline (internal use)	developmental	60-54-8	October 1, 1991
Tetracyclines (internal use)	developmental	---	October 1, 1992
Tetracycline hydrochloride (internal use)	developmental	64-75-5	January 1, 1991
Tetrafluoroethylene	cancer	116-14-3	May 1, 1997
Δ^9-Tetrahydrocannabinol (Δ^9-THC; delta-9-THC)	developmental		January 3, 2020
Tetrahydrofuran	cancer	109-99-9	December 17, 2021
Tetranitromethane	cancer	509-14-8	July 1, 1990
Thalidomide	developmental	50-35-1	July 1, 1987
Thioacetamide	cancer	62-55-5	January 1, 1988
4,4'-Thiodianiline	cancer	139-65-1	April 1, 1988
Thiodicarb	cancer	59669-26-0	August 20, 1999
Thioguanine	developmental	154-42-7	July 1, 1990
Thiophanate methyl	female, male	23564-05-8	May 18, 1999
Thiouracil	cancer	141-90-2	June 11, 2004
Thiourea	cancer	62-56-6	January 1, 1988
Thorium dioxide	cancer	1314-20-1	February 27, 1987
Titanium dioxide (airborne, unbound particles of respirable size)	cancer	---	September 2, 2011
Tobacco, oral use of smokeless products	cancer	---	April 1, 1988
Tobacco smoke	cancer	---	April 1, 1988
Tobacco smoke (primary)	developmental, female, male	---	April 1, 1988
Tobramycin sulfate	developmental	49842-07-1	July 1, 1990
Toluene	developmental	108-88-3	January 1, 1991
	~~female~~	~~108-88-3~~	~~August 7, 2009~~
Toluene diisocyanate	cancer	26471-62-5	October 1, 1989
o-Toluidine	cancer	95-53-4	January 1, 1988
o-Toluidine hydrochloride	cancer	636-21-5	January 1, 1988
~~para-Toluidine~~, Delisted October 29, 1999	~~cancer~~	~~106-49-0~~	~~January 1, 1990~~
Topiramate	developmental	97240-79-4	November 27, 2015
Toxaphene (Polychlorinated camphenes)	cancer	8001-35-2	January 1, 1988
Toxins derived from *Fusarium* Moniliforme (Fusarium verticillioides)	cancer	---	August 7, 2009
Treosulfan	cancer	299-75-2	February 27, 1987
Triadimefon	developmental, female, male	43121-43-3	March 30, 1999
Triamterene	cancer	396-01-0	April 18, 2014
Triazolam	developmental	28911-01-5	April 1, 1990
S,S,S-Tributyl phosphorotrithioate (Tribufos, DEF)	cancer	78-48-8	February 25, 2011
Tributyltin methacrylate	developmental	2155-70-6	December 1, 1999
Trichlormethine (Trimustine hydrochloride)	cancer	817-09-4	January 1, 1992
Trichloroacetic acid	cancer	76-03-9	September 13, 2013
1,1,1-Trichloroethane	cancer	71-55-6	April 21, 2023
Trichloroethylene	cancer	79-01-6	April 1, 1988
Trichloroethylene	developmental, male	79-01-6	January 31, 2014
2,4,6-Trichlorophenol	cancer	88-06-2	January 1, 1988

Chemical	Type of Toxicity	CAS No.	Date Listed
1,2,3-Trichloropropane	cancer	96-18-4	October 1,1992
Trientine hydrochloride	developmental	38260-01-4	February 27, 2001
Triforine	developmental	26644-46-2	June 18, 1999
~~1,3,5-Triglycidyl-s-triazinetrione~~, Delisted December 13, 2013	~~male~~	~~2451-62-9~~	~~August 7, 2009~~
Trilostane	developmental	13647-35-3	April 1, 1990
Trimethadione	developmental	127-48-0	January 1, 1991
2,4,5-Trimethylaniline and its strong acid salts	cancer	---	October 24, 1997
Trimethylolpropane triacrylate, technical grade	cancer	---	December 17, 2021
Trimethyl phosphate	cancer	512-56-1	May 1, 1996
Trimetrexate glucoronate	developmental	82952-64-5	August 26, 1997
TRIM® VX	cancer	---	May 25, 2018
2,4,6-Trinitrotoluene (TNT)	cancer	118-96-7	December 19, 2008
Triphenyltin hydroxide	cancer	76-87-9	July 1, 1992
Triphenyltin hydroxide	developmental	76-87-9	March 18, 2002
~~Tris(aziridinyl)-*p*-benzoquinone (Triaziquone)~~, Delisted December 8, 2006	~~cancer~~	~~68-76-8~~	~~October 1, 1989~~
Tris(1-aziridinyl)phosphine sulfide (Thiotepa)	cancer	52-24-4	January 1, 1988
Tris(2-chloroethyl) phosphate	cancer	115-96-8	April 1, 1992
Tris(2,3-dibromopropyl)phosphate	cancer	126-72-7	January 1, 1988
Tris(1,3-dichloro-2-propyl) phosphate (TDCPP)	cancer	13674-87-8	October 28, 2011
Trp-P-1 (Tryptophan-P-1)	cancer	62450-06-0	April 1, 1988
Trp-P-2 (Tryptophan-P-2)	cancer	62450-07-1	April 1, 1988
Trypan blue (commercial grade)	cancer	72-57-1	October 1, 1989
Unleaded gasoline (wholly vaporized)	cancer	---	April 1, 1988
Uracil mustard	cancer	66-75-1	April 1, 1988
Uracil mustard	developmental, female, male	66-75-1	January 1, 1992
Urethane (Ethyl carbamate)	cancer	51-79-6	January 1, 1988
Urethane (Ethyl carbamate)	developmental	51-79-6	October 1, 1994
Urofollitropin	developmental	97048-13-0	April 1, 1990
Valproate (Valproic acid)	developmental	99-66-1	July 1, 1987
Vanadium pentoxide (orthorhombic crystalline form)	cancer	1314-62-1	February 11, 2005
Vinblastine sulfate	developmental	143-67-9	July 1, 1990
Vinclozolin	cancer	50471-44-8	August 20, 1999
Vinclozolin	developmental	50471-44-8	May 15, 1998
Vincristine sulfate	developmental	2068-78-2	July 1, 1990
Vinyl bromide	cancer	593-60-2	October 1, 1988
Vinyl chloride	cancer	75-01-4	February 27, 1987
4-Vinylcyclohexene	cancer	100-40-3	May 1, 1996
4-Vinyl-cyclohexene	female, ~~male~~	100-40-3	August 7, 2009
4-Vinyl-1-cyclohexene diepoxide (Vinyl cyclohexene dioxide)	cancer	106-87-6	July 1, 1990
Vinyl cyclohexene dioxide (4-Vinyl-1-cyclohexene diepoxide)	female, ~~male~~	106-87-6	August 1, 2008
Vinyl fluoride	cancer	75-02-5	May 1, 1997

Chemical	Type of Toxicity	CAS No.	Date Listed
Vinylidene chloride (1,1-Dichloroethylene)	cancer	75-35-4	December 29, 2017
Vinyl trichloride (1,1,2-Trichloroethane)	cancer	79-00-5	October 1, 1990
Vismodegib	developmental, female, male	879085-55-9	January 27, 2017
Warfarin	developmental	81-81-2	July 1, 1987
Wood dust	cancer	---	December 18, 2009
2,6-Xylidine (2,6-Dimethylaniline)	cancer	87-62-7	January 1, 1991
Zalcitabine	cancer	7481-89-2	August 7, 2009
Zidovudine (AZT)	cancer	30516-87-1	December 18, 2009
Zileuton	cancer, developmental, female	111406-87-2	December 22, 2000
~~Zineb~~, Delisted October 29, 1999	~~cancer~~	~~12122-67-7~~	~~January 1, 1990~~

Date: April 21, 2023

Moving Targets in Muddied Waters: Advising Farmers, Landowners, and Lenders Regarding Waters of the United States

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WOTUS Update: EPA Releases Highly Anticipated Final Rule to Redefine "Waters of the United States"

On December 30, 2022, the Environmental Protection Agency ("EPA") released its long-awaited rule to redefine the definition of "waters of the United States" ("WOTUS") under the Clean Water Act ("CWA"). The term is central to the implementation of the CWA because only those waterbodies designated as WOTUS receive CWA protection. The new rules marks the third attempt by EPA to redefine WOTUS since 2015. In a press release issued by EPA, the Agency stated that it hoped the new rule would create a "durable definition" of WOTUS that would reduce uncertainty.

Background

Passed by Congress in 1972, the stated objective of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). To achieve this goal, the CWA implements a variety of different programs, including two permitting schemes that prevent the unpermitted discharge of pollutants or dredge or fill material into protected waters. Central to the implementation of the CWA is the term "navigable waters" which the Act uses to establish most of its programs, including its permitting provisions. Only those waters that fall under the definition of "navigable waters" will be subject to CWA protection.

The CWA broadly defines "navigable waters" as "the waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). Congress did not include additional language to further define "waters of the United States." Instead, Congress left it up to EPA to pass regulations that would define the term. Ultimately, this has proved challenging for EPA. The Agency has adopted multiple definitions for WOTUS since the CWA was passed, with the definition being particularly in flux since 2015.

Prior to 2015, the definition of WOTUS had been relatively stable since 1986. Under the 1986 definition, there were roughly seven categories of waterbodies that fell under the definition of WOTUS. That included all waters which have been used or could be used in interstate or foreign commerce; all interstate waters; all other waters that could affect interstate or foreign commerce if the water was degraded or destroyed; the territorial seas; impoundments of any waters described in the rule; tributaries of any waters described in the rule; or wetlands adjacent to any waters described in the rule. Under that rule, some waters very clearly satisfied the definition of WOTUS while others, particularly wetlands, required further assessment.

In 2006, the United States Supreme Court issued a ruling in the landmark case ***Rapanos v. U.S.*, 547 U.S. 715 (2006)**. The case concerned the scope of wetlands jurisdiction under the CWA, specifically asking whether CWA jurisdiction extended to non-navigable wetlands that did not share a continuous surface connection with a navigable water. Ultimately, the Court did not reach a majority conclusion. Instead, *Rapanos* resulted in a four-justice plurality decision authored by Justice Scalia and an opinion by Justice Kennedy writing for himself. The plurality

opinion proposed a strict hardline rule for determining wetland jurisdiction under the CWA. According to the plurality, the word "waters" in "waters of the United States" should apply only to "relatively permanent, standing or continuously flowing bodies of water" such as streams, oceans, rivers and lakes. Only those wetlands which shared a "continuous surface connection" with a relatively permanent body of water would satisfy the definition of WOTUS and fall under CWA jurisdiction.

Justice Kennedy offered a different approach. In his opinion, Justice Kennedy suggested that a wetland should fall under CWA jurisdiction if it shared a "significant nexus" with a water that is already recognized as a WOTUS. A significant nexus would exist if a wetland "significantly affect[s] the chemical, physical, and biological integrity" with a recognized WOTUS. If such a significant nexus exists, the wetland would fall under CWA jurisdiction.

In the years following *Rapanos*, courts and EPA tended to apply Justice Kennedy's significant nexus test either on its own or in combination with the plurality's approach when the issue arose. However, EPA did not formally revise the definition of WOTUS in response to *Rapanos* until 2015. At that time, EPA adopted the Clean Water Rule which expanded the definition of WOTUS and attempted to clarify which waters were protected. The rule was highly controversial, and multiple lawsuits ultimately prevented it from going into effect in over half the states. When President Trump took office in 2017, he issued an executive order directing EPA to draft new regulations that would repeal the Clean Water Rule and redefine WOTUS. In 2020, EPA adopted the Navigable Waters Protection Rule which once again redefined WOTUS, this time limiting it to four discrete categories of waters. That rule was similarly controversial, and was ultimately overturned by a judge in 2021.

When President Biden took office in 2021, he issued another executive order again directing EPA to review and revise the regulations defining WOTUS. After conducting an initial review, EPA announced that it would carry out a two-part rulemaking to create a new WOTUS definition. During the first part of the rulemaking, EPA repealed the Navigable Waters Protection Rule and returned the WOTUS definition to where it was prior to 2015. During the second part, EPA worked to draft a new WOTUS definition that would build on the pre-2015 definition to establish a durable WOTUS rule. The final rule announced on December 30 is the conclusion of that two-step rulemaking.

What's In the Rule?

The 2022 WOTUS rule is largely based on the pre-2015 regulations from 1986, and for the first time codifies both the significant nexus and relatively permanent standards proposed in *Rapanos*. The 2022 rule includes definitions for several other important terms such as "adjacent" and "significant affect," and codifies a variety of longstanding WOTUS exclusions. The text of the rule is divided into three parts: jurisdictional waters, exclusions, and definitions.

In the 2022 WOTUS rule, EPA identifies five categories of waters that will fall under CWA jurisdiction. Those categories are:

- Traditional navigable waters that currently are, or were used in the past, or could be used in the future for interstate for foreign commerce, including all waters that are subject to the ebb and flow of the tide; the territorial seas; and interstate waters, including interstate wetlands (collectively, "traditional navigable waters")
- Impoundments of waters otherwise identified as a WOTUS, except for impoundments of waters identified under the fifth category of WOTUS (collectively, "impoundments")
- Tributaries of traditional navigable waters or impoundments that are either: relatively permanent, standing or continuously flowing bodies of water; or that alone or in combination with similarly situated waters in the region significantly affect the chemical, physical, or biological integrity of traditional navigable waters (collectively, "tributaries")
- Wetlands adjacent to any of the following: traditional navigable waters; a relatively permanent, standing or continuously flowing impoundment or tributary; an impoundment or tributary if the wetlands either alone or in combination with similarly situated waters in the region significantly affect the chemical, physical, or biological integrity of a traditional navigable water (collectively, "adjacent wetlands")
- Interstate lakes and ponds, streams, or wetlands that do not fall into any of the above categories provided the water is either: relatively permanent, standing or continuously flowing and shares a surface connection with a traditional navigable water, impoundment, or tributary; or on its own or in combination with similarly situated waters in the region significantly affects the chemical, physical, or biological integrity of a traditional navigable water (collectively, "jurisdictional interstate waters")

These categories of WOTUS are similar to the categories identified in the 1986 rules with a few exceptions. For example, the 2022 rule limits the types of impoundments that may satisfy the WOTUS definition only to impoundments of navigable waters, tributaries, and jurisdictional wetlands. Under the 1986 rule, all impoundments of any water described as a WOTUS fell under CWA jurisdiction. Additionally, the 2022 rule incorporates both tests from *Rapanos* by requiring that tributaries, wetlands, and interstate waters either satisfy the plurality's test, or share a significant nexus with a traditional navigable water.

The second portion of the 2022 WOTUS rule lays out exceptions to the rule. These are waters that will not meet the WOTUS definition even if they fall into one of the five categories outlined above. Many of these exclusions are longstanding and have been included in previous WOTUS definitions. Importantly, the 2022 WOTUS rule maintains two exclusions relevant to agriculture: prior converted cropland, and waste treatments systems that are otherwise designed to meet CWA requirements. Prior converted cropland is defined as any area that was drained or otherwise manipulated to make production of agriculture possible prior to December 23, 1985. 40 C.F.R. § 120.2(3)(ix). If the area becomes unavailable for the production of agricultural commodities, it loses its prior converted cropland status. Other exceptions found in the 2022 WOTUS rule include ditches that do not carry a relatively permanent flow of water, artificially irrigated areas that would revert to dry land if irrigation stopped, and various artificial ponds and pools.

The final section of the 2022 WOTUS rule provides definitions for key terms within the rule itself. Some of the definitions are consistent with previous regulations while other definitions

have been codified for the first time. Importantly, the 2022 rule maintains the same definition for "adjacent" that has been in place for decades. Under the rule, "adjacent" is defined as "bordering, contiguous, or neighboring." It further explains that "wetlands separated from other waters of the United State by man-made dikes or barrier, natural river berms, beach dunes, and the like are 'adjacent wetlands.'" This term is critical for helping to determine which wetlands fall under CWA jurisdiction.

The 2022 WOTUS rule also introduces a definition for "significantly affect." According to the rule, "significantly affect" means "a material influence on the chemical, physical, or biological integrity of" traditional navigable waters. The rule goes on to outline "functions to be assessed" and "factors to be considered" when determining whether a waterbody meets the "significantly affect" standard. The functions to be assessed include: contribution of flow; trapping, transformation, filtering, and transport of materials such as nutrients or sediment; retention and attenuation of floodwaters and runoff; modulation of temperature in traditional navigable waters; and provision of habitat and food resources for aquatic species located in traditional navigable waters. The factors to be considered include: the distance from a traditional navigable water; hydrologic factors such as the frequency, duration, magnitude, timing, and rate of hydrologic connections; the size, density, or number of waters that are similarly situated; landscape and geomorphology; and climate variables such as temperature, rainfall, and snowpack. EPA will consider all of these elements when determining whether a waterbody has a sufficient significant affec" on a traditional navigable water to satisfy the definition of WOTUS.

Finally, the document accompanying the 2022 WOTUS rule outlines how EPA intends to implement the rule. Although this is not part of the rule itself, it provides insight to how EPA expects the rule to function. According to this document, EPA will begin its WOTUS analysis by first considering if a waterbody qualifies as a traditional navigable water. If so, the analysis is complete and the waterbody will be classified as a WOTUS. If the waterbody does not qualify as a traditional navigable water, EPA will next consider whether any of the exclusions to the WOTUS rule apply. If an exclusion applies, the waterbody is not jurisdictional and EPA will end its analysis. If an exclusion does not apply, EPA will determine if the waterbody is either an impoundment, a tributary, or an adjacent wetland. If the waterbody satisfies either of these definitions, then it will be considered a WOTUS. If the waterbody is not found to be an impoundment, a tributary or an adjacent wetland, EPA will move on and assess whether the waterbody could be jurisdictional under the final category of jurisdictional interstate waters. If the waterbody is found to fall under that category, then the water is a WOTUS. If the waterbody does not fall under that category, then the water is not a WOTUS and EPA's analysis is at an end.

Going Forward

At the time this article was published, the 2022 WOTUS rule has not been introduced to the Federal Register. The rule will not go into legal effect until 60 days after it is entered into the Federal Register. Until that time, the pre-2015 regulations will remain in effect.

While the 2022 WOTUS rule marks the end of EPA's most recent rulemaking process to redefine WOTUS, it does not mean that the definition is fully settled. In late 2022, the United

States Supreme Court heard oral argument in a lawsuit titled ***Sackett v. EPA***, where the Court was asked to revisit its ruling in *Rapanos*. The Court's opinion in that lawsuit is expected to issue later this year. Depending on what is in the Court's final decision it may be necessary for EPA to revisit or revise the definition of WOTUS once again. It is also likely that the 2022 WOTUS rule will face additional lawsuits that could result in further revisions.

WOTUS Update: 2023 Rule Enjoined in 27 States

Over the last month, there have been several developments in the litigation over implementation of the key Clean Water Act ("CWA") term "waters of the United States" ("WOTUS"). The definition of WOTUS is critical for implementing the CWA because only those waters that fall under the WOTUS definition will be regulated under the CWA. The Environmental Protection Agency ("EPA") is responsible for issuing regulations to define the key term, which has proven to be a challenge. Since 2015, there have been three different rulemakings to introduce new WOTUS definitions. The latest WOTUS definition, which went into effect on March 20, has been the subject of three legal challenges. Although one of the lawsuits was dismissed, the other two lawsuits have resulted in injunctions preventing the 2023 WOTUS rule from taking effect in 26 states and a temporary stay of the rule in a 27th state.

Elements of an Injunction

Currently, three separate federal courts have issued rulings on motions to enjoin the 2023 WOTUS rule from remaining in effect while the underlying legal challenges to the rule are litigated. While an injunction does not mean that the challenged rule has been overturned, it does indicate that the judge issuing the injunction has determined that the plaintiffs are likely to win on the merits of their claims.

An injunction is a court order requiring a person to either take or cease doing a certain action. There are different types of injunctions that are issued at different points in the lawsuit, and last for different amounts of time. Typically, when a plaintiff is suing to challenge a regulation passed by a government agency, the plaintiff will ask for a preliminary injunction which may be issued early in the lawsuit. Preliminary injunctions are usually granted before trial or oral argument with the goal of preserving the "status quo" while the underlying matter is litigated. For lawsuits challenging government rules, the status quo preserved by a preliminary injunction is typically whatever the law was before the challenged government rule was in place.

According to the Supreme Court in ***Winter v. Nat. Res. Def. Council, Inc.*, 555 U.S. 7 (2008)**, a preliminary injunction is an "extraordinary remedy never awarded as a right." Therefore, the party seeking the injunction (usually the plaintiff) must demonstrate to the court that four required elements are satisfied. Those elements include: (1) the likelihood that the plaintiff will succeed on the merits of their claims; (2) that injunctive relief is necessary to prevent irreparable harm to the plaintiff; (3) that the threatened irreparable harm to the plaintiff outweighs any harm that injunctive relief may cause to the defendant; and (4) that injunctive relief is consistent with the public interest.

To satisfy the first element, it is not necessary for the plaintiff to show that their underlying arguments are certain to win at trial. Instead, it is enough for the plaintiff to show that they are "substantially" likely to win on the merits of their claims. In other words, the plaintiff must demonstrate that there is a more than minimal chance that their arguments are likely to succeed. While the plaintiff must satisfy all four elements of the preliminary injunction test, the first factor

is considered the most important. A court will not consider the other three factors if the plaintiff fails to show that they are likely to succeed on the merits of their claims.

If the plaintiff has satisfied the first element of the preliminary injunction test, the court will move onto the other three. To demonstrate the necessary "irreparable harm," the plaintiff must provide evidence that if injunctive relief is not granted, they will suffer an irreparable injury. While the injury does not need to have already occurred for the plaintiff to be successful on this element, it must be an injury that is real and immediate should injunctive relief not be granted. To satisfy the third element weighing the "balance of harms," the plaintiff must show that the alleged irreparable harm that they will suffer without injunctive relief is significant, while only minimal harm will occur to the defendant if injunctive relief is granted. If the court finds reasonable evidence that a preliminary injunction would unduly burden the defendant, that is grounds for the court to deny injunctive relief. Finally, to satisfy the "public interest" element, the plaintiff must show that granting a preliminary injunction would not be harmful to the public interest. Because courts recognize that the public has a strong interest in the enforcement of valid laws, in cases where the plaintiff is challenging a law or regulation, the "public interest" element will often be based in part on whether the plaintiff has demonstrated that they are likely to succeed on the merits. If the plaintiff successfully shows that they are likely to succeed in their claims that the law is invalid, it is generally considered not to be in the public interest to enforce an invalid law.

Recent WOTUS Injunctions

As of April 2023, three courts have issued orders on requests for injunctions in lawsuits challenging the 2023 WOTUS rule. Two courts granted the plaintiffs' request for a preliminary injunction, while the other court dismissed the case entirely for the plaintiffs' failure to state a valid claim. The plaintiffs in that case have appealed the court's decision to dismiss and received a temporary stay of the rule while the appeal is litigated.

State of Texas v. EPA

The first injunction against the 2023 WOTUS rule was issued on March 19, 2023, by a federal judge in ***State of Texas v. EPA*, No. 3:23-cv-00017 (S.D. Tex.)**. The court began its preliminary injunction analysis by considering whether the plaintiffs had show they were likely to succeed on the merits of their claims that the 2023 WOTUS rule exceeds the authority granted to EPA by the CWA, that the rule violates the Tenth Amendment of the United States Constitution which delegates the power to regulate land and water resources to the states, and that EPA did not have clear Congressional authorization to adopt the 2023 WOTUS rule. According to the court, two aspects of the 2023 rule indicated that the plaintiffs were likely to succeed on the merits of their claims – the rule's significant nexus, and the extension of jurisdiction over all interstate waters regardless of "navigability."

The 2023 WOTUS rule incorporates the significant nexus test as a way of determining whether certain waters meet the definition of WOTUS. The test was first articulated by Justice Kennedy in the landmark case ***Rapanos v. U.S.*, 547 U.S. 715 (2006)**, but was not formally codified until the 2023 WOTUS rule. According to the judge in *State of Texas v. EPA*, the plaintiffs were likely

to succeed to the merits of their claim that the 2023 rule exceeds the CWA's jurisdiction because the significant nexus test in the 2023 rule "ebbs beyond" the significant nexus test established by Justice Kennedy. The court also determined that the inclusion of all interstate waters in the 2023 WOTUS rule regardless of navigability extends beyond the text of the CWA which uses the phrase "navigable waters" as a basis for jurisdiction. While courts have determined that CWA jurisdiction goes beyond "traditional navigable waters," they have also determined that EPA cannot read navigability out of the WOTUS definition. For those two reasons, the judge in *State of Texas v. EPA* concluded that the plaintiffs were likely to succeed on the merits of their underlying claims.

After determining that the first element of the injunction test was satisfied, the court moved onto the other three elements. The court determined that if the 2023 WOTUS rule were not enjoined, the plaintiffs would suffer irreparable harm by taking on compliance costs associated with complying with the new rule. The court concluded that such harm outweighed any harm to the defendants because the plaintiffs would be forced to spend unrecoverable resources on complying with the 2023 WOTUS rule if it went into effect while the defendants would suffer no harm if the rule were enjoined while the litigation proceeded. Finally, the court determined that since the plaintiffs had shown that they were likely to succeed on the merits, enjoining the 2023 WOTUS rule was in the public interest because "there is little public interest or efficient gained with implementing" a rule that is likely to be ruled invalid.

The injunction issued in this case applies to both Texas and Idaho.

State of West Virginia v. EPA

The first injunction against the 2023 WOTUS rule was issued on April 12, 2023, by a federal judge in ***State of West Virginia v. EPA*, No. 3:23-cv-00032 (D. N.D.)**, and applies to 24 different states. Like the court in *State of Texas v. EPA*, the court in *State of West Virginia v. EPA* began its analysis by considering the plaintiffs' likelihood of success on the merits. The plaintiffs in *State of West Virginia v. EPA* raised similar claims as the plaintiffs in *State of Texas v. EPA*, and the courts offered a similar analysis of the merits of those claims. According to the court in *State of West Virginia v. EPA*, the plaintiffs were likely to succeed on their claim that the 2023 WOTUS rule went beyond the jurisdiction granted to EPA under the CWA because the rule incorrectly granted jurisdiction to all interstate waters regardless of navigability and misinterpreted Justice Kennedy's significant nexus test. Additionally, the court found that the 2023 rule raised "a litany of other statutory and constitutional concerns."

Next, the court turned to the other three elements of the preliminary injunction test. Like the court in *State of Texas v. EPA*, the court here found that the plaintiffs had demonstrated irreparable harm in the form of compliance costs. Specifically, the court highlighted various infrastructure projects that different plaintiff states had identified as likely to incur additional costs if the states had to determine whether waters located in the project areas were considered WOTUS under the 2023 rule. Additionally, the court determined that the defendant would not suffer any actual harm if the 2023 rule were enjoined, satisfying the third element of the preliminary injunction analysis. Finally, the court determined that it would be in the public interest to issue an injunction to avoid enforcement of a rule that is likely to be found invalid.

Commonwealth of Kentucky v. EPA

Only one of the three courts where challenges to the 2023 WOTUS rule were brought declined to issue an injunction. In ***Commonwealth of Kentucky v. EPA*, No. 3:23-cv-0007 (E.D. Ky.)**, the court found that the plaintiffs had failed to demonstrate an impending injury and dismissed the case as not ripe for review. The plaintiffs have appealed this ruling, and the appellate court granted a temporary stay of the rule that will last through May 10.

When a plaintiff brings a claim to court, they must show that they have the necessary standing for a court to hear their dispute. If a plaintiff is unable to demonstrate that they have standing, the court will dismiss their case. Standing is satisfied if the plaintiff shows all three of the following: (1) the plaintiff has suffered an actual "injury-in-fact" which is defined as an injury that is either concrete and particularized, or actual or imminent; (2) the injury is result of the defendant's disputed conduct; and (3) the court is capable of redressing the injury. In *Commonwealth of Kentucky v. EPA*, the court found that the plaintiffs did not have standing because the plaintiffs failed to show that they had suffered an actual injury-in-fact.

The plaintiffs in *Commonwealth of Kentucky v. EPA* include private sector plaintiffs as well as the state of Kentucky. All plaintiffs alleged that if the 2023 WOTUS rule went into effect, they would be injured as a result of "likely" future costs associated with coming into compliance with the rule, including expending additional resources to determine whether the 2023 rule would apply to waters on their properties. The court determined that these possible future costs were too speculative to meet the definition of "injury-in-fact." According to the court, until the plaintiffs "did not identify any specific water feature or related project and explain how the [2023] rule will affect it." Therefore, the court concluded that the plaintiffs had failed to identify a "certainly impending injury." The court also considered claims raised by the state of Kentucky that the 2023 rule infringes upon its state sovereignty by expanding CWA jurisdiction to include more waters. Once again, the court found that this claim did not demonstrate an "injury-in-fact" because the state was unable to show that the 2023 rule would grant the federal government jurisdiction over land or waters "which should be in [the state of Kentucky's] exclusive control."

Because the court found that the plaintiffs did not have standing, it dismissed the case. The dismissal was without prejudice, meaning that the plaintiffs are free to refile their suit provided they resolve their issues with standing. The plaintiffs have appealed the court's decision to dismiss, and in a two-page ruling the appellate court ordered that the 2023 WOTUS rule be temporarily stayed while the appeal is litigated. The stay will last through May 10.

Going Forward

As a result of the court decisions discussed above, the 2023 WOTUS rule is currently enjoined in 27 states. Those states will apply the pre-2015 WOTUS definition while the lawsuits challenging the 2023 rule continue to be litigated.

The future of the 2023 WOTUS rule remains unclear. While the judges in both *State of Texas v. EPA* and *State of West Virginia v. EPA* have issued injunctions, the lawsuits could still take months or years to resolve. Additionally, the United States Supreme Court has yet to issue its

decision in a case it heard last October concerning the scope of CWA jurisdiction and the definition of WOTUS. That decision is expected to impact the WOTUS definition. In the meantime, it is possible that the 2023 WOTUS definition could be blocked in other states.

WOTUS Update: Breaking Down the Pre-2015 Regulatory Regime

In late August, a court in the District of Arizona issued a decision vacating the Navigable Waters Protection Rule ("NWPR"), the most recent regulation defining the term "waters of the United States" ("WOTUS") under the Clean Water Act ("CWA"). Prior to the court's decision, the Environmental Protection Agency ("EPA") had announced that it would begin a rulemaking process to repeal the NWPR – which has only been in place since June, 2020 – and replace it with a new regulation redefining WOTUS. Since the court's decision, EPA has announced that it will cease implementation of the NWPR and will instead interpret WOTUS consistent with the pre-2015 regulatory regime until further notice in order to comply with the court's order. The pre-2015 regulatory regime is complex. It involves regulations adopted by EPA in the 1980s that define the term WOTUS, as well as memoranda issued by EPA in the 2000s regarding decisions from the United States Supreme Court that interpreted those regulations. The regulations, the Supreme Court decisions, and the subsequent memoranda must be reviewed in order to understand how EPA will be interpreting the term WOTUS until further notice.

Background

The CWA was enacted by Congress in 1972 as the nation's primary federal law regulating water pollution. The main goal of the CWA is to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251. To do this, the CWA established a permitting program that prohibits an unpermitted discharge of any pollutant from a point source into "navigable waters." 3. U.S.C. § 1342. Because permits for discharges are only required for those discharges made into navigable waters, the term is key to understanding which waters are subject to CWA jurisdiction. The text of the CWA defines the term navigable waters as "the waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). However, the term WOTUS is not further defined in the statute. Instead, EPA, the federal agency tasked with administering the CWA, has been responsible for defining the term. Since 1972, EPA has redefined WOTUS several times.

The most recent definition of WOTUS was adopted by EPA in 2020. The NWPR was drafted, in part, due to multiple courts across the country preventing the implementation of the previous WOTUS definition which was adopted by EPA in 2015. The NWPR was narrower than the 2015 rule, limiting what was included in the definition of WOTUS to six categories of waterbodies. This was in contrast to the 2015 rule which was broad and required a case-by-case analysis for various types of waterbodies. The 2015 rule was itself a response to decisions from the United States Supreme Court interpreting the definition of WOTUS according to regulations EPA had passed in the 1980s.

Prior to formally adopted the NWPR, EPA had issued a final regulation repealing the 2015 rule. By doing so, EPA returned to the regulatory regime that had been in place before the 2015 rule was passed, meaning that for a limited period of time EPA was interpreting WOTUS according to the 1980s regulations and memoranda issued by the agency in response to Supreme Court decisions. When the Arizona district court vacated the NWPR, it caused the legal definition of

WOTUS to revert to what it had been before the NWPR went into effect. This means that until EPA adopts a new WOTUS definition, or until it is ordered by a court to do differently, EPA will be interpreting WOTUS according to the 1980s regulations and accompanying memoranda.

1980s Regulations

In 1980, EPA issued a final regulation to redefine WOTUS. This was only the second time that EPA had done so. By 1982, the Army Corps of Engineers ("Corps"), which administered the dredge and fill program under the CWA, had also adopted the 1980 definition.

According the 1980 rule, WOTUS is defined as:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate "wetlands;"
(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (1) – (4) of this definition;
(f) The territorial sea; and
(g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) – (f) of this definition.

40 C.F.R. 122.2 (1981). Under this definition, some waters are more easily identifiable as falling under CWA jurisdiction than others. For example, it is obvious that the Mississippi River would qualify as a WOTUS because it has both been used to facilitate interstate commerce, and is an interstate water. Additionally, the Pacific Ocean would clearly be a WOTUS because it is a territorial sea. However, identifying waters that were located entirely within the boundaries of one state but still fell under the jurisdiction of the CWA because their degradation or destruction would affect waters that crossed state lines proved to be a challenge. Particularly when it came to wetlands. That confusion ultimately resulted in lawsuits that made their way to the United States Supreme Court for further clarification.

Rapanos v. United States

Perhaps the most important case interpreting the definition of WOTUS is the Supreme Court decision in ***Rapanos v. U.S.*, 547 U.S. 715 (2006)**. In *Rapanos*, the court considered whether a series of wetlands fell under the jurisdiction of the CWA. Of the wetlands at issue, one emptied into a man-made drain that itself emptied into a creek which eventually emptied into Lake Huron. Another was connected to a drain that shared a surface connection with the Tittabawassee River, and the third wetland shared a surface connection with the Pine River which flows into Lake Huron. At question was whether CWA jurisdiction extended to nonnavigable wetlands that did not abut a navigable water.

Although many hoped that the Supreme Court's decision in *Rapanos* would bring clarity to the definition of WOTUS, there was no single, unified standard that came out of the case. While five of the nine justices agreed on the outcome, they did not agree on the legal reasoning behind the outcome. Instead, a four-justice plurality opinion authored by Justice Scalia, and an opinion by Justice Kennedy writing for himself offered two alternative methods for determining whether a water was jurisdictional.

The plurality decision proposed a more strict, black-and-white rule for determining whether a water was a WOTUS. According to the plurality, the word "waters" in "waters of the United States" should be taken to mean only "relatively permanent, standing or continuously flowing bodies of water" such as stream, oceans, rivers, and lakes. This would exclude any waterbody through which water flows only intermittently or ephemerally, and would only include wetlands if the wetland had a "continuous surface connection" to another WOTUS.

The test authored by Justice Kennedy took a different approach. According to Justice Kennedy, the CWA required a more flexible approach. He suggested that the jurisdiction of each water should be determined on a case-by-case basis, and that jurisdiction should be based on whether the water in question has a "significant nexus" to a water that has been used for interstate commerce. For wetlands, a significant nexus would exist if the wetlands "significantly affect the chemical, physical, and biological integrity" of another WOTUS. In that case, the wetland would be considered a WOTUS and would fall under the jurisdiction of the CWA.

After the Supreme Court released its decision in *Rapanos*, lower courts have struggled to determine which test to apply when analyzing CWA jurisdictional disputes. When the Supreme Court agrees only on the outcome of the case, but not on the legal basis for that outcome, previous Supreme Court rulings have specified that lower courts must follow the judgment which interprets the law in the narrowest manner. However, this has been some dispute over whether the plurality approach, or the Kennedy approach provides a narrower interpretation of the CWA. So far, courts that have addressed the issue have either applied Justice Kennedy's significant next test either alone or in combination with the plurality's test. No court has yet to apply the plurality test on its own. For its part, EPA has tended to apply the Kennedy test.

Interpreting Memorandum

Along with lower courts, EPA also had to determine the appropriate way to implement WOTUS following the *Rapanos* decision. In 2008, EPA and the Corps issued a joint guidance document directing both agencies on how to interpret the definition of WOTUS in light of *Rapanos*. In that

guidance document, EPA and the Corps divided waterbodies into three general categories: (1) waters that the agencies will assert CWA jurisdiction over; (2) waters that the agencies will determine CWA jurisdiction over after determining whether they have a significant nexus with another WOTUS; and (3) waters that the agencies would generally not assert jurisdiction over. Additionally, the memoranda detailed how EPA and the Corps would apply the significant nexus standard.

Of the waters that the agencies would continue to assert CWA jurisdiction over, EPA included traditionally navigable waters, wetlands adjacent to those waters, non-navigable tributaries of traditionally navigable waters that are relatively permanent, and wetlands that directly abut those tributaries. As always, EPA defined traditionally navigable waters as "all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce." In other words, those waterbodies that could be use to ship goods or otherwise facilitate interstate commerce remained clearly jurisdictional under the CWA. EPA would also continue to assert CWA jurisdiction over wetlands that were "bordering, contiguous, or neighboring" traditionally navigable waters. Such wetlands do not need to have a continuous surface connection with a navigable water. While a continuous surface connection with a navigable water is enough to bring a wetland under CWA jurisdiction, wetlands that are physically separated from jurisdictional waters by man-made barriers, natural river berms, or beach dues would also fall under CWA jurisdiction. So would wetlands that share a scientifically-supported ecological connection with a jurisdictional water. EPA also continued to find that non-navigable waterbodies whose waters flow into a traditionally navigable water either directly or indirectly were clearly jurisdictional, as were the wetlands that shared a continuous surface connection with those non-navigable waters.

Waters identified by the 2008 memorandum as requiring a case-by-case analysis to determine whether the water fell under CWA jurisdiction included non-navigable tributaries that were not relatively permanent, wetlands adjacent to such tributaries, and wetlands that are adjacent to but do not directly abut a non-navigable tributary. According to the memorandum, EPA and the Corps would analyze such waters by assessing "the flow characteristics and functions of the tributary itself, together with the functions performed by any wetlands adjacent to that tributary, to determine whether collectively they have a significant nexus with traditional navigable waters." In other words, the jurisdiction of these waters would be determined according to their chemical, physical, and biological relationship with traditionally navigable waters. To determine that relationship, the agencies noted that they would evaluate both hydrologic and ecologic factors.

Finally, the memorandum stated that neither EPA or the Corps would assert CWA jurisdiction over the following: swales or erosional features such as gullies or small washes that receive a low or infrequent volume of water; and ditches that were "excavated wholly in and draining only uplands" and that do not have a permanent flow of water. Those waters would typically not be considered WOTUS and therefore would not fall under CWA jurisdiction.

Conclusion

After the decision from the federal district court in Arizona, it appears that the NWPR will no longer be used to determine whether a water is a WOTUS. Instead, EPA and the Corps will revert to the regulatory regime that was in place prior to 2015, which consists of the 1980s regulations and some key memoranda. Under that regime, some waters should be readily identifiable as WOTUS, while others will require additional analysis. Traditionally navigable waters, such as the Mississippi River, will fall under CWA jurisdiction. Additionally, any non-navigable tributaries of navigable waters, and any wetlands that abut those tributaries or share a "significant nexus" with a navigable water will also be jurisdictional. From there it gets less clear. Other waters will require EPA or the Corps to perform an analysis to examine the flow characteristics and functions of the water to determine whether it is a WOTUS.

EPA is in the process of drafting new regulations to replace the pre-2015 regulatory regime. Until that point, unless something changes, EPA and the Corps will likely continue to interpret WOTUS according to the pre-2015 regime.

Dividing the Waters: Focus on States' Approaches to Groundwater and Recent Developments

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High-Capacity Wells: A Survey of Groundwater Withdrawal Rights and Regulations

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INTRODUCTION

Although out of sight, groundwater represents a critical portion of the world's freshwater supply. Approximately 30% of the world's freshwater is groundwater,[6] and 2.5 billion people depend solely on groundwater to satisfy their daily water consumption needs.[7] In the United States, approximately 20% of total freshwater withdrawals come from groundwater sources.[8] Historically, these extractions occurred through crude devices that limited efficiency[9] This changed in 1937 with the invention of the high-speed centrifugal pump, which drastically increased the rate at which groundwater could be extracted.[10] Current practices in many regions of the United States permit groundwater withdrawals that exceed the rate at which the aquifers naturally replenish, leading to sustained and long-term depletion.[11]

Agricultural irrigation accounts for the single largest use of groundwater in the United States.[12] Satisfying this demand often requires utilizing high-capacity wells, which are wells that, together with all other wells on a property, have the ability to withdraw water over an established daily threshold.[13]

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[6] Deepak Khare, Manesh Kumar Jat & P.K. Minshra, *Groundwater Hydrology: An Overview*, *in* SUSTAINABLE HOLISTIC WATER RESOURCES MANAGEMENT IN A CHANGING CLIMATE 4-1 (2017).

[7] Jenny Grönwall & Kerstin Danert, *Regarding Groundwater and Drinking Water Access through a Human Rights Lense: Self-Supply as a Norm*, 12 Water 419, 419 (2020).

[8] Jacob D. Peterson-Perlman et al., *Critical Issues Affecting Groundwater Quality Governance and Management in the United States*, 10 Water 735, 735 (2018).

[9] BARTON H. THOMPSON, JR. ET AL., LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS 447 (6th ed. 2018).

[10] *Id.*

[11] Leonard F. Konkikow, *Long-Term Groundwater Depletion in the United States*, 53 Groundwater 2, 2-4 (2015).

[12] Agriculture accounts for approximately 80% of the nation's consumption of surface and ground water. U.S. DEP'T OF AGRIC. ECON. RESCH. SERV., *Irrigation & Water Use*, https://www.ers.usda.gov/topics/farm-practices-management/irrigation-water-use/ (last updated Sept. 23, 2019).

[13] *See High-Capacity Wells*, WIS. DEP'T OF NAT. RES., https://dnr.wisconsin.gov/topic/Wells/HighCap (last visited Mar. 3, 2021).

High-capacity wells have the ability to reach withdrawal rates that exceed natural groundwater recharge and disrupt the hydrological cycle as a result.[14] Unlimited and unregulated groundwater withdrawals through the use of high-capacity wells are not sustainable.

Absent an overarching federal framework to avoid depleting underground aquifers, the regulation of high-capacity wells is left largely to the separate states. Groundwater and surface water supplies are part of a single hydrological system, but the law of groundwater rights does not recognize this relationship.[15] While surface water is covered by two common law doctrines (riparianism and prior appropriation), five groundwater doctrines have some acceptance (absolute ownership, American reasonable use, correlative rights, the Restatement (Second) of Torts, and prior appropriation).[16] However, few states apply any one of these doctrines in a uniform way.[17] Furthermore, state regulatory frameworks reflect varying degrees of scientific understanding of hydrology.[18] As a result, groundwater management in the United States has been highly fragmented.[19]

An inefficient and piecemeal regulatory framework at the state level can have consequences, including: overallocation of groundwater, reduction in levels of surface waters that are supplied by the groundwater, agricultural supply problems, impaired water quality, and land subsidence.[20] Furthermore, mismanagement can have economic consequences because of the expenses associated with drilling deeper wells in response to dropping water table levels and costs that must be expended to remediate declining water quality.[21] There may be additional consequences of over-appropriating aquifers with high-capacity wells that are "not yet apparent because the processes of groundwater movement occur slowly and the effects of capture are not always immediately visible."[22] Groundwater is a shared resource, and the consequences of improper or inefficient regulation of wells withdrawing large quantities of water are both localized and far-reaching.

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[14] ROBERT GLENNON, WATER FOLLIES: GROUNDWATER PUMPING AND THE FATE OF AMERICA'S FRESH WATERS 2 (2002).

[15] *Id.*

[16] *Id.* at 449.

[17] *Id.*

[18] Melissa K. Scanlan, *Droughts, Floods, and Scarcity on a Climate-Disrupted Plante: Understanding the Legal Challenges and Opportunities for Groundwater Sustainability*, 37 Va. Envtl. L.J. 52, 88 (2019).

[19] *Id.* ("While individuals are focused on specific 'rights' to withdraw water, there is a need for an overarching holistic management of the entire common pool resource as an integrated system where ground and surface waters, and the quality and quantity of these waters, are viewed together.")

[20] *Groundwater Decline and Depletion*, U.S. GEOLOGICAL SURV., https://www.usgs.gov/special-topic/water-science-school/science/groundwater-decline-and-depletion?qt-science_center_objects=0#qt-science_center_objects (last visited Mar. 5, 2021).

[21] GLENNON, *supra* note 13, at 32.

[22] *Id.* at 77.

This report proceeds as follows. Part I discusses the limited role of the federal government plays in managing groundwater resources. Part II provides an overview of the legal rights and obligations pertaining to the use of groundwater and examines the regulatory frameworks in place for groundwater withdrawal via high-capacity wells. Part III offers a brief conclusion.

I. FEDERAL LAW

The federal government is generally authorized to act in the public's interest to protect the *quality* of the nation's waters. In 1972, Congress passed the Federal Water Pollution Control Act, which is commonly referred to as the Clean Water Act (CWA).[23] Designed "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters,"[24] regulates discharges of pollutants from point sources.[25] The CWA defines the phrase "discharge of a pollutant" to mean "any addition of any pollutant to navigable waters from any point source."[26] A "point source," is "any discernible, confined, and discrete conveyance from which pollutants are or may be discharged."[27] Historically, the CWA has not been applied to protect groundwater.[28] However, the Supreme Court recently held that indirect discharges of pollutants to groundwater are subject to the CWA if they are the "functional equivalent" of a direct discharge.[29] Uncertainty surrounding the definition of key terms in the CWA has resulted in a patchwork regulatory framework.[30]

The federal government's role in managing and allocating groundwater resources (*quantity*) is much more limited. While the federal government generally does not have direct authority to monitor

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[23] *History of the Clean Water Act*, U.S. ENV'T PROT. AGENCY, epa.gov/laws-regulations/summary-clean-water-act (last updated Jun. 15, 2020).

[24] 33 U.S.C. § 1251 *et seq.*

[25] For an overview of events leading up to the CWA, see William L. Andreen, *The Evolution of Water Pollution Control in the United States—State, Local, and Federal Efforts*, 1789-1972: Part I, 22 Stanford Envtl. L. J. 145 (2003), and *Part II*, 22 Stanford Envtl. L. J. 215 (2003). For a retrospective of the CWA and a discussion of its limitations see William L. Andreen, *Success and Backlash: The Remarkable (Continuing) Story of the Clean Water Act,* 4 Geo. Wash. J. of Energy & Envtl. L. 25 (Winter 2013).

[26] 33 U.S.C. § 1362(12).

[27] *Id.* § 1362(14).

[28] DAVID H. GETCHES ET. AL., WATER LAW IN A NUTSHELL 272 (5th ed. 2015). Some courts have held that the NPDES permit program covers discharges of pollutants to groundwater that is hydrologically connected to surface waters. *See, e.g.,* Idaho Rural Council v. Bosma, 143 F. Supp. 2d 1169 (D. Idaho 2001); Sierra Club v. Colorado Refining Co., 838 F. Supp. 1428 (D. Colo. 1993). However, most courts have held that the statute does not reach that far. See, e.g., Village of Oconomowoc Lake v. Dayton Hudson Corp., 24 F. 3d 962 (7th Cir.1994); Exxon Corp v. Train, 554 F.2d 1310 (5th Cir. 1977).

[29] County of Maui, Hawaii v. Hawaii Wildlife Fund, 140 S. Ct. 1462, 1468 (2020). For a discussion of the implications of the Court's decision, see Rachel L. Wagner, County of Maui, Hawaii v. Hawaii Wildlife Fund, 0 Pub. Land & Res. L. Rev. 9 (2020).

[30] Brigit Rollins, *Waters of the United States: Timeline of Definitions*, NAT'L AGRIC. L. CTR. 1 (Apr. 21, 2020), https://nationalaglawcenter.org/wp-content/uploads//assets/articles/WOTUS-Timeline.pdf.

and manage groundwater, several federal agencies help to inform state decision-making by providing assessments and information on groundwater trends.[31] Beyond this limited role, the responsibility for managing groundwater belongs to the states. The exception to this pertains to groundwater on land reserved to the federal government.[32] The Supreme Court stated that this exception is rooted in "Congress's explicit deference to state water law in other areas."[33] Thus, the default is that the authority to manage issues related to groundwater quantity, such as the use of high-capacity wells, is deferred to the states.

II. STATE LAW

The rules and regulations for the allocation, withdrawal, and use of groundwater are made by the governments of the several states, as opposed to by the federal government.[34] States regulate groundwater rights through application of common law, state statutes and regulations, or judicial precedent.[35] The rules that states adopt tend to incorporate more than one theory of groundwater rights.[36] As a result of these state-by-state differences, the regulatory framework for the nation's groundwater is complicated and often contradictory.

A. GROUNDWATER AS A PROPERTY RIGHT

A water right authorization is the right to use groundwater in a prescribed manner. States differ in who they consider to be the legal owner of the water right authorization. The right to withdraw and use groundwater is owned either by: (1) the overlying landowner, or (2) the public, held by the state. According to the Water Systems Council, there is a clear trend of increasing conflict between private property rights in groundwater and public rights in groundwater.[37]

While the Supreme Court has recognized a limited form of property rights in groundwater use, a state may still regulate this right. However, governmental regulation that goes "too far" by denying a landowner of the "economically viable use" of their property may be considered a

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[31] U.S. Geological Survey (USGS), NASA, National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Agriculture (USDA); PETER FOLGER, ET AL., CONG. RSCH. SERV., R425259 THE FEDERAL ROLE IN GROUNDWATER SUPPLY: OVERVIEW AND LEGISLATION IN THE 115TH CONGRESS 16 (2018).

[32] Winters v. United States, 207 U.S. 564, 575-77 (1908).

[33] United States v. New Mexico, 438 U.S. 696 (1978).

[34] John D. Leshy, *Interstate Groundwater Resources: The Federal Role*, 14 Hastings W-Nw. J. Envtl. L. & Pol'y 1475, 1480 (2008).

[35] ALEXANDER BENNET ET AL.., GROUNDWATER LAWS AND REGULATIONS: A PRELIMINARY SURVEY OF THIRTEEN U.S. STATES 7 (2d. ed 2020).

[36] GETCHES ET AL., *supra* note 27, at 226.

[37] *Who Owns the Water?*, WATER SYSTEMS COUNCIL 3, http://nationalaglawcenter.org/wp-content/uploads/2017/03/Who-Owns-the-Water-2016-Update-FINAL.pdf (last updated Aug. 2016).

"regulatory taking."[38] The Constitution provides that the government may not take private property for public use without just compensation.[39] While the regulatory authority of a state over groundwater is not unlimited, the overall trend appears to be toward increased state regulation of groundwater resources.[40] This generally requires a prospective user to comply with applicable state procedures to obtain a groundwater right authorization. This process does not result in the user obtaining ownership of the actual groundwater, but the right to use the groundwater in a way that is consistent with limitations imposed by the state.

1. Overlying Common Law Doctrines Governing the Right to Withdraw and Use Groundwater

Common law principles serve as the foundation for how a water use right is obtained in each state. Common law is "[t]he body of law derived from judicial decisions, rather than statutes or constitutions."[41] While not a groundwater management law, common law serves as the theoretical basis used for managing groundwater withdrawals and uses in each state.

States generally follow one of five groundwater law doctrines:

(a) **Absolute ownership.** The oldest and simplest doctrine, it gives landowners an unlimited right to withdraw any water beneath their land for any purpose.[42] Also referred to as "capture" or the English Rule.[43]

(b) **Reasonable use.** The predominant groundwater doctrine in the United States, it is a modified version of absolute ownership wherein groundwater must be put to a reasonable use and must be used on the overlying land.[44] Also referred to as the "American Rule."[45]

(c) **Correlative rights.** Described as "riparianism on its side,"[46] it requires that groundwater be shared among overlying landowners.[47] In times of shortage, overlying owners must limit withdrawals to a "fair and just proportion" of the supply."[48]

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[38] Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1992).
[39] U.S. CONST. amend. V.
[40] GLENNON, *supra* note 13, at 219.
[41] *Common law*, BLACK'S LAW DICTIONARY (11th ed. 2019).
[42] THOMPSON ET AL., *supra* note 8, at 472.
[43] *Id.*
[44] Linda A. Malone, *The Necessary Interrelationship Between Land Use and Preservation of Groundwater Resources*, 9 UCLA J. J. Envtl. L. & Pol'y 1, 6 (1990).
[45] Adams v. Lang, 553 So.2d 89, 91 (Ala. 1989).
[46] THOMPSON ET AL., *supra* note 8, at 472.
[47] *Id.*
[48] Katz v. Walkinshaw, 74 P. 766, 772 (Cal. 1903).

(d) **Restatement of Torts Reasonable Use.** A combination of the English and American rules,[49] it imposes liability for withdrawals that cause unreasonable harm to others.[50] The Restatement "attempts to balance equities and hardships among competing users.[51]

(e) **Prior Appropriation.** A "first in time, first in right" system of ownership.[52] The first landowner to put a water source to beneficial use is granted a priority right.[53]

A common thread running through these doctrines is an emphasis on individualism.[54] "That is, like the common law of torts, the doctrines contemplate 'freedom of action where the effects of individual action cannot be demonstrated with specific proof.'"[55] Additionally, each doctrine is a variation on reasonableness as it relates to the withdrawal and use of groundwater. However, reasonableness is defined in various ways as it relates to each doctrine. Moreover, a state may modify a doctrine from its traditional form or combine aspects from multiple systems.[56] Thus, a prospective groundwater user should consult with the relevant agency or department in their state to ensure that they properly secure a groundwater use right.

Table 1 summarizes the distribution of the different approaches to groundwater rights across the United States.

[49] *Who Owns the Water?*, *supra* note 36, at 5.
[50] RESTATEMENT (SECOND) OF TORTS § 858 (1979)
[51] GETCHES ET AL., *supra* note 27, at 236.
[52] THOMPSON ET AL., *supra* note 8, at 472.
[53] Malone, *supra* note 43, at 8.
[54] THOMPSON ET AL., *supra* note 8, at 473.
[55] *Id.*
[56] THOMPSON ET AL., *supra* note 8, at 449.

Table 1: Summary of Groundwater Rights in the United States

Groundwater Allocation	States	Total
Absolute Ownership	CT, GA, IN, LA, ME, MA, MS, RI, TX	9
Reasonable Use	AL, AZ, AR, FL, IL, KY, MD, MO, NH, *NJ, NY, NC, PA, VA, WV	*15
Correlative Rights	DE, HI, IA, MN, *NJ, VT	*6
Restatement (Second) of Torts Reasonable Use	MI, OH, WI	3
Prior Appropriation	AK, CO, ID, KS, MT, NV, NM, ND, OR, SD, UT, WA, WY	14
Reasonable Use/Correlative Rights	CA, OK, NE, TN	4
No Common Law	SC	1

**New Jersey common law as it pertains to groundwater is unclear. We included it in both the Reasonable Use and Correlative Rights totals.*

It is also important to note that while withdrawing large amounts of groundwater from underground aquifers may impact surface waters, many states use a different common law water rights system to regulate groundwater allocations and uses than the one used for surface water.[57] The application of different common law rules likely originated from a misunderstanding of the connection between surface and ground waters. However, some states have begun to consider the connectivity of surface water and groundwater by applying the same common law concept to each and managing them in an integrated manner. States that are most effective in regulating groundwater withdrawals and uses tend to consider the interconnection with surface waters.

a. Absolute Ownership

Under the absolute ownership rule, an overlying landowner can withdraw an unlimited amount of groundwater from the aquifer below their land and put it to any use. Under this rule, a groundwater use right is a property right. Thus, the landowner may "intercept the groundwater which would otherwise have been available to a neighboring water user and may even monopolize the yield of an aquifer without incurring liability."[58]

[57] *Id.*

[58] Teresa N. Lukas, *When the Well Runs Dry: A Proposal for Change in the Common Law of Ground Water Rights in Massachusetts*, 10 B.C. Envtl. Aff. L. Rev. 455, 469 (1982).

The doctrine originates from the English rule set forth in *Acton v. Blundell*.[59] In *Acton*, the Court of Exchequer held that a landowner has a property interest in groundwater, and what is "his is his alone from the heavens to the depths of the earth."[60] This property interest gave the landowner the legal right to take and use as much groundwater as they wanted without incurring liability. As a result, there was very little government regulation over the diversion and use of groundwater.

The absolute ownership rule was initially used in a majority of states prior to the early 1900s.[61] However, the absolute ownership rule posed challenges by threatening the groundwater supply and leaving landowners without legal remedies for harms suffered by unlimited pumping by a neighboring landowner.[62] As a result, many states have moved away from the absolute ownership rule in its traditional form, instead opting for the reasonable use rule or correlative rights approach.[63] States that do continue to adhere to the absolute ownership rule have generally modified it to create an exception where an overlying landowner is liable for pumping groundwater in a willfully malicious or injurious manner.[64] Additionally, many of these states have enacted some type of registration or permitting system to prevent unregulated withdrawals. Texas is the only state that continues to follow the rule of capture in its traditional form (applies outside of special management areas).

States following: CT, GA, IN, LA, ME, MA, MS, RI, TX

b. Reasonable Use (American Rule)

More than a dozen states modified the rule of capture by adding "reasonable use" criteria to resolve conflicts between competing well owners.[65] A series of conflicts between cities that sunk high-capacity wells in rural areas to extract groundwater for use in the city led to the creation of the reasonable use rule.[66] Courts imposed a reasonableness restriction on all pumpers to protect farmers from unfair competition.[67]

Under the reasonable use doctrine, an overlying landowner may withdraw an unlimited amount of groundwater from beneath their land, even if to the detriment of a neighboring landowner,

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[59] 152 Eng. Rep. 1223 (Ex. Chamb. 1843).

[60] Acton v. Blundell, 12 M. & W. 324 (1843).

[61] *Who Owns the Water?*, *supra* note 36, at 4.

[62] GETCHES ET AL., *supra* note 27, at 228 (noting that the absolute ownership doctrine "leads to premature depletion of the resource and leaves groundwater users at the mercy of nearby high-capacity pumpers.").

[63] *Who Owns the Water?*, *supra* note 36, at 1.

[64] *Id.* at 4.

[65] Ronald Kaiser & Frank F. Skiller, *Deep Trouble: Options for Managing the Hidden Threat of Aquifer Depletion in Texas*, 32 Tex. Tech. L. Rev. 249, 266 (2001).

[66] DAN TARLOCK, LAW OF WATER RIGHTS AND RESOURCES § 4:8 (2020)

[67] *Id.* (citing Volkmann v. City of Crosby, 120 N.W.2d 18 (N.D. 1963) and Martin v. City of Linden, 667 So.2d 732 (Ala. 1995)).

qualified by the requirement that the use of the groundwater be "reasonable."[68] Traditionally, groundwater use is *per se* reasonable if it is made on the overlying land.[69] "The rule is essentially the rule of absolute ownership with exceptions for wasteful and off-site use."[70]

This provides a right holder with a legal remedy for harm suffered from the pumping of a neighboring landowner if the withdrawal and use is found to be unreasonable. "Reasonableness" is broadly construed and generally means that pumping can be done for any "beneficial use," meaning any use that is not wasteful and that has a reasonable relationship to the overlying land.[71] However, because land ownership is the source of the use right under this rule, off-site uses are categorically deemed unreasonable, regardless of how beneficial the use is.[72]

With a few exceptions, this doctrine is predominantly applied in the eastern United States[73] Many of the states that adhere to this doctrine have enacted some registration or permitting system to monitor withdrawals and ensure that the subsequent use is reasonable.

States following: AL, AZ, AR, **CA, FL, IL, KY, MD, MO, NE, NH, *NJ, NY, NC, **OK, PA, **TN, VA, WV

**Common law unclear*
***Also follows Correlative Rights*

c. Correlative Rights

The correlative rights doctrine allocates the use of groundwater based on land ownership of land above a basin or aquifer.[74] However, owners of land over a single aquifer or basin are each limited to a reasonable share of the total supply.[75] This rule was first recognized in *Katz v. Walkinshaw*, where the California Supreme Court held that in times of shortage, the amount of groundwater that an overlying landowner can withdraw is limited to a "fair and just proportion of the underlying supply."[76] The "fair and just proportion" of an overlying owner has traditionally been determined by the ratio of land owned overlying the aquifer[77]

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[68] THOMPSON ET AL., *supra* note 8, at 472.

[69] *See, e.g.,* Martin v. City of Linden, 667 So.2d 732 (Ala. 1995); Higday v. Nickolaus, 469 S.W.2d 859 (Mo. Ct. App. 1971); Finley v. Teeter Stone, Inc., 248 A.2d 106 (Md. 1968); Willis v. City of Perry, 60 N.W. 727, 730 (Iowa 1894).

[70] Lukas, *supra* note 57, at 484.

[71] THOMPSON ET AL., *supra* note 8, at 472.

[72] Corwin W. Johnson, *What Should Texas Do About the Rule of Capture?*, *in* 100 YEARS OF THE RULE OF CAPTURE: FROM EAST TO GROUNDWATER MANAGEMENT 12 (2004).

[73] GLENNON, *supra* note 13, at 30.

[74] GETCHES ET. AL, *supra* note 27, at 229.

[75] *Id.*

[76] 74 P. 766, 772. (Cal. 1903).

[77] Tehachapi-Cummings Water Dist v. Armstrong, 122 Cal. Rptr. 918, 924-25 (Ct. App. 1975).

In California surplus groundwater may be used on lands that do not overlie the aquifer.[78] The doctrine of prior appropriation governs conflicts between non-overlying users.[79] However, a non-overlying user is subordinate to an overlying owner regardless of priority relative to the non-overlying user.[80] However, this aspect of California's allocation scheme has been rejected by other jurisdictions adopting correlative rights.[81]

In contrast with reasonable use and absolute ownership, the correlative rights doctrine does not vest ownership rights in the water or recognize an unlimited right to pump.[82] Rather, the correlative rights doctrine maintains that the power to allocate water resources is held by the courts.[83] Therefore, overlying owners and non-overlying users have co-equal or correlative rights in the reasonable, beneficial use of groundwater.[84] "The most important distinguishing feature of the correlative rights doctrine, however, is its recognition that adjoining lands may be underlain by a common, shared aquifer."[85]

States following: **CA, DE, HI, IA, **NE, MN *NJ, **OK, **TN, VT

**Common law unclear*
***Also follows Reasonable Use Rule*

d. Restatement (Second) Of Torts Reasonable Use

The Restatement (Second) of Torts approach to groundwater management combines the traditional English rule of absolute ownership with the American reasonable use rule.[86] However, the Restatement considers the nature of the competing uses and the relative burdens imposed upon each user and it attaches no special significance to the use of the water on overlying land.[87] It attempts to provide specific criteria for comparing the reasonableness of competing uses of groundwater.[88] Under the doctrine, a well owner is not liable for withdrawal of groundwater unless the withdrawal:

(a) unreasonably causes harm to a neighbor by lowering the water table or reducing artesian pressure;

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[78] *See* Santa Maria v. Adam, 149 Cal. Rptr. 3d 491, 502 (Cal. Ct. App. 2012).
[79] TARLOCK, *supra* note 65, at § 4:14.
[80] *Katz*, 74 P. at 772.
[81] GETCHES ET. AL, *supra* note 27, at 229.
[82] Steven J. Levine, *Ground Water: Louisiana's QuasiFictional and Truly Fugacious Mineral*, 44 La. L. Rev. 1123, 1135 (1984).
[83] *Id.*
[84] *Id.*
[85] *Id.*
[86] Water Systems Council, *supra* note 36, at 5.
[87] GETCHES ET AL., *supra* note 27, at 236.
[88] Kaiser & Skiller, *supra* note 61 at 264.

(b) exceeds the owner's reasonable share of the annual supply or total score of groundwater; or

(c) has a direct and substantial effect upon a watercourse or lake and unreasonably causes harm to a person entitled to the use of its water.[89]

"Reasonableness" is determined using a balancing test weighing a number of factors.[90] For example, "[i]t seems to require that a[n] [owner's] well be reasonably efficient in light of the type of use."[91] The second restriction employs a correlative rights concept as another foundation of liability.[92] The final restriction considers administration of groundwater use along with surface appropriation frameworks.[93]

States following: MI, OH, WI

e. Prior Appropriation

Under the doctrine of prior appropriation, a groundwater user acquires the legal right to use groundwater by being the first to divert it and put it to a (broadly defined) "beneficial use" in a manner consistent with state rules.[94] The hallmark of this doctrine is "first in time, first in right."[95] Once the user has made a diversion and puts the water to beneficial use, the user has a perfected water use right. Prior appropriation protects investments in wells and other businesses that are based on an expectation of a water supply.[96]

A pumper's place in the priority system is determined by the date of withdrawal. Many states use a registration or permitting system to formally establish a user's position. The right holder is generally permitted to pump as much groundwater as can be put to beneficial use, subject to their place in the priority system. However, the right does not extend to amounts of groundwater that exceed what can be beneficially used.[97] In times of shortage when there is not enough groundwater to

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[89] RESTATEMENT (SECOND) OF TORTS § 858 (1979).

[90] Section 850A of the Restatement (Second) of Torts provides:

[f]actors that affect the determination [of reasonableness] include the following: (a) The purpose of the use, (b) the suitability of the use to the watershed or lake, (c) the economic value of the use, (d) the social value of the use, (e) the extent and amount of harm it causes, (f) the practicality of avoiding the harm by adjusting the use or method of use of one proprietor or the other, (g) the practicality of adjusting the quantity of water used by each proprietor, (h) the protection of existing values of water uses, land, investments, and enterprises, and (i) the justice of requiring the user causing harm to bear the loss.

[91] GETCHES ET AL., *supra* note 27, at 237.

[92] *Id.*

[93] *Id.*

[94] GLENNON, *supra* note 13, at 16.

[95] Chennat Gopalkrishnan, *The Doctrine of Prior Appropriation and Its Impact on Water Development: A Critical Survey*, Am. J. Econ. & Soc. 61, 67 (1973).

[96] GETCHES ET AL., *supra* note 27, at 231 (citing *Farmers Inv. Co. v. Bettwy*, 558 P.2d 14, 21 (Ariz. 1976))

[97] Kaiser & Skiller, *supra* note 61 at 263-64.

satisfy the needs of all users, the appropriator who later acquired the water right (junior appropriator) must yield to the right holder who made the diversion first (senior appropriator).[98]

Under this approach to groundwater management, the groundwater belongs to the state. The trend has been to recognize groundwater as a public resource, as opposed to private property. [99] The state then places rules, requirements, limits, and conditions on groundwater withdrawals and uses to protect groundwater supplies and the other users' rights. States are increasingly replacing common law procedures for determining groundwater use rights with legislative processes, such as registration schemes and permitting systems.[100]

The doctrine of prior appropriation tends to be adhered to in western states, where the climate is more arid and fewer tracts of land are adjacent to bodies of surface water. The comparative scarcity of groundwater in the west makes this system attractive because it provides users with "secure property rights."[101] In reality, however, these states' systems are "prior appropriation in name only."[102] A strict application of prior appropriation is unworkable and inconsistent with the nature of the resource.[103] Under a pure prior appropriation system "a senior groundwater appropriator theoretically could demand that no pumping be allowed because virtually any new pumping causes some effect on existing wells."[104]

States following: AK, CO, ID, KS, MT, NV, NM, ND, OR, SD, UT, WA, WY

[98] GLENNON, *supra* note 13, at 16.
[99] Johnson, *supra* note 68, at 14.
[100] WILLIAM GOLDFARB, WATER LAW 45 (2d ed. 1988).
[101] GLENNON, *supra* note 13, at 19.
[102] Dan Tarlock, *An Overview of the Law of Groundwater Management*, 21 Water Res. Rsch 1751, 1752 (1985).
[103] *Id.*; GETCHES ET AL., *supra* note 27, at 231.
[104] GETCHES ET AL., *supra* note 27, at 231.

Table 2 summarizes key aspects of the groundwater allocation doctrines.

Table 2: Key Aspects of Groundwater Allocation Doctrines

Groundwater Allocation	Basis of Right	Withdrawal Amount	Liability	Off-tract Use
Absolute Ownership	Land ownership	Unlimited	No, unless malicious or wasteful	Yes
Reasonable Use	Land ownership	"Reasonable" for beneficial use	Yes, if unreasonable amount or off-tract use	No
Correlative Rights	Land ownership	Proportional share based on ratio of land owned overlying aquifer	Yes, if exceeding share and injurious	No, unless surplus
Restatement of Torts Reasonable Use	Land ownership	"Reasonable" for beneficial use	Yes, if unreasonable amount and injurious	Yes, if reasonable and no harm
Prior Appropriation	"First in time, first in right"	Specific amount based on priority for beneficial use	No, unless interfering with reasonable pumping level of other users	Yes

B. MANAGING GROUNDWATER WITHDRAWALS

While there has been a trend towards legislative reform in groundwater management policies, commentators have noted that the process has been disorganized.[105] Groundwater statutes evolved independently from surface water statutes due to the complexity of groundwater as a resource[106]. Furthermore, groundwater statutes differ from state to states.[107]

1. Legal Source of Authority

The legal source of authority for securing a water use right varies by state. Some states allow for a property right to use groundwater to arise largely from common law principles (ex: CA and TX). However, in most states, a pumper must comply with the state's comprehensive statutory and regulatory schemes in order to obtain a use right. A minority of states take a hybrid approach, where

[105] THOMPSON ET AL., *supra* note 8, at 495 (citing Joseph W. Dellapenna, *Legal Classifications*, *in* 2 WATERS AND WATER RIGHTS § 19.05 (Amy K Kelley Ed., 3rd ed. 2017).

[106] *Id.*

[107] *Id.*

a pumper obtains a use right under common law principles but must follow statutory procedures to exercise that right (ex: CO and AZ).

2. Managing Agency/Regulatory Department

While each state is ultimately authorized to manage the groundwater within its boundaries, each state differs in how they allocate that authority. In some states, groundwater is managed entirely at the state level. In other states, the authority to regulate groundwater withdrawals and uses is allocated to local governments and agencies.

3. Special Management Areas

Many states have designated certain areas as "special management areas" (label differs by state). Groundwater withdrawals and uses in these areas are generally subject to different procedures or more stringent standards. These are generally areas that the state legislature has set aside to allow for more localized control in order to protect the aquifers from being over-appropriated.

Special management areas are prevalent in the western U.S., where groundwater is less available. In all southwestern states, groundwater that is withdrawn from a special permitting area must be put to beneficial use. However, what constitutes "beneficial use" varies by state. Some states provide a broad definition, while others expressly articulate uses that are considered "beneficial." Additionally, some state laws in special management areas require that the use of the groundwater be "reasonable." Most states will consider an existing user's rights when determining whether to permit a proposed withdrawal in these areas. A minority of southwestern states with special management areas require a determination of the impact that a proposed withdrawal would have on an ecosystem before issuing a use right.[108]

There are 12 states without any type of special management designation or with designations only applicable to protecting the groundwater quality and preventing pollution (GA, IL, KY, MA, ME, MI, MO, ND, NH, RI, TN, VT).

4. Management of Wells

Each state has different rules and procedures that allow a groundwater user to obtain the right to divert and use groundwater. This is most often accomplished through one or a combination of the following: registration, permitting, and adjudication.

[108] For example, in Utah, the State Engineer is directed to consider the impact that a proposed withdrawal will have on "the natural streams and environment" (§ 73-3-8(1)(b)).

a. Registration

In total, there are 30 states that have some type of registration requirement: AL, AR, CT, HI, IL, IN, KY, LA, MA, MI, MO, MT, NE, NV, NH, NJ, NY, NC, OH, OR, PA, RI, SC, SD, TN, TX, VA, WV, WI, WY. Of these states, only 5 have some type of registration requirement, but no permitting requirements (AL, LA, MO, TN, WV).

Breakdown by common law doctrine:

Absolute dominion: 6 states
Reasonable use: 13 states
Correlative rights: 2 states
Restatement of Torts (Second) § 858: 3
Prior appropriation: 5
Reasonable use/correlative rights: 1
States without common law: 1

Some of these states require a groundwater facility or withdrawal to be registered with the regulating agency if it has the *capacity* to withdraw a certain amount over a threshold amount. The applicable threshold varies by state. Several states with registration systems in place, all of which are east of the Mississippi River, set the threshold at a capacity to divert groundwater at a rate of 100,000 gallons/day, regardless of whether an actual diversion of that amount is made (AL, IL, IN, MO, NJ, NH, WI). Other states have lower thresholds (in descending order, based on threshold):

- Louisiana, Arkansas: wells with a capacity to pump 50,000 gallons/day (Arkansas exempts any well below this from its registration process)
- Montana: wells exempt from the permitting process with a maximum pump rate of 35 gallons/minute and maximum volume of 25 acre-feet/year
- Kentucky: exempts withdrawals made at a constant rate with an average withdrawal rate of 10,000 gallons/day

Other states require registration for wells that make *actual* diversions above a certain threshold.

North Carolina and Tennessee require registration based on an amount withdrawn in a day (at least 100,000 gallons/day, and at least 10,000 gallons/day, respectively). Other states require a well to be registered if it withdraws either a certain amount of groundwater in a given month or averages a certain rate. These states are (in ascending order, based on threshold):

- Michigan: withdrawals of more than 100,000 gallons/day averaged over any 30-day period
- West Virginia: withdrawals of more than 300,000 gallons/day averaged over any 30-day period
- South Carolina: withdrawals of more than 3 million gallons/month

New Hampshire merges the two by requiring a well to be registered if it withdraws over 20,000 gallons/day, or 600,000 gallons over 30 days.

Several states require registration for certain existing diversions, potentially exempting these wells from other permitting and reporting requirements (CT, HI, MA, OR).

Some states either specifically require registration in special management areas or have the potential to require registration if the need arises (TX, NV, OH, VA, WI).

States with different registration rules include: New York, where agricultural withdrawals can either be registered or reported; Rhode Island, where registration is required for the installation of the well, but not for the withdrawal; and South Dakota, where wells that are exempt from the permitting process have the option to register in order to document the location of their well and its output.

i. Exemptions/Exceptions

Most states exempt wells withdrawing groundwater for certain uses from registration requirements. Some of the more common exempted uses include:

- Agricultural uses (KY, NJ, NC,[109] TN, WV)
- Domestic uses: This typically requires that the well be on a property that serves a single family, or a small number of families, and that the water be used for non-commercial purposes (AR, KY, MI, SC)
- Existing uses (AR, NE, NJ, NY)
- Emergency uses (NH, NY, SC, TN)
- Temporary withdrawals (AL, MI, NH, TN)

Wyoming is the only state that does not exempt any wells or groundwater uses from its registration procedures.

b. Permitting

The majority of states (44) have some type of permitting scheme in place (all except AL, LA, MO, RI, TN, WV).

A groundwater withdrawal permitting regime requires a would-be user to obtain a permit before constructing the well or diverting groundwater. The state legislature may specify whether compliance with the permitting regime is mandatory or discriminatory. The majority of western states use a permit system where a prospective user must submit an application for the right to divert and use groundwater. Permit requirements differ by state. Some states require a user to have a permit

[109] Withdrawal must be less than 1 million gallons/day. N.C. GEN. STAT. § 143-215.22H(b1).

before making a withdrawal anywhere in the state, while others require a user to have a permit only in a special management area.

Many states require a groundwater user to have a permit if they are extracting groundwater from a well in an amount or at a rate above a certain threshold, regardless of what the water will be used for. This can be done either by only regulating withdrawals over a threshold amount or by exempting users withdrawing groundwater in amounts below the threshold. States differ in the duration of time that the amount of water withdrawn is measured over.

- Gallons/day
    - 5,000 gallons/day: AK, MD, WA
    - 10,000 gallons/day: KY,[110] MN[111]
    - 25,000 gallons/day: IA
    - 50,000 gallons/day: AR, CT, DE, ME[112]
    - 57,600 gallons/day (equals 40 gallons/minute): NH, VT
    - 100,000 gallons/day: GA, MA, NJ, NY, WI
    - 144,000 gallons/day: ME[113]
    - 2 million gallons/day: MI
- Gallons/minute
    - 15 gallons/minute: CO
    - 18 gallons/minute: SD
    - 35 gallons/minute: AZ, MT
- Gallons/month
    - 2 million gallons/month: WI

Some states require a groundwater user to have a permit in a legislatively designated special management area, regardless of the amount withdrawn (AZ, AR, HI, IL, NM, SC). Other states require a prospective user to obtain a permit in special management areas when the user withdraws an amount or at a rate above a certain threshold.

- Gallons/day
    - 10,000 gallons/day: PA
    - 20,000 gallons/day: MS
    - 100,000 gallons/day: IN, NC
- Gallons/minute
    - 20 gallons/minute: MT
    - 50 gallons/minute: CO, NE

[110] Note: withdrawal must be made at "a relatively constant rate." 401 KY. ADMIN. REGS. 4:010(2).

[111] Appropriation cannot total over 1 million gallons/year. Minn. Stat. § 103G.271(4)(a).

[112] If withdrawal is within 500 feet of a body of water or at least 75,000 gallons during any week. ME. STAT. TIT. 38, § 480-B(9-A)(A)(1).

[113] If withdrawal is over 500 feet from a body of water, or at least 216,000 gallons during any week ME. § 480-B(9-A)(A)(2).

- Gallons/month
    - 300,000 gallons/month: VA

Some states give local agencies in special management areas the authority to impose permit requirements or more stringent permit requirements (CA, MN, TX). Additionally, groundwater pumpers in states that are part of the Great Lakes Compact may be subject to additional permitting requirements. Finally, a state may subject a user to its permitting regime based on how the groundwater will be used. For example, both Nebraska and New York require that a pumper have a permit when the water will be used for irrigation, regardless of how much will be withdrawn.

i. Exemptions/Exceptions

A state may choose for wells withdrawing certain amounts of groundwater or putting the withdrawn water to certain uses to be exempt from standard permitting requirements. Exempt groundwater uses vary by state. Utah and Wyoming are the only two states that require a permit for all withdrawals, without exception. Common exemptions include:

- Withdrawals for domestic purposes[114]
- Withdrawals for agricultural purposes[115]
- Emergency withdrawals[116]
- Temporary or nonrecurring withdrawals[117]
- Certain existing water rights may be grandfathered in so as to not require a permit[118]

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[114] Examples include: AK (ALASKA ADMIN. CODE TIT. 11, § 93.040(D)), AR (ARIZ. REV. STAT. § 15-22-302(A)), CO (2 COLO. CODE REGS. § 4.2.18 SAYS THAT A PERMIT IS NEEDED UNLESS IT'S FOR A SMALL CAPACITY WELL; COLO. REV. STAT. § 37-90-105(1)(A) DEFINES A DOMESTIC WELL AS A SMALL CAPACITY WELL), FL (FLA. STAT. § 373.219(1)), HI (HAW. REV. STAT. § 174C-48(A)), ID (IDAHO CODE § 42-227), KS (KAN. STAT. ANN. § 82A-705), KY (KY. REV. STAT. ANN. § 151.140), ME (ME. STAT. TIT. 38, § 470-C(2)), MD (MD. CODE ANN., ENVIR. § 5-502(B)(1)), MI (MICH. COMP. LAWS § 324.32727(1)(H)), MN (MINN. STAT. § 103G.271 SUBD. 1 (B)(1)), MS (MISS. CODE ANN. § 51-3-7(1)), NV (NEV. REV. STAT. § 534.315(1)), ND (N.D. CENT. CODE § 61-04-02), OK (OKLA. STAT. TIT. 82, § 1020.3), OR (OR. REV. STAT. § 537.545(1)(D)), SC (S.C. CODE ANN. § 49-5-70(A)(4)), SD (S.D. CODIFIED LAWS § 46-5-8), TX (TEX. WATER CODE ANN. § 36.117(B)(1)), VT (VT. STAT. ANN. TIT. 10, § 1418(B)(2)), WA (WASH. REV. CODE § 90.44.050).

[115] Examples include: CO (2 COLO. CODE REGS. § 4.2.18 says that a permit is needed unless it's for a small capacity well; COLO. REV. STAT. § 37-90-105(1)(b) defines a domestic well as a small capacity well), KY (KY. REV. STAT. ANN. § 151.140), ME (ME. STAT. TIT. 38, § 470-C(10)), MD (MD. CODE ANN., ENVIR. § 5-502(b)(2)), NJ (N.J. STAT. ANN. § 7:19-1.4(a)(1) states that this chapter does not apply to agriculture and horticulture uses), NY (N.Y. ENVTL. CONSERV. LAW § 1501(7(E)), NC (N.C. GEN. STAT. § 143-215.22H(B1)), VT (VT. STAT. ANN. TIT. 10, § 1418(B)(3)).

[116] Examples include: CO (in designated basins: 2 Colo. Code Regs. § 4.2.18 says that a permit is needed unless it's for a small capacity well; Colo. Rev. Stat. § 37-90-105(1)(b) defines a well used exclusively for firefighting purposes as a small capacity well), NH (N.H. Rev. Stat. Ann. § 488:11 states that this chapter doesn't apply to a discrete withdrawal arising from an emergency event), NY (N.Y. Envtl. Conserv. Law § 15-1501(7)(a)), SC (S.C. Code Ann. § 49-5-70(A)(1)), VT (Vt. Stat. Ann. tit. 10, § 1418(b)(1)).

[117] Examples include: KY (401 Ky. Admin. Regs. 4:010 sec. 1 (3): permit may be required if withdrawal is made at irregular basis at irregular rate and the water withdrawn represents a significant portion of the available water supply), MI (Mich. Comp. Laws § 324.32723(13)(b)), NH (N.H. Rev. Stat. Ann. § 485-C:2(IX-a) exempts short-term withdrawals from being classified as a "large groundwater withdrawal").

[118] Examples include: AZ (Ariz. Rev. Stat. § 45-462), AR (Ark. Code Ann. § 15-22-905(1)(A)), CT (Conn. Gen. Stat. § 22a-368(b)), MT (Mont. Code Ann. § 85-2-306(4)-(5)).

Interestingly, in determining the amount of groundwater that a user withdraws and whether it is sufficient to warrant a permit, at least one eastern state (Massachusetts) exempts nonconsumptive uses from these calculations.[119]

c. Adjudication

Vested rights typically require adjudication, where the court decrees the existence of the right. This process results in the definition and confirmation of an existing water right. Adjudication was typically how an appropriator obtained a water use right prior to the establishment of specific agencies that were tasked with defining water rights. One issue with this approach is that the decision of a court applies only to the individual litigants and not to the entire water system.

5. Continued Compliance (Monitoring and Reporting)

Once a pumper obtains the right to appropriate groundwater, there are typically continuing obligations on the user. Some states require groundwater uses to be reported for all groundwater users (AR and HI).

a. For Registered Wells

The vast majority of states with registration procedures require that registrants submit reports. The contents of these reports and the frequency of reporting varies by state. States that require some type of reporting for all registrants include: AL, AR, CT, HI, IL, IN, MA, MO, NH, NC, OH, PA, SC, TN, WV, WI. A small number of states have no reporting requirements for registered wells (RI, SD, WY). Some states require reporting for registered wells in special management areas or give the local regulating department the authority to require users to submit reports (LA, NE, SC, TX). Virginia and West Virginia have thresholds for which a registrant withdrawing groundwater in amounts that exceed must submit information. Michigan has a threshold below which a registrant is subject to less stringent requirements. Finally, Montana requires the well driller to submit a report, not the groundwater user.

b. For Permitted Wells

Some states require all groundwater users who have obtained a permit and are not exempt from the permitting process to report certain information, regardless of the amount of groundwater withdrawn or the use to which it was put.[120] Additionally, a state may choose to vest local agencies

[119] Mass. Gen. Laws ch. 21G, § 4 ("for purposes of determining whether a withdrawal is in excess of the threshold volume, any withdrawal of water for a nonconsumptive use. . . shall not be counted in the volume of water withdrawn.")

[120] Examples include: DE (7 Del. Admin. Code § 5.5.3), GA (GA. CODE ANN. § 12-5-987: every person required to get a permit shall file a certified statement of quantities of water used and withdrawn; GA. COMP. R. & REGS. 391-3-2-.08(1)), KY (KY. REV. STAT. ANN. § 151.160(1)), ME (if within 500 feet of a lake or pond) (ME. STAT. TIT. 38 § 470-B),

with the authority to impose reporting requirements on permits.[121] Other states may require certain uses to be reported, such as groundwater used for agricultural purposes.[122] Finally, some states impose thresholds that differ from the threshold requiring a permit and mandate that groundwater users that exceed the threshold limits report their uses:

- 10,000 gallons/day: MD, VA
- 20,000 gallons/day: MS
- 30,000 gallons/day: AK
- 50,000 gallons/day: ME (if more than 500 feet from a lake or pond)
- 100,000 gallons/day: FL

A state may also choose to exempt certain uses from being subject to its reporting requirements, such as groundwater used for domestic uses, farm uses, or irrigation.

6. State Regulation of Large Groundwater Withdrawals

There are a variety of ways that states regulate wells that withdraw large quantities of groundwater. Below are summaries of the rules and regulations that each state has in place regarding large groundwater withdrawals. These summaries are not a comprehensive collection of a state's rules and are meant to serve as a starting point.

Alabama (Reasonable Use): Alabama employs a system of registration and reporting for withdrawals exceeding a certain threshold. Any well with a capacity to withdraw at least 100,000 gallons/day is required to register and report their withdrawals.[123] Additional limitations are imposed in capacity stress areas as to the maximum amount of groundwater that can be withdrawn.[124]

Alaska (Prior Appropriation): Alaska has a permitting system for wells exceeding certain statutory thresholds. A groundwater use permit is required for any withdrawal of a "significant" amount of groundwater.[125] A significant withdrawal is statutorily defined as: (1) more than 5,000 gallons in one day from a single source, (2) the regular use of more than 500 gallons/day from a single source for more than 10 days/year, (3) more than 30,000 gallons/day for non-consumptive use from a single source, or (4) any other use that may affect the rights of other appropriators.[126] The DNR is required to issue notices when considering applications for appropriations of 5,000 gallons/day or more.[127]

MA (Mass. Gen. Laws ch. 21G, § 11), MI (MICH. COMP. LAWS § 324.32707(1)), MN (MINN. STAT. § 103G.281 subd. 3), NJ (N.J. STAT. ANN. § 58:1A-8(d); N.J. ADMIN. CODE § 7:19-2.14(a)(3)), NY (N.Y. ENVTL. CONSERV. § 15-1501(6)), OH (OHIO REV. CODE ANN. § 1521.30), OK (OKLA. STAT. TIT. 82, § 1020.12; OKLA. ADMIN. Code § 785:30-5-9), SC (S.C. CODE ANN. § 49-5-90(A)), WI (WIS. STAT. § 281.34(5)(E)).

[121] California is an example (local agencies administer permits and impose conditions, such as reporting, into them).

[122] Examples include: MD (MD. CODE REGS. 26.17.06.06(D)(1)), NY (N.Y. ENVTL. CONSERV. LAW § 15-1504(1)(B)).

[123] ALA. CODE § 9-10B-20.

[124] § 9-10B-21.

[125] 11 ALASKA ADMIN. CODE § 93.035(A).

[126] § 93.035(b).

[127] *Fact Sheet: Water Rights in Alaska*, ALA. DEP'T OF NAT. RES. (July 2018), http://dnr.alaska.gov/mlw/factsht/wtr_fs/Fact-Sheet-Water-Rights-in-Alaska.pdf.

Arizona (Reasonable Use): Arizona regulates groundwater withdrawals in special management areas by requiring that all wells obtain a permit, subject to certain exemptions.[128] Exemptions include withdrawals for non-irrigation use[129] from wells with a maximum pump capacity not exceeding 35 gallons/minute.[130] However, exempted withdrawals may not exceed 10 acre-feet/year, unless the groundwater is used for domestic purposes or stock watering.[131] Arizona allows special management areas to set the maximum withdrawal amount (the goal of most is "safe yield") through the use of local management plans.[132] Reporting is required for all non-exempt wells in special management areas.

Arkansas (Reasonable Use): Arkansas regulates large quantity withdrawals as the rule, and exempts low-capacity wells. Registration is required for wells with a maximum potential flow rate of more than 50,000 gallons/day, excluding individual wells exclusively used for domestic purposes.[133] These wells must then report their usage.[134] A permitting scheme is used in the state's special management areas for withdrawals in excess of 50,000 gallons/day.[135]

California (Reasonable Use/Correlative Rights): California has delegated regulatory authority over groundwater withdrawals to local groundwater sustainability agencies.[136] These local agencies then adopt groundwater management plans, which provide for the regulation of groundwater withdrawals.

Colorado (Prior Appropriation): Colorado manages large-scale groundwater withdrawals geographically, based on where the groundwater is located. In designated basins, a permit is needed for large capacity wells.[137] A large capacity well is defined as "any well which is permitted to put designated groundwater to beneficial use provided the said permit is not for a small capacity well."[138] A small capacity well is exempt, and includes: (1) wells with a withdrawal rate not exceeding 50 gallons/minute and used for no more than three single-family dwellings (exception: does not include irrigation on more than one acre of land), (2) livestock wells not exceeding 50 gallons/minute, (3) wells used in one commercial business not exceeding 50 gallons/minute, (4) certain wells used for observation purposes, (5) wells used exclusively for firefighting purposes, and (6) certain monitoring

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[128] ARIZ. REV. STAT. § 45-152(A).

[129] Non-irrigation is defined to include growing crops on 2 acres of land or less. § 45-402(23)(a).

[130] § 45-454(A) and (B).

[131] § 45-454(B)(2).

[132] JANICK F. ARTIOLA AND KRISTINE UHLMAN, ARIZONA WELL OWNER'S GUIDE TO WATER SUPPLY 9 (2009), https://wrrc.arizona.edu/sites/wrrc.arizona.edu/files/az1485.pdf.

[133] *Water-use Registration*, ARK. DEP'T OF AGRIC., https://www.agriculture.arkansas.gov/natural-resources/divisions/water-management/groundwater-protection-and-management-program/water-use-registration/ (last visited Mar. 7, 2021).

[134] ARK. CODE § 15-22-302(a).

[135] § 15-22-905(3).

[136] *See* Cal. Water Code § 10720.

[137] COLO. DIV. OF WATER RES, SYNOPSIS OF COLORADO WATER LAW 3 (2016).

[138] 2 COLO. CODE REGS. § 4.2.18.

wells.[139] In non-designated basins, a prospective user must apply for a permit to appropriate groundwater from a non-exempt well.[140] An exempt well is one with flow rates of 15 gallons/minute or less for in-house use and outside use only for domestic animals.[141] In both designated and non-designated basins, wells must report if they are not exempt from permitting requirements.

Connecticut (Absolute Dominion): Connecticut employs a permitting and reporting scheme for wells above a certain threshold. A permit is required for withdrawals of more than 50,000 gallons/day.[142] Annual reporting is required for consumptive uses of water by permit holders.[143]

Delaware (Correlative Rights): Delaware regulates groundwater withdrawals through the use of a permitting scheme, applicable to wells exceeding a statutorily prescribed threshold. All withdrawals over 50,000 gallons/day must obtain a permit.[144] Annual reporting is required by permit holders.[145] The state can control the amount of water that is withdrawn by setting a maximum allowable withdrawal rate in the permit.[146] The maximum amount of groundwater that a permit holder can withdraw is 20 acre-inches/year, but not more than 10 acre-inches/month.[147]

Florida (Reasonable Use): The state has delegated its regulatory authority to local agencies. Florida is divided into five water management districts (WMDs), with each district having the authority to administer state water law. A WMD may require that an appropriator acquire a permit, subject to reasonable conditions.[148] However, a WMD is restricted from imposing its permitting requirements on wells that provide for the domestic consumption of water by individual users.[149] Each WMD has imposed a permitting regime in its district, so each appropriator must have a permit.[150] Each WMD is authorized to impose reasonable conditions as to the amount and rate of groundwater withdrawn. Annual reporting is required for permit holders who are authorized to withdraw more than 100,000 gallons/day.[151]

Georgia (Absolute Dominion): Georgia subjects wells above a certain threshold to its permitting and reporting requirements. A permit is required for any user who withdraws more than 100,000 gallons/day for any purpose.[152] Annual reporting is required for permit holders.[153]

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[139] COLO. REV. STAT. § 37-90-105(1).
[140] § 37-90-137(1).
[141] § 37-92-602.
[142] *See* CONN. GEN. STAT. §§ 22a-368, 22a-377(a)(1).
[143] § 22a-368a(b).
[144] 7 DEL. ADMIN. CODE § 1.2.
[145] § 5.5.3
[146] § 5.5.2.
[147] Del. Code Ann. tit. 7, § 6010(h)(1).
[148] Fla. Stat. § 373.219(1).
[149] § 373.219(1).
[150] Northwest Florida WMD: Fla. Stat. § 40A-2.041(1), Suwannee River WMD: § 40B-2.041(1), St. Johns River WMD: § 40C-1.602, Southwest Florida WMD:§ 40D-2.04, South Florida WMD: § 40E-2.041(1).
[151] § 373.223(6).
[152] Ga Code Ann. § 12-5-96.
[153] § 391-3-2-.04(11)(i).

Hawaii (Correlative Rights): Hawaii regulates all groundwater withdrawals in special management areas, subject to certain exceptions. In general, a water use permit is required to extract groundwater in designated water management areas.[154] However, no water use permit is needed for individual domestic users.[155]

Idaho (Prior Appropriation): Subject to certain exceptions, all groundwater users must obtain a permit prior to making a withdrawal.[156] Domestic users are exempted from the permitting process.[157] A "domestic purpose" is statutorily defined as withdrawal for individual use, irrigation of less than half an acre of land, and any other associated purpose so long as the withdrawal is not more than 13,000 gallons/day, and any other use so long as the total use is not more than .04 cubic-feet/second or 2,500 gallons/day.[158] Unlike other western states, exempt uses in Idaho are also exempt from reporting requirements.[159]

Illinois (Reasonable Use): Illinois uses the term "high-capacity well" to encompass large-scale withdrawals of groundwater. A high-capacity well is statutorily defined as a well "located on property where the rate or capacity of groundwater withdrawal of all wells on the property is at least 100,000 gallons during any 24-hour period."[160] When a user "proposes to develop a new point of withdrawal that is a high capacity well, the land occupier or person must notify the District before beginning construction on the well. The District then must notify other local units of government with water systems who may be impacted by the proposed withdrawal. The District then reviews . . . the proposed point of withdrawal's effect upon other uses of the water."[161] Registration with the local District is required for high-capacity wells.[162] These wells must participate in the Illinois Water Inventory Program and submit an annual report.[163] A maximum withdrawal amount may be placed upon high-capacity wells by the Department of Agriculture if the District has investigated and recommended a limit.[164]

Indiana (Absolute Dominion): A significant water withdrawal facility (SWWF) is defined as any well, or combination of wells, capable of pumping at least 100,000 gallons/day, regardless of how much water is actually pumped.[165] A SWWF must be registered[166] and must report groundwater

[154] Haw. Rev. Stat. § 174C-48.
[155] § 174C-84.
[156] Idaho Code § 42-217.
[157] § 42-227.
[158] § 42-111.
[159] §§ 42-221(K)(1), 42-701(7).
[160] 525 Ill. Comp. Stat. § 45/4.
[161] § 45/5.
[162] § 45/5.1.
[163] § 45/5.3.
[164] § 45/5.1.
[165] Ind. Code § 14-25-7-15(a).
[166] § 14-25-7-15(c).

usage.[167] An additional permitting regime is imposed in special management areas. A permit is required in restricted use areas for all new users or those withdrawing more than 100,000 gallons/day.[168] Liability is imposed on the owner of an SWWF, as state statute requires that the owner provide "timely and reasonable compensation to persons who own nonsignificant groundwater withdrawal facilities if there's failure or substantial impairment of those facilities" that can be tied to the SWWF.[169]

Iowa (Correlative Rights): In Iowa, a permit is required for withdrawals that exceed 25,000 gallons/day.[170] Additional permitting requirements are imposed on high-capacity wells and wells used for irrigation purposes.[171] Iowa uses the term "high-capacity well" to encompass any well expected to have a pump capacity at or above 500 gallons/minute.[172] The state allows for a degree of local control, as each aquifer has a different limit on the amount of groundwater that can be withdrawn or the rate that it can be withdrawn at.

Kansas (Prior Appropriation): Kansas regulates large-scale groundwater withdrawals by exempting smaller uses. All wells, except for domestic uses on 2 acres of land or less, are required to obtain a permit.[173] Permit holders must report their usage.[174]

Kentucky (Reasonable Use): Kentucky regulates large groundwater withdrawals by using a permitting and reporting regime for withdrawals above a certain threshold, subject to certain exemptions. A permit is required for facilities with a withdrawal rate of more than 10,000 gallons/day.[175] A permit may be required if the withdrawals are made on an "irregular basis and at an irregular rate" "if the water withdrawn represents a significant portion of the available water supply or collection of data is necessary for water resource planning purposes."[176] The quantity of groundwater to be withdrawn is managed by setting a maximum quantity and rate in the permit.[177] Exempt uses include domestic and agricultural uses (including irrigation).[178] Permit holders must submit reports regarding their water usage.[179]

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[167] § 14-25-7-15(e).

[168] Governed by IND. CODE § 14-25-3-6.

[169] § 14-25-4-17.

[170] *See* IOWA ADMIN. CODE R. 567-50.2.

[171] Iowa Source Link, *Private Water Well Construction Permit,* https://www.iasourcelink.com/licensing/detail/private-water-well-construction-permit.

[172] Water Use/Allocation Permitting – High Capacity Well – 2015, Technical Bulletin 23.1.

[173] KAN. STAT. ANN. §§ 82a-705, 82a-728 (Domestic rights, defined as "those held for household purposes" do not require a permit).

[174] § 82a-732.

[175] KY. REV. STAT. ANN. § 151.140; 401 KY. ADMIN. REGS. 4:010.

[176] 401 KY. ADMIN. REGS. 4:010.

[177] KY. REV. STAT. ANN. § 151.170(1).

[178] § 151.140.

[179] § 151.160.

Louisiana (Absolute Dominion): Registration is required for all wells that withdraw more than 50,000 gallons/day.[180] Users must provide usage information.[181] A large volume well is defined as a well "with an 8 inch or greater diameter screen size or a well that by itself or in conjunction . . is capable" of withdrawing 1,500 gallons/minute."[182] It is not immediately clear if there are specific rules or regulations applicable to large volume wells.

Maine (Absolute Dominion): Maine legislation requires a "significant groundwater user" to obtain a permit.[183] A significant groundwater user is one withdrawing at least 75,000 gallons/week or 50,000 gallons/day if the withdrawal is located within 500 feet of a body of water, or a withdrawal of at least 216,000 gallons/week or 144,000 gallons/day if the withdrawal is over 500 feet away from a body of water.[184] Additionally, "if a proposed activity includes a significant groundwater well, the applicant must demonstrate that the activity will not have 'an undue unreasonable effect on waters of the State.'"[185] Annual reporting is required for withdrawals exceeding the statutorily prescribed thresholds.[186]

Maryland (Reasonable Use): Subject to certain exceptions, every groundwater user must obtain a permit in Maryland.[187] Certain domestic uses, agriculture uses of less than 10,000 gallons/day (with some exceptions), and withdrawals of less than 5,000 gallons/day (not including use for a public water system, or uses within a water management strategy area) are exempted.[188] Semi-annual reporting is required for permit holders when a permit is issued for an average withdrawal of more than 10,000 gallons/day.[189]

Massachusetts (Absolute Dominion): In Massachusetts, a permit is required for withdrawals over 100,000 gallons/day.[190] These users may then be required to report their groundwater withdrawals.[191]

Michigan (Restatement Second of Torts § 858): Michigan requires that large quantity water withdrawals be registered.[192] A large quantity withdrawal is defined as a withdrawal with an average totaling over 100,000 gallons/day in any consecutive 30-day period.[193] Registration is not required for owners of a noncommercial well on certain residential properties (either a single-family residential property, or a multi-family residential property not exceeding four residential units on three acres or

[180] LA. STAT. ANN. § 3094(A)(1)-(2) (*see* § 3092(5) for definition of ground water user).
[181] §§ 38:3091-3097.
[182] LA. ADMIN. CODE. TIT. 43, § 103.
[183] ME. STAT. TIT. 38, § 480-C(4).
[184] § 480-B, 9-A(1)-(2).
[185] § 480-D(1).
[186] § 470-D.
[187] MD. CODE ANN. ENVIR. § 5-502.
[188] MD. CODE ANN. ENVIR. § 5-502.
[189] MD. CODE REGS. 26.17.06.07.
[190] MASS. GEN. LAWS CH. 21G, §§ 4, 7.
[191] MASS. GEN. LAWS ch. 21G, § 11.
[192] MICH. COMP. LAWS § 324.32705(1).
[193] § 324.32701(aa).

less) and seasonal withdrawals of 2 million gallons/day in any consecutive 90-day period to supply a common distribution system.[194] Compliance with a permitting system is required for users proposing to withdraw over 2,000,000 gallons/day, and certain other large withdrawals that will be used to supply a common distribution system.[195] Reporting is required for registered users and permit holders.[196] However, the reporting requirements are less stringent for registered users withdrawing less than 1,500,000 gallons/year.[197] If a groundwater dispute has been declared, liability is imposed on the owner of a high-capacity well, in which case, the owner must provide compensation "if there is a failure or substantial impairment of a small-quantity well" and either "the failure or substantial impairment was caused by the groundwater withdrawals of the high-capacity well" or if the small-quantity well was constructed before or after a certain date.[198] A high-capacity well is defined as "1 or more water wells associated with an industrial or processing facility, an irrigation facility, or a farm that, in the aggregate from all sources and by all methods, have the capability of withdrawing 100,000 or more gallons of groundwater in 1 day."[199] A small-quantity well is defined as "1 or more water wells of a person at the same location that, in the aggregate from all sources and by all methods, do not have the capability of withdrawing 100,000 or more gallons of groundwater in 1 day."[200]

Minnesota (Correlative Rights): Minnesota uses a permitting and reporting system to manage groundwater withdrawals, subject to certain exemptions. Under the minimum use exemption, a permit is not needed for withdrawals of less than 10,000 gallons/day, so long as the amount withdrawn does not exceed 1 million gallons/year.[201] Additionally, a well is exempt if the water is used to supply the domestic needs of less than 25 people.[202] However, an exempt well may still be required to obtain a permit if it is located in a groundwater management area.[203] A permit holder must annually report the total amount of water that was appropriated.[204] Additional requirements are placed on proposed withdrawals that will exceed 2 million gallons/day for consumptive use. Legislative approval is needed, along with a determination from DNR that there are adequate resources.

Mississippi (Absolute Dominion): A permit is required for all withdrawals,[205] except those made for domestic uses.[206] However, the Board may require permits for exempt wells in a water caution area for withdrawals of water in excess of 20,000 gallons/day.[207] Annual reporting is required for owners and operators of wells that withdraw over 20,000 gallons/day.[208]

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[194] *See* § 324.32705(2).
[195] § 324.32723(1)(a).
[196] § 324.32702(1).
[197] § 324.32707(8).
[198] § 324.31706.
[199] § 324.31701(k).
[200] § 324.31701(q).
[201] MINN. STAT. § 102G.271.
[202] § 102G.271.
[203] § 103G.281.
[204] *Id.*
[205] MISS. CODE ANN. § 51-3-5.
[206] § 51-3-7.
[207] § 51-3-7.
[208] 11-1 MISS. CODE R. § 1.4(E)(2).

Missouri (Reasonable Use): Missouri regulates "major water users." State statute defines a major water user as one with a capacity to withdraw at least 70 gallons/minute or 100,000 gallons/day.[209] These users must register their wells prior to making a withdrawal.[210] Reporting is required for registered wells. The failure of a major water user to register their withdrawals is a nuisance under state law.[211]

Montana (Prior Appropriation): Montana regulates withdrawals of large quantities of groundwater by exempting smaller withdrawals. Every new use is required to obtain a permit prior to construction.[212] Exempt wells are defined as those outside of a stream depletion zone with a maximum pumping rate of 35 gallons/minute and a maximum volume of 10 acre-feet/year,[213] so long as the water is used for domestic, irrigation, stock, or industrial purposes.[214] However, exempt wells may still need a permit to appropriate groundwater in a controlled groundwater area.[215] The combined appropriation by multiple wells exceeding 10 acre-feet/year requires permit, regardless of flow rate.[216] Additional requirements are imposed on appropriations of 4,000 or more acre-feet/year and 5.5 or more cubic-feet/second. These appropriators must prove the regular permit criteria,[217] and that the use of water is reasonable.[218] Appropriations greater than 3,000 acre-feet/year require legislative approval, unless the water will be used for irrigating croplands owned and operated by the applicant.[219]

Nebraska (Reasonable Use/Correlative Rights): Nebraska only regulates large quantity groundwater withdrawals in special management areas. All wells in these areas must have a permit, except for single water wells designated and built to pump 50 gallons/minute or less.[220]

Nevada (Prior Appropriation): Nevada regulates large quantity groundwater withdrawals through a permitting process by exempting certain smaller wells. Unless exempt, a permit is required for all groundwater withdrawals.[221] An exempt well is a domestic well diverting less than 2 acre-feet/year, with a flow rate below 1,800 gallons/day, and serving not more than three single-family dwellings.[222]

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[209] MO. REV. STAT. § 256.400(4).
[210] § 256.410.
[211] § 256.415.
[212] MONT. CODE ANN. § 85-2-301(1).
[213] § 85-2-306(3)(a)(iii).
[214] Water Policy Interim Committee, Jason Mohr, Final Report to the 66th Montana Legislature (Draft), *The Exemption at 45: A Study of Groundwater Wells Exempt From Permitting* 2 (July 2018).
[215] § 85-2-306(2).
[216] § 85-2-306(3)(a)(iii).
[217] § 85-2-311(3)(a).
[218] Factors to consider when evaluating reasonableness can be found at § 85-2-311(3)(b).
[219] § 85-2-317.
[220] NEB. REV. STAT. § 46-735(1).
[221] NEV. REV. STAT. § 533.325.
[222] § 534.315(8).

New Hampshire (Reasonable Use): New Hampshire uses a registration and reporting system to regulate smaller groundwater withdrawals,[223] but imposes an additional permitting scheme on large groundwater withdrawals. A large groundwater withdrawal is statutorily defined as any withdrawal of 57,600 gallons/day, except for short-term uses.[224] Approval from the Board is needed for large groundwater withdrawals.[225] Notice of these withdrawals must be provided to "the governing bodies of each municipality and each supplier of water within the potential impact area of the proposed withdrawal."[226] The Board is required to ensure that the proposed withdrawal will not have an "unmitigated impact."[227] Many of the factors that the Board is required to analyze involve consideration of the interconnection between groundwater and surface flows.

New Jersey (Reasonable Use or Correlative Rights): New Jersey regulates groundwater withdrawals that exceed a certain threshold. Registration is required for any well with the capacity to divert over 100,000 gallons/day, but that diverts less.[228] A permit is required for users withdrawing over 100,000 gallons/day for a period of more than 30 days in a 365 consecutive day period.[229] The maximum diversion quantity will be specified in the permit.[230] Both registered users and permit holders must report.[231]

New Mexico (Prior Appropriation): New Mexico regulates groundwater withdrawals by designating areas as declared groundwater basins, and then by imposing a permitting scheme in these areas.[232] The entire state has been designated as a declared groundwater basin. While permit applications are presumptively granted for minimal domestic uses, these uses are not exempted from complying with the state's permitting requirements.[233] A domestic use is defined as the irrigation of one acre or less of non-commercial land and other domestic uses.[234]

New York (Reasonable Use): New York regulates withdrawals over a certain threshold with a permitting system. A permit is required for all wells with a capacity to withdraw at least 100,000 gallons/day.[235] Annual reporting is required for permit holders and for any user withdrawing groundwater for agriculture purposes at an average rate of over 100,000 gallons/day in any consecutive 30-day period.[236]

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[223] Registration and reporting are required for users withdrawing over 20,000 gallons/day (averaged over a 7-day period) or over 600,000 gallons over any 30-day period. N.H. REV. STAT. ANN. § 488:3 (registration). § 488:6 (reporting).

[224] § 485-C:2(IX-a). Short-term use is defined as "the temporary, non-routine withdrawal of groundwater at a specific geographical location over a period of one year or less." § 485-C:2(IXIII-b).

[225] § 485-C:21(II).

[226] § 485-C:14-a.

[227] Factors found at § 485-C:32(V-c).

[228] N.J. ADMIN. CODE § 7:19-2.18.

[229] N.J. STAT. ANN. §§ 58:1A-5(a), 58-1A-6, 58:1A-7(a).

[230] § 58:1A-8(b).

[231] *See* §§ 58:1A-8(d) 7:19-2.14(a) for permits and § 7:19-2.18(b) for registered wells.

[232] N.M. STAT. ANN. § 72-12-3(A).

[233] N.M. CODE R. § 19.27.5.9(D).

[234] N.M. STAT. ANN. § 72-12-1.1.

[235] N.Y. ENVTL. CONSERV. § 15-1501.

[236] § 15-1504.

North Carolina (Reasonable Use): All withdrawals of at least 100,000 gallons/day must be registered.[237] A permit is required in order to make withdrawals in excess of 100,000 gallons/day in a capacity use area.[238] The groundwater user is then subject to more frequent reporting requirements. If an area is designated as a capacity use area, the Commission is required to adopt "provisions establishing a range of prescribed pumping levels or maximum pumping rates."[239]

North Dakota (Prior Appropriation): A permit is required for all withdrawals, unless exempted.[240] Exempt uses include: domestic uses of less than 12.5 acre-feet/year;[241] livestock uses of less than 12.5 acre-feet/year; and fish wildlife, or other recreational uses of less than 12.5 acre-feet/year.[242] Annual reporting is mandatory.[243]

Ohio (Restatement Second of Torts § 858): Registration is required for all facilities with a capacity to withdraw at least 100,000 gallons/day.[244] A permit is required for withdrawals resulting in the consumptive use of an average of more than 2 million gallons/day over a 30-day period.[245] Annual reporting is required for both registered users[246] and permit holders.[247]

Oklahoma (Reasonable Use/Correlative Rights): Oklahoma regulates large withdrawals by requiring a permit for all withdrawals, and by then exempting smaller amounts for certain uses.[248] Domestic uses are exempted,[249] defined as uses for household purposes, for farm and domestic animals up to normal grazing capacity of the land and for irrigation of three acres or less.[250] The maximum amount of groundwater that can be withdrawn is the user's proportionate share of the maximum annual yield (MAY)[251] allocated to the landowner on a per-acre basis.[252] An annual report of the amount used is required for all permit holders.[253]

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[237] N.C. GEN. STAT. § 143-215.22H.

[238] § 143-215.15.

[239] § 143-215.14.

[240] N.D. CENT. CODE § 61-01-03.

[241] A domestic use is defined as a use of water by a single individual, family, or household (includes irrigation of land not exceeding 5 acres) for non-commercial purposes. § 61-04-01.1(4).

[242] § 61-04-02.

[243] John Patch, *North Dakota Water Rights Administration*, N.D. STATE WATER COMM'N, https://westernstateengineers.files.wordpress.com/2015/10/patch2014fall.pdf (last visited Mar. 7, 2021).

[244] OHIO REV. CODE ANN. § 1521.23(A).

[245] § 1521.23.

[246] § 1521.23(C).

[247] § 1521.30.

[248] OKLA. STAT. TIT. 82, § 1020.7; OKLA. ADMIN. CODE § 785:30-1 and -2.

[249] § 1020.3; *see* OKLA. ADMIN. CODE § 785:30-1 and -2 for what uses are included.

[250] § 1020.1(2).

[251] *See* § 1020.5.

[252] *Id.*

[253] § 1020.12; OKLA. ADMIN. CODE § 785:30-5-9.

Oregon (Prior Appropriation): Oregon regulates large withdrawals by requiring a permit for all withdrawals,[254] and then by exempting smaller amounts and certain uses. Exemptions from the permitting process include: domestic uses up to 15,000 gallons/day, stock watering, lawn watering up to half an acre, and small industrial or commercial uses up to 5,000 gallons/day.[255] The Department may require any groundwater user, either permitted or exempt, to submit information about the well use.[256]

Pennsylvania (Prior Appropriation): Pennsylvania uses a registration and reporting system to track large quantity withdrawals. Registration is required for all facilities that withdraw or use more than 10,000 gallons/day over a 30-day period.[257] Additionally, registration is required for users of any amount of groundwater in critical water planning areas.[258] Registered users must annually report their withdrawals and use.[259] A permit is required for all new or increased withdrawals of 10,000 gallons/day in the Delaware or Susquehanna River basins.

Rhode Island (Absolute Dominion): Registration is required for the construction of the well, but not for the withdrawal. Wells constructed for domestic consumption or personal farming use are exempt.

South Carolina (no common law): South Carolina generally requires all wells to register and report.[260] Additionally, South Carolina imposes a permitting scheme in capacity use areas for withdrawals over 3,000,000 gallons/month.[261]

South Dakota (Prior Appropriation): A permit is required for any well, with certain exemptions.[262] Domestic uses are exempted,[263] defined as a withdrawal that does not exceed 18 gallons/minute or a peak diversion rate of 25 gallons/minute for individual farm/household use, or irrigation of a non-commercial area of one acre or less.[264] An application for a "large scale appropriation" (withdrawal of groundwater in excess of 10,000 acre-feet/year) must be presented to the legislature by the Board for approval.[265] No volume of groundwater withdrawn may be greater than three acre-feet/year (does not apply to permits to appropriate water for irrigation from the Missouri River). Limits have been set for certain uses. If water is to be used for irrigation, the rate cannot exceed one cubic-foot/second for

[254] OR. REV. STAT. § 537.140 says what must be included in permit application. *See* § 537.615 for permit application requirements.
[255] § 537.545.
[256] § 537.543(3).
[257] 25 PA. CONS. STAT. § 110.201.
[258] *Id.*
[259] § 110.301.
[260] S.C. CODE ANN. § 49-5-20.
[261] § 49-5-60.
[262] S.D. CODIFIED LAWS § 46-1-15.
[263] § 46-5-8.
[264] § 46-1-6(7).
[265] § 46-5-20.1.

each 70 acres, and the volume can't exceed two acre-feet/acre on land for a specified time each year.[266] For domestic uses, the rate cannot exceed 25 gallons/minute.[267]

Tennessee (Reasonable Use and/or Correlative Rights): Registration is required for withdrawals of 10,000 gallons or more on any day from any water source.[268] Certain groundwater uses are exempted (agriculture, emergency uses, nonrecurring uses, or water bought from a utility/industry).[269] Registered users must report their withdrawals.

Texas (Absolute Dominion): Texas has allocated the authority to manage large groundwater withdrawals to local groundwater conservation districts (GCDs). A permit is required for large withdrawals in these areas. However, GCDs cannot regulate wells extracting less than 25,000 gallons/day, wells supplying the domestic needs of 10 or less families on more than 10 acres, among other exceptions.[270] Otherwise, there are no state-wide registration, permitting, or reporting requirements. Texas is the only state (outside of GCDs) that still adheres to the English rule of absolute ownership in its traditional form. Thus, an appropriator can take as much water as they'd like and put it to any use without incurring liability, regardless of any harmful effects that the pumping may have on a neighboring landowner.[271] This is problematic because it results in practically unregulated pumping, which could potentially undercut conservation efforts in other states. Furthermore, the inability of GCDs to regulate smaller withdrawals could result in detrimental effects on the groundwater if the impact of those wells are considered in the aggregate.

Utah (Prior Appropriation): Without exception, a permit is required for all groundwater withdrawals in Utah.[272] The State Engineer can set limits on maximum annual withdrawals in areas where water management plans have been issued.[273]

Vermont (Correlative Rights): Vermont regulates groundwater withdrawals over a certain threshold by using a permitting and reporting system. A permit is required for withdrawals over 57,600 gallons/day (40 gallons/minute for 24 hours). Annual reporting is required for permit holders and for commercial and industrial uses that have a monthly average of 20,000 gallons/day.

Virginia (Reasonable Use): Virginia has enacted a permitting system in groundwater management areas for withdrawals of at least 300,000 gallons in any 30-day period.[274] Every user withdrawing an

[266] § 46-5-6.
[267] § 46-1-6(7).
[268] TENN. CODE ANN. § 69-7-304.
[269] *ID.*
[270] TEX. WATER CODE ANN. § 36.117(B).
[271] Sipriano v. Great Springs Water of America, 1 S.W.3d 75 (Tex. 1999).
[272] UTAH CODE ANN. § 73-3-1.
[273] § 73-5-15.
[274] VA. CODE ANN. § 62.1-258.

average of 10,000 gallons/day (or who withdraws over one million gallons/month for irrigation) must submit an annual report.[275]

Washington (Prior Appropriation): Washington regulates groundwater withdrawals by requiring that every appropriator apply for and receive a permit,[276] subject to certain exemptions. Permit holders must then report their usage. Exemptions from the permitting process include domestic and industrial uses of less than 5,000 gallons/day, groundwater used for irrigating non-commercial areas less than half an acre, and stock watering.[277] However, the Department of Ecology may still require exempt users to submit information about their water usage.

West Virginia (Reasonable Use): West Virginia requires all large quantity users to register their withdrawals.[278] A large quantity user is defined as "any person who withdraws over 300,000 gallons of water in any 30-day period," excluding water withdrawn for farm use.[279]

Wisconsin (Restatement of Torts § 858): There is a general set of requirements for all wells, and additional requirements imposed on high-capacity wells in Wisconsin. A high capacity well either has the capacity to withdraw more than 100,000 gallons/day or, when taken with all of the other wells on the same property, has a capacity to withdraw more than 100,000 gallons/day.[280] Residential wells and fire protection wells are excluded from this definition,[281] with residential wells being those with a pump capacity of 100,000 gallons/day or less and used primarily to supply water to a single-family or multifamily home.[282] Registration is required for new and existing high capacity wells.[283] Additionally, high capacity wells "with a water loss of more than two million gallons per day must also comply with the standards in Wis. Stat. § 281.35."[284] A permit is required for a well that proposes to make consumptive withdrawals at an average of more than two million gallons/day in any 30-day period.[285] Annual reports are required for high capacity wells.[286] For high capacity wells that are located in a groundwater protection area, have a water loss of more than 95% of the amount of water withdrawn, or potentially have a significant environmental impact on a spring, the DNR must review the application for the well.[287] In 2011 Wisconsin Supreme Court held that Wisconsin's permitting framework "provides the DNR with the discretion to undertake the environmental review it deems necessary for all proposed high capacity wells, including the authority and a general duty to consider

[275] 9 VA. ADMIN. CODE §§ 25-200-30, 25-200-40.
[276] WASH. REV. CODE § 90.44.050.
[277] § 90.44.050.
[278] W. VA CODE § 22-26-3(C).
[279] § 22-26-2.
[280] WIS. STAT. § 281.34(1)(B).
[281] *Id.*
[282] WIS. STAT. § 281.34(1)(EM).
[283] PAUL G. KENT, WISCONSIN WATER LAW IN THE 21ST CENTURY: UNDERSTANDING WATER RIGHTS AND REGULATIONS 177 (2013).
[284] *Id.* at 181.
[285] § 281.35.
[286] WIS. ADMIN. CODE NR § 856.30(2).
[287] WIS. STAT. § 281.34(4)(A).

the environmental impact of a proposed high capacity well on waters of the state" under Wisconsin's public trust doctrine."[288] However, there is a conflict between the implied duties of environmental protection stated by the Wisconsin Supreme Court in *Lake Beula* and Wisconsin Act 21, which was enacted just prior to the *Lake Beula* decision.[289] In 2016, Wisconsin Attorney General Brad Schimel issued an opinion stating that the Wisconsin Supreme Court in *Lake Beula* did not interpret or apply Act 21 and "much of the Court's reasoning in *Lake Beula*. . . is no longer controlling."[290] In 2020, the current Wisconsin Attorney General, Josh Kaul, rescinded Schimel's 2016 opinion,[291] after a circuit court held *Lake Beulah* still governed DNR review of high-capacity well permit applications.[292] The circuit court's decision is currently pending before the Wisconsin Supreme Court for resolution.[293]

Wyoming (Prior Appropriation): Registration and permitting procedures must be followed, without exception. Wells for stock and domestic uses may not withdraw at a rate greater than 25 gallons/minute.[294] The State Board of Control may designate areas and impose water restrictions where: (1) the use of groundwater is approaching a use equal to the current recharge rate; (2) groundwater levels are declining or have declined excessively; (3) conflicts between users are occurring or are foreseeable; (4) waste is occurring or may occur; or (5) other conditions exist or may arise that require regulation to protect the public interest.[295]

Great Lakes Compact: In addition to state laws, large quantity groundwater withdrawals in certain states may be subject to additional regulations based on the state's status as a party to the Great Lakes-St. Lawrence River Basin Compact (Public Law 110-342). The Compact is a legally binding agreement among the eight states that border the Great Lakes (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania, and Wisconsin) and two Canadian provinces (Ontario and Quebec).[296] Each of the state legislatures has ratified the compact, and it was signed into federal law in 2008.[297]

The Great Lakes Compact is an international agreement as to how new or increased surface water or groundwater withdrawals from the Great Lakes basins will be regulated. The Compact recognizes that "the landscape . . . constitute[s] a single system that must be managed as such" in order to preserve the Great Lakes.[298] Under the Compact, each party has signaled their commitment to "manage water

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[288] Lake Beulah Management District v. DNR, 2011 11 54, ¶ 39

[289] 2011 Wisconsin Act 21 states that "No agency may implement or enforce any standard, requirement, or threshold, including as a term or condition of any license issued by the agency, unless that standard, requirement or threshold is explicitly required or explicitly permitted by statute or by a rule that has promulgated."

[290] State of Wis. Dep't of Justice, OAG-01-16, Opinion Letter on the Application of Wis. Stat. § 227.10(2m) to the Issuance of High-Capacity Groundwater Well Withdrawal Permits ¶ 16 (May 10, 2016).

[291] State of Wis. Dep't of Justice, Opinion Letter on the Continuing Validity of OAG-01-16 (May 1, 2020).

[292] *See* Clean Wisconsin, Inc. v. DNR, No.16-CV-2817 (Wis. Cir. Ct. Dane Cty.) (consolidated).

[293] *See* Clean Wisconsin, Inc. v. DNR, Nos. 2016AP1688, 2016AP2502, unpublished certification (WI App Jan. 16, 2019).

[294] WYO. STAT. § 41-3-907.

[295] WYO. STAT.§ 41-3-912(A).

[296] *Who Owns the Water?*, *supra* note 36, at 9.

[297] *Id.*

[298] *Water Law Explanation*, MICH. DEP'T. OF ENV'T. QUALITY, https://www.michigan.gov/documents/deq/Water_Law_Explanation_626093_7.pdf (updated June 22, 2018).

within their jurisdictions similarly and annually report their water use and regulation to a central body."[299] The default threshold for regulating withdrawals is set at 100,000 gallons/day, averaged over a 90-day period.[300] Council approval is required for any new or increased consumptive use of 5 million gallons/day or greater averaged over a 90-day period.[301]

III. CONCLUSION

Withdrawing large amounts of groundwater is essential for agricultural irrigation. However, these large withdrawals have the potential to over appropriate the underlying aquifer. With regulatory authority over groundwater allocated to the several states, a piecemeal framework works to protect the aquifers. Several states have enacted comprehensive regulatory regimes over these high-capacity wells. With varying degrees of efficacy, these frameworks help the state to manage and track large quantity withdrawals. Protection of groundwater supplies from over appropriation by high-capacity wells is a collective concern and responsibility.

[299] *Id.*
[300] *Who Owns the Water?*, *supra* note 36, at 9.
[301] *Id.*

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High-Capacity Wells: A Survey of Groundwater Withdrawal Rights and Regulations

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Groundwater represents roughly 30% of the world's freshwater supply, and 2.5 billion people depend solely on groundwater to meet their daily water needs. In the United States, around 20% of total freshwater withdrawals come from groundwater sources. Agricultural irrigation is currently the largest use of groundwater in the United States. To satisfy demand, high-capacity wells that have the ability to withdraw water over an established daily threshold are often employed. These wells are capable of achieving withdrawal rates that exceed natural groundwater recharge rates and can disrupt the hydrological cycle as a result. Therefore, unregulated groundwater withdrawals through the use of high-capacity wells can become unsustainable.

Like the regulation of rights to use surface water, regulation of groundwater rights and high-capacity wells has largely been left to states. Although states typically regulate surface water according to two common law doctrines (riparianism and prior appropriation), the regulations of groundwater has been more complex. Currently, there are five common law doctrines that states have used to regulate groundwater: absolute ownership, American reasonable use, correlative rights, the Restatement (Second) of Torts, and prior appropriation. However, few states apply any of these doctrines in a uniform way. As a result, groundwater management in the United States has been highly fragmented.

The following chart provides a brief summary of the common law doctrine applied to groundwater management in each state, and the regulatory frameworks in place for groundwater withdrawal through the use of high-capacity wells. Note, that the common law doctrine that some states adhere to is unclear. Furthermore, some states are not able to be neatly categorized as following a single doctrine. We selected the doctrine(s) that were most clear in the state's legislation and case law. The applicable common law doctrine may differ in special management areas.

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
Alabama										
Alabama Water Resources Act (Ala. Code § 9-10B)	Alabama Office of Water Resources (within the Department of Economic and Community Affairs)	Reasonable Use	Capacity stress area	No limit (exception = capacity stress areas)	All public water systems Users with a capacity to withdraw at least 100,000 gallons/day	N/A	Temporary withdrawals may be eligible to be exempt from registering	Registered user must submit annual report	Users outside of capacity stress areas with a withdrawal capacity of less than 100,000 gallons/day	
Alaska										
Alaska Water Use Act (Alaska Stat. § 46.15) *Water Management Act (Alaska Admin. Code tit. 11, § 93)*	Alaska Department of Natural Resources	Prior Appropriation	Critical water management area	N/A	N/A	Permit required when withdrawal is a "significant amount"	(1) 5,000 gallons for 1 day from a single source (2) 500 gallons from a single source for more than 10 day/year (3) 30,000 gallons/day non-consumptive use from a single source	Well meters generally required for large commercial wells (greater than 30,000 gallons/day)	Smaller domestic wells	
Arizona										
Arizona Groundwater Management Act (Ariz. Rev. Stat. Ann. tit. 45)	Arizona Department of Water Resources	Reasonable Use[1]	Active management areas (AMA) Irrigation non-expansion areas (INA)[2]	AMA/INA: see local water management plan for amount (goal of most is "safe yield")	N/A	Permit required for any withdrawal in an AMA or INA	Special management areas: Exempt wells (withdrawal for non-irrigation use from a well with a pump capacity of less than 35 gallons/minute), certain existing irrigation uses grandfathered in	Required for non-exempt wells in special management areas AMA: required (see AMA water management plan for specific requirements) INA: required for all users using water for irrigation purposes, and required for all users withdrawing more than 10 acre-feet/year	Exempt wells (pump capacity of more than 35 gallons/minute) AMA: see local land management plan INA: irrigators of 10 acres or less	[1] Exception = doesn't apply in special management areas. [2] INAs subject to either the specific rules of the basin or all irrigation is prohibited unless the area was irrigated within 5 years before the adoption of the rule.
Arkansas										
Arkansas Ground Water Management and Protection Act (Ark. Code Ann. § 15-22: Water Resources)	Arkansas Natural Resources Commission	Reasonable Use[1]	Critical groundwater areas	Amount that can be beneficially used on one's own property	Required for all withdrawals	May be required in critical groundwater areas	Withdrawals for domestic uses Withdrawals from wells with a maximum potential flow rate of less than 50,000 gallons/day Certain existing uses grandfathered in (exception = an equally or less costly substitute exists)	Annual reports on the water usage from October 1st to September 30th of the next year required for all users	None	[1] There is also support for Correlative Rights in the state's common law. The eastern version of Correlative Rights differs from the doctrine as it was originally developed in California. In Arkansas, "reasonableness" is determined with respect to other landowners. A water right gives "each riparian owner . . . an equal right to make reasonable use of water subject to the equal rights of other owners to make reasonable use." Lingo v. City of Jacksonville, 258 Ark. 63, 65 (Ark. 1975).
California										
Cal. Water Code[1]	Groundwater is managed at the local level and no single state agency has authority	Reasonable Use and Correlative Rights	State divided into 515 basins (larger areas classified as medium or high priority basins)	Courts can limit the rights of a pumper to extract groundwater in order to protect the water supply and prevent overdraft	N/A	No default state groundwater withdrawal permitting requirements (see the permitting regime established for a particular basin by the local groundwater sustainability agency)	N/A	No statewide reporting requirements	N/A	[1] *See generally* Division 2: Water, Division 6: Conservation, Development, and Utilization of State Water Resources.

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
Colorado Colorado Groundwater Management Act (Colo. Rev. Stat. Ann. § 37-90)	Colorado Division of Water Resources Colorado Ground Water Commission (regulates groundwater within designated basins)	Cal. Water Code [FN = *See generally* Division 2: Water, Division 6: Conservation, Development, and Utilization of State Water Resources]	Designated basins	Amount specified in permit[2]	N/A	Permit required regardless of where the well is located[3, 4]	Designated basins = Small capacity wells: (1) Wells not exceeding 50 gallons/minute and used for no more than 3 single-family dwellings (exception = does not include irrigation on more than 1 acre of land) (2) Livestock wells not exceeding 50 gallons/minute and used for watering livestock (3) Wells used in 1 commercial business not exceeding 50 gallons/minute (4) Certain wells used for observation purposes (5) Wells used exclusively for firefighting purposes (6) Certain monitoring wells Nondesignated basin = Exempt wells: flow rates of 15 gallons/minute or less for in-house use and outside use only for domestic animals	Reporting required	N/A	[1] Colorado has complicated water system, with rights and procedures differing based on how the groundwater is classified and where it is located. Groundwater classifications are: (1) Tributary groundwater: This is the "default" and is groundwater that is tributary to a natural stream. (2) Designated groundwater: This is groundwater in areas that have been declared "designated basins." (3) Nontributary groundwater: Groundwater that is located deep in an aquifer that is outside of a designated basin, that is not tributary to surface flows. (4) Not nontributary groundwater: Groundwater in the Denver Basin aquifers with slightly more connection to surface water than nontributary groundwater, but not located within a designated basin. [2] For nontributary groundwater, the State Engineer allocates the total available groundwater based on the 100-year aquifer life, with each permit holder being allowed to deplete the aquifer by 1% each year. [3] In a non-designated basin, the permit is a "non-exempt well permit." In a designated basin, it is a "large capacity well permit." [4] For tributary groundwater, the water right must first be adjudicated in Water Court.
Connecticut Conn. Gen. Stat. tit. 22a, ch. 446i (Water Resources)	Connecticut Department of Energy and Environmental Protection	Absolute Dominion	Aquifer protection areas[1]	N/A	Required for certain existing diversions (diversions maintained prior to or on July 1, 1982)	Required for all withdrawals over 50,000 gallons/day	Well(s) where withdrawal will not exceed 50,000 gallons during any 24-hour period Certain existing diversions grandfathered in (diversions existing and registered before July 1, 1983)[2]	Annual reporting required for registered wells Annual reporting required for permit holders putting water to consumptive use (non-consumptive use permit holders should consult their permit for reporting requirements)	None	[1] Focused on groundwater quality/pollution. [2] § 22a-377(a) for other exemptions.
Delaware Del. Code Ann. tit. 7 (Conservation), ch. 60 (Environmental Control) Del. Admin. Code tit. 7 (Natural Resources and Environmental Control), § 7303 (Regulations Governing the Allocation of Water)	Delaware Division of Water Resources	Correlative Rights	Groundwater management zones[1]	For permitted new withdrawals, a pumper can use up to 20 acre-inches/year, but not more than 10 acre-inches/month *See* Del. Admin. Code § 7303 for groundwater withdrawal rate limits	N/A	Required for all withdrawals over 50,000 gallons/day	N/A	Annual reports on water usage required for permit holders	Permit holders for irrigation only need to report from Mar. to Nov.	[1] Focused on groundwater quality/pollution.

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
Florida Florida Water Resources Act of 1972 (Amended by 1997 Water Act) (Fla. Stat. §§ 373.302 - 373.342: Regulation of Wells) Fla. Admin. Code ch. 40A-E (Water Management Districts)	Water Management Districts (5 local governing bodies), with the Florida Department of Environmental Protection providing general supervision and oversight	Reasonable Use	Water resource caution areas (in some WMDs)	"Reasonable-beneficial use" ("use of water in such a quantity as necessary for economic and efficient utilization for a purpose and in such a manner that is both reasonable and in the public interest") Permit may contain limits on withdrawal amounts if the aquifer level time table is below that set by the Department of Environmental Protection	N/A	Every WMD requires groundwater users to obtain a permit for consumptive uses of water	Domestic consumption of water by individual users Additional exemptions vary based on WMD[1]	Annual reporting required for permit holders authorized to withdraw more than 100,000 gallons/day	Groundwater users exempt from permitting requirements Permit holders authorized withdraw 100,000 gallons/day or less	[1] *See* Fla. Admin. Code 40 A-E
Georgia Groundwater Use Act of 1972 (Ga. Code Ann. § 12-5-90) Ga. Comp. R. & Regs 12-5-3 (Wells and Drinking Water)	Georgia Environmental Protection Division (within the Georgia Department of Natural Resources)	Absolute Dominion	N/A	N/A	N/A	Required for any user who withdraws more than 100,000 gallons/day for any purpose Note: special permitting rules apply to farms	Withdrawals of less than 100,000 gallons/day	Permittees must submit a semiannual statement on the nature and quantity of their use, an annual report of their water use, and a progress report every 5 years that details water conservation techniques and supplemental information ;	Farm uses (includes irrigation for farm purposes)	
Hawaii State Water Code (Haw. Rev. Stat. ch. 174C)	Hawaii Commission on Water Resources Management	Correlative Rights	Water management areas	N/A	Required for wells in existence before State Water Code was adopted	Well construction permit required everywhere Water *use* permit required in water management areas	Domestic consumption for individual users	Monthly reports required for all wells[1]	None	[1] Salt water wells can report annually
Idaho Ground Water Act of 1951, as amended (Idaho Code tit. 42: Irrigation and Drainage - Water Rights and Reclamation) Idaho Admin. Code tit. 37: Dept. of Water Resources	Idaho Department of Water Resources	Prior Appropriation	Critical groundwater areas	Amount that can be beneficially used Note: Irrigation greater than 1 cubic-foot/second per 50 acres is prohibited without approval from IDWR	N/A	Required for all withdrawals	Domestic wells: use of water for individual use, irrigation of less than 1/2 acre of land, and any other associated purpose, so long as not more than 13,000 gallons/day, and any other use so long as the total use is not more than .04 cubic-feet/second or 2,500 gallons/day	Required for permittees	Exempt uses	
Illinois Illinois Water Use Act (1983) (525 Ill. Comp. Stat. 45)	County Soil and Water Conservation Districts (overseen by the Illinois Department of Agriculture)	Reasonable Use	Regulated recharge areas[1]	Limits may be placed upon wells with a capacity of 100,000 gallons/day or more if the District has investigated and recommended a limit State regulators may restrict withdrawals in certain counties	Required for high capacity wells (facilities with a capacity to withdraw at least 100,000 gallons/day)	Required for special jurisdictions (any town where the Iroquois River flows, or any town with more than 100,000 people where the Mackinaw River flows)	High capacity wells	Annual report to the Illinois Water Inventory Program for high capacity wells	Wells with pump capacity of less than 100,000 gallons/day	[1] Focused on groundwater quality/pollution.
Indiana Ind. Code § 14-25-3 (Water Rights; Ground Water)	Indiana Department of Natural Resources	Absolute Dominion	Restricted use areas	May be limits if the Director declares a groundwater emergency if small quantity users (less than 100,000 gallons/day) have a cause of action	Required for all facilities with a capacity to withdraw at least 100,000 gallons/day	Required in restricted use areas for all new users or those withdrawing more than 100,000 gallons/day	Wells with a pump capacity of less than 100,000 gallons/day	Annual reporting required for owners of registered facilities	None	

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
Iowa Iowa Code ch. 455A (Water Rights), ch. 455E (Groundwater Protection) Iowa Admin. Code tit. 567 (Environmental Protection Commission)	Iowa Department of Natural Resources	Correlative Rights	Protected source areas	Each aquifer has a different limit on the amount or rate of withdrawal	N/A	Required for withdrawals that exceed 25,000 gallons/day[1]	Withdrawals less than 25,000 gallons/day	Annual reporting required	None	[1] Additional permitting requirements for high-capacity wells that have an expected pump capacity of 500 gallons/minute or more.
Kansas Kansas Water Appropriation Act (Kan. Stat. Ann. § 82a-701 *et seq*.) Kan. Admin. Regs. tit. 28 (Dept. of Human Health and Env.)	Division of Water Resources (within the Kansas Department of Agriculture)	Prior Appropriation	Intensive groundwater use control areas Local enhanced management areas	Annual authorized quantity (cannot be increased) Local groundwater management districts can impose additional limitations	N/A	Required for all withdrawals	Domestic uses (2 acres or less) Certain existing uses grandfathered in	Annual reporting required	Domestic users	
Kentucky Ky. Rev. Stat. ch. 151 (Geology and Water Resources)	Division of Water (within the Kentucky Energy and Environment Cabinet)	Reasonable Use	N/A	Quantity and rate specified in permit	N/A	Required for facilities with a withdrawal rate of more than 10,000 gallons/day	Domestic uses Agricultural uses (includes irrigation) Withdrawals made at a constant rate with an average withdrawal rate of 10,000 gallons/day or less[1]	Monthly reporting required for permitted withdrawals	Withdrawals exempt from the permitting process	[1] Permit may be required if the withdrawals are made on an irregular basis and at an irregular rate if the water withdrawn represents a significant portion of the available water supply.
Louisiana Water Control Law (La. Stat. Ann. §§ 30:2071 *et seq*.) La. Admin. Code tit. 43 (Natural Resources), Part VI (Water Resources Management), Subpart 1 (Ground Water Management)	Office of Conservation (within the Louisiana Department of Natural Resources)	Absolute Dominion	Areas of groundwater concern	No limit	Required for all wells (new wells and those that have been re-worked) producing more than 50,000 gallons/day	N/A	Wells pumping less than 50,000 gallons/day (owner is not considered a "user")	Monthly reporting required for owners of non-domestic water wells in an area of groundwater concern DNR can require registered wells to submit information	None	
Maine Me. Stat. tit. 38 (Waters and Navigation), ch. 3 (Protection and Improvement of Waters) See specifically: Art. 1-B (Ground Water Protection Program) § 404 Ground Water Rights Art. 4-B (Water Withdrawal Reporting Program) Art. 5-A (Natural Resources Protection Act)	Maine Department of Environmental Protection	Absolute Dominion	N/A	Amount needed for beneficial domestic use at single family home, so long as it doesn't cause harm to another beneficial user	N/A	If withdrawal is within 500 feet of a body of water: withdrawal of at least 75,000 gallons/week or 50,000 gallons/day If withdrawal is over 500 feet from a body of water: withdrawals of at least 216,000 gallons/week or 144,000 gallons/day Required for withdrawal from a significant groundwater well	Public water systems Home domestic supply Agricultural use	Annual usage reports required for those withdrawing more than threshold amount (varies depending on the location of nearby lakes/ponds)[1] Required for withdrawals from certain groundwater sources within 500 feet of a lake or pond Required if the withdrawal is from groundwater greater than 500 feet from certain water bodies and is 50,000 gallons or more on any day (exception = the person making the withdrawal demonstrates that it won't impact any adjacent surface water body)	Proven to the Department's satisfaction that the withdrawal won't impact the adjacent surface water body Nonconsumptive uses Household uses Emergencies	[1] § 470-B for threshold volumes for reporting annually.

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
Maryland										
Md. Code Ann., Envir. tit. 5 (Water Resources)	Maryland Department of the Environment	Reasonable Use	Water management strategy areas	Administrative decisions suggest that the Department has an unwritten rule limiting withdrawals to an amount it calculates that belongs to the land or to land under the user's control	N/A	Required for all withdrawals	Certain domestic uses (other than heating/cooling) Agriculture use less than 10,000 gallons/day (with some exceptions) Groundwater withdrawals of less than 5,000 gallons/day (does not include use for public water systems, or uses within a water management strategy area)	Semi-annual reporting required for permit holders when permit is issued for an average withdrawal of more than 10,000 gallons/day Annual reporting required for agricultural uses	Users exempt from permitting process	
Massachusetts										
Massachusetts Water Management Act (Mass. Gen. Laws ch. 21G)	Massachusetts Department of Environmental Protection	Absolute Dominion	N/A	No limit	Users withdrawing over 100,000 gallons/day on average during the 5 years prior to January 1986	Required for withdrawals over 100,000 gallons/day	Nonconsumptive uses not factored into calculating the volume withdrawn	Annual reporting required for registered users and permit holders	None	
Michigan										
Natural Resources and Protection Act (Mich. Comp. Laws ch. 324 (Act 451 of 1994))	Michigan Department of Natural Resources	Restatement (Second) of Torts § 858 (Beneficial Purpose Doctrine)	N/A	A reasonable amount up to the point of interfering with a neighbor's reasonable use	Required for owners of prospective new or increased "large quantity water withdrawals" (1 or more cumulative withdrawals of over 100,000 gallons/day average in any consecutive 30-day period)	Required for users proposing to withdraw over 2,000,000 gallons/day	Owners of a noncommercial well on certain residential properties (either a single family residential property, or a multi-family residential property not exceeding 4 residential units on 3 acres or less) (exception = well is a lake augmentation well) Seasonal withdrawal of 2,000,000 gallons/day in any consecutive 90-day period to supply a common distribution system	Annual reporting required for registered users and permit holders	Owner of a farm who submits a water conservation plan under § 32708 User who withdraws less than 1,500,000 gallons in any year is subject to less stringent reporting requirements	
Minnesota										
Minn. Stat. ch. 103A - 114B	Minnesota Department of Natural Resources	Correlative Rights	Groundwater management areas	Non-essential uses may be limited if governor declares a critical water deficiency	N/A Note = Legislative approval is needed if a user plans to appropriate more than 2,000,000 gallons/day for a consumptive use, along with a determination from DNR that there are adequate resources	Facilities that withdraw at least 10,000 gallons/day or 1,000,000 gallons/year (exception = Commissioner can require a permit for wells with a capacity less than this in groundwater management areas)	Water is used to supply less than 25 people's domestic uses	Annual report tracking monthly withdrawals required for permit holders	None	
Mississippi										
Mississippi Commission on Environmental Quality Regulation LW-2 (Surface Water and Groundwater Use and Protection) Miss. Code Ann. tit. 51 (Water, Water Resources, Water Districts, Drainage, and Flood Control) Miss. Admin. Procedures Act Rules tit. 11 (Mississippi Department of Environmental Quality)	Office of Land and Water Resources (within the Mississippi Department of Environmental Quality)	Absolute Dominion[1]	Water use caution area	No limit	N/A	Required for all withdrawals[2]	Water for domestic uses (ordinary household purposes, livestock watering, and irrigation of non-commercial lands) Water withdrawn from a well with a surface casing diameter of less than 6 inches Existing water rights before grandfathered in Note = Board may require permits for exempt wells in in a water caution area for withdrawals in excess of 20,000 gallons/day	Annual reporting required on volume withdrawn over the year for owners of wells that withdraw over 20,000 gallons/day	None	[1] In *Bd. of Supervisors v. Miss. Lumber Co.*, 31 So. 905 (Miss. 1902), Mississippi was categorized as an absolute ownership state, but the court indicated that if faced with the appropriate case, it would instead apply reasonable use rule. [2] Additional permit requirements for wells with a withdrawal capacity in excess of 20,000 gallons/day.

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
Missouri Mo. Rev. Stat. § 256.400 *et seq*.	Missouri Department of Natural Resources	Reasonable Use[1]	N/A	No limit	Required for "major water users" (owners of wells with a capacity to withdraw at least 70 gallons/minute or 100,000 gallons/day)	N/A	Water pumped from mines and quarries	Registered users must submit an annual report on their withdrawal/use May be required in water quality protection areas if the State Water Resource Plan requires reporting	None	[1] Missouri follows a modified version of the Reasonable Use rule called Comparative Reasonable Use, which is determined on case-by-case basis and takes into account all relevant facts/circumstances. See *Higday v. Nickolaus*, 469 S.W.2d 859 (Mo. App. 1971).
Montana Montana Water Use Act (Mont. Code Ann. § 85-2-5)	Montana Department of Natural Resources and Conservation	Prior Appropriation	Controlled ground water areas	No limit (exception = may be limits in controlled groundwater areas)	Required for wells that are exempt from the permitting process	Permit required for withdrawals over 35 gallons/minute or that exceed 10 acre-feet/year[1] Note = Appropriations greater than 3,000 acre-feet/year requires legislative approval (exception = appropriations for irrigating croplands owned and operated by applicant.]	Exempt well: well outside of a stream depletion zone with a maximum pumping rate of 35 gallons/minute and a maximum volume of 10 acre-feet/year[2], well in a stream depletion zone with a pumping rate of 20 gallons/minute or less, and a volume less than 2 acre-free/year[3] Existing water rights (appropriations put to beneficial use between 1962-1973) do not require a permit	Well log report must be filed by the driller	N/A	[1] Appropriations of 4,000 or more acre-feet/year and 5.5 or more cubic-feet/second of water may not get permit without proving the regular criteria and that that use of water is reasonable. [2] Permit may still be required to appropriate water in a controlled groundwater area, even if ordinarily exempt. [3] Combined appropriation by 2 or more wells exceeding 10 acre-feet/year requires permit, regardless of flow rate.
Nebraska Groundwater Management and Protection Act (1975) (Neb. Rev. Stat. §§ 46-701, *et seq*.) Neb. Rev. Stat. ch. 61 (Natural Resources)	Natural Resources Districts (local entities, supervised by the Nebraska Department of Natural Resources)	Reasonable Use (Correlative Rights in times of shortage)	Management areas	No limit	Required for all wells constructed after July 1, 2001	Required when pumping will be done for irrigation purposes Required in management areas	No registration required for domestic wells (wells used solely for domestic purposes and built before Sept. 9, 1993) No permit needed in management areas for single water wells designed and built to pump 50 gallons/minute or less (certain other exceptions)	Requirements differ based on the groundwater management plan for each Natural Resources District	N/A	
Nevada Nev. Admin. Code ch. 533 (Adjudication of Vested Water Rights; Appropriation of Public Waters), ch. 534 (Underground Water and Wells)	Nevada Division of Water Resources (within the Department of Conservation and Natural Resources)	Prior Appropriation	Designated basins (State Engineer can further designate areas within these basins as critical management areas)[1]	Withdrawals in designated basins generally limited to "safe yield" (State Engineer may limit to less)	State Engineer has authority to require registration of exempt domestic uses in certain water basins	Required before well is drilled in a designated basin Required before water is used outside of designated basins	Domestic wells (diverts less than 2 acre-feet/year and has a flow rate below 1,800 gallons/day, serving not more than 3 single-family dwellings) Wells existing before July 1, 1983	N/A	N/A	[1] Designation status of basins divided into general categories: (1) Designated areas, where order does not define administrative control (2) Designated, irrigation denied areas (irrigation is not a preferred use in the basins) (3) designated, prefered use areas (certain types of preferred uses) (4) designated preferred uses, irrigation denied areas (orders designate certain uses as preferred, but not irrigation)
New Hampshire Groundwater Protection Act (N.H. Rev. Stat. Ann. ch. 385-C)	New Hampshire Department of Environmental Services	Reasonable Use (the rights are correlative)	N/A	N/A	Users withdrawing over 20,000 gallons/day averaged over a 7-day period or over 600,000 gallons over any 30-day period (registration is in addition to any required permits)	Large groundwater withdrawal (any withdrawal of 57,600 gallons or more in any 24-hour period at a single property)	Emergency withdrawals Withdrawals associated with short-term use	Registered users must report their monthly water use on a quarterly basis	None	

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
New Jersey Water Supply Management Act (N.J. Stat. Ann. tit. 58)	New Jersey Department of Environmental Protection	Reasonable Use or Correlative Rights[1]	Areas of critical water supply concern	Maximum diversion quantity set in permit (can modify conditions of existing diversion permit to limit or reduce the quantity of water to the safe or dependable yield)	Required for any user with the capacity to divert over 100,000 gallons/day, but who diverts less	Required for users withdrawing over 100,000 gallons/day for a period of more 30 days in a 365 consecutive day period	Agriculture uses Aquaculture or horticulture uses Certain existing uses grandfathered in	Registered users must annually report their monthly water use Permittees must submit monthly diversion amounts on a quarterly basis	None	[1] New Jersey common law as it pertains to groundwater remains unclear.
New Mexico New Mexico Groundwater Code (N.M. Stat. Ann. § 31-12)	New Mexico Division of Water Resources	Prior Appropriation	Declared groundwater basins (entire state)	Unclear: the rules have been changing and challenged	N/A	*Not required (*See exception)	Required if in declared groundwater basin (*entire state is a declared groundwater basin, so technically yes, a permit is required for all withdrawals) Certain existing uses grandfathered in and have to fill out a form (vested rights with priority dates prior to 1907 as long as they have been for a continuous use and not a 1 time diversion)[1]	Must *meter* if well serves more than 1 household	N/A	[1] Permit applications presumptively granted for minimal domestic uses, but they aren't technically exempted. A domestic use is irrigation of 1 acre or less of non-commercial land and other domestic uses.
New York Water Resources Law (N.Y. Envtl. Conserv. § 15: Water Resources) N.Y. Stat. tit. 6 (Department of Environmental Conservation), ch. V (Resource Management Services), Subchapter E (Water Regulation) Great Lakes Water Conservation and Management Act of 1989 imposes certain additional requirements to water users in the Great Lakes Basin	New York Department of Environmental Conservation	Reasonable Use	Special groundwater protection areas	Permit holders can withdraw amounts that are reasonable to meet proposed use of water	Anyone making a withdrawal of water for agricultural purposes must annually register or report the withdrawal Required in the Great Lakes Basin for withdrawals of 100 gallons/day averaged over a 30-day period or 3,000,000 gallons in a 30-day period	Required for wells with a pump capacity of at least 100,000 gallons/day Required for agricultural irrigation[1]	Withdrawals for fire/public emergency Withdrawals approved from a compact basin commission Existing registered withdrawals for agricultural purposes[2]	Annual reporting required for permit holders, detailing water usage and conservation measures Anyone who withdraws for agricultural purposes over an average of 100,000 gallons/day in any consecutive 30-day period must annually report	None	[1] Certain counties or areas may have imposed more stringent thresholds. [2] *See* § 15-1501 for other exceptions
North Carolina Water Use Act of 1967 (N.C. Gen. Stat. §§ 143-215.11, *et seq.*)	North Carolina Environmental Management Commission (within the Department of Environmental Quality) Division of Water Resources (issues permits) (within the North Carolina Department of Natural Resources and Community Development)	Reasonable Use	Capacity use areas	Limits must be set in capacity use areas on quantity and rate (*see* § 143-215.14)	Required for any withdrawal of at least 100,000 gallons/day	Required for any withdrawal of at least 100,000 gallons/day in capacity use areas	Agricultural-related withdrawals of less than 1,000,000 gallons/day Certain other uses exempt	Registrants required to update withdrawal information every 5 years Permittees must submit a statement on quantity, sources, and nature of use no more frequently than every 30 days Users in capacity use areas must submit monthly reports	None	

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
North Dakota										
N.D. Cent. Code tit. 61 (Waters) N.D. Admin. Code tit. 89 (Water Commission)	State Engineer (assisted by the Water Appropriation Division of the North Dakota State Water Commission)	Prior Appropriation	Source water protection areas[1]	Amount that can be beneficially used (permit cannot be issued in an amount that is more than this) Conditions may be imposed on the permit by State Engineer	N/A	Required for all withdrawals	Domestic uses of less than 12.5 acre-feet/year (use of water by a single individual, family, or household (includes irrigation of land not exceeding 5 acres for non-commercial purposes)[2] Livestock uses of less than 12.5 acre-feet/year Fish, wildlife, or other recreational uses of less than 12.5 acre-feet/year Certain historical uses grandfathered in	Annual reporting required for permit holders	None	[1] Focused on groundwater quality/pollution. [2] Watering a large garden is a domestic use, but it's irrigation when watering more than 5 acres of land. A permit is then needed.
Ohio										
Ohio Rev. Code Ann. ch. 1521 (Division of Water Resources)	Division of Water Resources (within the Ohio Department of Natural Resources)	Restatement (Second) of Torts § 858 (Beneficial Purpose Doctrine)	Groundwater stress areas	A reasonable amount[1]	Required for all facilities with a capacity to withdraw at least 100,000 gallons/day Required for all water users in a capacity stress area that withdraw more than the amount set by the Division	Required if a facility plans to increase their withdrawal by more than 2,000,000 gallons/day over a 30 day period	Certain registration exceptions applying mostly to public water suppliers	Annual water use reporting required for owners of registered facilities and permit holders	None	[1] *See* § 1521.17 for factors to be considered when making a reasonableness determination
Oklahoma										
Okla. Stat. § 82-11 (Oklahoma Groundwater Law)	Oklahoma Water Resources Board	Reasonable Use and Correlative Rights	Sensitive sole source groundwater basin	Proportionate share of the maximum annual yield (MAY) allocated to the landowner on a per-acre basis[1]	N/A	Required for all withdrawals[2]	Domestic uses (household purposes, for farm and domestic animals up to normal grazing capacity of the land and for irrigation of land not more than 3 acres)	Annual reporting required for permit holders	None	[1] Maximum annual yield: a determination of total groundwater that can be produced from a basin maintaining safe yield. There are different types of permits, so the maximum amount depends on the type of permit. [2] Different requirements apply based on the type of permit: regular, temporary, provisional temporary, special, limited quantity.
Oregon										
Or. Rev. Stat. tit. 45, ch. 536 (Water Resources Administration), ch. 537 (Appropriation of Water Generally) Ground Water Act of 1955 (Or. Rev. Stat. § 537.505, *et seq.*)	Oregon Water Resources Department Oregon Water Resources Commission	Prior Appropriation	Groundwater management area	Beneficial use, without waste Permit may impose conditions May be limits in critical groundwater management areas	Required for a pre-Aug. 3, 1955 right	Required for all withdrawals	Domestic uses up to 15,000 gallons/day Stock watering Lawn watering up to 1/2 an acre Small industrial or commercial uses up to 5,000 gallons/day Note = exempt uses still require a permit in designated groundwater management areas[1]	On an honor system not to use more than permit allows Must complete a pump test every 10 years and report results to Commission	None	[1] *See* § 537.545 for other exempt uses
Pennsylvania										
No statute directly on regulation of the allocation of groundwater resources (*See generally*, Pa. Cons. Stat. § 25-110) Water Rights Act (PL 842, No. 365)	Pennsylvania Department of Environmental Protection	Reasonable Use	Critical water planning areas	N/A	Required for all facilities and operations that withdraw or use more than 10,000 gallons/day over a 30-day period	Required for all new or increased withdrawals of 10,000 gallons/day in the Delaware or Susquehanna River basins	Domestic wells	Registered users must annually report their withdrawals and use	None	

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
Utah Utah Code Ann. tit. 73 (Water and Irrigation)	Utah Department of Natural Resources	Prior Appropriation	Critical management areas	Withdrawing large volumes of groundwater that have a certain chemical makeup making it suitable for irrigation is permitted only in certain basins State Engineer can set limits on maximum annual withdrawals in areas where water management plans have been issued Conditions may be placed on permit	N/A	Required for all withdrawals	None	N/A	N/A	
Vermont Vt. Stat. Ann. tit. 10 § 37 (Water Resources Management) (*See* specifically Act 250: ch. 151 of tit. 10)	Vermont Department of Environmental Conservation	Correlative Rights	N/A	N/A	N/A	Required for withdrawals over 57,600 gallons/day (40 gallons/minute for 24 hours)	Emergencies Domestic uses Farming Public water systems Waterworks enhancements that don't expand facilities capabilities by more than 10%	Annual report on water usage required for permit holders Required for commercial and industrial uses that have a monthly average of 20,000 gallons/day	None	
Virginia Ground Water Management Act of 1992 (Va. Code Ann. § 62.1-25) 9 Va. Admin. Code § 25-610 (Groundwater Withdrawal Regulations)	State Water Control Board (within the Virginia Department of Environmental Quality)	Reasonable Use	Ground water management areas	Board may include conditions or limits necessary to protect public welfare, health, and safety	Required for each private well constructed in a groundwater management area by the certified water well systems provider within 30 days of completion of construction	Required for withdrawals of at least 300,000 gallons in any 30-day period in ground water management areas	Withdrawals of groundwater in any area not declared a ground water management area Withdrawals less than 300,000 gallons/month in a groundwater management area Withdrawals related to the exploration/production of oil, gas, coal or other materials if the withdrawal won't injure another landowner Temporary withdrawals associated with state-approved groundwater remediation Certain existing rights grandfathered in	Every user withdrawing an average of 10,000 gallons/day must submit an annual report on their withdrawals Required for users withdrawing 1,000,000 gallons/month for irrigation	None	
Washington Groundwater Code (Wash. Rev. Code § 90.44) Wash. Admin. Code tit. 173 (Department of Ecology)	Washington State Department of Ecology	Prior Appropriation	Groundwater management areas	Beneficial use Department may approve an application for less than the full amt	N/A	Required for withdrawals greater than 5,000 gallons/day	SIngle or group domestic uses less than 5,000 gallons/day Industrial uses of less than 5,000 gallons/day Irrigation of non-commercial area less than 1/2 acre Stock watering	Department may still require exempt users to submit information about water use	N/A	

State	Regulating Agency/Department	Groundwater Common Law Doctrine	Special Management Areas for Groundwater Supply	Maximum Withdrawal Amount	Registration	Permitting	Exceptions to Registration/Permitting	Reporting	Exceptions to Reporting Requirements	Footnotes
West Virginia										
Groundwater Protection Act (W. Va. Code § 22-12) Water Resources Protection Act (W. Va. Code § 22-26)	West Virginia Division of Environmental Protection	Reasonable Use	Critical planning areas	N/A	Required for "large-quantity users" (withdraw more than 300,000 gallons in a 30 day period)	N/A	Note = "Large-quantity users" excludes farm use Large-quantity users who are buying water from a public or private water utility or other service that is reporting its total withdrawal	Registrants must submit annual reports, but agricultural users can voluntarily submit their use Required for "large quantity users (any person withdrawing more than 750,000 gallons in any month)	None	
Wisconsin										
Wis. Admin. Code Natural Resources ch. 811 (Requirements for the Operation and Design of Community Water Systems), ch. 812 (Well Construction and Pump Installation), ch. 856 (Water Use Registration and Report) and 812 Wis. Stat. § 281.34 (HCW statute) Wis. Stat. § 281.35 (HCW must comply with this if it has water loss of more than 2 million gallons/day) 2003 WI Act 310 (groundwater protection law)	Wisconsin Department of Natural Resources	Restatement (Second) of Torts § 858 (Beneficial Purpose Doctrine)	Water management areas	Additional requirements for wells withdrawing 2,000,000 or more gallons/day Wells of 5,000,000 gallons/day in Great Lakes Basin need prior notification and comment by the governors of states/provinces in the basin	Required for new and existing high-capacity wells (facilities with the capacity, from all wells on a property, to withdraw at least 100,000 gallons/day or more in any 30-day period) Certain registration requirements as a result of being part of GLC	Required for high-capacity wells (facilities with the capacity, from all wells on a property, to withdraw at least 100,000 gallons/day or more in any 30-day period) Additional requirements for wells within the Great Lakes Basins (individual permit required for withdrawals of at least 1,000,000 gallons/day for any 30 consecutive days) Required for certain water users, including diversion for stream level maintenance, agriculture and irrigation Required for for a system or plan which consumptive withdraws an average of more than 2,000,000 gallons/day in any 30-day period	DNR can waive the requirement to obtain coverage under the general permit for a person that makes a withdrawal for purpose of agriculture or irrigation in Great Lakes Charter basins	Annual reports are required for facilities that withdraw an average of at least 100,000 gallons/day in any 30-day period	None	
Wyoming										
Wyo. Stat. Ann. ch. 3 (Water Rights; Administration and Control)	Wyoming Department of Natural Resources	Prior Appropriation	Control areas	25 gallons/minute for domestic and stock uses (domestic use: household use where the area to be irrigated is not greater than 1 acre, supplying not more than 3 single family homes) May enact temporary corrective measures in groundwater control area	Required for all withdrawals	Required for all withdrawals	None	Owner must continue to ensure that the well is maintained so that it does not pollute the groundwater	N/A	

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The Federal Role in Groundwater Supply

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Prepared for Members and
Committees of Congress

Summary

Groundwater, the water in aquifers accessible by wells, is a critical component of the U.S. water supply. It is important for both domestic and agricultural water needs, among other uses. Nearly half of the nation's population uses groundwater to meet daily needs; in 2015, about 149 million people (46% of the nation's population) relied on groundwater for their domestic indoor and outdoor water supply. The greatest volume of groundwater used every day is for agriculture, specifically for irrigation. In 2015, irrigation accounted for 69% of the total fresh groundwater withdrawals in the United States. For that year, California pumped the most groundwater for irrigation, followed by Arkansas, Nebraska, Idaho, Texas, and Kansas, in that order. Groundwater also is used as a supply for mining, oil and gas development, industrial processes, livestock, and thermoelectric power, among other uses.

Congress generally has deferred management of U.S. groundwater resources to the states, and there is little indication that this practice will change. Congress, various states, and other stakeholders recently have focused on the potential for using surface water to recharge aquifers and the ability to recover stored groundwater when needed. Some see aquifer recharge, storage, and recovery as a replacement or complement to surface water reservoirs, and there is interest in how federal agencies can support these efforts. In the congressional context, there is interest in the potential for federal policies to facilitate state, local, and private groundwater management efforts (e.g., management of federal reservoir releases to allow for groundwater recharge by local utilities).

The two primary federal water resources agencies are the U.S. Bureau of Reclamation (Reclamation) and the U.S. Army Corps of Engineers (USACE). No significant federal restrictions apply to Reclamation's authorities to deliver water for purposes of aquifer recharge, storage, and recovery. USACE authorities also do not restrict nonfederal entities from using water stored or released from USACE reservoirs for groundwater recharge. Both agencies acknowledge that some state restrictions affect the use of the delivered or stored waters for groundwater activities. Reclamation, the U.S. Department of Agriculture (USDA), and the U.S. Environmental Protection Agency also provide some forms of financial assistance that could be used for enhancing groundwater supplies.

Other federal agencies support activities that inform groundwater management. For example, the U.S. Geological Survey monitors and reports groundwater conditions across the country, develops groundwater models and software tools for characterizing aquifers, and provides long- and short-term forecasts of changing groundwater conditions as part of local and regional groundwater studies. The National Aeronautics and Space Administration and the National Oceanic and Atmospheric Administration also make observations and collect data that are relevant to groundwater monitoring and assessment. USDA collects groundwater data related to irrigation.

Long-term changes to the climate affecting the United States, particularly rising temperatures and changes in the patterns, quantities, and type of precipitation (i.e., rain versus snow), could affect the availability of groundwater in the future. Other factors, such as changes to land use, irrigation practices, and patterns of water consumption, also may influence future changes to groundwater supplies.

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Groundwater, the water in aquifers accessible by wells, is a critical component of the U.S. water supply. It serves as a water source for domestic use and as irrigation water for agriculture, and it is used in mining, oil and gas development, industrial processes, livestock production, and thermoelectric power generation, among other uses. Managing groundwater resources largely has been the purview of states rather than the federal government. How each state manages its groundwater resources differs and depends on a mix of common law emerging from the 19th century, state law, court decisions, water settlements, and, to a lesser extent, federal law. The federal role in managing groundwater includes activities under federal trust responsibilities to Indian tribes and reservations.[1] It also includes management responsibilities for certain federal reservations if the purposes of those reservations require water, such as some national monuments, national forests, military bases, and other federal land holdings. In addition, the federal government is involved in groundwater monitoring and assessment and in aspects of groundwater recharge, storage, and recovery. Much of the recent congressional interest in groundwater has been broadly related to policies for increasing water supplies generally, as a response to recent droughts, and in preparation for future droughts.

In recent Congresses, some Members have introduced legislation that could affect how groundwater resources may be managed to better ensure a sufficient and reliable supply, and several such bills (or portions of such bills) have been enacted into law. Drought conditions and constrained supplies of surface water have helped to spur legislative action.[2] These conditions continue to affect many regions in western states, although droughts can occur anywhere in the nation.[3] Congress could continue to explore its authority to shape policy, conduct oversight, and provide appropriations for federal activities that influence groundwater supply management in the United States. This report is intended to provide context and a broad summary of federal authorities and activities affecting the supply and use of groundwater resources.

Whereas the states primarily manage groundwater *supply*, the federal government plays a more direct role in managing the nation's groundwater *quality*. For example, the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. §§9601 et seq.) authorizes federal cleanup and enforcement actions to respond to releases of hazardous substances to the environment, including groundwater. In addition, the Safe Drinking Water Act (42 U.S.C. §§300f et seq.) authorizes the U.S. Environmental Protection Agency (EPA) to regulate underground injection activities to protect underground sources of drinking water, including injection wells used for aquifer recharge. This report focuses on issues related to groundwater supply, not groundwater quality.[4]

This report is divided into two parts. The first part provides an overview of groundwater supply and management, including selected major issues before Congress. The second part provides a more detailed primer on groundwater resources, including relevant federal activities and authorities.

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[1] Unless otherwise noted, the terms *Indian*, *Indian tribes*, and *tribal reservations* refer to the approximately 1.9 million American Indians and Alaska Natives, the more than 570 federally recognized Indian tribes, and tribal land within reservation boundaries.

[2] Surface water includes streams, rivers, lakes, ponds, and is not groundwater or atmospheric water like rain or snow.

[3] For a general overview of drought in the United States, see CRS Report R43407, *Drought in the United States: Causes and Current Understanding*, by Peter Folger.

[4] Many CRS resources address issues of groundwater quality, including CRS Report R41039, *Comprehensive Environmental Response, Compensation, and Liability Act: A Summary of Superfund Cleanup Authorities and Related Provisions of the Act*, by David M. Bearden; and CRS Report RL31243, *Safe Drinking Water Act (SDWA): A Summary of the Act and Its Major Requirements*, by Mary Tiemann.

Overview

Who Relies on Groundwater?

Nearly half of the U.S. population relies on groundwater to meet their everyday needs. In 2015, groundwater was the primary source of water for domestic indoor and outdoor water uses for about 149 million people (46% of the U.S. population).[5] Most U.S. citizens (approximately 282 million people, or 87%) depended on public water supplies in 2015.[6] The remaining 13% (approximately 42.5 million people) supplied their own water, and nearly all of these citizens (98%, or about 42 million) pumped the water from their private wells. About 38% of public supply water is groundwater, and about 107 million people used groundwater from public water supplies.[7] Combined with the 42 million people pumping groundwater from their private wells, an estimated 149 million people relied on groundwater in 2015.

Groundwater and Irrigation

The greatest *volume* of groundwater used is for agriculture, nearly entirely for irrigation. In 2015, irrigation accounted for over 69% of all fresh groundwater withdrawals in the United States,[8] which corresponded to about 57.2 billion gallons per day (bgpd) in irrigation withdrawals as compared to 18.4 bgpd in withdrawals for domestic use (both public supply and self-supplied groundwater—in total, about 22% of all fresh groundwater withdrawals).[9] Among all states, California uses the most groundwater for irrigation, withdrawing 13.9 bgpd in 2015. Arkansas is second, withdrawing 9.28 bgpd in the same year, followed by Nebraska (5.42 bgpd), Idaho (4.9 bgpd), Texas (4.48 bgpd), and Kansas (2.56 bgpd).[10] Overall, groundwater withdrawals for irrigation in 2015 accounted for 48% of the total water withdrawn for irrigation, an increase of 16% compared to 2010.[11] In comparison, surface water sources supplied 52% of total irrigation withdrawals, a decrease of about 8% from 2010.[12]

Figure 1 illustrates the amount of groundwater withdrawn for irrigation by state. Generally, western states tend to use the most groundwater, due in part to hydrology and other surface water supply constraints.

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[5] Cheryl A. Dieter and Molly A. Maupin, *Public Supply and Domestic Water Use in the United States, 2015*, U.S. Geological Survey (USGS), Open-File Report 2017-1131, 2017, at https://doi.org/10.3133/ofr20171131. (Hereinafter, Dieter and Maupin, 2017.)

[6] *Public water supply*, as used in USGS reports and herein, refers to water withdrawn by public and private water suppliers that provide water to at least 25 people or have a minimum of 15 connections. It excludes self-supplied domestic withdrawals.

[7] Dieter and Maupin, 2017.

[8] Cheryl A. Dieter et al., *Estimated Use of Water in the United States in 2015*, USGS, Circular 1441, 2018, at https://pubs.er.usgs.gov/publication/cir1441. (Hereinafter, Dieter et al., 2018.) 2015 is the most recent year for which these data are available. Nearly all groundwater withdrawals in 2015 were freshwater (about 97%); the remainder (3%) were saline water withdrawals.

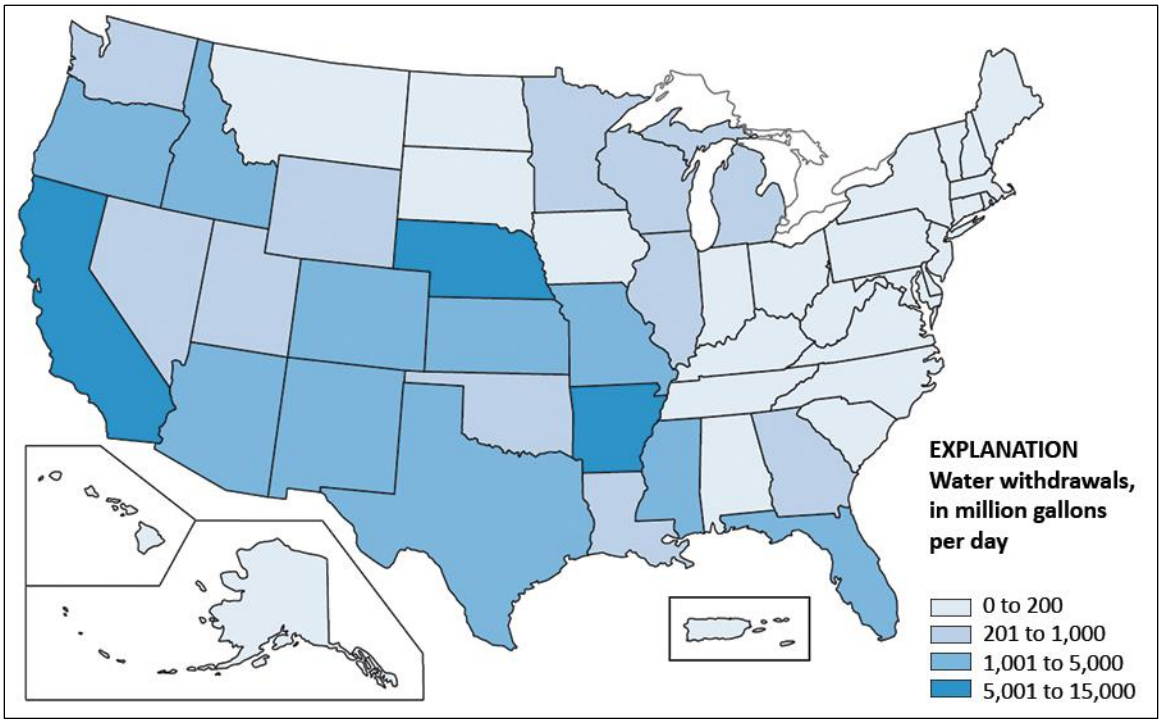
[9] Irrigation, public supply, and self-supplied groundwater withdrawals accounted for about 92% of the total fresh groundwater pumped in 2015. The remaining 8% included uses for livestock, aquaculture, industrial, mining, and thermoelectric power. Dieter et al., 2018, Table 4a.

[10] Dieter et al., 2018, Table 7.

[11] Dieter et al., 2018, p. 28.

[12] Dieter et al., 2018, p. 28.

Figure 1. Groundwater Withdrawals for Irrigation (2015)



Source: Cheryl A. Dieter et al., *Estimated Use of Water in the United States in 2015*, USGS, Circular 1441, 2018, at https://pubs.er.usgs.gov/publication/cir1441, p. 29, figure 7. (Modified by CRS.)

The Federal Role in Groundwater Supply

The federal government directly and indirectly influences how groundwater is managed in the United States. Several federal agencies monitor groundwater directly or with partners—through measurements at wells and springs—and remotely, using satellites or other remote sensing devices to provide information on groundwater flow, storage, depletion, and other characteristics that help inform state and local groundwater management. These include the U.S. Geological Survey (USGS), the National Aeronautics and Space Agency (NASA), the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Department of Agriculture (USDA).[13] Congress has provided other federal agencies with the authority to make available some water delivered from or stored at federal water resource projects available for groundwater recharge, storage, and recovery. These agencies include the two principal federal water resources agencies: the U.S. Army Corps of Engineers (USACE, which operates nationwide) and the U.S. Bureau of Reclamation (Reclamation, which operates in the 17 coterminous states west of the Mississippi River). Additionally, courts have found that when the federal government reserves lands for a particular purpose (such as for a tribal reservation or national monument), it impliedly reserves a right to water necessary to accomplish the purposes for which the reservation was created. Thus, federal land management agencies and the Bureau of Indian Affairs often are involved in water rights issues. Federal reserved water rights doctrine has long been recognized for surface water; more recently, it is also being considered for groundwater.

[13] For more information on the roles of the agencies, see the below section, "Federal Activities and Authorities."

Congressional Interest

In recent years, congressional interest in groundwater has generally been in three major areas:

- aquifer storage, recharge, and recovery;
- groundwater rights (including among other issues, groundwater/surface water interaction and federal reserved water rights); and
- groundwater supply monitoring and assessment.

In some cases, these issues overlap.

Groundwater Recharge, Storage, and Recovery

Background

Historically, the federal government, through USACE and Reclamation, has played a prominent role in constructing infrastructure related to surface water resource management (e.g., storage, control, or delivery). At the same time, the federal government has played a comparatively smaller role in creating infrastructure to develop groundwater storage, which is commonly conducted as aquifer storage, recovery, and/or recharge.[14] The reasons for the differing levels of federal involvement are complex, tied to the long and complicated history of common law water rights, state water law, legal adjudication, federal deference to states on water supply issues, and a historically cruder understanding of how groundwater occurs and moves underground compared to surface water.

Both public and congressional focus on groundwater storage has sharpened in recent years, particularly in reaction to recent major drought events. Congressional interest has increased in the potential for the federal government to assist with state, local, and private groundwater management efforts, including efforts to use surface water to recharge and/or store water in aquifers and to recover (i.e., pump to the surface) the stored groundwater when needed. Some see aquifer recharge, storage, and recovery as potentially complementary to existing surface water storage; some also see these projects as possible alternatives to building new surface water reservoirs that may prove less costly and/or pose fewer environmental issues.[15]

Federal law authorizes Reclamation to provide water for irrigation and USACE to store water for various purposes. These authorities provide some opportunities for the federal government to promote aquifer recharge, storage, and recovery (see below section, “Federal Authority Related to Groundwater Recharge, Storage, and Recovery”). Currently, there are no general federal restrictions on the nonfederal use of water delivered by Reclamation or stored by USACE for aquifer recharge, storage, and recovery purposes; however, some state restrictions and federal environmental protection laws may affect the use of these waters for groundwater recharge.[16]

[14] For more background on this concept, see the below section, “Federal Authority Related to Groundwater Recharge, Storage, and Recovery.”

[15] An example of a major aquifer storage project currently operating within a larger water storage framework is the Kern Water Bank, a water storage bank that operates on about 20,000 acres southwest of Bakersfield, California. As of 2018, the bank could store about 1.5 million acre-feet of readily available water underground, with the ability to recover approximately 240,000 acre-feet within a 10-month period. Since its construction in 1996, the bank has formed an important component of California’s water storage network. For more information, see http://www.kwb.org/index.cfm/fuseaction/Pages.Page/id/330.

[16] For example, injection wells used for aquifer recharge or aquifer storage and recovery require a permit under the federal Safe Drinking Water Act (42 U.S.C. §300h). For further information, see https://www.epa.gov/uic/aquifer-

Although Congress has authorized aquifer storage, recharge, and/or recovery for some individual projects, general congressional guidance in this area has been limited. Under the Water Infrastructure Improvements for the Nation Act (WIIN Act; P.L. 114-322), Congress provided general authority for Reclamation to support new and enhanced federal and state surface and groundwater storage projects under certain, limited circumstances.[17] Reclamation, USDA, and EPA also provide some forms of financial assistance that could support aquifer recharge, storage, and recovery.

Groundwater Rights

Background

Groundwater and Surface Water Interaction

One reason often cited for the evolution of different legal frameworks for groundwater and surface water in most states is the relative lack of understanding of groundwater occurrence and movement in the 19th and early 20th centuries, when states and courts first established laws and rules allocating groundwater. Surface water was more readily understood, being in plain view, but groundwater was considered different and mysterious, being largely unobservable except at the bottom of a well. One commentator noted that the development of groundwater common law in England and the United States in the 19th century was "steeped in ignorance,"[18] as groundwater hydrology and hydraulics were virtually unknown compared to surface water. Citing a legal case from 1861 referring to groundwater, the commentator said,

> the existence, origin, movement and course of such waters, and the causes which govern and direct their movements, are so secret, occult and concealed, that an attempt to administer any set of legal rules in respect to them would be involved in hopeless uncertainty, and would be, therefore, practically impossible.[19]

Groundwater science has made significant strides in the interim, particularly in establishing the interconnected nature of surface water and groundwater in many instances, especially for shallow aquifers. Some observers argue that groundwater law has not kept pace in some cases, in part because of the courts' reluctance to unsettle a system of common law established under the principle of property rights; observers note that a disruption of this system could result in legal chaos.[20]

The complicated nature of groundwater laws and practices is noteworthy because any new executive branch action or federal legislation authorizing action that affects groundwater resources may perturb long-established state and local groundwater management regimes. The practice of managing groundwater and surface water together, termed *conjunctive management*, better reflects the intertwined nature of groundwater and surface water in many situations and is

recharge-and-aquifer-storage-and-recovery.

[17] For more information, see below section, "Reclamation Authority to Provide Financial Support for Groundwater Storage."

[18] Joseph W. Dellapenna, "A Primer on Groundwater Law," *Idaho Law Review*, vol. 49, no. 265 (2013), p. 267. Hereinafter Dellapenna, 2013.

[19] Dellapenna, 2013, citing Frazier v. Brown, 12 Ohio St. 294, 311 (1861).

[20] Dellapenna, 2013, p. 268.

generally recognized as an effective management approach, especially for shallow aquifers. Yet, groundwater law sometimes does not reflect or address that surface-groundwater interconnection.

Federal Reserved Water Rights

Federal reserved water rights doctrine is an important concept in groundwater law. This doctrine holds that when the federal government reserves lands for a particular purpose (such as for a tribal reservation or national monument), the government impliedly reserves a right to water necessary to accomplish the primary purpose for which the reservation was created.[21] Since 1908, when the Supreme Court established the doctrine in *Winters v. United States*, courts have applied this doctrine to surface waters.[22] A March 2017 decision of the U.S. Court of Appeals for the Ninth Circuit (Ninth Circuit) held, for the first time, that the doctrine can encompass groundwater as well.[23]

Congress has recently been involved in Indian water rights settlements, chiefly regarding tribal rights to surface water supplies and the appropriation of funds for enacted settlement agreements. The importance of groundwater to tribal water supplies is increasingly being discussed, and tribal rights to groundwater are the subject of ongoing litigation.[24]

Groundwater Monitoring

Background

Although the states have assumed primary responsibility for groundwater management, several federal agencies monitor, forecast, and assess groundwater conditions in the United States.[25] One agency, USGS, within the Department of the Interior (DOI), is a science agency with no regulatory or management responsibilities for water resources. For decades, USGS has monitored and reported groundwater conditions across the country; developed groundwater models and software tools for characterizing aquifers; and provided long- and short-term forecasts of changing groundwater conditions as part of local and regional groundwater studies.[26] The information is used to support federal, state, and local decisionmakers, and the research is often conducted in collaboration with federal, state, and local partners. For example, USGS makes data from its distributed water database available to stakeholders. The database is a locally managed network of stations that monitor surface-water flow, groundwater levels, and water quality across

[21] See, for example, the U.S. Department of Justice, "Federal Reserved Water Rights and State Law Claims," at https://www.justice.gov/enrd/federal-reserved-water-rights-and-state-law-claims. The nature of the water right for a specific federal reservation depends on various aspects of the reservation, such as its purpose and the mechanism for the reservation; the discussion herein is intended to introduce the topic of groundwater rights related to federal reservations generally and is not intended to clarify how the specific rights related to a reservation are determined. For example, in some cases, Congress has expressly not reserved water rights.

[22] Winters v. United States, 207 U.S. 564, 575-77 (1908).

[23] Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water District, No. 15-55896 (9th Cir. 2017).

[24] See, for example, CRS Insight IN10857, *Federal Reserved Water Rights and Groundwater: Quantity, Quality, and Pore Space*, by Peter Folger.

[25] For more information on the roles of the agencies, see the below section, "Federal Activities and Authorities."

[26] USGS, "USGS Groundwater Information: USGS Groundwater Science for a Changing World," at https://water.usgs.gov/ogw/about/.

the nation. The database includes long- and short-term records from more than 850,000 groundwater measurement sites.[27]

Other agencies, such as NASA and NOAA, make observations and collect data that also are relevant to groundwater monitoring and assessment. Earth-observing satellites that detect changes in gravity, for example, can help link those changes to losses or gains in the volume of groundwater due to pumping or recharge. NOAA's estimation of drought severity throughout the country, as expressed in the U.S. Drought Monitor,[28] includes the estimation of the effects of drought on groundwater supplies. Also, USDA collects irrigation data, including information on wells, characteristics of aquifers used for irrigation supply, and quantities of water applied from wells.[29]

Primer on Groundwater

Groundwater science has advanced markedly in the last century; this primer presents an introduction to fundamental concepts relevant to groundwater use, management, and recharge.

Groundwater is found in aquifers. An aquifer is composed of (1) solid materials, such as rocks and mineral grains; (2) interconnected spaces or openings (*pore space*); and (3) groundwater, which completely fills the pore space (**Figure 2**). Strictly speaking, an aquifer is sufficiently permeable (i.e., groundwater can move readily through the interconnected pores) to transmit economic quantities of water to wells or springs.[30] In other words, if a farmer drills a well into a water-bearing layer of rock or sediments (sometimes called a *formation*) and can pump sufficient quantities of groundwater to irrigate crops, water livestock, or use for drinking water and washing, then that formation can be considered an aquifer. If the same farmer drilled a well but could not pump enough water to satisfy any needs, then the formation would not be considered an aquifer.

Types of Aquifers

There are two principal types of aquifers: unconfined and confined. An *unconfined aquifer* is one in which the water table moves up and down freely without an overlying confining layer (see **Figure 2**).[31]

[27] See, for example, USGS, "USGS Groundwater Watch," at https://groundwaterwatch.usgs.gov/.

[28] See United States Drought Monitor at http://droughtmonitor.unl.edu/.

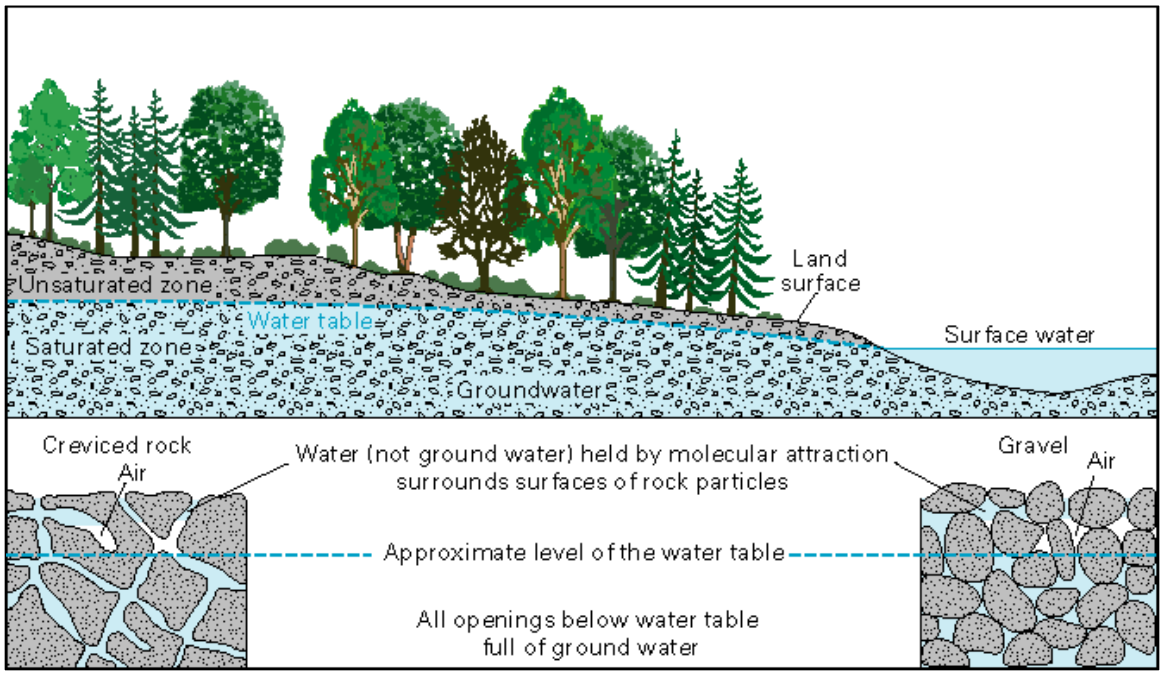
[29] The U.S. Environmental Protection Agency (EPA) plays a significant role in matters related to groundwater quality. Such EPA authorities and activities are beyond the scope of this report.

[30] C. W. Fetter, "Glossary," in *Applied Hydrogeology*, 2nd ed. (Columbus, OH: Merrill Publishing Company, 1988), p. 565.

[31] A *confining layer* is a bed or strata composed of relatively impermeable materials, such as clay, so that groundwater flow through the layer is impeded or significantly restricted. The ability of a bed or strata to conduct groundwater flow is referred to as *hydraulic conductivity*. A confining layer would have a low hydraulic conductivity compared to an aquifer.

Figure 2. Unconfined, or Water Table, Aquifer

(illustrating two types of pore space)

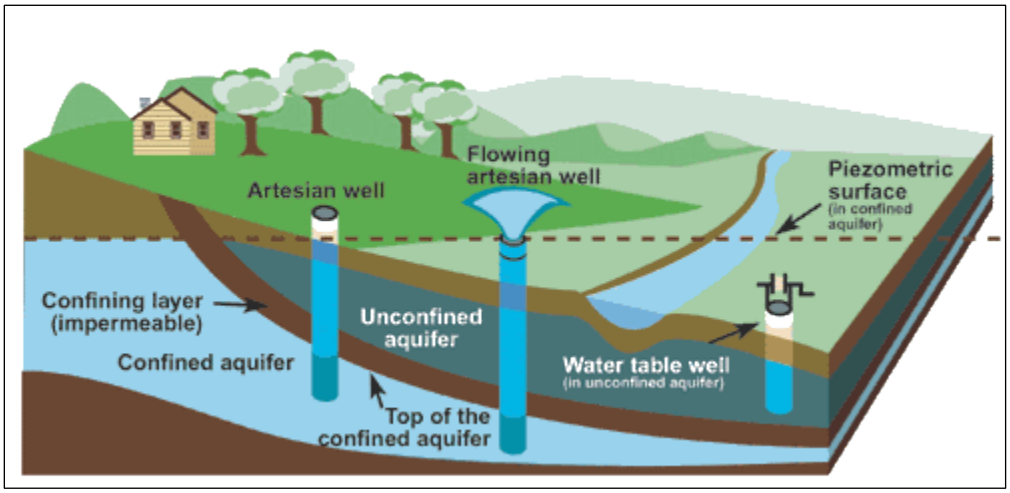


Source: USGS, USGS Water Science School, "Aquifers and Groundwater," at https://water.usgs.gov/edu/earthgwaquifer.html. (Modified by CRS.)

Notes: Above the water table, the pores may contain water but are not completely full. Only the saturated zone below the water table is considered the aquifer.

A *confined aquifer*, in contrast, is an aquifer overlain (and sometimes underlain) by an impermeable or confining layer that the water does not freely move above. The confining beds cause the aquifer to be under pressure. As a result, when a well penetrates a confined aquifer, the water will rise above the top of the aquifer, sometimes all the way to the land surface (the latter case is referred to as an *artesian aquifer*), as shown in **Figure 3**.

Figure 3. Different Types of Aquifers and Wells



Source: Government of Canada, Environment and Natural Resources, "Water Sources: Groundwater," at https://www.canada.ca/en/environment-climate-change/services/water-overview/sources/groundwater.html.

Notes: The piezometric surface in the figure refers to an imaginary line that corresponds to where the water level in the confined aquifer would rise if not for the impermeable confining layer. It also corresponds to the water level in the artesian wells shown in the figure.

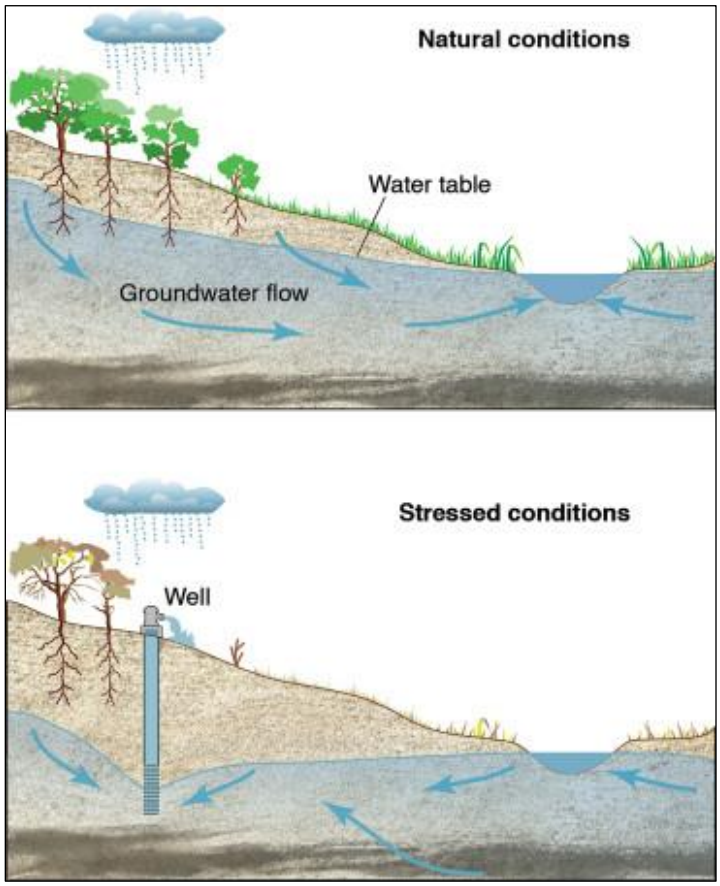
The distinction between unconfined and confined aquifers is important for this discussion, as the technique of groundwater recharge, storage, and recovery differs depending on what kind of aquifer is involved. Because a confining layer or layers separates a confined aquifer from surface water bodies, the degree of connection between surface water and groundwater is not as direct or distinct as it is for unconfined aquifers.[32] Groundwater recharge can occur naturally in confined and unconfined aquifers as water moves downward from the land surface into the aquifer from rain and melting snow, lakes, river, and streams. For unconfined aquifers, other sources of recharge water can include built impoundments, such as reservoirs; unlined irrigation ditches and canals; and applied irrigation water not consumed by crops. In a system of managed *artificial recharge*, water can be added deliberately to a confined or unconfined aquifer by using an injection well; by spreading water across the land surface, where it can trickle down into an unconfined aquifer; or by building an impoundment to temporarily store water and allow it to leak through the bottom down to an unconfined aquifer.

The distinction between an unconfined and a confined aquifer also is important for understanding the connection between surface water and groundwater. In **Figure 3**, the confined aquifer is separated from the river by a confining layer, so that changes in river flow will not directly affect groundwater in the confined aquifer and flow from the artesian wells will not directly affect flow in the river. In **Figure 4**, by contrast, the unconfined aquifer is connected directly to the stream. Under natural conditions, the groundwater will flow toward and feed the stream (top panel) because the slope of the water table is toward the top of the stream level. However, sometimes when aquifers are subject to excessive pumping—during drought conditions, for example, or because of a lack of surface water availability—they are said to be under stress. Under stressed conditions (bottom panel of **Figure 4**), pumping from a well will cause the water table to slope

[32] Decades of groundwater development involving hundreds or thousands of wells in some agricultural regions of the United States, such as California's Central Valley, sometimes have led to interconnections between the unconfined and confined aquifers. Wells penetrating the confining layer above the confined aquifers can serve as conduits for groundwater to flow up or down. See, for example, Claudia C. Faunt et al., *Groundwater Availability of the Central Valley Aquifer, California*, USGS, Professional Paper 1766, 2009, pp. 85-86.

away from the top of the stream. In that case, the water in the stream will leak through the stream bottom and flow into the aquifer, toward the pumping well.

Figure 4. Unconfined Aquifer Without Pumping (top) and With Pumping (bottom)

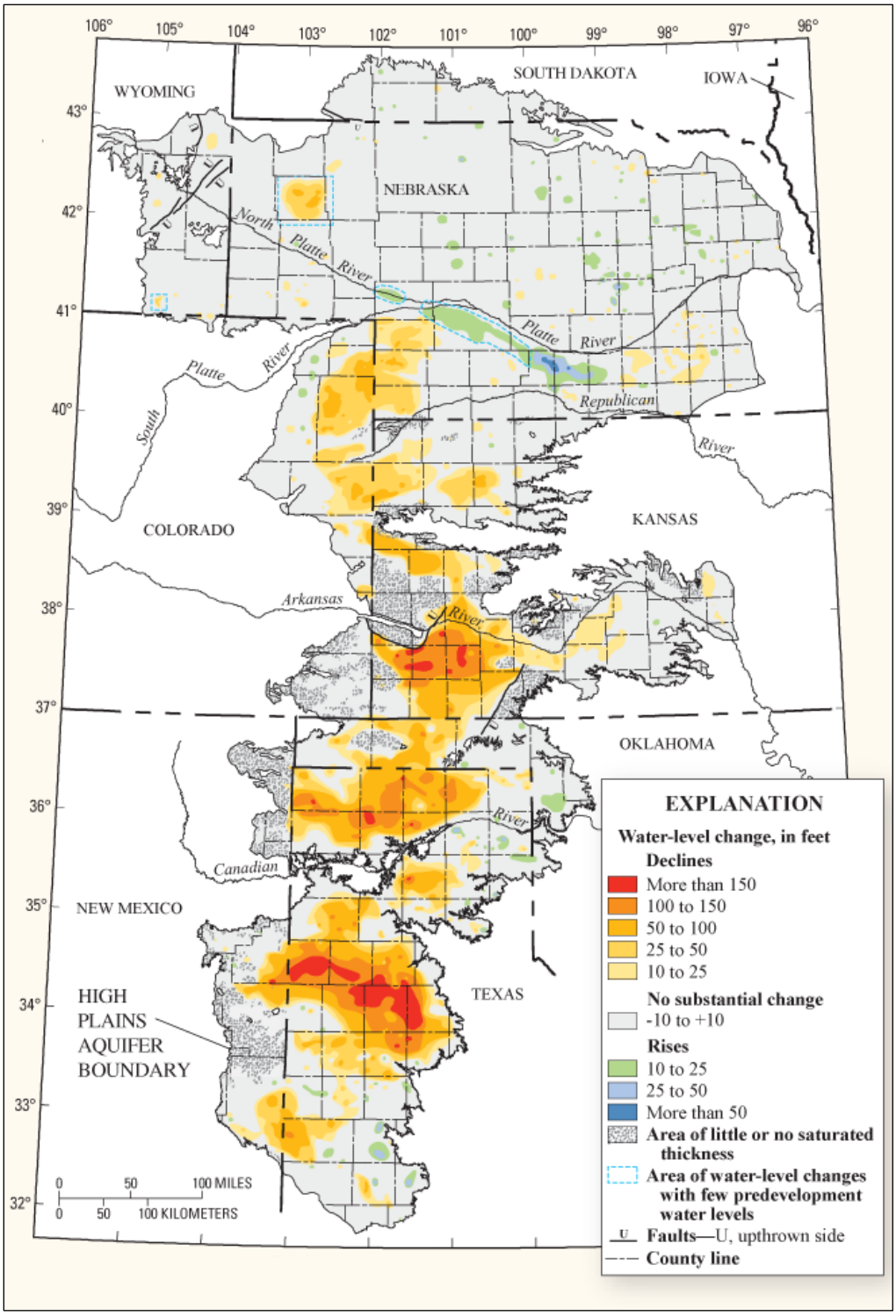


Source: Steven M. Gorelick and Chunmiao Zheng, "Global Change and the Groundwater Management Challenge," Water Resources Research, vol. 51, March 28, 2015 (with permission).

Notes: Under natural conditions in this particular case, groundwater flows toward the stream (arrows indicate direction of groundwater flow) and the water table is high enough to be accessible to trees and plants. During pumping, when the aquifer is stressed, water flows from the stream into the aquifer and toward the well. Also, the water table under stressed conditions drops below the roots of trees and plants depicted in the figure, affecting their growth.

Consistently stressed conditions can have dramatic long-term effects on groundwater. If pumping continues in excess of recharge, increasing stress on the aquifer, the water table may drop tens to hundreds of feet (**Figure 5**). This situation has occurred in many regions of the United States, including the Ogallala aquifer (also called the High Plains aquifer) underlying several Midwest and Great Plains states and in California's Central Valley. In the Central Valley, historical levels of pumping caused the water table to drop so far in some areas that it caused the land surface to drop, or subside, nearly 30 feet (**Figure 6**). Excessive land subsidence can harm surface structures, such as canals and levees.

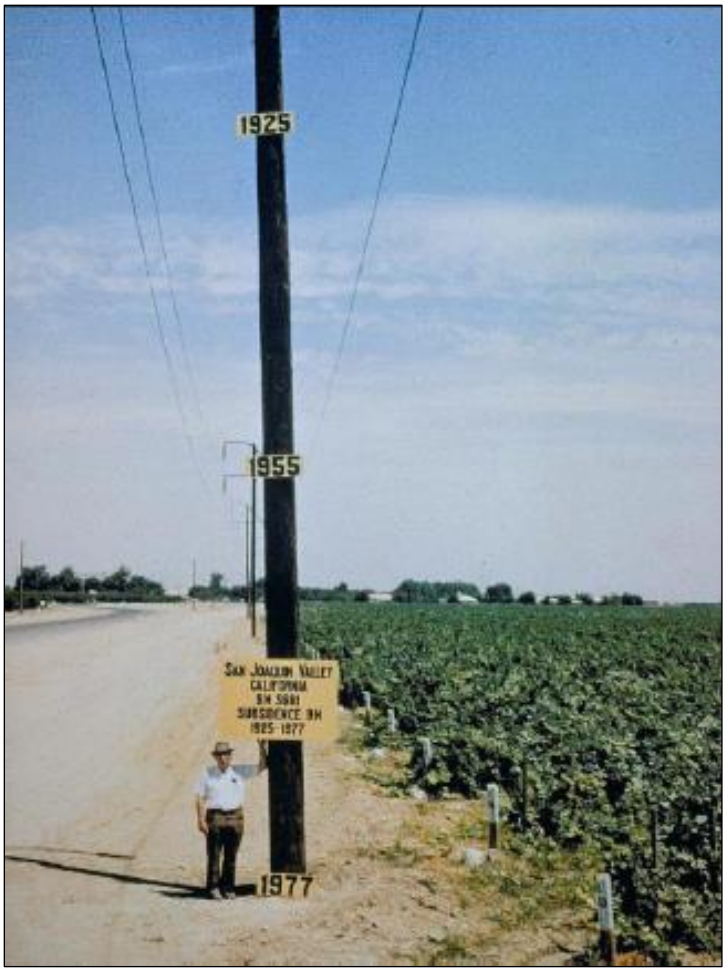
Figure 5. Water Level Changes in the High Plains Aquifer, Predevelopment to 2007



Source: V. L. McGuire, "Changes in Water Levels and Storage in the High Plains Aquifer, Predevelopment to 2007," USGS, Fact Sheet 2009-3005, February 2009. (Modified by CRS.)

Note: *Predevelopment* refers to approximately 1950.

Figure 6. Land Subsidence in the San Joaquin Valley Southwest of Mendota Between 1925 and 1977



Source: Devin Galloway et al., "Land Subsidence in the United States," USGS Circular 1182, 1999, p. 23, at http://pubs.usgs.gov/circ/circ1182/pdf/06SanJoaquinValley.pdf.

Note: Approximate location of the maximum land subsidence in the United States, showing the approximate relative position of the land surface in 1925, 1955, and 1977.

Federal Activities and Authorities

The federal government directly and indirectly influences how groundwater is managed in the United States. Several federal agencies monitor groundwater directly or with partners—through measurements at wells and springs—and remotely, using satellites or other remote sensing devices to provide information on groundwater flow, storage, depletion, and other characteristics that help inform state and local groundwater management. These agencies include the USGS, NASA, the National Oceanic and Atmospheric Administration, and USDA. Congress has provided other federal agencies with the authority to make water delivered from or water stored at federal water resource projects available for groundwater recharge, storage, and recovery. These include the two principal federal water resources agencies: USACE (which operates nationwide) and Reclamation (which operates in the 17 coterminous states west of the Mississippi River). Reclamation, USDA, and EPA also provide some forms of financial assistance that could support groundwater storage, recharge, and recovery.

Additionally, when the federal government reserves lands for a particular purpose (such as for a tribal reservation or national monument), it impliedly reserves a right to water necessary to accomplish the purposes for which the reservation was created. That federal reserved water rights doctrine has long been recognized for surface water; more recently, it is also being considered for groundwater. (See discussion under "Groundwater Rights.")

Groundwater Monitoring and Assessment

Several federal agencies that have no regulatory role in managing groundwater are authorized to collect data, make observations and assessments, and provide information on groundwater supplies that supports decisionmakers at the state and local levels. USGS likely provides the most direct groundwater information and support for groundwater management among the federal agencies, although NASA and NOAA also make pertinent observations and distribute groundwater-relevant information. USDA also collects groundwater data related to irrigation. Selected activities within those four agencies are briefly summarized below.

U.S. Geological Survey

The Groundwater and Streamflow Information Program, within the USGS water resources mission area, funds activities that provide information directly relevant to groundwater management. About 10% ($7.5 million in FY2019) of the approximately $74 million program is directed at groundwater-related activities, including the National Groundwater Monitoring Network (NGWMN).[33] The NGWMN is a compilation of selected groundwater monitoring wells from federal, state, and local monitoring networks across the country. Data from the network are accessible through a portal that contains current and historical data.[34] USGS administers the program through cooperative agreements with state and local water resource agencies; in FY2020, Congress provided $3.9 million to USGS to fund the network, the same as the enacted amounts for the previous four years.[35]

USGS also maintains a distributed groundwater database, the USGS Groundwater Watch. It is locally managed and contains data from more than 850,000 wells compiled over the past 100 years. The long-term and distributed nature of the data is valuable to groundwater managers seeking information about regional groundwater trends over time. **Figure 7** shows an example of one of the products updated daily from groundwater well information within the database.

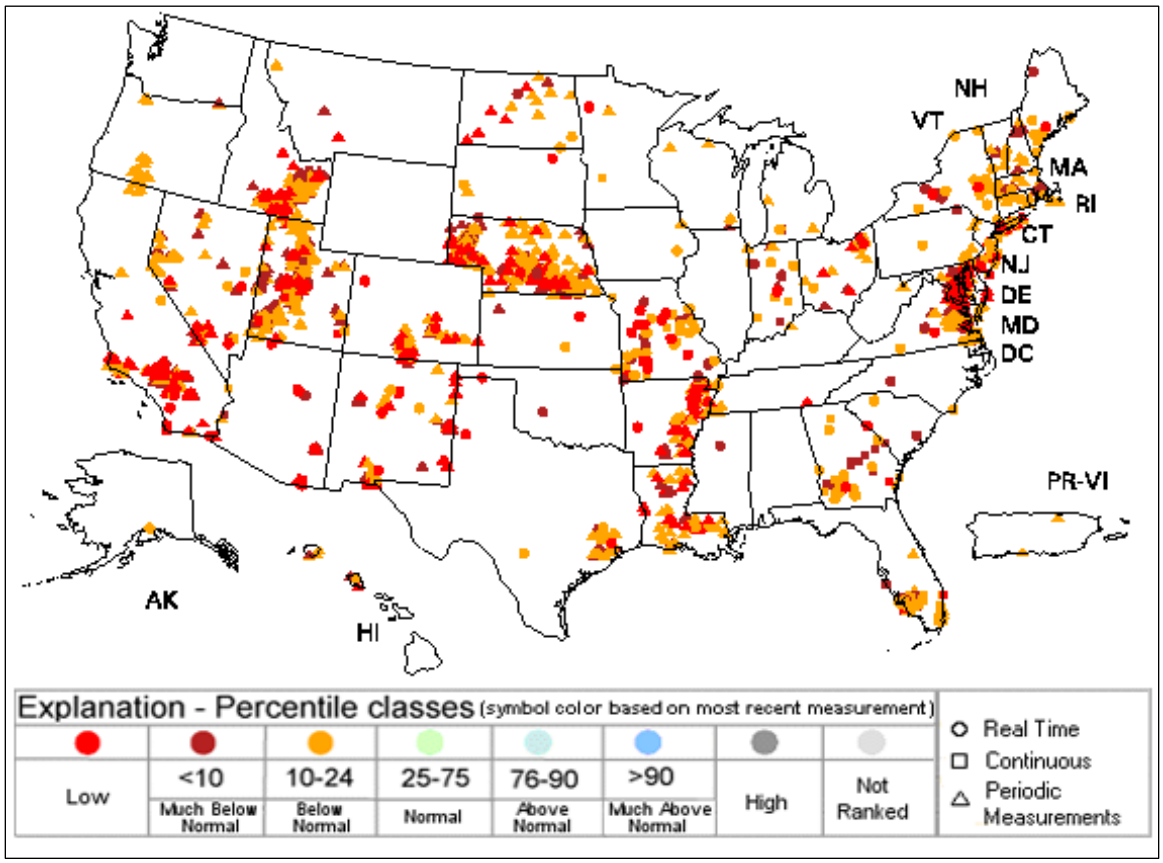
[33] Email from Jeffrey Onizuk, USGS Congressional Affairs, March 19, 2020.

[34] Advisory Committee on Water Information, "National Ground-Water Monitoring Network," at https://cida.usgs.gov/ngwmn/index.jsp.

[35] Email from Jeffrey Onizuk, USGS Congressional Affairs, March 19, 2020.

Figure 7. Below-Normal Groundwater Levels for Actively Monitored Wells

(data from 3,855 wells)



Source: USGS, "Groundwater Watch," at https://groundwaterwatch.usgs.gov/net/ogwnetwork.asp?ncd=lwl. (Modified by CRS.)

Notes: Below-normal means that the wells shown in red or orange had groundwater levels at the 24th percentile or lower for the month the well was measured, compared to the entire period of record for the well. In other words, if the well has been measured for 50 years, it would be shown on this map if the water level was lower than 75% of the measurements taken over the past 50 years. Red dots indicate wells lower than the 10th percentile; orange shows wells at the 10th-24th percentile.

In addition to collecting and providing data, USGS conducts regional groundwater studies, such as assessing the groundwater availability in the Central Valley aquifer in California,[36] and national overviews, such as the *Ground Water Atlas of the United States*.[37] Several observers have suggested that although groundwater generally is locally managed in the United States, regional studies (such as those conducted by USGS) are important for documenting the status and trends of groundwater availability, as these trends affect local groundwater resources, particularly when changes in an aquifer occur beyond the local or state political boundaries.[38]

[36] C. C. Faunt et al., *Groundwater Availability of the Central Valley Aquifer, California*, USGS, USGS Professional Paper 1766, 2009, at https://pubs.usgs.gov/pp/1766/.

[37] James A. Miller et al., *Ground Water Atlas of the United States*, USGS, 2000, at https://water.usgs.gov/ogw/aquifer/atlas.html.

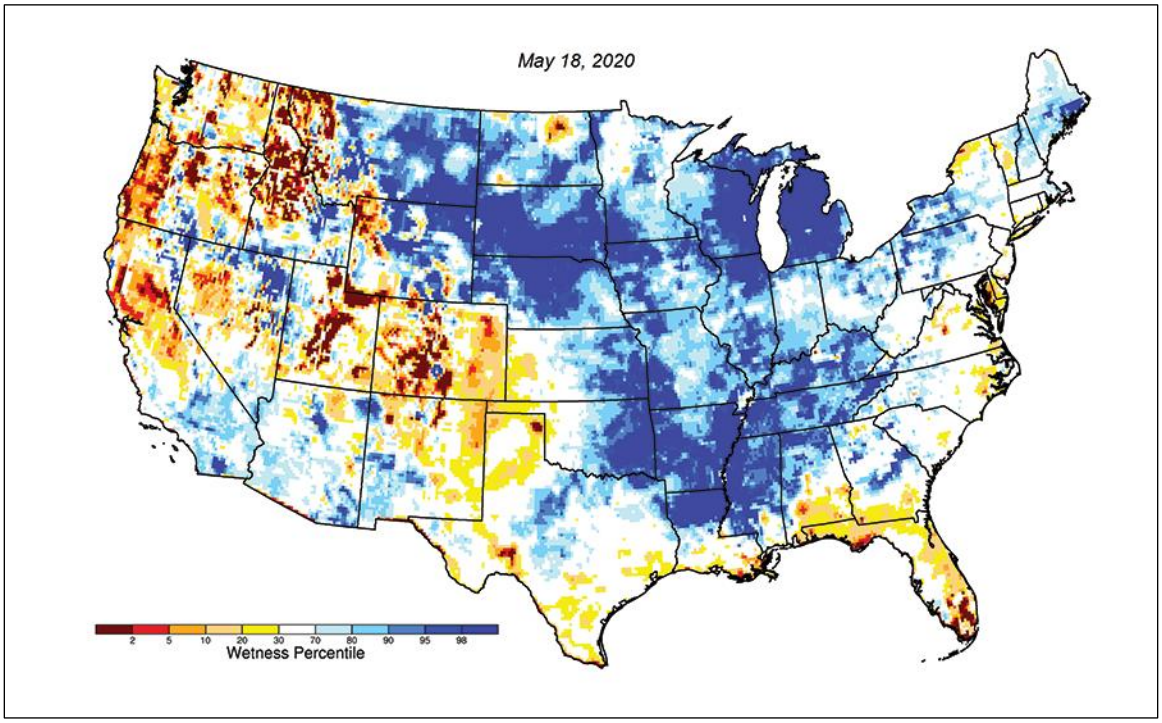
[38] See, for example, K. F. Dennehy, T. E. Reilly, and W. L. Cunningham, "Groundwater Availability in the United States: The Value of Quantitative Regional Assessments," *Hydrogeology Journal*, vol. 23, no. 8 (December 2015), pp.

NASA

Earth-observing satellites can provide information to assess changes in the amount of groundwater stored in large aquifers, variations in the amount of soil moisture, and tiny fluctuations in land elevation that reflect how the water table is moving up and down.

Using data from NASA's GRACE and SMAP satellites,[39] integrated with other observations, scientists can analyze shallow groundwater and soil moisture levels that reflect drought conditions across the United States (**Figure 8**).

Figure 8. Shallow Groundwater and Soil Moisture Comparison from NASA Satellite Data



Source: The National Drought Mitigation Center, "Groundwater and Soil Moisture Conditions from GRACE Data Assimilation," at http://nasagrace.unl.edu/Default.aspx. (Modified by CRS.)

Notes: Map shows wet or dry conditions relative to the probability of occurrence using the baseline period from 1948 to 2012, expressed as a percentile. The lower values in the warmer colors indicate drier-than-normal conditions (30th percentile or less), and the cooler colors indicate wetter-than-normal conditions (70th percentile or more). Areas in white express 31st-69th percentile, spanning the midpoint of 50th percentile (the 50th percentile indicates that half the values are higher and half are lower). The map is available for the contiguous United States from the data source and does not include Alaska and Hawaii.

Data from the GRACE satellite also have been interpreted to show changes in the amount of groundwater held in storage in large, regional aquifers, such as the Central Valley aquifer in California, the High Plains aquifer underlying several states in the Midwest and Great Plains, and

1629-1632; and Roland Barthel, "A Call for More Fundamental Science in Regional Hydrogeology," *Hydrogeology Journal*, vol. 22, no. 3 (May 2014), pp. 507-510.

[39] GRACE stands for Gravity Recovery and Climate Experiment satellite (see https://www.nasa.gov/mission_pages/Grace/index.html); SMAP stands for Soil Moisture Active Passive satellite (see https://smap.jpl.nasa.gov/).

other large aquifers around the world.[40] One study using GRACE data indicated that the volume of groundwater in the Central Valley aquifer pumped out over a 78-month period was equivalent to nearly the capacity of Lake Mead.[41]

Scientists can use a special type of radar data collected by satellites using a technique called synthetic aperture radar interferometry to detect minute changes in the land-surface elevation caused when the water table moves up and down. In one study, NASA scientists and others used the technique to track how the aquifer in the Santa Clara Valley, California, recovered following depletion during a drought when conservation measures were put in place to limit groundwater pumping.[42] In that study, a cluster of Italian satellites provided the radar data. NASA is planning a joint mission with the Indian Space Research Organisation in 2021 that would collect radar imagery of nearly every major aquifer in the world.[43]

NOAA

NOAA coordinates and integrates drought research and forecasting from federal, state, tribal, local, and academic sources through the National Integrated Drought Information System. NOAA uses data from these and other sources to create drought maps, seasonal outlooks, and other drought indicators, including effects of drought on groundwater.[44] A typical U.S. Drought Monitor map, for example, indicates which regions of the country are experiencing short- and long-term impacts from drought. Long-term-impacted regions mean that drought has affected the region's hydrology, including groundwater resources.

NOAA's constellation of both geostationary and polar-orbiting weather satellites provides real-time atmospheric weather data that can be used to better understand the hydrologic cycle in regions across the country. The satellite data contribute to short- and long-term forecasts of precipitation that, for example, can inform groundwater models and other tools about water available for groundwater recharge. NOAA data from satellites and ground-based observing systems also feed into longer-term climate forecasts and climate models, which can be used to help understand the potential effects of climate change on groundwater supplies.

USDA

The Census of Agriculture is required by law and authorizes the Secretary of Agriculture to conduct surveys deemed necessary to furnish annual or other data on the subjects covered by the census.[45] The census is a broad survey that includes questions about irrigation and water use, and is conducted every five years. A more detailed national assessment of irrigated agriculture in the

[40] See, for example, NASA, Jet Propulsion Laboratory, "GRACE Tellus: Groundwater," at https://grace.jpl.nasa.gov/applications/groundwater/.

[41] About 31 cubic kilometers, or 6.8 trillion gallons. See J. S. Famiglietti et al., (2011), *Satellites Measure Recent Rates of Groundwater Depletion in California's Central Valley*, Geophys. Res. Lett., 38, L03403, at doi:10.1029/2010GL046442.

[42] Estelle Chaussard et al., "Remote Sensing of Ground Deformation for Monitoring Groundwater Management Practices: Application to the Santa Clara Valley During the 2012-2015 California Drought," *Journal of Geophysical Research-Solid Earth*, vol. 122, no. 10 (September 21, 2017), pp. 8566-8582.

[43] See, for example, NASA, Jet Propulsion Laboratory, "Satellites See Silicon Valley's Quick Drought Recovery," October 3, 2017, at https://www.jpl.nasa.gov/news/news.php?feature=6962.

[44] See National Integrated Drought Information System (NIDIS), "What Is NIDIS?," at https://www.drought.gov/drought/what-nidis.

[45] 7 U.S.C. 2204g et seq.

United States is the Irrigation and Water Management Survey (formally the Farm and Ranch Irrigation Survey), also conducted every five years, and usually two or three years after the general census and under the same authority.[46] The most recent Irrigation and Water Management Survey (2018), conducted by the National Agricultural Statistics Service in USDA, supplemented the basic irrigation data collected from all farm and ranch operators in the 2017 census.[47]

Federal Authority Related to Groundwater Recharge, Storage, and Recovery

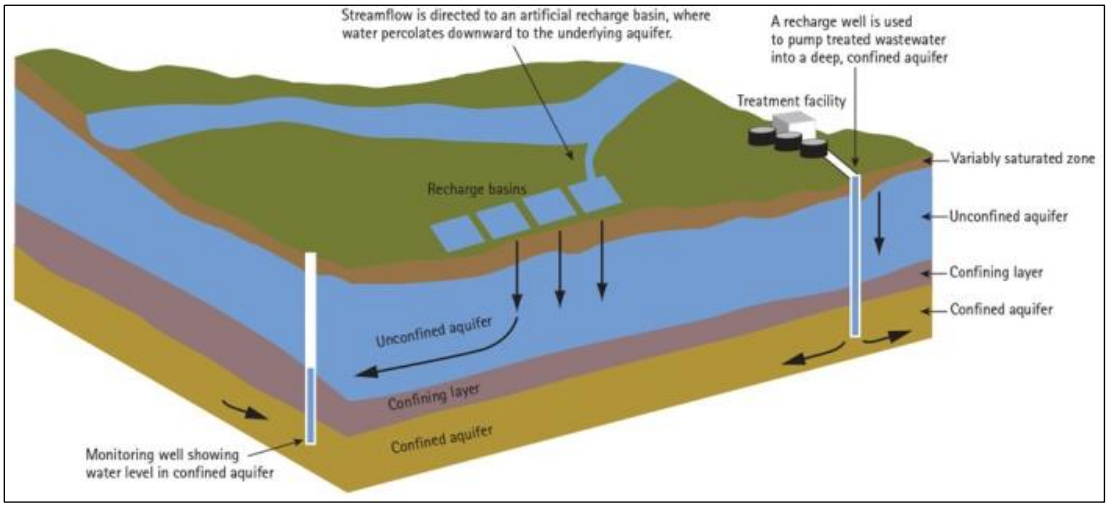
Recharging groundwater artificially with surface water is not a new concept, but interest in the practice is growing at the local, state, and federal levels for several reasons. When surface water supplies are curtailed because of drought, diversion for other uses, regulatory constraints, or other reasons, groundwater is often used to meet the demand. In addition, if demand for water supplies increases and additional surface water is not available, consumers may turn to groundwater. Along the coastline, groundwater extraction and the lowering of the water table sometimes have resulted in saltwater intrusion into the aquifer. Groundwater recharge may be used in those cases to replenish the aquifer and create a freshwater barrier to prevent seawater encroachment. Groundwater recharge, storage, and recovery also may be part of a conjunctive water management strategy in which both surface and groundwater are used, recharging groundwater in times of surface water surplus and extracting groundwater when surface water is in short supply.

Typically, groundwater recharge, storage, and recovery involves either injecting water into the aquifer through a well or allowing water to recharge from an impoundment (e.g., a pond) or a spreading basin (water is spread on the ground to percolate down to the aquifer). The water is stored in the aquifer until it is recovered by a pumping well for freshwater supply. **Figure 9** illustrates the process.

[46] For more information on the most recent Irrigation and Water Management Survey, see U.S. Department of Agriculture, Census of Agriculture, "2018 Irrigation and Water Management Survey," at https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Farm_and_Ranch_Irrigation_Survey/index.php.

[47] The USDA Irrigation and Water Management Survey differs from the USGS water use estimates report in methodologies and reporting schedules and should not be compared directly. See footnote 6.

Figure 9. Groundwater Recharge, Storage, and Recovery



Source: National Groundwater Association (NGWA), "Managed Aquifer Recharge: A Water Supply Management Tool," NGWA Information Brief, 2014 (with permission). (Modified by CRS.)

Notes: The figure shows how the aquifer is recharged using a recharge well (on the right) and from recharge basins (middle of the figure). The recharge well is recharging a confined aquifer, and the recharge basins are recharging an unconfined aquifer.

According to several sources, more than 1,000 aquifer recharge wells and aquifer storage and recovery wells, along with many recharge basins, have been constructed across the nation.[48] In addition to technical, economic, and regulatory issues, identifying and providing a source of water for these activities is critical. Increasingly, federal water resource projects, such as those managed by Reclamation and USACE, are being considered as potential sources of recharge water. Reclamation, USDA, and EPA are also potential sources of financial assistance for supporting aquifer recharge, storage, and recovery projects. This section identifies various federal authorities for groundwater storage, recharge, and recovery.

Bureau of Reclamation

Reclamation, a federal agency of the Department of the Interior, owns and operates hundreds of dams and water diversion structures projects in the 17 coterminous U.S. states west of the Mississippi River. Reclamation was created by Congress in the Reclamation Act of 1902,[49] which authorized the Secretary of the Interior to construct irrigation works in western states. In addition to water supply, Reclamation facilities also provide flood control, recreation, and fish and wildlife benefits.[50] Reclamation cites several authorities for groundwater activities, including the authority to deliver project and excess water for aquifer storage and recharge and the authority to provide financial support for these activities. These authorities are discussed below.

[48] See, for example, U.S. Environmental Protection Agency, Underground Injection Control, "Aquifer Recharge and Aquifer Storage and Recovery," at https://www.epa.gov/uic/aquifer-recharge-and-aquifer-storage-and-recovery#inventory; and National Groundwater Association, "Aquifer Storage and Recovery: Need for Critical Analysis of the Technical, Economic, and Regulatory Issues," at http://www.ngwa.org/Media-Center/issues/Pages/Aquifer-storage-and-recovery.aspx.

[49] Act of June 17, 1902 (ch. 1093, 32 Stat. 388).

[50] For a brief synopsis of Reclamation project authorization and financing, see CRS In Focus IF10806, *Bureau of Reclamation Project Authorization and Financing*, by Charles V. Stern.

Reclamation Authority to Deliver Project or Excess Water for Groundwater Use

Overall, Reclamation reports no federal restrictions on its authority to deliver project or excess water to contractors for groundwater recharge, and contractors using these waters for groundwater recharge are not required to seek any special approvals beyond what is normally required by Reclamation. However, DOI officials also have acknowledged that Reclamation's existing authorities for groundwater use are general in nature, and increased specificity of these authorities may be useful.[51] For example, some aquifers underlie both project and non-project areas, with non-project areas being the preferable delivery location for groundwater uses due to one or more factors (e.g., land use, geology). However, under Reclamation's existing authorities, the delivery of "project waters" (i.e., waters for which Reclamation holds water rights) for groundwater uses may be limited to lands within a Reclamation project's authorized boundaries. As a result, some have urged Congress to clarify Reclamation authorities to deliver project water for groundwater recharge outside of project boundaries.[52] Reclamation also reports that some state restrictions affect the use of these waters for groundwater activities. In general, Reclamation does not track the use of project or excess water for groundwater recharge, although these uses appear to be occurring in at least a few places. The following authorities have been or may be used by Reclamation for groundwater storage:

- Section 9 of the Reclamation Project Act of 1939 (43 U.S.C. §485) is the general authority by which Reclamation is authorized to enter into contracts to furnish water for irrigation, municipal, and miscellaneous water supply purposes. Reclamation interprets the purposes of deliveries under this section to include groundwater recharge.
- Section 1 of the Warren Act of February 21, 1911 (43 U.S.C. §523), authorizes Reclamation to enter into contracts for the conveyance and storage of non-project water through the federal reclamation project, when the water is to be used for irrigation purposes and excess capacity exists. This authority has in some cases been used for groundwater recharge.[53]
- Section 215 of the Reclamation Reform Act of 1982 (P.L. 97-293) is the authority Reclamation uses to enter into temporary water service contracts for un-storable or excess flood flows. Reclamation indicates that it has no restrictions on using these waters for groundwater recharge.
- Section 101(d) of the Reclamation States Emergency Drought Relief Act of 1991 (P.L. 102-250) authorizes Reclamation to participate in state-established *water banks* to respond to drought.[54]

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[51] Statement of Timothy Petty, Assistant Secretary for Water and Science, U.S. Department of the Interior, before the U.S. Congress, Senate Committee on Energy and Natural Resources, *Full Committee Hearing to Examine the 2018 Western Water Supply Outlook and Bills Related to Water Infrastructure and Drought Resiliency*, 115th Cong., 2nd sess., March 22, 2018.

[52] See, for example, U.S. Congress, Senate Committee on Energy and Natural Resources, *Aquifer Recharge Flexibility Act*, Report to Accompany S. 1570, 116th Cong., 1st sess., October 29, 2019, S.Rept. 116-155 (Washington: GPO, 2019). Hereinafter, "S. Rept. 116-155."

[53] In its report accompanying S. 1570, the *Aquifer Recharge Flexibility Act*, the Senate Committee on Energy and Natural Resources noted that the ability to enter into a Warren Act contract for groundwater recharge has been "unevenly" applied by Reclamation. See S.Rept. 116-155.

[54] *Water banking* generally means the temporary storage of water in an aquifer for later extraction and use. See U.S. Bureau of Reclamation, *Groundwater Banking Guidelines for Central Valley Project Water* (under P.L. 102-575 §3408(d)), November 12, 2014, at https://www.usbr.gov/mp/waterbanking/docs/water-banking-guidelines.pdf.

- Section 3408((c), (d), and (e)) of the Central Valley Project (CVP) Improvement Act of 1992 (P.L. 102-575) authorize the *banking* of CVP water, consistent with and subject to state law.

Reclamation Authority to Provide Financial Support for Groundwater Storage

- Title IX, Subtitle F (Secure Water), Section 9504 (Water Management Improvement) of the Omnibus Public Land Management Act of 2009 (P.L. 111-11) authorizes Reclamation to provide financial assistance through the WaterSMART program for groundwater projects.[55]
- Title III, Section 4007(c) of the Water Infrastructure Improvements for the Nation Act (WIIN Act; P.L. 114-322) authorizes Reclamation to participate in state-led storage projects, which are defined to include groundwater storage facilities, among other facility types.
- Title III, Section 4009(a) of the WIIN Act amended the Water Desalination Act of 1996 (P.L. 104-298) to authorize Reclamation to provide financial support for projects that involve the desalination of brackish groundwater.
- Reclamation's Title XVI program (Title XVI of P.L. 102-575) provides Reclamation with the authority to implement water recycling and reuse projects, which may include projects that recycle and reuse impaired groundwater.

U.S. Army Corps of Engineers

USACE, an agency within the Department of Defense, has both military and civil works responsibilities. Congress directs USACE's civil works activities through authorizations, appropriations, and oversight of the agency's study, construction, and ongoing operations of water resource projects. Its civil works responsibilities are to support coastal and inland commercial navigation, reduce riverine flood and coastal storm damage, and protect and restore aquatic ecosystems in U.S. states and territories. In undertaking projects for these purposes, USACE also may pursue additional project benefits related to water supply, hydropower, recreation, fish and wildlife enhancement, and other purposes. That is, USACE projects typically have navigation, flood control, and/or aquatic ecosystem restoration as a primary purpose; other purposes and benefits are generally secondary or incidental. Therefore, USACE projects may support groundwater recharge, but generally recharge is not the primary purpose or justification for the projects. Moreover, USACE activities generally are in support of, rather than a direct performance of, aquifer recharge; that is, how USACE operates its projects may affect how others perform groundwater recharge or may affect the water demand that is met by water stored at USACE reservoirs or by groundwater pumping.[56]

USACE water resource projects typically are for nonconsumptive water uses (e.g., dams that store water to reduce the peak flow of a river during flood conditions), with a few specifically authorized exceptions; thus, the federal government generally has not acquired water rights from states for USACE projects. To access project water for water supply purposes, including groundwater recharge activities, nonfederal entities are responsible for securing any water rights

[55] For more information on the WaterSMART program, see U.S. Bureau of Reclamation, "WaterSMART (Sustain and Manage America's Resources for Tomorrow)," at https://www.usbr.gov/watersmart/.

[56] The effect that USACE projects may have on altering hydrology in a basin, including natural recharge in the floodplain, is beyond the scope of this report.

pursuant to state law. USACE generally does not deliver water under contract, in contrast to Reclamation. Instead, USACE provides storage at its reservoirs as a nonconsumptive service. USACE has some, albeit constrained, flexibility and authorities to operate its projects to benefit groundwater recharge.[57] That is, for projects with purposes of *water conservation* or *water supply storage*, USACE may be able to operate them in ways that support recharge.[58]

Prior to the WIIN Act in 2016, USACE had no general authority to include storage space in USACE projects for seasonal operations (i.e., short-term retention of water for a few months if storage space is available based on seasonal hydrologic patterns) for water conservation that would benefit municipal and industrial (M&I) water supply.[59] Notwithstanding those projects with specific authorization for water conservation, USACE policy and procedures indicated that seasonal operations for water supply could be conducted insofar as they were consistent with authorized project purposes and law, and subject to hydrologic and hydraulic capability of the project. Nonfederal entities could use the water supply to enhance groundwater replenishment, to increase downstream flow, or to otherwise enhance the general usage of the project for M&I purposes. Also, USACE has two long-standing general authorities related to M&I water supply: a surplus water authority and a water supply authority for permanent reallocations of storage at a reservoir.[60]

Title I of the WIIN Act addressed seasonal operation for water conservation and groundwater recharge in three sections[61]

- **Section 1116**: In a state with a drought emergency between December 2015 and December 2016, the Secretary of the Army is authorized to evaluate and carry out water supply conservation measures, including releases for groundwater replenishment or aquifer storage and recovery.
- **Section 1117**: In a state with a drought emergency between December 2015 and December 2016, upon the request of the governor, the Secretary of the Army is authorized to prioritize the updating of the water control manuals for control structures in the state and incorporate into the manuals seasonal operations for water conservation and water supply for such control structures.
- **Section 1118**: At the request of a nonfederal interest, the Secretary of the Army may review proposals (except those involving a few excluded river basins) to

[57] CRS did not identify any federal restrictions on the use of water released from or water withdrawn from USACE reservoirs for groundwater recharge, as long as that use is consistent with state law (i.e., the entity capturing the water has a right to use the water pursuant to state law) and federal environmental protection laws (e.g., the Safe Drinking Water Act). USACE does not track whether water released from or water withdrawn from USACE reservoirs is used for recharge.

[58] Some USACE aquatic ecosystem restoration projects may have components that relate to groundwater (e.g., aquifers may provide minimum flows into certain streams during low-water conditions). Given this report's focus on the consumptive social uses of groundwater, USACE groundwater-related ecosystem restoration projects and authorities are not discussed further in this report.

[59] USACE Institute for Water Resources, *Comprehensive Water Supply Study*, September 2001, at http://www.iwr.usace.army.mil/Portals/70/docs/iwrreports/01-PS-1.pdf;USACE, *Planning Guidance Notebook*, ER 1105-2-100, April 22, 2000, at http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1105-2-100.pdf.

[60] For more on these authorities and how they are used, see CRS Report RL30478, *Federally Supported Water Supply and Wastewater Treatment Programs*, coordinated by Jonathan L. Ramseur.

[61] USACE has published implementation guidance for each of the WIIN Act provisions discussed below; they are available at http://www.usace.army.mil/Missions/Civil-Works/Project-Planning/Legislative-Links/wrda2016/wrda2016_impguide/.

> increase the quantity of available water supplies at a federal water resources development project by modifying the project, modifying how the project is managed, or accessing water released from the project. Among other things, proposals may include diversion of water released or withdrawn from the project to recharge groundwater or for aquifer storage and recovery.

As with other aspects of USACE reservoir operations, the storage or release of water to support nonfederal recharge activities pursuant to these authorities is to be consistent with the USACE project's congressionally authorized project purposes and subject to the project's capability.

In September 2019, EPA released a draft national action plan for water reuse that included the following recommended action on incorporating water reuse into USACE projects:

> Civil Works projects are developed, implemented, and operated with non-federal sponsors for flood risk management, commercial navigation, ecosystem restoration, recreation, and environmental stewardship. Clarification on how the civil works project development process can directly include water reuse considerations could enable better incorporation of such reuse features in projects authorized by Congress.[62]

In particular, interest has been growing regarding how to capture and use floodwaters to enhance groundwater recharge on agricultural lands and in urban areas. One method is to reestablish more natural floodways rather than confined channels transporting flood flows. Congress has authorized USACE to evaluate more nature-based approaches in legislation.[63] Among the challenges for reestablishing wider floodplains are real estate-related property rights and maintaining flood risk reduction in developed areas.[64]

USDA

USDA does not have a federal mandate to control groundwater use, recharge, storage, or recovery on private agricultural lands. The disproportionate percentage of groundwater usage by agriculture relative to other industries, however, has led USDA to take an active role in research, conservation, and education related to groundwater and its agriculturally connected uses.

Conservation of Groundwater

USDA provides agricultural producers with financial and technical assistance, as well as research to conserve on-farm water use. A number of USDA agencies provide support through education, outreach, and research in addition to providing direct federal assistance for adoption of on-farm irrigation best management practices. For more information on irrigation in the United States and related best management technologies, see CRS Report R44158, *Irrigation in U.S. Agriculture: On-Farm Technologies and Best Management Practices*.

Financial assistance for irrigation conservation practice adoption is primarily authorized through omnibus farm bills. Most recently, the 2018 Agriculture Improvement Act (2018 farm bill; P.L. 115-334) authorized a number of programs that provide cost-share assistance to private farm and

[62] U.S. Environmental Protection Agency, *National Water Reuse Action Plan Draft*, September 2019, p. 21, at https://www.epa.gov/sites/production/files/2019-09/documents/water-reuse-action-plan-draft-2019.pdf.

[63] For example, see Section 1184 of WIIN Act, as amended (33 U.S.C. §2289a), and Sections 1176 and 1183 of WIIN Act.

[64] Thomas Jacobson, "Too Much Water, Not Enough Water: Planning and Property Rights Considerations for Linking Flood Management and Groundwater Recharge," *Water International*, vol. 4, no. 5 (September 2019).

ranch land owners to adopt water conserving practices.[65] Technical assistance, which includes planning and design of on-farm water conservation measures, can be provided either in connection with financial assistance or through a separate irrigation water management plan.[66] The primary USDA agency administering both financial and technical assistance is the Natural Resources Conservation Service.

USDA also conducts research into groundwater-related areas, such as irrigation technologies, plant water use efficiency, hydrologic connectivity, and source water protection, to name a few. Primary research activities are conducted either through the Agricultural Research Service, USDA's intramural research agency, or the National Institute of Food and Agriculture, which administers extramural funding to support agriculture-related science and research, primarily at state universities.

U.S. Environmental Protection Agency[67]

To promote development of and private investment in water infrastructure projects, the 113th Congress authorized the Water Infrastructure Finance and Innovation Act (WIFIA) in the Water Resources Reform and Development Act of 2014 (P.L. 113-121, Title V; 33 U.S.C. §§3901-3914). WIFIA authorizes EPA and USACE to provide credit assistance—secured or direct loans—for a range of water infrastructure projects. EPA is implementing a WIFIA program.

Categories of projects eligible for assistance from EPA's WIFIA program include aquifer recharge or development of alternative water supplies to reduce aquifer depletion, among others. Activities eligible for WIFIA assistance include project development and planning, construction, acquisition of real property, and carrying costs during construction. WIFIA credit assistance is available to a number of entities, including private entities, some of which may be interested in aquifer recharge, storage, and recovery projects.[68]

Projects carried out by private entities are required to have a public sponsor to be eligible for WIFIA assistance. WIFIA requires private entities to demonstrate to EPA that the affected state, local, or tribal government supports the project. The maximum amount of a loan is 49% of eligible project costs, but the act authorizes EPA to make available up to 25% of available funds each year for credit assistance in excess of 49% of project costs. Except for certain projects, the total amount of federal assistance (i.e., WIFIA and other sources combined) may not exceed 80% of a project's cost.[69]

[65] For example, the Environmental Quality Incentives Program (EQIP) provides financial assistance to address natural resource concerns, including water conservation, under the general authorities established in §§1240-1240G of the Food Security Act of 1985 (P.L. 99-198), as amended (16 U.S.C. 3839aa et seq.).

[66] Most conservation technical assistance is provided by USDA under the general authorities of the Soil Conservation and Domestic Allotment Act (P.L. 74-46), as amended (16 U.S.C. §590a et seq.).

[67] This section was contributed by Elena H. Humphreys, Analyst in Environmental Policy.

[68] The eligible entities include state infrastructure financing authorities; a corporation; a partnership; a joint venture; a trust; or a federal, state, local, or tribal government, or consortium of tribal governments.

[69] For more information on WIFIA, see CRS Report R43315, *Water Infrastructure Financing: The Water Infrastructure Finance and Innovation Act (WIFIA) Program*, by Jonathan L. Ramseur, Mary Tiemann, and Elena H. Humphreys. For an example of a groundwater project funded in part under WIFIA, see the Pure Water Monterey Groundwater Replenishment Project, at https://www.epa.gov/wifia/pure-water-monterey-groundwater-replenishment-project.

Federal Reserved Rights to Groundwater

The federal government typically defers to states to allocate water resources within the state.[70] An exception has been the right to regulate water supplies on federal reservations, stemming from the U.S. Supreme Court decision in *Winters v. United States*.[71] Under the *Winters* doctrine, when Congress reserves land (e.g., for an Indian reservation), Congress also reserves water sufficient to fulfill the purpose of the reservation.[72] The *Winters* case specifically addressed the priority and extent of Indian reserved water rights, but the Supreme Court also recognized these rights in non-Indian contexts. In 1976, the Court noted that it "has long held that when the Federal Government withdraws its land from the public domain and reserves it for a federal purpose, the Government, by implication, reserves appurtenant water then unappropriated to the extent needed to accomplish the purpose of the reservation."[73]

Although the *Winters* doctrine has been applied to federal reserved water rights generally, the federal reserved rights for groundwater are more ambiguous than the rights for surface water. Tribal rights to groundwater, for example, have not been legally established to the same extent as rights to surface water (and other natural resources, such as timber, oil and gas, and minerals).[74] However, an ongoing legal case involving a Southern California Indian tribe's rights to groundwater under the *Winters* doctrine may establish those rights more specifically.[75]

Climate Change and Other Long-Term Influences on Groundwater Supply

Long-term changes to the climate affecting the United States, particularly rising temperatures and changes in the patterns, quantities, and type of precipitation (i.e., rain versus snow), could affect the availability of groundwater in the future. Changes in temperature and precipitation could affect the amount of water that recharges aquifers and therefore could shape how much groundwater is available for irrigation, domestic water supply, and other uses. However, the amount of natural recharge is just one variable (albeit an important one) influencing groundwater supply (i.e., its amount and availability). In some important aquifers, such as the Central Valley aquifer in California, the largest portion of recharge comes from irrigation return flow—excess water applied to the crops that is not lost to evapotranspiration or runoff.[76] Changes in irrigation

[70] Some legal scholars observe that the federal government has authority to regulate water resources, based on the Commerce Clause and the Property Clause of the U.S. Constitution. For further discussion, see, for example, John D. Leshy, "The Federal Role in Managing the Nation's Groundwater," *Hastings West-Northwest Journal of Environmental Law and Policy*, vol. 11, no. 1 (Fall 2004), p. 2.

[71] Winters v. United States, 207 U.S. 564, 575-77 (1908). Also, in United States v. New Mexico, the Supreme Court noted that "the 'reserved rights doctrine' is a doctrine built on implication and is an exception to Congress's explicit deference to state water law in other areas." United States v. New Mexico, 438 U.S. 696 (1978).

[72] For more information on rights stemming from Winters v. United States, see CRS Report RL32198, *Indian Reserved Water Rights Under the Winters Doctrine: An Overview*, by Cynthia Brown (available to congressional clients upon request).

[73] See Cappaert v. United States, 426 U.S. 128, 138 (1976).

[74] For more information on Indian water rights and water settlements, see CRS Report R44148, *Indian Water Rights Settlements*, by Charles V. Stern.

[75] See CRS Insight IN10857, *Federal Reserved Water Rights and Groundwater: Quantity, Quality, and Pore Space*, by Peter Folger.

[76] Thomas Meixner et al., "Implications of Projected Climate Change for Groundwater Recharge in the Western United States," *Journal of Hydrology*, vol. 534 (January 4, 2016), p. 127. Evapotranspiration is the combination of evaporation

practices and technology could significantly alter irrigation return flow in the Central Valley. For example, more efficient irrigation would use less water for the same yield yet conversely would contribute less return flow as recharge to the aquifer.

Policies that would enable greater artificial recharge, such as current authorities at Reclamation and USACE or new authorities that Congress may introduce, also may create long-term changes to groundwater supply and availability. In addition, broad changes in water demand, such as a transition to less irrigation and more municipal use, could influence how groundwater is used. All of these factors complicate any precise projection of changes to U.S. groundwater supply. Data collected and distributed by the USGS, NASA, NOAA, and the USDA will likely improve the understanding of long-term trends in groundwater storage and use. The long-term trends can be assessed against the effects of climate change in the future.

Climate Change and Groundwater Recharge

Intense global interest in greenhouse gas-influenced climate change prompted a number of studies investigating how a changing climate could affect groundwater, particularly affecting groundwater depletion and the amount of water available for recharging aquifers.[77] These studies have helped identify the many complexities involved in forecasting long-term consequences of climate change on groundwater supplies. Two broad review studies published in 2016 and 2017 are summarized below.

One study (by Meixner et al., 2016) synthesized the results of several other studies in an attempt to gauge the impacts of future climate change on the western United States (states west of the 100th meridian).[78] The study focused at the scale of major aquifers (specifically, eight aquifers),[79] because the study authors considered that global-scale studies are too broad to inform policymaking and that local-scale studies do little to illuminate potential changes across larger regions, such as states, which are important for setting water policy. The authors selected the western United States because of the importance of groundwater in that area relative to the more humid east, with its more abundant supplies of surface water.[80]

A conclusion from the study is that a "wet gets wetter, dry gets drier" scenario may prevail in the West, meaning generally that the already arid southwest is predicted to become drier, reducing the availability of precipitation for recharge, and the northern portion of the western United States may get wetter, increasing the availability of water for recharge. However, even for regions experiencing wetter conditions, higher average temperatures in the future could cancel out some of the gains, because of higher evaporation and other effects. Mountain systems, in which snowpack plays an important role in water supply and recharge, are likely to provide less water because of lower precipitation (in the south, particularly) and because of a transition to less snow and more rain in the northern ranges. However, the study notes that the impacts of expected

and respiration by plants. Hereinafter, Meixner et al., 2016.

[77] See USGCRP, Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II, 2018, U.S. Global Change Research Program, Chapter 3: Water, *Key Message 1*, https://nca2018.globalchange.gov/chapter/3/. See, also, the 2014 National Climate Assessment, U.S. Global Change Research Program, *Key Message 4: Groundwater Availability*, at https://nca2014.globalchange.gov/report/sectors/water.

[78] Meixner et al., 2016.

[79] These included the Ogallala (or High Plains aquifer; NE, CO, KA, TX, NM, AZ), San Pedro (AZ), Death Valley (NV, CA), Wasatch Front (UT), Central Valley (CA), Columbia Plateau (WA, OR, ID), Spokane Valley-Rathdrum Prairie (WA), and Williston Basin (ND, MT) aquifers.

[80] Meixner et al., 2016, p. 125.

snow-to-rain shifts on groundwater are uncertain due to a lack of robust knowledge about mountain system aquifers.[81]

A finding in the Meixner, et al. study was that knowledge gaps in forecasting changes in the frequency and intensity of future precipitation events will translate into uncertainty in predicting changes to recharge. **Figure 10** captures possible broad changes indicated in the study between current conditions and potential future climate conditions for the western United States under a greenhouse gas-induced global warming scenario.[82]

Another study (Smerdon, 2017) provides a broad synopsis of the published science. It summarized six review articles published between 2011 and 2016 on groundwater and climate change, noting common conclusions on aspects related to predicting changes in groundwater recharge.[83] The study noted that varying predictions of future recharge result from uncertainty inherent in the distribution and trend of future precipitation as predicted in climate change models (also called *general circulation models*, or GCMs). The study reported additional uncertainty in groundwater recharge forecasts because of uncertainties in downscaling GCM results from the global to the regional scale, similar to the findings in the paper discussed above.

One of the articles reviewed suggests "the role of vegetation is shown to be paramount for the recharge process, where change in precipitation could be accommodated by natural adjustment in evapotranspiration in some cases."[84] The finding implies that making predictions of recharge could be difficult because the water consumed by vegetation would not be available to recharge an aquifer. Other articles reviewed in the Smerdon study pointed out that GCMs do not directly incorporate changes in groundwater; in other words, groundwater recharge was not directly modeled in the GCM approach, so changes to groundwater can only be inferred from other model results.

One conclusion from the study is that forecasting future groundwater supplies requires better long-term groundwater observations to match the long-term changes in climate to investigate their relationship. The Smerdon study notes that given all the uncertainties, several of the articles reviewed indicate that even the direction and magnitude of change to groundwater recharge is difficult to predict; some GCM modeling results suggest recharge could decrease, whereas other GCM results suggest the opposite for similar regions. Mountainous regions likely will be the most sensitive to changes in climate, according to the review.[85]

[81] Meixner et al., 2016, p. 136.

[82] Meixner et al., 2016, figure 1, p. 126.

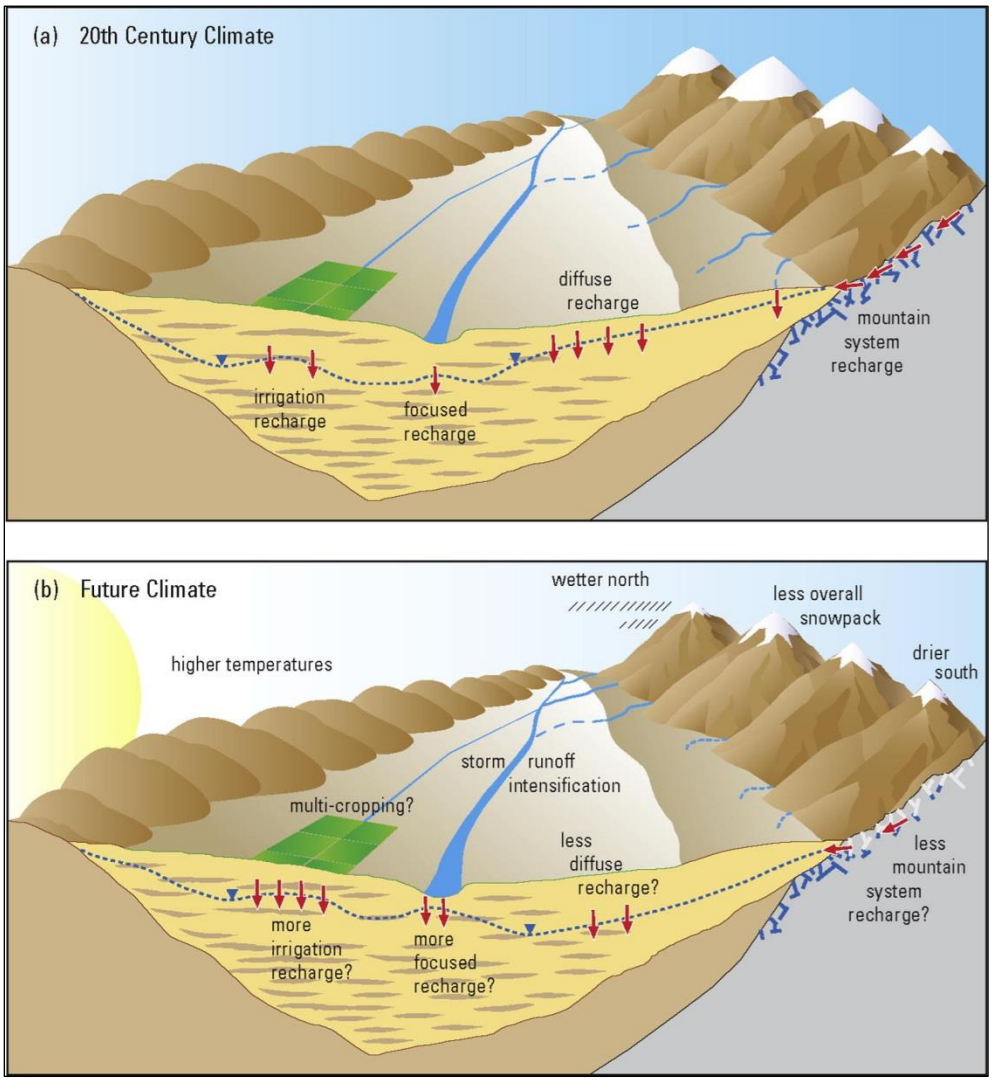
[83] Brian D. Smerdon, "A Synopsis of Climate Change Effects on Groundwater Recharge," *Journal of Hydrology*, vol. 555 (September 28, 2017). Hereinafter, Smerdon, 2017. (One of the six reviewed articles in the Smerdon synopsis is the Meixner et al., 2016, study discussed in this section.)

[84] Smerdon, 2017, p. 126.

[85] Smerdon, 2017, p. 127.

Figure 10. Conceptual Illustration of Recharge Mechanisms Under Two Different Climate Scenarios

(for the western United States)



Source: Thomas Meixner et al., "Implications of Projected Climate Change for Groundwater Recharge in the Western United States," *Journal of Hydrology*, vol. 534 (January 4, 2016), p. 126, figure 1, (with permission).

Notes: Four different recharge mechanisms are illustrated: *diffuse recharge*—resulting from infiltration of precipitation and direct recharge of the aquifer; *focused recharge* from rivers, streams, and lakes; *mountain system recharge* from where snow melts and infiltrates at the mountain front; and *irrigation recharge* from excess irrigation water that infiltrates the ground and reaches the water table. Under a greenhouse gas-induced warming climate (b), some of the recharge mechanisms may be diminished (such as mountain system recharge) and some may be enhanced (such as focused recharge) compared to 20th century conditions (a).

Other Factors

Other factors may also have profound influence on groundwater recharge and groundwater supply. For example, the Intergovernmental Panel on Climate Change Fifth Assessment noted that

changing land use is expected to affect freshwater systems globally, including groundwater.[86] The report noted that increasing urbanization, for example, may decrease groundwater recharge.[87] How irrigation practices evolve likely will influence the use and availability of groundwater, particularly for regions of the country where surface water supplies may decrease due to increasing aridity over the long term and where groundwater would substitute for surface water supplies during short-term droughts, much as it does today. Alternatively, regions experiencing wetter conditions could see reduced demand for groundwater if surface water supplies become more abundant. Because most groundwater in the United States is used for irrigation, more efficient irrigation practices may reduce overall water demand, which could place less stress on groundwater resources. A possible exception would be for aquifers that depend on excess irrigation flows for aquifer recharge (e.g., the Central Valley aquifer).

Summary and Conclusions

Congress generally has deferred management of U.S. groundwater resources to the states, and that practice appears likely to continue. Severe and widespread droughts over the last 10 years in California, the Midwest, and Texas and a longer period of drier-than-normal conditions in the Southwest have contributed to increasing congressional attention to the effects of drought on increased groundwater pumping and the depletion of groundwater supplies. These events have led to congressional interest in policies that would support augmentation of water supplies by enhanced aquifer recharge and the ability to store groundwater in an aquifer for later recovery when surface water supplies are curtailed by drought. Existing authorities for Reclamation and USACE allow federal projects to be involved in aquifer recharge, storage, and recovery in some way. Reclamation, USDA, and EPA also provide some forms of financial assistance that could support aquifer recharge, storage, and recovery.

A connection between federal water projects and groundwater enhancement already exists in Arizona, as part of the Central Arizona Project, and activities are being implemented via state law. More recently, California enacted three groundwater laws known collectively as the Sustainable Groundwater Management Act (SGMA), which directed the California Department of Water Resources to identify water available for replenishing groundwater in the state. Because the water provided by the Central Valley Project is integral to the water supply and delivery infrastructure of the state,[88] it is also recognized as part of the surface water resources potentially available for recharging aquifers as the SGMA is implemented.[89] Other western states with significant Reclamation water infrastructure also may look to enhance their sources of water for aquifer recharge by tapping the federal projects.

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[86] Jimenez Cisneros et al., "Freshwater Resources," Intergovernmental Panel on Climate Change, in *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects*, contribution of Working Group II to the *Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, 2014, p. 240.

[87] Increasing urbanization may include more covered surfaces, such as roads, parking lots, and other types of materials that are less permeable to precipitation than natural surfaces and could decrease the amount of water that infiltrates the ground and reaches the water table.

[88] For more information, see CRS Report R44456, *Central Valley Project Operations: Background and Legislation*, by Charles V. Stern and Pervaze A. Sheikh.

[89] See California Department of Water Resources, Sustainable Groundwater Management Program, *Water Available for Replenishment*, April 2018, at https://water.ca.gov/News/News-Releases/2018/April-18/Innovation-Investment-and-Infrastructure-Needed-to-Replenish-Groundwater-Basins.

Further technological developments in desalinating brackish or saline groundwater could help make those water supplies available for domestic, agricultural, or other uses.[90] Congress authorized an assessment of brackish groundwater in Section 9507(c) of P.L. 111-11 in 2009, and USGS released its assessment report in 2017.[91] In general, the assessment found that deeper wells had more brackish groundwater than shallower wells. Seventy percent of wells between 1,500 feet and 3,000 feet below the surface were brackish or highly saline, whereas less than 20% of wells 50 feet deep or shallower were brackish.

USGS reports that many water providers are turning to brackish groundwater to augment or replace freshwater for drinking and other uses, such as power generation, irrigation, aquaculture, and uses in the oil and gas industry (e.g., hydraulic fracturing).[92] For greater use of this potential resource, more detailed evaluations of specific aquifers likely are required. Technological and economic analyses would be needed to determine if brackish groundwater, especially from the deeper wells, could be used economically on a greater scale in the future.

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[90] Brackish water generally is more saline than fresh groundwater but less saline than seawater, containing total dissolved solids in concentrations ranging between 1,000 and 10,000 milligrams per liter (mg/l). Water with less than 1,000 mg/l is considered fresh; water with more than 10,000 mg/l is considered highly saline. Seawater is about 35,000 mg/l on average.

[91] Jennifer S. Stanton et al., *Brackish Groundwater in the United States*, USGS, Professional Paper 1833, 2017, at https://pubs.er.usgs.gov/publication/pp1833.

[92] Jennifer S. Stanton and Kevin F. Dennehy, "Brackish Groundwater and Its Potential to Augment Freshwater Supplies," USGS, Fact Sheet 2017-3054, July 2017, at https://pubs.er.usgs.gov/publication/fs20173054.

Disclaimer

The Intersection of Estate Planning & Water Law

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Water Law: An Overview

Background

Water is at the heart of agriculture. The availability of freshwater makes it possible to grow crops and raise livestock. Agricultural water use, in turn, is at the heart of discussions involving water law and policy.

Although water is one of our most plentiful resources, there is often not the right quantity of the right quality of water in the right place at the right time to satisfy demand. Consequently, there is keen competition among water users, including agriculture, municipalities, industry, recreational users, and conservationists.

Agriculture is a major user of ground and surface water in the United States, accounting for approximately 80 percent of the Nation's consumptive water use and over 90 percent in many Western States. Water used in agricultural production is usually sourced from surface waters, such as rivers, lakes, streams, and ponds, or from groundwater stored in aquifers. In some circumstances, agricultural water is also harvested directly from rainfall and stored in above or below-ground cisterns.

Traditionally, management of water resources has focused on surface water or ground water as if they were separate entities. Although water is part of a connected system, it tends to be regulated based upon its source. Even within the category of surface water, water regulations can vary depending on whether the surface water is perennial, ephemeral, or man-made.

Broadly, water law can generally be divided into two substantive areas: rights to use water and restrictions on pollution of water. More specifically, water law concerns: (1) the balance between public rights and private rights to use water; (2) the relative rights of individual water users; and (3) water quality and the regulation of discharges to water. As it relates to agriculture, water law issues tend to fall into two categories: allocation rights and agricultural land use that negatively affects water quality.

Water allocation is generally governed by the states, with each state having its own regulatory system with very little federal intervention. State statutes and regulatory schemes control certain uses of water, such as transfers of water from one watershed to another, withdrawal of groundwater from overused aquifers, impoundment of water, and construction of wells.

Water quality, on the other hand, is governed mostly by federal law, primarily the Clean Water Act.

As the authors point out in their forward to the 5th edition of David H. Getches' *Water Law in a Nutshell:*

A decision to use water for a particular purpose can have far-reaching impacts. For instance, transporting water from a rural area across a mountain range to a city may provide water to sustain the city's population, but it may also force a decline in agricultural productivity and the farming community built on it, facilitate more rapid growth in the importing city, prevent future development of the exporting rural area, curtail recreational opportunities, make sewage treatment more difficult as streamflows to dilute wastewater discharge are diminished, deprive the exporting area of groundwater recharge, and cause ecological changes in both areas. Balancing these conflicting interests and demands is made ever more complex, challenging, and essential in the face of chronic drought cycles intensified by climate change.

It is not surprising then that states have developed and continue to revise legal and regulatory schemes used to prioritize and clarify the relative rights of competing water users.

Private Surface Water Rights

The right to the use of surface waters, whether for irrigation, manufacturing, or another use, is generally governed by state law.

In the United States, three different use allocation systems have developed to determine the rights of private persons in water. The first is the riparian doctrine, which developed in the water-abundant eastern United States. The second is the system of prior appropriation or "first-in-time, first-in-right," that developed in the western United States. Finally, a handful of states have adopted a hybrid system, which contains parts of both the prior appropriation and the riparian systems doctrines. Because water allocation regulation is complex, it is best to contact your state water agency to determine the system used by your state.

The Riparian Doctrine

Riparianism limits the use of water to only those landowners with riparian land. In order to be classified as a riparian landowner, the landowner must own the parcel of land adjacent to the watercourse, i.e. a river, stream, lake, or pond, from which the landowner plans to use the water. Even then, the water may only be put to a reasonable use. The courts can enjoin landowners for unreasonable uses.

The riparian landowner has the right to make "reasonable use" of the watercourse. This means that the riparian landowner may make a reasonable use of the water as long as that use does not interfere with the reasonable use of another downstream riparian landowner. Reasonableness is determined by comparing the proposed use with the other uses of other riparian landowners. Any natural uses, such as water for drinking, watering livestock, or watering a garden, are considered

reasonable under the law. Artificial uses, such as those for irrigation or industry, are considered reasonable uses under most states' laws.

Non-riparian landowners generally have no right to use water, although some riparian jurisdictions may allow it. A majority of jurisdictions require proof of actual harm from the use of water on non-riparian land. The minority follows the Restatement (Second) of Torts § 855, which allows for the reasonable use of water on non-riparian land only if the user also owns riparian land.

Under riparian rights, landowners do not have to use water to keep their riparian rights. New uses may be started at any time as long as the new use is a reasonable one. Because the right is attached to the riparian land, non-use does not extinguish the right.

Today, almost all riparian states have moved towards allocating water through a permitting system, often called a "regulated riparian" system. Under the regulated riparian system, a central state agency controls who may use the water, how much they can use, and when they can use it. Regulated riparianism departs from common law riparianism by looking at the projected use before any water is ever actually used. Using the same "reasonable use" criteria as common law, the states first determine if a new use is reasonable. This allows the state to consider both the potential benefits to society and the compatibility with current uses before granting a new permit. In many cases, the permit is only required on consumptive uses and excludes non-consumptive uses, or uses that do not require a diversion or removal of water from the watercourse.

The permitting system allows the state to plan for and maximize water usage in the future. Even if a use is exempt from a permit, the user may still have to file a water use plan with the state in order to help with planning. However, the rules governing whether a use requires a permit vary from state to state. Further, in many states, agricultural uses are exempt from permit requirements.

Regulated riparian permits exist for a fixed period of years, unlike indefinite permits used in prior appropriation states. In times of water shortages, the state may adjust the quantity of water use allowed and can require a pro rata reduction across the board or based on seniority of use. Permits may also prioritize permitted users over non-permitted users when non-permitted user withdrawals hurt permitted users. Additionally, riparian landowners who do not obtain a permit within the required statutory time period may see a reduction or a forfeiture of their common law riparian rights.

The Prior Appropriation Doctrine

The prior appropriation doctrine dates back to the miners who first settled the West and needed water to develop their mining claims. Because the land needed was not adjacent to a watercourse, the miners could not use the riparian system. Instead, the miners used the "first in time, first in right" system, which was already being used to resolve disputes over water use. This led to the prior appropriation doctrine, where the first user had the right to continue using the water to the exclusion of the rights of those who came later.

The prior appropriation system is based on priority. The most senior appropriator has the highest priority and can defeat all other less senior appropriators in times of shortages. Unlike riparianism, there is no requirement that a senior appropriator use less water in times of a shortage. Water users can take in order of their respective priorities, with each user taking their full appropriative right until the water is gone.

The senior appropriator may enforce his rights by "calling the river." This is a process that allows the senior appropriator to ensure the junior appropriators do not use water out of turn. The senior appropriator will either go to court or the state water agency to have their right enforced against a junior appropriator. If the senior appropriator's water right would be lost through evaporation, instead, the senior only has a "futile call," and the state will not enforce his right against the junior.

The rationale behind this theory is that it is better for water to be used by the junior appropriator rather than lost in transport to the senior appropriator.

The prior appropriation doctrine varies somewhat from state to state, although there are three general requirements: (1) the appropriator must intend to apply water to a beneficial use, (2) the water must be diverted from a natural course, and (3) the water must be applied to a beneficial use. A beneficial use is any use recognized by the state as being an appropriate use of water, such as domestic, municipal, agricultural, industrial and recreational uses. In all prior appropriative states, agricultural uses are considered beneficial uses. The beneficial use is the measure and limitation of the appropriative right. Once water is put to a beneficial use, the right is perfected and has priority over later appropriators. The senior appropriator then has the right to use their original right, even if a "better' use arises later.

In order to have a valid appropriation, an appropriator must show the necessary intent to make an appropriation. The intent necessary is usually just the intent to divert water and apply the water to a beneficial use. In states that require a permit, the application for the permit shows the objective evidence of the necessary intent. A valid appropriation will be given a priority date, or the date the water was first used. Some states have developed the doctrine of relation back that allows the appropriator to use the date that the intent was formed as the priority date.

Historically, the appropriator was required to divert, or build some form of a diversion, in order to provide notice that the water was appropriated. A diversion is typically any alteration to a portion or a stream's entire natural course. In many cases, the capacity of the diversion could be used to determine the extent of the quantity of water appropriated. Today, most prior appropriation states have adopted a permit system that satisfies the notice requirement of a diversion.

Hybrid Systems

Some states, such as California and Oklahoma, have developed hybrid allocation systems, which combine aspects of both the riparian and the appropriative rights systems. While there is no uniform system for all hybrid states, all hybrid systems contain elements of both riparian and prior appropriative rights.

Private Groundwater Rights

Water used in agriculture can also come from underground aquifers. While many groundwater aquifers are connected to surface waters, states' groundwater allocation systems often differ from their surface water allocation systems. Additionally, multiple legal doctrines and combinations of doctrines are used by states to allocate groundwater rights, including the Absolute Dominion rule, Correlative Rights doctrine, Prior Appropriation doctrine, Reasonable Use doctrine, and Restatement of Torts rule.

Groundwater allocation systems often differentiate between on-tract and off-tract uses. On-tract use is where water is used on the tract where the pump is located. Off-tract use is where water is transferred to another location for use.

States often may not fall clearly within a particular doctrine, and may use components of two or more systems. For this reason, it is best to contact your state water agency to determine the allocation system used by your state.

Absolute Dominion Rule

Under the Absolute Dominion Rule, also called the "Absolute Ownership Rule" or the "English Rule," a landowner may use as much ground water as possible. The rule does not take into account impacts on neighboring users, and, as a result, one owner could monopolize the entire aquifer without incurring liability. This doctrine creates an incentive to pump as much water as possible because of the lack of concern of incurring penalties from a neighboring user. Most states have rejected this doctrine, as malicious withdrawals of water could not be enjoined. The states that do continue to follow this doctrine allow for remedies for willful injury. States following this doctrine are Connecticut, Georgia, Indiana, Louisiana, Maine, Minnesota, Massachusetts, Mississippi, Rhode Island, Texas, and Vermont.

Correlative Rights Doctrine

The Correlative Rights Doctrine distributes water on an equitable basis among landowners and allows off-tract uses, although these uses are subordinate to on-tract uses. Like the Absolute Dominion Rule, the Correlative Rights Doctrine determines rights in groundwater based on ownership of land. The difference, however, is that landowners overlying the same aquifer are limited to a reasonable share of the aquifer's total supply, rather than having an absolute right to groundwater or an unlimited right to pump.

This doctrine was first recognized in California in *Katz v. Walkinshaw*, 74 P. 766 (Cal. 1903). The court held that in times of shortages an overlying owner must limit withdrawals to a "fair and just proportion" of the underlying supply. Thus, when two users are both exporting water, the court would use the doctrine of prior appropriation. Finally, in disputes between an overlying landowner and an exporter, the overlying landowner receives a reasonable share of the water, even if the overlying owner is junior to the exporter. The states that apply this doctrine include: Arkansas, California, Iowa, Minnesota, Oklahoma, and Vermont. Nebraska follows a combination of this doctrine and the Reasonable Use doctrine.

Prior Appropriation Doctrine

Many western states have adopted a prior appropriation doctrine for groundwater. Similar to the prior appropriative system for surface water, the first landowner to beneficially use or divert water from a groundwater source is given priority over later users. The right, similar to the surface water system, is limited to the amount that is put to a beneficial use. Many states, today, have replaced this doctrine with a permit system, similar to the surface water permit system. This doctrine is in use in Alaska, Colorado, Idaho, Kansas, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

Reasonable Use Rule

Some states have adopted the doctrine of reasonable use, or the American rule, which requires the water to be put to a reasonable use on the overlying tract of land and does not permit water to be taken to another tract. Reasonable use has been construed broadly, and almost any use is considered reasonable as long as the water is used on the overlying land. The rule is considered a modification of the Absolute Dominion Rule with exceptions for wasteful uses and off-tract uses. This system is used in Alabama, Arizona, Delaware, Illinois, Kentucky, Maryland, Michigan, Missouri, New Hampshire, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Virginia, and West Virginia.

Other states have adopted the reasonable use rule in conjunction with another groundwater rule. Florida has abolished all common law groundwater rights for a permit system, but uses this doctrine in granting permits. Wyoming uses the reasonable use doctrine along with the Prior Appropriative system for groundwater. Nebraska, additionally, uses the reasonable use doctrine along with the Correlative Rights Doctrine.

The Restatement (Second) of Torts Rule

Finally, Ohio and Wisconsin have adopted the Restatement (Second) of Torts approach, which utilizes a variety of factors to determine if a use of water is appropriate. The Restatement's rule is seen as a merger of the Absolute Dominion Rule and the Reasonable Use rule. Section 858 of the Restatement (Second) of Torts states:

Liability for Use of Groundwater

(1) A proprietor of land or his grantee who withdraws groundwater from the land and uses it for a beneficial purpose is not subject to liability for interference with the use of water by another, unless

(a) the withdrawal of groundwater unreasonably causes harm to a proprietor of neighboring land through lowering the water table or reducing artesian pressure,
(b) the withdrawal of groundwater exceeds the proprietor's reasonable share of the annual supply or total store of groundwater, or
(c) the withdrawal of the groundwater has a direct and substantial effect upon a watercourse or lake and unreasonably causes harm to a person entitled to the use of its water.

(2) The determination of liability under clauses (a), (b) and (c) of Subsection (1) is governed by the principles stated in §§ 850 to 857.

Private Water Harvesting Rights

Rainwater harvesting involves capturing, diverting, and storing rainwater from rooftops for later use, including for agricultural irrigation. The practice is not regulated by the federal government and individual state regulations vary widely. Many states do not regulate rainwater collection, or when they do they allow and even encourage it by offering tax credits or exemptions for the purchase of harvesting equipment. Other states, especially prior-appropriation jurisdictions, place restrictions on the amount of rainwater that can be collected and/or the method by which it is collected.

Advances in technology have made atmospheric water harvesting (AWH) (or atmospheric water generation (AWG)) a potentially viable agricultural irrigation tool. Atmospheric water harvesting involves the capture and collection of small airborne water droplets or vapor using sorbents or mechanical refrigeration technology. Fog and dew harvesting are two examples. AWH is not federally governed nor specifically regulated by the States at this time; however, as technology efficiencies increase, the tool is likely to garner regulatory attention.

Public Rights to Water

While agricultural law generally implicates private water rights, it is also important to consider that the public may also have a legal interest in using the water at issue. Public water rights fall under four categories:

- Rights associated with navigation;
- The public trust doctrine;
- Reserved water rights; and
- Public interest protection

Navigation

Navigable servitude is a United States constitutional law doctrine that gives the federal government the right to regulate navigable waterways as an extension of the Commerce Clause. Designed to keep waterways open for commercial navigation, it creates a dominant property right held by the federal government for the benefit of the general public.

Historically, the federal government gave each state ownership of the beds of the navigable waters within the state as part of the grant of statehood. State bed ownership provides another basis for public rights under state law. Federal and state definitions of navigable waters vary considerably, and in many states the public's right to use waters has been expanded to include waterways used for recreational purposes. In 2021, the EPA and Department of the Army announced their intent to review the definition of "waters of the United States." The rule proposed to restore the regulations defining the "water of the United States" that was in place for decades until 2015. Under the final rule, four categories of water are federally regulated

including: territorial seas and traditional navigable waters, perennial and intermittent tributaries to those waters, certain lakes, ponds and impoundments, and wetlands adjacent to jurisdictional waters.

Public Trust Doctrine

The Public Trust Doctrine is a common law doctrine rooted in Roman law that holds that certain natural resources like navigable waters are preserved in perpetuity for the benefit of the public. The state acts as a trustee of the common resource and has an obligation to manage it for the benefit of current and future generations. Attempts by a state to limit or eliminate public trust rights through a sale or by other means may be found invalid.

A number of states have embedded the doctrine in their own constitutions. Traditionally, the public trust applied to commerce and fishing in navigable waters, but in many states its uses have been expanded to include recreation. Notably, states interpret the doctrine and the meaning of public use and public benefit in diverse and shifting ways and, as noted above, also define "navigable waters" or "waters of the state" differently.

Reserved Water Rights

The ability to fully develop water resources through irrigation of croplands or other projects, can be severely limited by federal reserved rights in water. Federal actions reserving public lands implicitly create a water right that allows for enough water to accomplish the purpose of the reservation. Examples include national parks, monuments, and forests, wild and scenic rivers, and Native American reservations. For Native American tribes, the necessary use is the amount of water needed to irrigate all of the tribe's practicably irrigable acreage.

The priority date is the date the reservation is completed. Private rights established prior to the reservation have priority over the reserved rights. The federal right cannot be abandoned or lost through nonuse. Once asserted, it can take water from private right-holders whose rights were established subsequent to the reserved right.

Under the McCarran Amendment, 43 U.S.C. § 666, the federal government has waived sovereign immunity for the limited purpose of adjudicating western water rights. This Amendment authorizes the joinder of the United States in comprehensive stream adjudications, in both state courts and state water agencies. This Amendment has been construed to include the water rights of Native Americans to reduce the number of court proceedings to determine the same rights. The Amendment allows for the more efficient adjudication of water rights along streams in the Western States.

Public Interest Protections

Some states statutorily mandate public interest review of initial water right allocation or increases, requiring an appropriation permit from an administrative agency and allowing the permit to be issued only if the proposed appropriation conforms to the public interest or public welfare.

Historically, public interest criteria were satisfied if the permit applicant would benefit economically from the water use. More recently, public interest criteria are expanding to include environmental and other public concerns, requiring consideration of the cumulative effects of water withdrawals from ground or surface waters. Similar protections include state statutes creating minimum streamflow requirements or authorizing instream flows.

Water Pollution

Water pollution law is extraordinarily complex. It can involve areas of common law such as nuisance, trespass, and negligence, but more often it involves an interconnected network of federal and state statutes and regulations, the cornerstone of which is the Clean Water Act (CWA). A partial list includes laws regulating surface water discharges from point sources; sedimentation and erosion; stormwater runoff; land uses in nutrient-sensitive waters and water supply watersheds; and sources of groundwater pollution. Federal regulatory programs also include regulation of wetlands and construction in navigable waters and establishment of total maximum daily loads in highly polluted surface water bodies.

As described on the US Environmental Protection Agency website:

The Clean Water Act provides a comprehensive system for the regulation of pollutants in the waters of the United States with the objective of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters. The CWA operates by authorizing water quality standards for surface waters, requiring permits for point source discharges of pollutants into navigable waters, assisting with funding for construction of municipal sewage treatment plants, and planning for control of nonpoint source pollution.

The Environmental Protection Agency ("EPA") is the primary agency tasked with implementing and enforcing the CWA, although the agency can and does delegate permitting authority to individual states.

FARM TRANSITION AND ESTATE TRANSITION PLANNING: WHAT IT IS AND WHAT TO EXPECT

Pick up a farm magazine and it's likely to have an article about estate planning. An internet search will yield hundreds of references to passing on the family farm, protecting a farm's legacy, and bringing the next generation into the operation. We focus a lot of attention today on farm transition and estate planning. That's because good planning carries critical consequences for the future of agriculture.

WHAT IS FARM TRANSITION AND ESTATE PLANNING?

Farming is both a unique way of living and a unique way of making a living. It is common for farmers to hope to pass this unique heritage on to future generations. "Farm estate planning" uses legal tools to ensure that the next generation receives farm assets after farm owners retire or pass on. But farmers often want to bring their heirs into the farming operation before passing those assets on. The term "farm transition planning" refers to using many tools to prepare for and transfer the farming operation to heirs, including estate planning and business planning tools. Whether your goals are to pass on land and assets, hand the farm business down to future generations, or both, learning about farm transition and estate planning will help you accomplish those goals.

THE FARM TRANSITION AND ESTATE PLANNING PROCESS

The farm transition and estate planning process begins with **identifying goals** for the future of the farm and the farm family. We frequently hear from farmers whose primary goals are to keep farmland in the family and prepare the next generation of managers. Or perhaps a farmer aims to retire, address special issues with children, or plan for long term health care. Whatever the goals may be, healthy **family communication** and **conflict management** are often necessary to accomplish this important first step of identifying goals.

This work is supported by the National Agricultural Library, Agricultural Research Service, U.S. Department of Agriculture. It is provided for educational purposes only, is not legal advice, and is not a substitute for the need to consult with a competent attorney licensed to practice in the appropriate jurisdiction.

The next step in the farm transition planning process requires **selecting strategies** to implement established goals.

Strategies will likely be necessary in several different areas:

- **Human resource** strategies to identify, prepare and train the next generation of the farm business managers.
- **Financial** tools to aid in funding and implementing goals, such as insurance and retirement plans.
- **Legal** strategies and tools for effective asset protection and transfer, such as estate planning and business planning instruments.

The Farm Transition Planning Process

The legal tools and strategies component of farm transition planning is the focus of our Planning for the Future of the Farm bulletin series. Some of the legal tools we explain are traditional instruments often used in estate planning, like wills and trusts. But other legal tools can be useful for a farm transition plan, such as business entities, operating agreements, leases, and gifting strategies. These legal tools work together with human resource strategies and financial tools to implement a farm's goals. Putting the legal plan in place is the final step in the farm transition planning process.

PUTTING A LEGAL PLAN TOGETHER

1. Choose an attorney. The legal side of farm transition planning starts with choosing your attorney. Word-of-mouth is one way to identify a good agricultural attorney with expertise in farm transition and estate planning, or check with organizations like Extension, the state or local bar association, or the American Agricultural Law Association. Ask for an initial consultation and meet an attorney before committing to representation. Several factors can aid in selecting the right attorney: competence, personal comfort, and costs.

- Look for an attorney with **competence** in estate and business planning—composed of both legal knowledge and practical experience. But don't stop there-- it's also very important that the attorney is competent with **agriculture** and experienced in working with farm clients. Farm businesses are different than other types of businesses. An attorney who knows farming will have insight into the laws, tools and strategies that apply to farm situations. Be wary of an attorney who has never worked with farm clients and knows little about agriculture.

- **Personal comfort** with an attorney is essential. It can ensure open communication and make it easier to share necessary information about finances, assets, business plans, and family issues and dynamics. Discomfort can lead to misunderstandings, withholding of critical information, and plans that don't align with a family's goals.
- **Costs** can vary. It is completely acceptable to request an estimate of legal fees. Don't be afraid to ask what the entire plan, from start to finish, will cost.

2. Expect to have two or more meetings with an attorney. The first meeting is typically for reviewing goals and information but might also involve discussing strategies and options. Additional meetings could involve reviewing tools and strategies and executing legal documents.

3. Prepare for the first meeting. Advance preparation can help the first meeting move more efficiently and effectively. An attorney might let you know in advance of information to gather before the first meeting. Also consider these tips:

- **Write it down.** Write out your goals for the farm business and farm assets. Also include information about the family, its special needs, and its dynamics. Consider details an attorney may need to know about the farm and the family, like who has "sweat equity" in the business, siblings who don't get along, children with problems managing finances, big purchases coming up, and who wants to be involved in the farm—this and similar information will help with developing a plan that addresses future issues.
- **Compile asset and personal information**. Gather all asset information such as deeds, account numbers and balances, and beneficiary designations, along with personal information on you and your family members. OSU Extension offers a helpful document, Getting Your Farm and Family Affairs in Order, that can aid in organizing the information. Doing so before meeting with your attorney can save time and the costs of having your attorney track down the information.
- **Organize financial information**. Use the information gathered in step two to prepare a simple balance sheet showing farm assets, non-farm assets, debts, and net worth. Full disclosure of your financial situation is necessary to developing a plan that addresses financial challenges and opportunities and is another way to save on the costs of paying your attorney to compile the information.

4. You may need your other advisors, too. Communication among all your professional advisors may be necessary to ensure all strategies align with one another. You may need to check in with financial advisors, accountants, insurance agents, and other professionals you rely upon.

SPEAKING THE FARM TRANSITION LANGUAGE: COMMON TERMS

Farm transition planning uses many legal terms, and familiarization with the terms should help you through the process. Here are definitions to common terms you may encounter along the way.

Advance directive. A legal document that gives instruction on a person's health care wishes, such as a living will and health care power of attorney.	Irrevocable trust. A trust that cannot be changed or cancelled by the person who executed the trust.

Basis and step-up in basis. The basis is the value of an inherited asset for tax purposes. A step-up in basis is an adjustment of basis to the asset's fair market value at the time of the death that triggers the inheritance.	Joint tenancy. Ownership of real property jointly by two or more parties, either as joint tenants with rights of survivorship or as tenants in common.
Beneficiary. A person designated to receive proceeds from an asset such as an account, insurance policy, or trust upon the death of the owner of the asset.	Living trust. A trust created during a person's lifetime to manage assets before and after the person's death. A living trust can be revocable or irrevocable.
Business entity or structure. An organization formed to conduct business, such as sole proprietorships, partnerships, corporations, cooperatives, and limited liability companies.	Living will. A legal document stating a person's wishes for medical treatment and life-sustaining measures if the person is at the end of life and unable to communicate.
Capital gains tax. A tax on the increase in the value of an asset between the time it is bought and the time it is sold.	LLC, Limited Liability Company. A business entity that can protect its owners from personal responsibility for business debts and liabilities with pass-through taxation.
Deed. A written document that transfers title to real property to a new owner.	Long-term care insurance. Insurance coverage for long-term services and support not covered by health insurance, such as nursing home or custodial care.
End-of-life directive. A written legal document with instructions for end-of-life medical decisions if a person is unable to make decisions at that time.	Operating agreement. A document that governs the internal operations of a limited liability company and is binding on all members of the limited liability company.
Estate. All of the real and personal property a person owns at death.	Payable on death account. An account set up to be directly transferred to a beneficiary upon the death of the account holder, without going through probate.
Estate administration. The process of collecting assets, paying debts, and distributing the property of a person after the person's death.	Probate. A court process to administer a person's estate by paying all claims, expenses, and taxes, and distributing remaining property to heirs.
Federal estate tax. A tax on the portion of a person's estate that exceeds the federal estate tax exemption amount.	Revocable trust. A trust that can be changed or cancelled by the person who executed it prior to that person's death.
Federal estate tax exemption. An amount of assets in an estate that are exempt from the federal estate tax, as determined by Congress and adjusted annually.	Survivorship deed. A deed that transfers the title to a joint owner's share of jointly owned real property upon death to the surviving joint owners.
Financial power of attorney. A legal document that appoints someone to make financial decisions for a person if the person is unable to manage their finances.	Tenancy in common. A form of joint ownership of real property that allows a joint owner to transfer their share of property to a person other than a joint tenant.
Gifting. Giving cash or assets to a beneficiary during the giver's lifetime rather than after death, which can reduce the value of the giver's estate and the possibility of estate taxes at death.	Transfer on death affidavit. A written instrument that establishes a direct transfer of real property to a designated beneficiary upon the death of the owner without going through probate administration.
Health care power of attorney. A legal document that allows an individual to empower another person to make important medical decisions on their behalf when they cannot do so themselves.	Trust. A legal instrument that holds assets and appoints a trustee to oversee and distribute assets according to the terms of the trust.
Intestacy. Dying without a will, which results in the deceased's assets being subject to probate and distributed according to the state's intestacy law.	Trust administration. The process of managing the assets within a trust according to the terms of the trust.

AUTHORS OF THE PLANNING FOR THE FUTURE OF YOUR FARM SERIES

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WILLS AND WILL-BASED FARM TRANSITION PLANS

Your will, or "last will and testament," is one way for you to determine what happens to your property after your death. A will is a necessary part of a farm transition or estate plan, but how it is used can vary widely. Some plans may need only a will in conjunction with a few simple tools—we refer to these as "will-based plans." Other plans, however, may be more complex and require additional legal tools. We explain wills and their role in farm transition planning in this bulletin.

WILLS SERVE MANY PURPOSES

The "reading of the will" after someone dies can be a dramatic event, with family members wondering what the will says and who gets what. Distributing property is just one purpose of a will, however. A will can have several helpful purposes, explained here.

Determining where property goes. A will transfers property after death according to a person's wishes. The terms of a will can be quite specific about how property passes. It can include restrictions and conditions tailored to the deceased person's wishes and can "disinherit" heirs that otherwise would receive property if the person did not have a will. A will can also include alternative plans in the event of changed conditions and circumstances.

Minimizing the probate process. A will sends clear directions to the probate court. Without a will, the court would otherwise have to determine how property should pass according to law. And as we explain later, a will can direct property to an existing trust and reduce the need to transfer it through the probate process. Both actions can reduce the time spent in probate, as well as the costs.

Choosing who administers the estate. A person can appoint an **administrator** to help settle the person's estate. The administrator, also called an executor or personal representative, will help resolve the deceased person's financial affairs and carry out the directives in the will. It is an important role, so it's critical to choose an executor carefully.

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Naming guardians. One critical role a will can play is to address who will care for dependents such as minor children and incompetent adults upon the death of their caretakers. Parents or other persons with dependents may nominate a guardian in the will, and the court will review that nomination when appointing a legal guardian. The will may also specify whether the guardian is to manage the dependent's personal needs, property, or both.

WHAT IF YOU DON'T HAVE A WILL?

Every state in the U.S. has an "intestacy law" or "statute of descent and distribution" that steps in when a person dies without a will and directs distribution of the person's property. As with other states, Ohio's intestacy law makes assumptions that the deceased would choose to give property to family members. The law establishes an order of preference that gives a surviving spouse first priority, then children of the deceased and their children. If there is no spouse or children, the law looks next to parents, then to other family members. The State of Ohio receives the property if there are no family members. Ohio law also gives the probate court authority to appoint an administrator to assist with settling the estate of a person who dies without a will.

THE FORMALITIES OF MAKING A WILL

Requirements for making a will are straightforward but failing to meet them can result in a will being declared invalid. A person must be 18 years or older to make a will and be of "sound mind and memory" and "not under restraint." These terms mean that a person must know what he or she is doing and that making the will is a free and voluntary act. A will must be in writing, although it need not be typed, and the person making the will must sign it or if unable to do so, direct someone else to sign in their presence. Two or more witnesses must acknowledge that the person made and signed the will and must also sign the will in the presence of the person making the will.

Many "fill-in-the-blank" wills are freely available, but we advise working with an attorney to develop a will. Doing so will ensure not only that the legal requirements for making the will are satisfied, but more importantly that the will properly fits with the farm transition plan.

DIFFERENT TYPES OF WILLS

How a will distributes property can vary. A will can direct property to an identified party, send property to an established trust, or order a trust to be set up to receive the property. Here's an explanation of these three different types of wills:

A **simple will** directs all property to a surviving spouse or if the spouse is pre-deceased, then to the children. A simple will might also make specific bequests of property, name an executor, and appoint a guardian for minor children. The "simple" name for this type of will means that it does not involve a trust, making it less complex than wills that do. Some call this type of will a "sweetheart" will, because the plan is to leave all or most of the property to the deceased's sweetheart. The sweetheart then determines the fate of the property at his or her death.

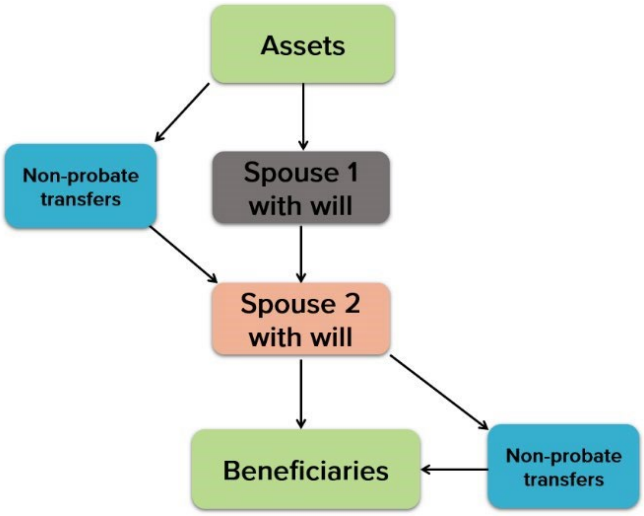
A **pour over will** transfers property to a "living trust" that was created prior to death. The assets "pour over" into the trust at death and the trust provisions then control what happens to the assets. This type of will is an important part of a trust-based plan and ensures that all property goes directly into the pre-existing trust rather than through the probate process.

A **complex will** directs the creation of a trust after death, referred to as a "testamentary trust." A testamentary trust might be simpler than a "living trust" and might only arise if certain conditions exist at death. For example, a simple testamentary trust could direct assets into a trust to support minor children if both parents pass. The trust only arises if the children are minors and both parents are deceased. Because a will creates the trust, the probate court would oversee administration of the trust by the trustee named in the will.

A WILL-BASED FARM TRANSITION PLAN

A plan can use a simple will to pass assets from one spouse to the next and then on to heirs. Other tools might be involved in the plan, such as transfer on death accounts, which we explain in our bulletin Legal Tools for Avoiding Probate. But the plan doesn't require the use of a trust. We refer to this approach as a **"will-based plan."** The illustration to the right shows how a will-based plan combined with non-probate tools can transfer farm assets to the intended beneficiaries. This approach can be sufficient for many people, but most often doesn't work well to address the complexities and assets of farm families and transitioning farm businesses.

A simple will-based plan



DO YOU ALSO NEED A TRUST?

Can you accomplish your plans for the future with a will-based plan? Or do you need a trust-based plan that uses a trust to help carry out the transition of your farm and assets? Those are "it depends" questions, as several factors come into play. The complexity of your situation is probably the critical factor that could lead you to a trust-based plan rather than a will-based plan. For example, if you have heirs with special needs, want to place certain conditions on heirs receiving property, need to address details ensuring transition of the farm to a specific heir, or are worried about federal estate taxes, a will-based plan may not be able to address your needs.

Likewise, you might prefer a trust because you want to avoid probate court involvement and have a trustee in charge of administering your affairs. You may also prefer to place details in a trust because of the privacy it offers in comparison to a will, which becomes an accessible public record when it goes through probate. Finally, legal fees are a factor. While a trust-based plan will likely cost more to create at the outset, it can keep assets out of probate and save on probate fees. A will-based plan is probably less expensive to create but could result in higher costs if assets must transfer through the probate process.

In the chart below, we outline how different factors play out in will-based versus trust-based plans. Discussing the factors with family and an attorney can be helpful. To learn more about trusts and using a trust-based plan in farm transition planning, see our other bulletin in this series, Using Trusts in Farm Transition Planning.

Comparing a will-based plan with a trust-based plan

Factor	Will-based plan	Trust-based Plan
Complexity of situation	Simple	Complex
Concerns about heirs	Little or none	Some or significant
Remarriage concerns	Little or none	Some or significant
Transition of operation	Little or none	Some or significant
Estate taxes	Little or none	Need to maximize savings
Probate	Don't mind; judge is in charge	Want to avoid; trustee is in charge
Privacy	Not important	Important
Cost	Less at outset; maybe more later	More at outset; maybe less later

UPDATING A WILL

How often should you update your will? It's important to be aware of circumstances that can trigger the need to review and update your will. Major life events are the most common triggers, including:

- Marriage, remarriage, or divorce in the family
- Birth of a child or grandchild
- Death of a spouse or beneficiary
- Change in health status
- Inheritance or other income that affects the value of your estate
- Moving to a different state
- Estate or tax law changes

WORKING WITH AN ATTORNEY

Many "fill-in-the-blank" wills exist but be wary of the one-size-fits-all approach they offer. An attorney plays an important role in developing a will that not only expresses your wishes but also addresses contingencies, considers the estate and tax laws that govern your estate, and fits the will into the overall farm transition plan. See our resources on choosing an attorney and talk with friends and family to find an attorney who will help you with the important task of creating a will that can carry out your plans for the future.

REFERENCES

Ohio Revised Code Section 2105.06, Descent and distribution https://codes.ohio.gov/ohio-revised-code/chapter-2105

Ohio Revised Code Chapter 2107, Wills https://codes.ohio.gov/ohio-revised-code/chapter-2107

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USING TRUSTS IN FARM TRANSITION PLANNING

Maybe you've asked the question, "should I have a trust?" It's a common question for farm families who are planning for the future of the farm. Trusts have become quite popular, with good reason. Trusts can be useful tools for keeping farmland in the family, avoiding probate, holding assets for minors, and more. But while a trust may have many applications and benefits, it may not always be the right solution for your farm transition goals. A careful analysis with your attorney and professional advisors is the best way to determine whether you need a trust. This bulletin offers explanations of trusts and illustrates roles they can play in farm transition planning.

WHAT EXACTLY IS A TRUST?

A trust is one of several tools that holds and transfers assets. Think of a trust as a container. You can place your assets in the container at any time—during life, immediately upon death, and after death. You can create terms and conditions in the trust. Then the assets are distributed out of the trust by the trustee according to the terms and conditions.

To help understand how a trust works**, consider the following example:**

Andy establishes a trust for his land and includes the following provision: "Upon my death, my son Bill shall have the option to purchase the land. The purchase price shall be 75% of the land's appraised value. My trustee shall provide Bill written notice of his option to purchase the land within 60 days of my death. The purchase proceeds shall be distributed to all my children equally."

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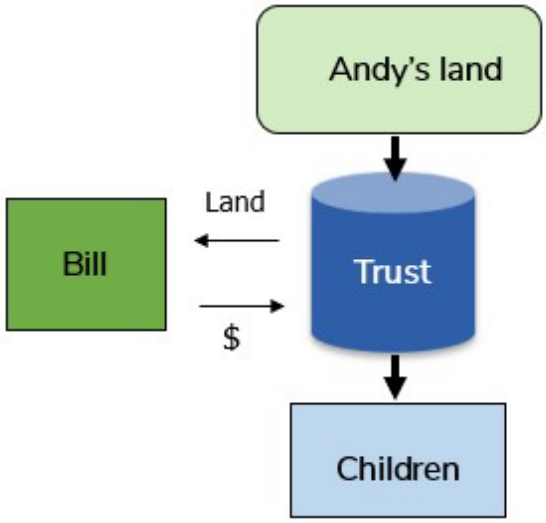
In this example, after Andy's death, his assets will be held in his trust and eventually distributed to out to his beneficiaries. While the assets are in the trust, the trustee will administer the terms and conditions of the trust as established by Andy prior to his death. Here's how the trust could play out:

1. The land goes into Andy's trust upon his death.
2. The Trustee provides Bill written notice that he has the option to purchase the land at 75% of appraised value.
3. Bill elects to buy the land and pays the purchase price to the trust.
4. The trustee distributes the purchase proceeds to all of Andy's children.



As the example shows, the trust is the container that holds Andy's assets. While the assets are in the trust, conditions can be placed on the assets which the trustee must enforce. Ultimately, after the conditions of the trust have been met, the assets flow out of the trust to the trust beneficiaries.

There are essentially no limits to the type and number of conditions that can be placed on assets as they flow through a trust. The conditions in the trust can be very simple, such as giving a beneficiary the right to buy an asset, to very complex, such as holding assets in the trust for multiple generations with restrictions on how the assets can be used. One of the key benefits of a trust is the flexibility it provides for planning because conditions can vary so widely.

HOW LONG ARE ASSETS HELD IN TRUST?

How long it takes from the time assets go into a trust until they leave the trust depends on a trust's conditions and purposes. Sometimes assets transfer through the trust within a few days, weeks, or months. Other times, assets may remain in a trust many years before being distributed.

Assets held in the trust only a short period of time may be assets needed by the next generation to continue farming. Holding assets such as machinery and livestock in trust may impede the ability of the next generation farmer to effectively operate the farm. **Consider the example on the following page:**

George is a farmer who owns farm machinery. Mary is George's daughter and the successor to the farming operation. George's trust provides that all farm machinery is to be distributed outright to Mary. George dies just as planting season is starting and Mary needs to use the machinery. The trustee distributes the machinery to Mary immediately so that Mary's farming operation is not interrupted.

As this example shows, it is possible for some assets to be held in trust only a few days. Because the machinery is to go directly to Mary with no additional conditions, the trustee is free to distribute out the machinery very quickly.

We pointed out above that assets can also stay in a trust for many years. Often, real estate is the most common asset to be held in trust for a long period. Farmers will sometimes require their land be held in a trust for an entire generation to keep the farmland available to future generations. **Consider the following example:**

George's land has been in his family for five generations. He does not want the land sold until his grandchildren have a chance to farm it. He establishes a trust with the following provision: "All of my farmland shall be held in trust for the benefit of my children. While the farmland is held in trust, my daughter Mary shall have the option to lease the land. Upon the death of all my children, the farmland shall be distributed to my grandchildren. At the time of distribution, any of my grandchildren who are actively farming shall have the option to lease the land."

In this example, the farmland will be held in trust for the lifetimes of George's children. Perhaps the land is held in trust for as long as 50 years. This is a perfectly acceptable way to use a trust.

As this discussion demonstrates, trusts can be used to hold assets just long enough to transfer them to a beneficiary or to hold assets for many years to meet the goals of the grantor. When considering the use of a trust, the amount of time that the assets will be required to be held in trust is an important consideration.

TRUSTS AND PROBATE AVOIDANCE

A primary characteristic of a trust is probate avoidance. Probate is a time-consuming process. It can take months or longer to administer an estate through probate, but a trust continues to operate without having to wait on probate. Probate can also be expensive.

As we discuss in our other bulletin in this series, Legal Tools for Avoiding Probate, we can avoid probate of titled assets without the use of a trust with payable-on-death or transfer-on-death designations. These assets include financial accounts, life insurance, vehicles, and real estate. But

non-titled assets such as equipment, crops, grain, and livestock can only avoid probate by using a trust. Farms with substantial amounts of these non-titled assets can keep those assets out of probate by using a trust. **Consider the two scenarios in the following example**:

Scenario 1. Jane owns a large inventory of farm machinery. For her estate plan, she has a simple will leaving the farm machinery to her children. When she dies, the machinery will be subject to probate. It will likely take several months, at a minimum, to complete the probate process to transfer the machinery to the children. Additionally, considerable legal fees will be required to file the appropriate forms with the probate court.

Scenario 2. Jane elects to have a trust for her estate plan. When Jane dies, the machinery will be in her trust. Jane's trustee can distribute the machinery to Jane's children at any time after Jane's death. Other than perhaps a simple document recognizing the children's receipt of the machinery, the machinery can pass to the children with little effort and in a short amount of time.

This example highlights the probate-avoiding benefits of a trust. For farm operations with large inventories of machinery, livestock, grain, crops and other non-titled assets, trusts will usually save significant time and legal fees by avoiding the probate process.

DO YOU NEED A TRUST?

A trust is not necessary for every situation; sometimes a simple will is adequate. Several factors can help with deciding if the benefits of a trust outweigh the extra costs and complexities of a trust. The following are a few of the more important factors to consider when making this decision.

1. Complexity of plan

Generally, the more complicated the plan the more likely a trust is the better option. Remember that assets that are subject to a will are also subject to probate court oversight. While probate courts provide an important service and do a good job of administering many estates, the probate process is also well known for being laborious and time consuming. Administering a complicated plan through a will and probate can get bogged down very quickly.

A trust is not subject to probate oversight. The trustee administers the trust with the oversight of only the beneficiaries. The administration of assets through a trust can often be done much more efficiently and quickly than probate. Trust administration does not have all the constraints and formality of probate. **Consider the following examples**:

Example 1. Mike's goal is to have his farmland go to his three children equally with no additional conditions. A trust is likely not needed as the distribution plan is simple and straightforward.

Example 2. Mike would like all three of his children to benefit from his farmland. However, he wants his son Nick to have the option to purchase the other children's ownership interests. He also wants to set the purchase price at 80% of the appraised value and give Nick 10 years to pay for the land at the lowest allowable interest rate. A trust is likely the better option for this scenario because of the complexity involved with Nick's option to purchase. While this scenario could be done through probate, it would take much longer and likely incur significant legal fees. Instead, by using the trust, the trustee obtains an appraisal, makes the offer to Nick and collects the sale proceeds – all without the need to involve the probate court.

The more complex the estate plan becomes, the more likely a trust is the better option. Wills are the better option for people with simple plans, but most farmers do not have simple plans. Farmers often include options to purchase, leases, rights of first refusals, and many other complicated components in their plans. For many farmers, a trust will be the better option for their estate plan.

1. Transition of operation

One of the primary concerns of many farmers is the transition of the farming operation to the next generation. Trusts can allow the farming operation to flow to the next generation farmer quickly and efficiently. This quick and efficient transition can help ensure that the farming operation remains viable and profitable for the successor farmer. **Consider the following example:**

Linda owns a herd of beef cattle. Her intention is for her two children to inherit the cattle. Linda knows the cattle should be sold upon her death since her children have no interest in the cattle and have never helped with the cattle. Linda dies unexpectedly a week before her cows are to start calving.
Scenario 1. Linda dies with only a simple will that leaves everything to her children. Before the cattle can be sold, Linda's estate must be opened in probate court and an executor must be appointed by the court. Then, the executor must receive permission from the court to sell the cows. This process could take several weeks and in the meantime, the cattle have likely started to calve and there is no one to take care of the cattle or the new calves.
Scenario 2. Linda had set up a trust before her death which holds the cattle. Upon Linda's death, the trustee is able to immediately find a buyer and sell the cattle. All the cattle are sold to another beef operation before they begin calving.

This example shows how a trust can provide a better transition of the farming operation. In the first scenario the probate court was required to be involved, which could hold up the transition. In the second scenario the trustee had the authority to sell the cattle immediately upon Linda's death. The independence enjoyed by the trustee allows decisions to be made faster and actions to be taken quicker–both important to a smooth transition of the farming operation.

3. Concerns about heirs

Most people want to leave an inheritance to their heirs to help improve their lives and the lives of future generations. But sometimes, there may be concerns that the heir may not be able to manage the inheritance left to them or that it may be lost to frivolous spending or creditors. A trust can help ensure that an inheritance will be protected from mismanagement or loss.

A trust strategy uses a trustee to manage an heir's funds. The trustee can provide the heir with income and/or principal from the trust and can also limit the resources available to the heir to be sure it is not wasted. The assets can be held in trust until certain conditions are met, for a certain period, or for the life of the heir. **Consider the following example:**

Nancy wants to leave her farmland to her two children, Paul and Oscar. Paul has never been able to manage his finances and spends every dollar that is available to him. Nancy is concerned that if Paul inherits the land he will immediately sell it to get money to spend on things he does not need. Nancy wants Paul's children to be able to enjoy and benefit from the land someday.

Nancy establishes a trust. Upon her death, Paul's share of the land will be held in trust for the remainder of his life. Oscar, who is responsible and good with money, will be the trustee of Paul's trust. Oscar will manage the land on behalf of Paul and will release only the income generated from the land annually to Paul. The trust instructs Oscar not to sell the land and upon Paul's death, to distribute the land to Paul's children.

When facing a scenario in which the heir should not receive the assets directly, a trust is an excellent means to protect the assets. This strategy can be used to protect assets from issues that heirs may have such as drug/alcohol abuse, gambling, creditors, lawsuits, bankruptcies, spending problems, and marriage problems. Wills, conversely, provide limited options to protect assets for heirs.

4. Estate taxes

In the last decade, federal estate taxes have become less of a problem for farmers because the federal estate tax exemption has steadily increased. And many states, like Ohio, no longer have estate taxes. This means only a small fraction of farm families face the prospect of paying estate taxes. However, for those farm families who do face estate taxes, trusts are a near necessity.

A discussion on the intricacies and complexities of estate taxes and trusts is beyond the scope of this publication. However, it can safely be said that trusts provide opportunities to reduce estate taxes that cannot be accomplished by a will alone. This estate tax savings benefit is mostly applicable to married people because assets can be held in trust at the death of the first spouse. For unmarried people, trusts do little to reduce estate tax liability and thus a will may be an adequate solution.

5. Privacy

The process of probate is overseen by a probate court and all filings and information are open to public access. For some people, the idea of having information about their will, assets, and heirs be publicly available is not a big concern. For others, privacy is a priority.

Trusts can maintain privacy. Because a trust is a private document and only the trustee and beneficiaries are entitled to see it, a person's assets, beneficiaries, and distribution plan remains completely private. For individuals who wish their estate information to be private, a trust is a better option than a will.

6. Legal fees

Generally, trusts are more complex legal documents than wills and usually cost more in legal fees, although costs vary greatly from one attorney to another. However, the attorney and probate fees for implementing a will-based plan can be several times more than the costs to administer a trustbased plan. Before engaging an attorney to draft a will or a trust, be sure to understand what the total costs will be as this is an important factor in deciding between a will or trust.

OTHER BENEFICIAL CHARACTERISTICS OF A TRUST

There can be other benefits of incorporating a trust into your farm transition plan. We explain these additional benefits and considerations below. If any of these are important to your goals for the future of your farm, consider using a trust to accomplish those goals.

Control after death. A trust allows you to continue to control the assets after your death through the terms of the trust. For example, the trust could hold farmland after death and not allow that farmland to be sold for 50 years or more.

Planning for second marriages. In a blended family involving a second marriage after the loss of a first spouse, a trust can provide income and support for your second spouse if you pass away while keeping farm assets in your family. If your second spouse later remarries after your death, the trust could direct the assets to go to your children, whether from the first or second marriage, and the assets won't end up in your second spouse's new family. This strategy can keep farmland and other farm assets in your family in a second marriage situation.

Restrictions for minors. A trust can include provisions requiring your children to meet certain age requirements before they receive income from an asset or the asset itself.

Provide for heirs with special needs. Much like a trust can provide for a surviving spouse, a trust can manage funds and assets for loved ones with special needs like a handicap or disability who might not be able to care for themselves after you pass away. Appointing a trustee to manage the assets and income for your beneficiary gives you the assurance that your loved one will have the funds and care needed to live a comfortable life.

Giving to charities. In addition to providing for loved ones, you can also use a trust to support your passions. You can establish a charitable trust that names certain charities, or you can describe causes or issues you want to support with the trust assets.

GIVE CAREFUL CONSIDERATION TO TRUSTS

Trusts are valuable tools for farm transition planning. However, trusts are not necessary for every plan. Consider the benefits of a trust to determine if it is the best asset transfer tool for you. Your estate planning attorney can help guide you through the process.

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