# Agriculture and the Columbia River: A Legal And Policy Prospective

by

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Originally published in ENVIRONMENTAL LAW
10 ENVTL. L. 281 (1980)

# AGRICULTURE AND THE COLUMBIA RIVER: A LEGAL AND POLICY PERSPECTIVE

By
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Any analysis of water allocation in the Columbia River Basin must include an examination of agricultural water use. Irrigation accounts for over ninety percent of the water diverted and consumed in the Pacific Northwest.[1] Although irrigation has no close competition among consumptive water uses,[2] it by no means dominates water allocation in the Columbia River Basin.[3] Instream water uses[4] compete with agriculture for the limited and varying flows of the Columbia and its tributaries. Chief among these competing instream uses are hydroelectric power generation, navigation, and minimum flow maintenance for the protection of fish habitat.[5]

This paper addresses the legal aspects of agricultural water

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1. 2 PACIFIC NORTHWEST RIVER BASINS COMMISSION, WATER—TODAY AND TOMORROW: A PACIFIC NORTHWEST REGIONAL PROGRAM FOR WATER AND RELATED RESOURCES 3-57 (draft) (197-) [hereinafter cited as 2 PNRBC].

2. Consumptive uses are those which require diversion of water from the streambed, and from which the return flow is less than the amount diverted. For example, both municipal and industrial water demands compete with agriculture for available water supplies and may conflict with irrigation in terms of water quality impacts and requirements.

3. The terms Columbia River Basin and Pacific Northwest are used interchangeably in this article. Technically, the Columbia River Basin includes Oregon, Washington, Idaho, Montana, Wyoming, Nevada, Utah, and Canada. For the purposes of this article the two terms are used to describe Oregon, Washington, and Idaho. Where a broader definition is intended it is so indicated.

4. Instream water uses are those which do not require diverson from the streambed.

5. Pollution is also directly affected by stream flow levels. Although emission controls have been the historic approach to water pollution control, recent emphasis has been given to the diluting effects of higher stream flows.

use in the Columbia River Basin. In pursuing this narrow focus on a single water use, it is important that the complexities and interrelationships of all water uses not be forgotten. Legal rules and institutions are generally problem-focused, as they must be to serve the needs of a diverse and growing society. From a policy perspective, however, it is important to examine the parts as they relate to the whole. The whole with which Columbia River policy must be concerned is the optimization of social benefits from that marvelous natural resource. The part upon which this paper focuses is the law which governs and facilitates the allocation of water to agriculture. To adapt a commonly used metaphor, all too often studies of water use fail to see the river for the water. The social importance of the Columbia River is beyond question. The political, hydrological and biological complexities of allocating the water are very real.[6] This discussion of the agricultural aspect of the problem endeavors not to obscure these complexities, but rather to inform and perhaps contribute to unraveling some of the difficult issues of Columbia River water allocation.

This paper is divided into five parts. The first part briefly outlines existing and projected agricultural water demand in the Columbia River Basin. Part two outlines the private water rights systems of the states in the Pacific Northwest. Part three discusses the public role, both state and federal, in agricultural water use. Part four examines the issue of minimum instream flow maintenance,[7] an emerging water demand which poses the most significant future challenge to agriculture. The last part outlines an analytical framework to help policymakers relate the law and institutions of agricultural water use to the general problem of water allocation on the Columbia River.

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6. [T]he Columbia River as presently developed is no longer a surplus resource. Any expansion of use of the Columbia River whether that be instream or out-of-bank will involve costs and trade offs to other river uses. Before decisions are made affecting the future use and allocation of Columbia River water, decision makers must be fully aware of these costs and tradeoffs so that decisions can be made with a full understanding of associated benefits and costs.

U.S. ARMY CORPS OF ENGINEERS, IRRIGATION DEPLETIONS/INSTREAM FLOW STUDY I-9 (1976).

7. Instream flow maintenance is the assurance that a minimum level of water will be maintained at all times.

## I. Irrigation in the Columbia River Basin

In 1970, 34.3 million acre feet of surface and groundwater were diverted from the Columbia River to irrigate approximately 7.5 million acres of farmland.[8] Of the total water, 15.9 million acre feet were consumed, leaving a return flow of slightly more than half of the total agricultural diversion.[9] The amount consumed, 15.9 million acre feet, is a lot of water. It would cover the state of West Virginia a foot deep or the state of Rhode Island twenty feet deep. But the significance of agricultural use of water in the Columbia is clearer in the context of the mostly arid Columbia River Basin than in the imaginary inundation of a smaller state. The water consumed in Pacific Northwest irrigation would cover the states of Idaho, Oregon, and Washington about an inch deep. Even this image poorly illuminates the significance of agricultural water use to the overall demand for Columbia River water. One must understand the geographical and seasonal distribution of irrigation, the average, low and seasonal flows of the river and its tributaries, and the role of groundwater in supplying agricultural needs.

Half of Columbia River Basin irrigation is along the Snake River in Idaho. The flat bottomlands along the Snake are easily irrigated by gravity systems. The difficulty and expense of raising water to the benchlands of Washington and Oregon have resulted in less irrigation in those states despite an abundance of irrigable lands. However, in recent years, new sprinkler systems have resulted in expanded irrigation in both Oregon and Washington.[10]

Of a total of almost six million acres of cropland in Idaho, nearly 3.5 million acres are irrigated.[11] These irrigated lands are concentrated around Idaho Falls, Twin Falls, and the Boise-Weiser area.[12] About seventy-five percent of Idaho's irrigation is

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8. 2 PNRBC, *supra* note 1. An acre foot of water is that volume of water which will cover an acre of land one foot deep. An acre foot of water applied to farmland over the course of a year is the equivalent of 12 inches of precipitation.

9. *Id.* Return flow estimates are difficult to make because of the many variables which influence water consumption, absorption and runoff. This is a serious information problem for water management decsionmakers.

10. *Id.* In 1966, 1.8 million acres in the region were irrigated by sprinkler. By 1977 the land served by sprinklers had increased to over 2.6 million acres, and virtually all new developments are designed for sprinkler irrigation.

11. *Id.* at 3-40.

12. *Id.* at 3-57.

from surface water sources.[13] The remaining twenty-five percent is from groundwater sources, many of which feed and are fed by the Snake and its tributaries. The largest groundwater storage in Idaho is the central Snake area, although the area of greatest groundwater depletion is the upper Snake.[14] Under an Idaho statute,[15] nine groundwater areas are designated as critical and further development of these areas is therefore prohibited.[16] Pressure is also being placed on Idaho's surface waters. In 1977, applications to develop nearly 800,000 new acres for irrigation were on file with the state of Idaho.[17] Development of all of that acreage would result in additional depletions well in excess of one million acre feet.

Oregon has over 5.3 million acres of cropland of which 1.7 million are irrigated.[18] The bulk of these irrigated lands is located in the Umatilla area on the Columbia River and in eastern Oregon near the Snake. Of nearly seven million acre feet of water used for irrigation in Oregon, less than ten percent is from groundwater sources.[19] The most significant groundwater storage is in the Willamette Valley, although there is some potential for expanded groundwater irrigation east of the Cascades.[20] Several areas near the Columbia at The Dalles and upriver are critical groundwater areas closed to future development.[21] Although there is relatively little irrigation directly from the Columbia and Snake at present, these are the principal alternatives for future expansion of irrigated agriculture in Oregon. The Oregon Water Resources Department has pending applications for rights to over 500,000 acre feet a year from the Columbia.[22]

Washington has more cropland than either Oregon or Idaho,

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13. 3 PACIFIC NORTHWEST RIVER BASINS COMMISSION, WATER—TODAY AND TOMORROW: A PACIFIC NORTHWEST REGIONAL PROGRAM FOR WATER AND RELATED RESOURCES 1-16 (draft) (1980) [hereinafter cited as 3 PNRBC].

14. PNRBC, *supra* note 1, at 3-68.

15. Idaho Code § 42-202 (1977).

16. 3 PNRBC, *supra* note 13, at 1-18.

17. *Id.* at 1-16.

18. 2 PNRBC, *supra* note 1, at 3-40, 3-59.

19. 3 PNRBC, *supra* note 13, at 3-15.

20. LEAGUE OF WOMEN VOTERS OF OREGON, THE COLUMBIA RIVER: BY WHOSE AUTHORITY? 45 (1979).

21. 3 PNRBC, *supra* note 13, at 3-18 to 3-19.

22. LEAGUE OF WOMEN VOTERS, *supra* note 20, at 24.

but less than seventeen percent of 8.3 million acres is irrigated.[23] Most of the irrigated acreage is located in the Yakima and Big Bend areas.[24] The latter area has experienced rapid development over the last fifteen years including a dramatic increase in irrigation from groundwater sources.[25] Of 7.6 million acre feet of water diverted for irrigation in 1974, thirteen percent was from groundwater.[26] In 1978, Washington's Department of Ecology reserved about 1.3 million acre feet of Columbia River water for future irrigation in the John Day and McNary areas,[27] making clear that state's plans for expansion of irrigated agriculture.

Four other states are part of the Columbia River drainage basin. Of these, Nevada, Utah and Wyoming are of very minor significance. They have relatively little land area in the Basin,[28] contribute little to the water supply,[29] and deplete little through irrigation.[30] Montana has nearly half a million irrigated acres in the Columbia River Basin. Almost all of western Montana's irrigation is on the Clark Fork and the Flathead Rivers, the latter being the area of most new development in the last ten years.[31]

Future demands for agricultural water from the Columbia River Basin are necessarily speculative. Existing forecasts are based on projections from historic growth in agricultural water use in relation to general growth of the population. The United States Water Resources Council predicts a demand for water in the year 2000 to irrigate 1.8 million acres more than was irrigated in 1970.[32] This level of development would require diversions of an additional 7.6 million acre feet of water of which 4.7 million acre feet would be consumed.[33] The Pacific Northwest River Basins Commission forecasts a year 2000 demand for an additional 12.4 million acre feet of water to irrigate an added 3.1 million

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23. 2 PNRBC, *supra* note 1, at 3-40.
24. 3 PNRBC, *supra* note 13, at 4-29.
25. *Id.*
26. *Id.* at 4-28.
27. LEAGUE OF WOMEN VOTERS, *supra* note 20, at 24.
28. The three states combined have 6.8 million acres in the Columbia River Basin, which is less than one percent of the total area. 2 PNRBC, *supra* note 1, at 3-3.
29. *Id.* at 3-23 (Table 3-5).
30. *Id.* at 3-40.
31. 3 PNRBC, *supra* note 13, at 2-18.
32. 2 PNRBC, *supra* note 1, at 4-15.
33. *Id.* at 4-16 (Table 4-11).

acres with a net depletion of 7.7 million acre feet.[34] Whether one adopts the Water Resources Council's low forecast or the higher one of the Pacific Northwest River Basins Commission, it is clear that the continuation of past growth in irrigated agriculture will place significant pressure on the surface and groundwater supplies of the Columbia River Basin.

At some point expanded agricultural water use will depend upon curtailed growth or diminishment of competing water uses. Presently irrigated acres constitute a small portion of the potentially irrigable area of the Pacific Northwest.[35] The irrigation of all irrigable land would require more water than the Columbia River Basin can supply. Choices among potential water uses will have to be made, whether by means of competition for water in a private market or government planning and allocation, or some combination of the two. The legal rules and institutions which govern water allocation on the Columbia River and its tributaries will regulate how those choices will be made. As difficult and controversial as any will be the choice between highly consumptive agricultural use and the maintenance of instream flows.

## II. Water Rights of Irrigators

### A. *Surface water*

Colonial North America adhered to the common law doctrine of riparian water rights. Under English riparian doctrine, the owner of lands adjacent to a natural watercourse has a right to use the water and to have the continuous flow of the water undiminished in quantity and unaltered in quality.[36] American jurisdictions altered the English rule to allow each riparian owner the "reasonable use" of the water.[37] Although the reasonable use rule gave the system some flexibility, it was poorly suited to the needs of the mostly arid American West.[38] Water could not be used on nonriparian lands, and water rights could not be transferred except with the land to which they were appurtenant.

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34. *Id.* at 4-15, 4-17.

35. *Id.* at 3-58 (Figure 3-19).

36. 3 J. Kent, Commentaries on American Law *439.

37. *See* Restatement (Second) of Torts, Scope Note § 850A at 72-76 (Tent. Draft No. 17, 1971).

38. W. Hutchins, Selected Problems in the Law of Water Rights in the West 65 (1942).

Nineteenth century inhabitants of the American West needed water for mining and agriculture, often at points several miles distant from a surface water source. Thus, a second doctrine, the doctrine of prior appropriation, came to dominate the private water law of the Pacific Northwest states. Under the appropriation system first in time was first in right, and rights in water were acquired by putting the water to beneficial use rather than by acquisition of riparian lands.

Washington and Oregon both recognized riparian rights in their early history. Remnants of riparian water law still influence their predominantly appropriative systems, hence their designation as "California doctrine"[39] jurisdictions. Idaho and Montana ("Colorado doctrine"[40] jurisdictions) never recognized riparian rights and, like Colorado, have exclusively appropriative water law systems. However, the differences between these jurisdictions are fewer than the categorization suggests.

Water rights are acquired in the Pacific Northwest states by applying to the relevant state agency for a permit to appropriate.[41] Applicants must demonstrate that the proposed use is beneficial and that they will be able to accomplish the intended appropriation. The beneficial use requirement is a product of the prestatutory era of appropriation doctrine development, during which time it was also established that an appropriator is "only entitled to the amount of water that is necessary to irrigate his land by making a reasonable use of the water," and "the rights acquired by the appropriator must be exercised with reference to the general condition of the country and the necessities of the community."[42] These customary principles of appropriation doc-

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39. The term "California Doctrine" is used to describe the water law in those states which have combined elements of riparian and appropriative systems, such as California since Irwin v. Phillips, 5 Cal. 140 (1855).

40. States adhering to exclusively appropriative law are referred to as "Colorado doctrine" jurisdictions in recognition of the early adoption of the appropriative system by the Colorado Supreme Court in Coffin v. Left Hand Ditch Co., 6 Colo. 443 (1882).

41. In Idaho application is made to the Department of Water Resources. IDAHO CODE § 42-202 (1977). In Oregon application is made to the Director of Water Resources. OR. REV. STAT. § 537.130(1) (1977). In Washington application is made to the Department of Ecology. WASH. REV. CODE ANN. § 90.03.250 (1962). In Idaho water rights may also be acquired through a constitutional appropriation, *Idaho Const.* art. 15, § 3.

42. Hewitt v. Story, 64 F. 510, 514-15 (9th Cir. 1894). *See also* S. WIEL,

trine are reflected in the statutory permit procedures of the states.

The Idaho Department of Water Resources and the Washington Department of Ecology may deny permit applications if granting a permit would be contrary to the public interest.[43] Oregon's Director of Water Resources may also pass judgment on the public interest issue; a negative finding must be referred to the Board of Water Resources which may, after public hearings, deny the application on the ground that the issuance of a permit would be contrary to the public interest.[44] Although there are some statutory guidelines for the application of these public interest standards,[45] they clearly are sources of significant discretion.

Once a permit to appropriate is granted, the appropriator must proceed to develop the water and supply it to the indicated beneficial use. The water right vests when the appropriation is thus completed,[46] but the priority date is the date of the initial filing of the permit application.[47] The water right acquired under these permit systems is a usufructuary right; in other words, ownership of the water remains with the state or the people of the state,[48] a condition not always understood by those farmers to whom a water right is crucial for their enterprise.[49]

The most significant attribute of an appropriative water right

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WATER RIGHTS IN THE WESTERN STATES 46-48 (1905).

43. IDAHO CODE § 42-203 (1977); WASH. REV. CODE ANN. § 90.03.290 (1962).

44. OR. REV. STAT. § 537.170 (1977).

45. For example, in applying the Oregon public interest standard the Board must consider the highest possible use for the available water, the maximum potential for economic development of the resource, drainage and flood control requirements, the amount of unappropriated water available, the need for prevention of waste, and the necessity of protecting existing rights. OR. REV. STAT. § 537.170(3) (1977).

46. OR. REV. STAT. § 537.250 (1977); WASH. REV. CODE ANN. § 90.03.330 (1962); IDAHO CODE § 42-220 (1977).

47. This so-called relation back doctrine applies in all three states. IDAHO CODE § 42-220; (1977) OR. REV. STAT. § 537.250(3) (1977); WASH. REV. CODE ANN. § 90.03.340 (1962).

48. IDAHO CODE § 42-101 (1977); OR. REV. STAT. § 537.110 (1977); WASH. REV. CODE ANN. § 90.03.010 (1962).

49. During Montana's 1973 constitutional revision deliberations many water rights owners were distressed by a proposed constitutional declaration of state ownership of all water, a concern which reflected their lack of understanding of the notion of vested use.

is its priority date. A right to water dating from 1900 is far more valuable than a right on the same watercourse dating from 1979, assuming periodic low flows during which there is insufficient water for all water rights owners. In the event of inadequate water supply on a particular stream, water is cut off to the junior rights holders and supplied to the senior holders for whom water is available.

Many irrigation rights predate the statutory permit systems, and their senior priority dates are valid against all permit rights.[50] It is in this context that the riparian histories of Oregon and Washington are relevant. In identifying precode water rights, those states must look both to rights based upon riparian land ownership and to rights based upon appropriation. Since the adoption of the state water codes in Oregon and Washington, all new rights must be acquired through the permit procedure.[51] In Idaho, however, it is still possible to acquire a water right by the act of appropriating the water to beneficial use.[52] In Washington precode water rights have been made subject to a recording and registration act.[53] Under such acts, failure to register a right may result in its forfeiture.[54]

### *B. Groundwater*

Subsurface waters have been the subject of two distinct legal regimes in the Pacific Northwest. Waters flowing in subterranean streams have been allocated under the appropriation and permit rules applied to surface streams;[55] percolating waters have been allocated under a separate water rights system on the assumption that "they do not form part of the body or flow, surface or subterranean, of any stream."[56] That assumption is mistaken, according

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50. IDAHO CODE § 42-201 (1977); OR. REV. STAT. § 537.120 (1977); WASH. REV. CODE ANN. § 90.03.010 (1962).

51. OR. REV. STAT. § 539.010 (1977); WASH. REV. CODE ANN. § 90.03.010 (1962).

52. IDAHO CONST. art. 15, § 3.

53. WASH. REV. CODE ANN. §§ 90.14.041-.180 (Supp. 1978-79).

54. The enforcement of the forfeiture provisions of recording and registration acts will no doubt lead to constitutional challenges based upon the fifth and fourteenth amendments to the United States Constitution.

55. W. HUTCHINS, *supra* note 38, at 151.

56. Vineland Irrigation Dist. v. Azusa Irrigation Co., 126 Cal. 486, 494, 58 P. 1057, 1059 (1899).

to modern hydrology. Because the legal system has not yet recognized the connections between ground and surface water, vested rights often conflict.

Since 1951, Idaho has had a permit system for the appropriation of groundwater.[57] Prior to 1951, groundwater rights were acquired according to the procedures applicable to surface waters.[58] Oregon has had a similar experience based upon a 1955 statute.[59] Washington also has a permit system for groundwater appropriation which dates from 1945.[60]

In all three states the permitting agencies have discretion to consider the public interest implications of a groundwater application similar to their discretion in surface water applications. All three states allow for the designation of critical groundwater areas to protect against groundwater depletion.[61]

Concern over the depletion of groundwater supplies has led to consideration of artificial groundwater recharge. In Idaho appropriation of surface water for underground storage and recharge purposes is a beneficial use, although such water rights may only be held by aquifer recharge districts.[62] Oregon also recognizes groundwater recharge as a beneficial use, although only "surplus waters"[63] are open to appropriation for that purpose.

## III. State and Federal Roles in Agricultural Water Use

### *A. Water Rights Administration*

No area of property law is free of disputes over title, in particular no area with the factual uncertainties of surface and groundwater hydrology. The normal process for resolving a water rights dispute is a general stream adjudication. Historically such an adjudication was strictly a judicial affair instituted by a single claimant. Other water rights claimants on the stream were joined

57. Idaho Code § 42-226 (1977).

58. *Id.* § 42-229.

59. Or. Rev. Stat. § 537.535 (1977).

60. Wash Rev. Code Ann. § 90.44.050 (1962).

61. Idaho Code § 42-233a (1977); Or. Rev. Stat. § 537.735(1) (1977); Wash. Rev. Code Ann. § 90.44.130 (1962).

62. Idaho Code § 42-4201(2) (Supp. 1978).

63. Surplus waters are those which would go unused if not diverted. Or. Rev. Stat. § 537.135 (1977).

in the interest of due process, informed decisionmaking, and judicial efficiency.[64]

Under existing legislation, adjudication may be initiated by an individual claimant or by the state. Petition is made to the state's water authority,[65] and upon a showing of cause an adjudication proceeding is begun. All claimants on the stream must file a statement indicating the amount of water claimed, the date of first use, the legal basis of the right and the uses to which the water has been put.[66] After appropriate proceedings, the agency issues an adjudication order which may be appealed to the state courts.[67] It is this process which allows owners of precode water rights to establish the validity of those rights. Failure to appear at an adjudication proceeding, assuming proper notice, constitutes forfeiture of claims predating the adjudication.[68]

Along with water rights adjudication, an effective recordation system is extremely important to water allocation. In order to realize the allocative benefits of a private rights system, rights holders must have accurate information about their rights and the rights of others. Similarly, public water managers must know of existing water rights and uses. Idaho and Washington both have mandatory recordation laws[69] under which a failure to register constitutes waiver and relinquishment of any water right.[70]

In the adjudication of water rights, the law of abandonment may lead to the denial of certain claims. A water rights holder who abandons or fails to beneficially use the water for a set statutory period will forfeit the right unless sufficient cause for nonuse can be shown.[71] The water thus forfeited reverts to the state and

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64. W. HUTCHINS, *supra* note 38, at 76.

65. IDAHO CODE § 42-1406 (1977); OR. REV. STAT. § 539.020 (1977); WASH. REV. CODE ANN. § 90.03.140 (1962).

66. IDAHO CODE § 42-1409 (1977); OR. REV. STAT. §§ 539.030-.050 (1977); WASH. REV. CODE ANN. § 90.03.140 (1962).

67. IDAHO CODE § 42-142 (1977); OR. REV. STAT. § 539.150 (1977); WASH. REV. CODE ANN. § 90.03.200 (1962).

68. IDAHO CODE § 42-1411 (1977); OR. REV. STAT. § 539.210 (1977); WASH. REV. CODE ANN. § 90.03.220 (1962).

69. IDAHO CODE § 42-242 (1978); WASH. REV. CODE ANN. § 90.14.041 (Supp. 1978).

70. IDAHO CODE § 42-245 (1978); WASH. REV. CODE ANN. § 90.14.071 (Supp. 1978).

71. IDAHO CODE § 42-222(2) (1977); Gilbert v. Smith, 97 Idaho 735, 552 P.2d

becomes available to junior and new appropriators.[72]

In a time when some streams are nearing full appropriation and prospective rights depend upon uncertain available flows on most streams, the law of water rights transfer is of critical importance. Tranfers are significant to agricultural users both in terms of potential water rights acquisition and potential sales to nonagricultural users. Many irrigation rights are very senior and, therefore, of considerable value to competing water users. Like agricultural lands in some areas, agricultural water rights may become too valuable for continued use in irrigation, depending upon the economics of farming and other activities dependent upon water supply.

Generally, a water right may be transferred without losing priority if the transfer does not injure vested rights of other appropriators.[73] Idaho, Oregon and Washington all require the acquisition of a permit to effect a transfer.[74] The regulation of transfers includes any shift in the use of a water right involving a new owner, a new use, a change in the place of use, or a change in the point of diversion. All of these actions have the potential of injuring the vested water rights of others.

The private water rights system described above leads to an allocation of water according to market demands. The states' role has been largely that of facilitator and protector of vested rights. The states could exercise a management role by means of their statutory definitions of beneficial use,[75] although existing definitions are as broad as the range of significant demands for water.[76]

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1220 (1976); OR. REV. STAT. § 540.610 (1977) (conclusive presumption of abandonment from nonuse); WASH. REV. CODE ANN. §§ 90.14.130-.180 (Supp. 1978).

72. IDAHO CODE § 42-222(2) (1977); OR. REV. STAT. § 540.610 (1977); WASH REV. CODE ANN. § 90.14.160 (Supp. 1978).

73. In re Robinson, 61 Idaho 462, 103 P.2d 693 (1940); OR. REV. STAT. § 540.510 (1977); WASH. REV. CODE ANN. § 90.03.380 (1962). In Washington temporary transfers that do not injure other rights may take place with permission of the local water master. WASH. REV. CODE ANN. § 90.03.390 (1962).

74. IDAHO CODE § 42-108 (1977); OR. REV. STAT. §§ 540.510-.520 (1977); WASH. REV. CODE ANN. § 90.03.380 (1962).

75. *See* text accompanying notes 41-42 *supra*.

76. *E.g.*, Washington statutory law defines beneficial use as including, but not limited to, "use for domestic water, irrigation, fish, shellfish, game and other aquatic life, municipal, recreation, industrial water, generation of electric power, and navigation." WASH. REV. CODE ANN. § 90.14.031(2) (Supp. 1978).

States might also exercise some management control through the public interest constraint on the granting of appropriation permits.[77] There is little evidence, however, that the Columbia River Basin states have sought to influence water use through public interest-based denials of permits. Finally, the states might influence the private market allocation of water through statutory or constitutional preferences for particular uses. Such preferences can take three basic forms: (1) preferring one type of use to another in time of shortage without regard to seniority of rights, (2) preferring one type of use to another in the granting of permit applications, and (3) preferring one type of use to another in condemnation proceedings.[78] The first form is what Trelease describes as a "true preference."[79] Such a preference appears to exist on behalf of domestic and agricultural uses in both Idaho and Oregon.[80]

### *B. Water User Districts*

Idaho, Oregon and Washington have provided mechanisms to facilitate the development and use of private water rights. All three states provide for irrigation districts to be formed at the initiative of irrigators.[81] In Idaho these districts have the power to develop irrigation works, drain lands,[82] construct and operate electric power plants,[83] and set aside lands for public parks and recreational areas.[84] In Oregon irrigation districts have similar authority and also have the power of condemnation.[85] The Oregon legislature has determined that irrigation is superior to all other public and private uses,[86] thus giving the irrigation districts con-

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77. *See* text accompanying notes 44-45 *supra*.

78. F. TRELEASE, CASES AND MATERIALS ON WATER LAW 111 (2d ed. 1974).

79. TRELEASE, PREFERENCES TO THE USE OF WATER, 27 ROCKY MTN. L. REV. 133, 134-37 (1955).

80. IDAHO CONST. art. XV, § 3; OR. REV. STAT. § 540.140 (1977).

81. In Idaho a district may be formed if a majority of the landowners who hold at least one fourth of the land in the proposed district are in favor of it. IDAHO CODE § 43-101 (1977). Districts in Oregon may be formed if a majority of the landowners favor it. OR. REV. STAT. § 545.004 (1977). Washington districts are formed pursuant to WASH. REV. CODE ANN. § 87.03.005 (1962).

82. IDAHO CODE § 43-305 (1977).

83. *Id.* § 43-313.

84. *Id.* § 43-326.

85. OR. REV. STAT. § 545.082.

86. *Id.* §§ 545.088.

demnation authority over all existing water uses.[87] In Washington irrigation districts are empowered to build and operate irrigation works, and to purchase and sell electric power.[88] By becoming irrigation and rehabilitation districts,[89] they acquire the additional authority to develop recreational opportunities and build control structures to promote health and welfare.[90]

Drainage districts may be formed in all three states.[91] These districts have general authority to deal with drainage problems, including the construction of dikes, drains and canals. Washington and Oregon provide for separate diking districts.[92] Idaho and Washington provide for the formation of flood control districts,[93] while Oregon assigns flood control functions to irrigation districts and to soil and water conservation districts.[94] In addition to these forms of local organization, Idaho law authorizes the formation of watershed improvement districts,[95] Oregon provides for water control districts and water improvement districts,[96] and Washington allows the formation of conservation districts.[97]

These myriad local governmental units which can be formed by the private land and water rights owners of the Pacific Northwest have significant influence on general water use of the Columbia River and its tributaries. They give agricultural water users a voice in decisionmaking and the political strength that comes with organization.

### C. *State Water Management Authority*

Five agencies of Idaho's state government have regulatory

87. *Id.*

88. WASH. REV. CODE ANN. §§ 87.03.010, .015 (1962 & Supp. 1978).

89. WASH. REV. CODE ANN. § 87.84.010 (Supp. 1978).

90. *Id.* § 87.84.050.

91. IDAHO CODE § 42-2905 (1977); OR. REV. STAT. § 547.005 (1977); WASH. REV. CODE ANN. § 85.06.010 (1962). Idaho requires the consent of one third of the property owners in the proposed district. In Oregon and Washington a majority of the property owners must agree.

92. OR. REV. STAT. § 551.020 (1977); WASH. REV. CODE ANN. § 85.05.020 (1962).

93. IDAHO CODE § 42-3105 (1977); WASH. REV. CODE ANN. § 86.09.022 (1962).

94. OR. REV. STAT. §§ 545.178, 568.552 (1977).

95. IDAHO CODE § 42-3705 (1977).

96. OR. REV. STAT. §§ 553.020, 552.108 (1977).

97. WASH. REV. CODE ANN. § 89.08.080 (1962).

powers which affect agricultural water use. The Department of Water Resources, which provides staff support to the Idaho Water Resources Board, is authorized to study availability of unappropriated water, methods for effective use of existing supplies, and conservation; to construct and operate water projects; to generate and wholesale hydroelectric power; to appropriate public water in trust for Board projects; to protect Idaho's water from out-of-state diversion; and to institute water rights adjudications.[98] All of these powers are to be exercised pursuant to the formulation and implementation of a state water plan by the Water Resources Board. The Fish and Game Department has authority to prevent discharges into streams that would be harmful to the fish.[99] The Board of Health has similar authority over pollution of surface and groundwater that would be harmful to public health.[100] The Department of Lands and the Idaho State Land Board have authority over water on state lands and over the beds of navigable streams.[101] The Department of Parks and Recreation has long-range planning power over recreational uses of Idaho's waters.[102]

Oregon's water managment is influenced primarily by five state governmental agencies. The Water Resources Department administers the private water rights system, licenses hydroelectric facilities on public waters, approves construction plans for proposed irrigation works, regulates the safety of dams and hydraulic structures, and has jurisdiction over the financial affairs of irrigation and drainage districts. In addition, the Department supports the Water Policy Review Board in its task of formulating a program of water resource development.[103] The Department of Environmental Quality is responsible for water quality regulation.[104] The Soil and Water Conservation Commission supervises the state's forty-eight soil and water conservation districts.[105] The Oregon Fish and Wildlife Commission is charged with promoting

98. IDAHO CODE § 42-1734 (1977).
99. *Id.* § 36-902.
100. *Id.* § 39-3601 (1977).
101. *Id.* §§ 47-13, 58-1 (1977).
102. IDAHO CODE § 67-4223(f) (1977).
103. OR. REV. STAT. §§ 536.008, .220 (1977).
104. *Id.* § 468.035 (1977).
105. *Id.* § 568.290 (1977).

commercial and sport fisheries in the state's waters.[106] Finally, the Land Conservation and Development Commission has expansive planning authority which has an impact upon the extent of agricultural lands and upon local planning activities which may influence water use.[107]

Washington's water management authority is heavily concentrated in the Department of Ecology (DOE). The Department is responsible for the development of twenty river basin management programs, six of which were completed by June, 1978. One of these programs is for the John Day and McNary Pool of the Columbia.[108] The DOE also is responsible for groundwater management, water quality management, irrigation system maintenance on public waters, and implementation of conservation district laws.[109] The Washington Department of Fisheries has authority over commercial fisheries, including anadromous fish species,[110] and the Department of Game is responsible for sports fisheries.[111] The Department of Natural Resources has jurisdiction over state lands, including the beds of navigable streams.[112]

### *D. Federal Water Management Authority*

Federal authority over the water resources of the Pacific Northwest is based upon four provisions of the United States Constitution: the commerce, property, general welfare and treaty clauses. Only two decades after Lewis and Clark made their historic exploration of the Columbia River, the United States Supreme Court held that the federal government has power to regulate interstate navigation under the commerce clause.[113] This federal power extends to all navigable waters,[114] as well as to nonnavigable waters which affect navigable streams.[115] Thus, if there

106. *Id.* § 506.036(2) (1977).
107. *Id.* §§ 197.015, .040 (1977).
108. 3 PNRBC, *supra* note 13, at 4-34.
109. WASH. REV. CODE ANN. §§ 43.21a.010, .020 (1962).
110. *Id.* § 75.08.020.
111. *Id.* § 77.12.210.
112. *Id.* §§ 43.30.010, .070; 79.01.004.
113. Gibbons v. Ogden, 22 U.S. (9 Wheat.) 1 (1824).
114. *See* MacGrady, *The Navigability Concept in the Civil and Common Law: Historical Development, Current Importance, and Some Doctrines that Don't Hold Water*, 3 FLA. ST. U. L. REV. 511 (1975).
115. Oklahoma *ex rel.* Phillips v. Guy F. Atkinson Co., 313 U.S. 508 (1941).

is any question about the extent of federal jurisdiction, it would arise elsewhere than on the Columbia and its principal tributaries. Pursuant to this federal constitutional power under the commerce clause, the federal government possesses a navigable servitude which allows federal projects to reduce private property values without any requirement of compensation.[116] This expansive commerce power has served to justify federal regulation for navigation, flood control, watershed protection and hydroelectric power production.

Under the property clause the federal government has power to dispose of and make all rules and regulations respecting the territory or other property of the United States.[117] This power was greatly magnified by the development of the concept of federal reserved rights. In 1908 the Supreme Court articulated the reserved rights concept in the case of *Winters v. United States.*[118] In essence, the Court's holding was that when Congress reserved land from the public domain for inhabitation by Indian tribes it impliedly reserved a sufficient quantity of water to effectuate the purpose of the reservation. In 1963 the reserved rights doctrine was extended to apply to all types of federal reserved lands,[119] including national forests and national parks. In asserting its reserved water rights, the federal government does not have to comply with the requirements of state law. Although senior private rights are superior to junior reserved rights, there is considerable uncertainty for private rights holders with respect to the date of the federal reservation, the quantity of water reserved, and the legitimate purposes for which the water may be used. The latter two problems are obviously closely linked. In a 1978 decision, *United States v. New Mexico,*[120] the Supreme Court addressed the issue of purpose by distinguishing primary from secondary purposes. Primary purposes, for which reserved rights exist, are those for which land is authorized to be withdrawn under

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116. *See, e.g.,* United States v. Gerlach Live Stock Co., 339 U.S. 725 (1950); United States v. Chandler-Dunbar Water Power Co., 229 U.S. 53 (1913); Arizona v. California, 373 U.S. 546 (1963).

117. U.S. CONST. art. IV, §. 3, cl. 2.

118. 207 U.S. 564 (1908).

119. Arizona v. California, 373 U.S. 546 (1963). *See also,* Ranquist, *The Winters Doctrine and How it Grew: Federal Reservation of Rights to the Use of Water,* 1975 B.Y.U. L. REV. 639.

120. 438 U.S. 696 (1978).

a specific enactment. Secondary purposes, for which the federal government may appropriate or purchase water, but for which no reserved right exists, are those which may be legally pursued on reserved lands but for which the lands could not have been initially withdrawn.[121] The reserved rights doctrine has been held to apply to groundwaters as well as to surface waters.[122]

The implications of the federal power under the reserved rights doctrine are significant. Although *New Mexico* was a disappointment to some who sought expanded federal control of water,[123] it did not alter the fact that both states and private water rights owners face significant uncertainties pending resolution of the priority and quantity issues. An irrigator with a water right dating from 1900 may discover that what was thought to be a very senior water right is in effect junior to a federal reserved right claim to large quantities of water.[124] Similar uncertainties exist with respect to reserved Indian rights. In 1952 the United States Congress passed legislation designed to help the states resolve some of these uncertainties. Under the McCarren Amendment[125] the states can compel federal participation in general stream adjudication; the Amendment is a voluntary waiver of federal immunity that allows the states to unravel the uncertainties associated with the reserved rights doctrine. State court determinations may, of course, be appealed to the federal courts.[126]

Under its constitutional power to dispose of federal property, the Congress in 1877 adopted the Desert Land Act.[127] Under the Act, public domain lands could be claimed in 320 acre parcels. Upon a showing of available water and of adequate irrigation plans, a farmer could acquire title to the land once it was under cultivation. In 1894, Congress passed the Carey Act which was

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121. *Id.* at 702.

122. Cappaert v. United States, 426 U.S. 128 (1976).

123. Some federal agencies and their constituents sought to have a reserved right to all uses, not just the "primary" uses, run from the date of the reservation.

124. *See* F. TREALEASE, *supra* note 78, at 815-16.

125. 43 U.S.C. § 66a (1976).

126. *See* Abrams, *Reserved Water Rights, Indian Rights and the Narrowing Scope of Federal Jurisdiction: The* Colorado River *Decision*, 30 STAN. L. REV. 1111 (1978).

127. The Act required that the farmer claiming a parcel cultivate one eighth of his parcel. The farmer was also required to spend at least one dollar per acre per year for three years. 43 U.S.C. § 321 (1976).

also designed to encourage agricultural development on desert land.[128] Under that law states could select for agricultural use up to one million acres of public domain land which was then placed under state control. Both of these laws are important to federal involvement in the development of irrigated agriculture.

The treaty power of the federal government has had significant indirect impacts on Columbia River Basin agriculture. The 1909 Boundary Waters Treaty[129] and a 1961 treaty relating to three dams in British Columbia and one in Montana[130] have helped define federal and state authority over the Columbia River. Between 1853 and 1864 the United States negotiated fourteen treaties with Indian tribes in the Pacific Northwest.[131] These treaties provided significant water and fishery rights to the Indians, rights which have been the subject of protracted litigation and negotiation over the past few years.[132]

In sum, the federal role in water management as it relates to irrigated agriculture is large, if not dominant. The 1974 federal budget, for example, included nearly half a billion dollars for Pacific Northwest water-related programs.[133] Of this total, agriculture claimed the third largest share, and was affected by virtually all nonagricultural expenditures as well. A 1973 National Water Commission report urged an expanded financial role for the states in federal water programs,[134] a recommendation designed to discourage pork barrel politics and encourage careful water planning

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128. 43 U.S.C. § 641 (1976).

129. Treaty on Boundary Waters, Jan. 11, 1909, United States-United Kingdom, 36 Stat. 2448, T.S. No. 548.

130. Treaty on Columbia River Basin, Jan. 17, 1961, United States-Canada, 15 U.S.T. 1555, T.I.A.S. No. 5638.

131. *See, e.g.*, Treaty of Medicine Creek, Dec. 26, 1854, 10 Stat. 1132; Treaty of Point Elliot, Jan. 22, 1855, 12 Stat. 927; Treaty of Point No Point, Jan. 26, 1855, 12 Stat. 933; Treaty of Neah Bay, Jan. 31, 1855, 12 Stat. 939; Treaty with the Walla Walla, June 9, 1855, 12 Stat. 945; Treaty with the Yakimas, June 9, 1855, 12 Stat. 951; Treaty with the Nez Perces, June 11, 1855, 12 Stat. 957; Treaty with the Tribes of Middle Oregon, June 25, 1855, 12 Stat. 963; Treaty of Olympia, July 1, 1855 and Jan. 25, 1856, 12 Stat. 971; Treaty with the Flathead, July 16, 1855, 12 Stat. 975.

132. *See, e.g.*, Idaho v. Oregon and Washington, _ U.S. _, 100 S. Ct. 616 (1980); Sohappy v. Smith, 302 F. Supp. 899 (D. Or. 1969), *aff'd per curiam*, 529 F.2d 570 (9th Cir. 1976).

133. 2 PNRBC, *supra* note 1, 3-73.

134. NATIONAL WATER COMMISSION, WATER POLICIES FOR THE FUTURE 517-25 (1973).

by the states.

Despite the executive reorganization effort of the Carter administration, an abundance of federal departments and agencies are involved in water management in ways having significance to agriculture. Within the Department of Interior, no fewer than six agencies bear mention. The Bureau of Indian Affairs is involved with agricultural development on Indian reservations and is responsible for water supply and demand inventories which will be important to the resolution of the reserved rights issues.[135] The Bureau of Land Management is responsible for watershed protection on the public domain,[136] a duty related both to water quantity and water quality. The United States Geological Survey is an important source of data for water planners in all parts of government.[137] The United States Fish and Wildlife Service has a growing interest in stream flow maintenance and fish habitat protection, objectives having direct implications for irrigated agriculture.[138] The National Park Service has reserved rights claims which will affect the availability of water for other uses.[139]

The most important Department of Interior agency from an agricultural point of view is the Bureau of Reclamation. The Bureau was created in 1902 for the purpose of constructing and operating irrigation projects to supply water to public and private lands in the arid western states.[140] In its early years the Bureau sought to encourage agricultural development in unsettled areas.[141] Today its focus is on providing new water to established farming areas[142] and on providing multiple benefits in addition to irrigation. Irrigators using Bureau project water agree to pay a

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135. 3 PNRBC, *supra* note 13, at 3-26.

136. 43 U.S.C. §§ 1701(8), 1731, 1733 (1976). *See also* 16 U.S.C. § 1005(4) (Supp. II 1978).

137. 43 U.S.C. § 36b (1976).

138. 16 U.S.C. § 662 (1976). The most direct involvement of the Fish and Wildlife Service in stream flow protection is through the work of the Cooperative Instream Flow Service Group headquartered in Fort Collins, Colorado.

139. Given the Supreme Court's decision in United States v. New Mexico, 438 U.S. 696 (1978) (*see* text accompanying note 120 *supra*), National Park Service rights to reserve water for fish and wildlife uses are those most likely to have very senior priority dates.

140. Reclamation Act, ch. 1093, § 10, 32 Stat. 388 (codified at 43 U.S.C. § 373 (1976)).

141. Reclamation Act, § 3, 43 U.S.C. §§ 416, 432, 434 (1976).

142. Reclamation Act, § 4, 43 U.S.C. §§ 419, 461 (1976).

portion of the construction and operation costs, with construction payments based on ability to pay rather than on the market value of the water.[143]

The 1902 Reclamation Act limited the use of Bureau water to privately owned tracts not to exceed 160 acres.[144] A 1926 statute reaffirmed the 160 acre limit and required the sale of excess lands over the 160 acre total by all private parties seeking Bureau water.[145] In a 1958 decision, *Ivanhoe Irrigation District v. McCracken*,[146] the United States Supreme Court upheld the validity of the 160 acre limit. Pursuant to a federal district court order,[147] the Bureau has proposed rules for implementation of the 160 acre limit.[148] The limitation, as originally enacted and as applied in the recently proposed rules, has the clear purpose of encouraging the development of small family farms. The viability of the 160 acre site limit in the arid regions of the Columbia River Basin is a serious issue, similar to the historic problems under the acreage limits of the Homestead Act.[149]

A longstanding issue of concern to the Bureau and to federal water management generally is the extent of state control over federal water projects. In *United States v. California*[150] a district court held that the state must grant water to Bureau projects if unappropriated waters are available. In 1978 the Supreme Court reversed that position and held that the states could impose conditions on appropriation permits granted to the Bureau so long as the conditions did not defeat the purpose of the project nor violate any laws adopted by Congress.[151]

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143. 43 U.S.C. §§ 462, 485, 492 (1976).

144. Reclamation Act, § 5, 43 U.S.C. § 431 (1976).

145. Act of May 25, 1926, ch. 383, § 46, 44 Stat. 649 (codified at 43 U.S.C. § 423e (1976)).

146. 357 U.S. 275, 294-97 (1958).

147. National Land for People v. Bureau of Reclamation, 417 F. Supp. 449 (D.D.C. 1976).

148. 42 Fed. Reg. 43,044 (1977). An environmental impact statement on the proposed regulations is now under review. 44 Fed. Reg. 28,831 (1979).

149. 43 U.S.C. §§ 211-224 (1976). For a listing of Homestead legislation *see* Huffman, *A History of Forest Policy in the United States*, 8 ENVT'L LAW 239, 249 n.64 (1978).

150. 403 F. Supp. 874 (E.D. Cal. 1975), *aff'd*, 558 F.2d 1347 (9th Cir. 1977), *rev'd*, 438 U.S. 645 (1978).

151. California v. United States, 438 U.S. 645 (1978).

Three agencies of the Department of Agriculture have water management authority of relevance to irrigated agriculture. The Forest Service, like the Bureau of Land Management, has watershed management responsibilities which affect the quantity and quality of water available to agriculture.[152] That agency also has significant reserved rights claims which have yet to be resolved.[153] The Agricultural Stabilization and Conservation Service has direct dealings with farmers through the Agricultural Conservation Program which provides cost-sharing assistance for soil and water management and conservation.[154]

The third agency in the Department of Agriculture with a direct interest in water is the Soil Conservation Service (SCS). The SCS was created in 1935 as part of the New Deal.[155] Initially its duties reflected concern over agricultural misuse of lands, particularly in the wake of the dust bowl era, and over the general misuse of the nation's soil resource to the detriment of its water resource. Since 1935 the agency has acquired additional watershed protection responsibilties.[156] The focus of SCS programs, some of which directly support irrigation,[157] is on cost sharing and voluntary private and local participation through soil conservation districts.[158]

Two other federal agencies play a significant role in agricultural water use. The Army Corps of Engineers has gained importance to Pacific Northwest agriculture more by historical accident than by design. The Corps of Engineers was created by the Act of March 16, 1802.[159] Under this Act the Corps had jurisdiction over navigable waters, pursuant to the federal constitutional power to

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152. 16 U.S.C. §§ 475, 526, 528 (1976).

153. Although United States v. New Mexico, 438 U.S. 696 (1978), settled some reserved rights issues (*see* text accompanying note 120 *supra*), it did not settle the important quantification issues which exist on all Forest Service lands.

154. 16 U.S.C. §§ 590a, 590p(b)(1), 590p(c)(3), 590p(d)(3), 590p(e)(3), 590p(h)(4), 590p(i)(4) (1976).

155. *Id.* §§ 590a, 590e.

156. 16 U.S.C. § 1001 (1976); 16 U.S.C. § 590g (1976); 33 U.S.C. §§ 1251, 1254(a) (1976).

157. Resource Conservation and Development Districts, established under the Food and Agriculture Act of 1962, have authority to develop irrigation systems. 16 U.S.C. § 590g (1976).

158. *See* text accompanying notes 81-97 *supra*.

159. Act of March 16, 1802, ch. 9, § 26, 2 Stat. 132.

regulate navigation as part of interstate commerce.[160] This jurisdiction was significantly expanded by the Federal Water Pollution Control Act (FWPCA) Amendments of 1972[161] to include primary tributaries, natural lakes greater than five acres in surface area, lakes created by impounding water, and adjacent wetland.[162] The Corps has responsibility for administering the dredge and fill permits required by section 404 of the FWPCA.[163] Each of the twelve federal water development projects which the Corps has constructed and operates in the Pacific Northwest was authorized by specific legislation which allows stored waters to be used for irrigation among other uses.[164]

Finally, the Environmental Protection Agency (EPA) has a regulatory function important to agricultural water use. Under the 1972 FWPCA Amendments the EPA is required to regulate the quality of water which is returned to the nation's navigable waterways.[165] As a result of the 1977 amendments to the FWPCA,[166] several types of farming activities are exempted from the section 404 dredge and fill permit requirements.[167] The exemption does not extend to toxic effluents,[168] nor does the exemp-

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160. *See* text accompanying note 113 *supra*.

161. Pub. L. No. 92-500, §§ 404(a), 502(7), 86 Stat. 816 (1972) (amended 1977) (codified at 33 U.S.C. §§ 1344(a), 1362(7) (Supp. I 1977)).

162. 33 C.F.R. §§ 323.3(a), 323.2(a), 323.2(e)-(f) (1979).

163. Federal Water Pollution Control Act, §§ 404(a), (b), 33 U.S.C. §§ 1344(a), (b), (d) (Supp. I 1977).

164. Following is a list of the legislation and the dam(s) created by each: Bonneville Project Act of 1935, § 1, 42 U.S.C. § 382 (1976) (Bonneville Dam); Act of June 5, 1944, § 1, 43 U.S.C. § 593a (1976) (Hungry Horse Dam); Rivers and Harbors Act of 1945, Pub. L. No. 79-14, § 2, 59 Stat. 10 (four Snake River Dam projects); *id.* at 22 (McNary Dam); Rivers and Harbors Act of 1946, Pub. L. No. 79-525, 60 Stat. 634 (Chief Joseph Dam); Flood Control Act of 1950, Pub. L. No. 81-516, § 204, 64 Stat. 170 (Libby, John Day, and The Dalles Dams); *id.* at 178 (Albeni Falls Storage Project).

165. Federal Water Pollution Control Act Amendments of 1972, Pub. L. No. 92-500, § 101, 86 Stat. 816 (amended 1977) (codified at 33 U.S.C. § 1251 (1976 & Supp. I 1977)).

166. Federal Water Pollution Control Act Amendments of 1977, Pub. L. No. 95-217, § 67(b), 91 Stat. 1566 (codified at 33 U.S.C. § 1344(f) (Supp. I 1977)).

167. 33 U.S.C. § 1344(f)(1) (Supp. I 1977). Included in the exemptions are manual farming and ranching (e.g. plowing, feeding, cultivating, harvesting for the production of food and fiber, and upland soil and water conservation practices), maintenance or construction of farm or stock ponds or irrigation ditches, and the construction of farm roads.

168. *Id.*

tion prohibit the states from applying more rigid requirements.[169] Of most direct significance for irrigation is section 208 of the FWPCA, which applies to nonpoint sources of pollution.[170] State permit programs under section 208 are designed to encourage "best management practices" to minimize erosion and nonpoint source pollution.[171] To implement these agricultural sections of the FWPCA, often referred to as the Rural Clean Water Act, the Secretary of Agriculture is authorized to negotiate, through the Soil Conservation Service, cost sharing and technical assistance agreements with rural land owners.[172]

## IV. Minimum Stream Flow Maintenance: A Significant New Water Use

Instream water uses are not new to American water law. The riparian rights system, inherited with the English common law, originally protected instream power generation by the many mills upon which the economy depended. The English rule[173] did not accommodate any significant out-of-stream, or consumptive, uses. The American modification of that rule allowed for reasonable use of the water,[174] an adjustment that opened the door to consumptive and pollutive water uses. However, instream uses of water were still recognized and protected.

In the developing West, instream uses of water were not important. Although there was no principled opposition to instream water use, the appropriation doctrine developed characteristics that made acquisition of water rights for instream uses difficult, if not impossible. Because instream water uses were not economically important, they did not gain common law or statutory status as beneficial uses.[175] In addition, water appropriators had to di-

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169. *Id.* § 1344(g).

170. Federal Water Pollution Control Act § 208, 33 U.S.C. § 1288 (1976 & Supp. I 1977). A nonpoint source of pollution is one from which effluents enter a stream in a disperse fashion. Irrigation runoff is one of the principal forms of nonpoint source pollution in the west.

171. 33 U.S.C. § 1288(b)(2)(F), (b)(4)(B) (Supp. I 1977).

172. *Id.* § 1288(j). An example of cost sharing is the installation of sprinkler irrigation systems, which have a high capital cost but cause less pollution than flood irrigation.

173. *See* text accompanying note 36 *supra*.

174. *See* text accompanying note 37 *supra*.

175. Early definitions of beneficial uses reflected economically important

vert the water, a requirement that reflected the practical necessities of a property rights system nearly devoid of records.[176] When the protection of instream flows eventually gained social significance, the deck was stacked against instream users. Of course other water users, including irrigators, were not shy about playing their strong hands to protect the advantage the law had dealt them.

The history of instream flow rights in Idaho illustrates the preceding scenario. Since 1925 various Idaho statutes have given state authorities the power to appropriate all unappropriated waters of certain specified lakes and springs for aesthetic and recreational purposes.[177] In 1974 the Idaho Supreme Court upheld one such statute.[178] In that case the Idaho court held that recreation and scenic beauty were not beneficial uses under general Idaho water law, but that the statute legitimated those uses in the cases specified by the statute.[179] The court also held that although a diversion is normally required,[180] the statute in question clearly was intended to exempt the Malad Canyon waters from the requirement.[181] The implication of the court's decision was that instream flow maintenance was possible, but that legislation was required if the beneficial use and diversion requirements were to be overcome.

In 1978 the Idaho legislature adopted legislation authorizing the state Water Resource Board to appropriate unappropriated water for instream flows, subject to the approval of the legislature.[182] The law defines beneficial use to include instream flows

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water uses of the time. As instream uses became valuable, beneficial-use definitions changed. *See, e.g.*, Thompson v. Pennebacker, 173 F. 849 (9th Cir. 1909), in which the court allowed previously appropriated water to be used for electric power generation.

176. If diversion were required for a valid appropriation, physical evidence of an existing right would always exist. Such physical evidence was important to establishing the date of the appropriation and the volume or flow of water appropriated.

177. IDAHO CODE §§ 67-4301 to 67-4307 (1973 & Supp. 1978).

178. Idaho Dep't of Parks v. Idaho Dep't of Water Administration, 96 Idaho 440, 530 P.2d 924 (1974).

179. *Id.* at 444, 530 P.2d at 928.

180. IDAHO CODE §§ 42-101, 42-201, 42-202 (1977).

181. Idaho Dep't of Parks v. Idaho Dep't of Water Administration, 96 Idaho 440, 445, 530 P.2d 924, 929 (1974).

182. IDAHO CODE § 42-1503 (Supp. 1978).

"for the protection of fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, transportation and navigation values, and water quality."[183] The law also makes clear that a physical diversion is not necessary.[184] Any person, association, municipality, county, state or federal agency may request that the Water Resource Board consider a possible minimum flow appropriation.[185] The Board must then apply to the director of the Department of Water Resources.[186] If approved, the minimum flow appropriation must not interfere with any vested water rights,[187] must be in the public interest,[188] must be necessary for one of the authorized instream purposes,[189] must be a minimum as opposed to an ideal or most desirable flow,[190] and must be capable of being maintained as evidenced by past flow records.[191] Once minimum flow appropriations are approved by the Department of Water Resources, they must be submitted to the legislature for approval.[192]

In addition to the enabling legislation for future minimum flow appropriations, the 1978 Idaho legislature established base flows on the Snake River "in order to preserve the stream flows . . . in the public interest . . . on the main stem of the Snake River."[193] The statute establishes minimum daily flows at three designated points on the river.[194]

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183. *Id.* § 42-1501.

184. *Id.* 42-1502(a).

185. *Id.* § 42-1504.

186. *Id.* § 42-1503. It is not clear from the Act whether the Board may file applications on its own initiative or whether it may file applications only upon request from another agency or person.

187. There are an estimated 250,000 rights to beneficially use the waters of Idaho. Eighty-six percent of these existing rights are not on record and therefore are subject to some future adjudication. IDAHO WATER RESOURCE BOARD, THE STATE WATER PLAN-PART 2 41 (1976).

188. Public interest is not defined in the statute.

189. This is a technical question the answer to which is dependent upon developing methods for projecting stream flow need. For the present there is disagreement about which scientific method is best for proving what minimum flow is necessary.

190. This requirement gives the director significant flexibility since "ideal" and "most desirable" are not easily defined.

191. IDAHO CODE § 42-1503 (1978).

192. *Id.* Approved applications must be submitted to the legislature within the first five days of a regular session. The application is effective after legislative approval or in the absence of any action by the legislature.

193. *Id.* § 42-1736A(2).

194. *Id.* The gauging stations and minimum daily flows are Milner (zero),

In 1969 the state of Washington authorized minimum flows for fish habitat, recreation and aesthetic purposes.[195] The flows may be set by the Department of Ecology upon the request of the State Department of Fish, the Game Commission or the Water Quality Commission. Prior to setting a minimum flow, the Department of Ecology is required to hold a public hearing in the county in which the target stream is located.[196] Existing water and storage rights are expressly protected from infringement by the minimum flow regulation.[197] Although the statute does not alter the Department's right to make future appropriations, it does prohibit approval of future appropriations that would have a negative effect on established minimum flows.[198] In addition to appropriating minimum flows for the purposes mentioned above, the Department is authorized to set minimum flows for stock watering where such flows will not result in the "unconscionable waste of public waters."[199]

The Oregon legislature was one of the earliest to recognize instream flow maintenance as a valid public purpose and to establish a system for the setting of such flows. In 1955 the Oregon legislature declared that "the maintenance of minimum perennial stream flows sufficient to support aquatic life and to minimize pollution shall be fostered and encouraged if existing rights and priorities under existing laws will permit."[200] This policy, along with several others identified in the statute, is to be implemented by the Water Policy Review Board through its progressive formulation of an "integrated, coordinated program for the use and control of all the water resources of this state."[201] As a result of this process, the state acquires minimum flow rights which are little different from the other water rights held by private parties. Actions taken by the Water Policy Review Board in 1973 suggest that the Board has the authority to suspend its minimum flow rights when it believes that the interests of junior appropriators

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Murphy (3,300 cms.), and Weiser (4,750 cms.).

195. WASH. REV. CODE ANN. § 90.22.010 (Supp. 1978).

196. *Id.* § 90.22.020.

197. *Id.* § 90.22.030.

198. *Id.*

199. *Id.* § 90.22.040. The provision does not apply to stockwatering associated with feed lots.

200. OR. REV. STAT. § 536.310(7) (1977).

201. *Id.* § 536.300(2).

will otherwise be too seriously harmed.[202]

Other provisions of the Oregon law appear to give the Water Policy Review Board authority to regulate stream flows. The Board may classify a stream for its highest and best use and limit uses inconsistent with the designated use, again subject to existing water rights.[203] The Board may also withdraw all unappropriated water in a basin from further appropriation.[204] In addition, the state legislature may withdraw streams from availablity for appropriation,[205] and may include appropriate streams in the state Scenic River System, which provides for the maintenance of "the free-flowing character of these waters . . . in quantities necessary for recreation, fish and wildlife uses."[206]

The potential impact of minimum flow regulation upon irrigated agriculture is significant. The periods of critical low flow from a fishery point of view are almost exactly coincident with the periods of highest water need for irrigation. Runoff can be stored in order to augment irrigation season flows to the benefit of both agriculture and fisheries, assuming the storage facility does not itself destroy more significant fishery habitat. But competing demands for stored water, such as power generation, make the calculus of artificial stream flow regulation a difficult one. Wildlife, recreational, and aesthetic demands for instream flow protection inevitably conflict with agricultural water demands. The challenge is to optimize the benefits that derive from the available water supplies, a challenge requiring that choices be made among competing users of a finite supply of water.[207]

## V. A Framework for Pacific Northwest Agricultural Water Policy

Pacific Northwest agricultural water policy is a complex matter. It is essential that public decisionmakers understand not only

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202. Water Policy Review Board, State of Oregon, Suspension of Minimum Stream Flows on the North Fork of the John Day River (August 16, 1973).

203. Or. Rev. Stat. § 536.340 (1977).

204. *Id.* § 536.410.

205. *E.g., id.* § 538.110 (1977).

206. *Id.* § 390.815(1) (1977).

207. This formulation of the problem does not preclude "noneconomic" uses from the calculus. Much about modern water law in the Pacific Northwest assures that nontraditional water users will be fairly considered.

the water law of the Pacific Northwest and its related institutions, but also the relationship between the law and current uses of water, as well as the probable impact of alternative policies upon that relationship. All too often policy options are evaluated in isolation and implemented as if they would affect only that problem of primary concern to the policymaker. The structure of Pacific Northwest water law is an integrated whole; adjustments of one aspect of the legal structure are likely to alter that whole in a manner that only a comprehensive review will anticipate.[208] This does not mean that every water policy decision must be part of a comprehensive restatement of Pacific Northwest water law. It does mean that a specific policy should be implemented with the understanding that its effects will extend beyond the policymaker's central concern (for example, agriculture) and that the implementation of independent policies (aimed at, for example, pollution control, water conservation, or instream maintenance) will affect that concern.

Water policy development in the Pacific Northwest must begin with the recognition that the existing mechanism for the allocation of water is fundamentally a private property system. Most of the water used for irrigation is the subject of private water rights which are protected by the federal and state constitutions from public takings.[209] These constitutional protections do more than shield the interests of individuals. More important, they facilitate the efficient allocation of water resources through the private exchange of water as commodity (commodity sales) and the transfer of private water rights (rights transfer) in the marketplace.

Economic theory predicts that the private exchange of property rights in water through a market which functions well will lead to efficient allocation of water resources.[210] To the extent that economic efficiency is an accepted social goal, the private market exchange of water rights should be promoted. The fact

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208. My colleague, Ron Lansing, likens this type of problem to a waterbed. A push in one place makes it come up somewhere else. The analogy is particulary appropriate in this case.

209. U.S. CONST. amend. V; IDAHO CONST. art. 1, § 14; OR. CONST. art. 1, § 18; WASH. CONST. art. 1, § 16, (1889, amended 1920).

210. An efficient allocation is one that cannot be altered in any way to improve the aggregate welfare of society, given the existing distribution of wealth.

that certain aspects of the private water rights system[211] and certain types of market failure[212] inhibit optimum efficiency should not deter policymakers from working to design a private rights system that does not have built-in constraints on market operation. All too frequently the only response to an inefficient property system or to market failure is expanded regulation of private decisionmaking. The problem may be more effectively resolved at minimal cost by refining the system of private rights rather than by regulating its results.

There are several ways in which the private water rights system could be improved to promote more efficient water allocation: (1) Private water rights are frequently defined in vague terms. A water rights owner who has a poorly defined right has little incentive to invest in or develop that right. Although elimination of all uncertainties stemming from vaguely defined rights would itself be an inefficient use of resources, it is frequently possible to increase efficiency by adopting precise statutory and interpretative language defining water rights. Similarly, public rights inherent in the beneficial use and public interest regulatory standards[213] should be more clearly defined; only in this way will the limits of private rights be clear to existing or potential private water rights owners. (2) Although the appropriative system was a response to the inefficiency of the riparian system,[214] certain characteristics of the appropriative right may also lead to waste. For example, the principle that water be put to use or be subject to abandonment may encourage inefficient water use to protect the private right.[215] To the extent that abandonment provisions are adopted to avoid

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211. *See* text accompanying notes 213-216 *infra*.

212. *See* text accompanying notes 217-218 *infra*.

213. *See* text accompanying notes 41-45 *supra*. To the extent that private rights are a function of standards like beneficial use and public interest, the definitions of these terms by public decisionmakers will directly affect the certainties of the private rights.

214. The fundamental problems with riparian water law for the western United States were: (1) the fact that riparian rights are collateral to ownership of land and therefore of indefinite quantity, and (2) the prohibition of the use of water on nonriparian lands. *See* W. Hutchins, *supra* note 38, at 38-65.

215. It should be noted that the principle of abandonment may also promote efficiency to the extent that it encourages development of truly abandoned and forgotten water rights. The inefficiency results from owners of water rights which do not currently merit investment having to use water at a short term net cost in order to protect the long term investment value of the right.

idle water resources, that objective will be better achieved by facilitating rights transfers and commodity sales. (3) Poor information about existing and potential rights may deter efficient water use. Modernization of recording statutes and consistent exercise of discretion in permit and adjudication procedures should more adequately inform owners and potential owners of their rights. (4) Constraints on water rights transfers and commodity sales such as high costs of conveyance and complicated regulations may deter efficient water allocation.[216] Simple and direct procedures for transfer can minimize these costs and frustrations, and thus facilitate the transfer of water and water rights from less valued to more highly valued uses.

The general point of the preceding paragraphs bears restatement. It is fundamentally important to Pacific Northwest water policy to recognize that private rights play a central role in the allocation of water, and that the policy objective of efficiency may be best achieved through improvements in that private rights system.

There are clearly some inefficiencies in water use that result from market system failures, as opposed to property system failures. These generally take the form of external costs, costs to potential water users excluded from the market by high transaction costs.[217] For example, many people who suffer the costs of pollution or who would like to contribute to the protection of a stream's wildlife habitat or aesthetic quality[218] may be financially unable to organize and compete in the marketplace. Public regu-

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216. The transfer problem is extremely complex. Some regulation is necessary to assure that transfers do not violate other vested rights. An empirical study of the transfer process in Oregon is forthcoming from a research project being conducted by H. Stovener, R. Kraynick and J. Huffman under funding from the Water Resources Institute of the State of Oregon, (Water Rights Transfers: A Legal, Economic, and Informational Analysis of Water in Oregon, Project No. 13-069-ORE).

217. Transaction costs include the collection and interpretation of information (about resource uses, resource availability, and existing rights ownership), the negotiation and consummation of a rights transfer, and the enforcement of actual and prospective rights (including the problem of preventing free riders—those who experience benefits without sharing in the cost).

218. These types of benefits are referred to as public goods. They will not generally be produced privately because the private producer cannot control the consumption of the benefits produced. They are external benefits in the sense that the beneficiaries do not participate in the cost of benefit production.

lation is sometimes an appropriate mechanism for reducing prohibitive transaction costs to a level that allows such groups to compete, thus allocating water as the market would have, absent the transaction costs.

Efficient allocation of water resources may be only one objective of public regulation. The government may also, for reasons of fairness, seek to redistribute wealth through redistribution of water rights. For example, the Bureau of Reclamation water development programs have a strong distributive objective which will be particularly effective if the 160 acre limitation of the programs is enforced.[219] As a second example, most public water development programs involve significant subsidies, which are wealth transfers from the taxpayer to the user of the water. Agriculture has been the beneficiary of sizeable transfers of this type.

The government may have other policy objectives in addition to allocative efficiency and distributive fairness. For example, the state may wish to protect the wildlife habitat not because of its benefits to humans, but because of the independent interests of the wildlife.[220]

For the purposes of this article it is not necessary to pursue the merits of these alternative policy concerns. One must, however, recognize that the state and federal governments have several legitimate policy objectives that may be pursued simultaneously. Whether a governmental program is appropriate to the policy it is designed to promote depends upon its makers having clearly-defined policy goals and anticipating collateral effects. It is not uncommon for a governmental program that purports to promote allocative efficiency to in fact result in significant redistributions of wealth. Both the allocative and distributive effects may be desirable, but it would be a mistake to leave either to chance.

The primary policy objectives in the case of agricultural water use are probably efficient use of available water[221] and an

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219. *See* text accompanying notes 144-149 *supra*.

220. *See* Stone, *Should Trees Have Standing?—Toward Legal Rights for Natural Objects*, 45 S. CAL. L. REV. 450 (1972).

221. If a fixed total allocation of water for agriculture is assumed, there will be more and less efficient ways to allocate that water to possible alternative agricultural uses *(e.g.,* wheat versus grapes). More important from a social point of view is the efficiency of allocating to agriculture what might have been allocated to

appropriate share of wealth for farmers and for others who depend upon the food produced by irrigated agriculture. To the extent that the policy objective is to get the greatest value in aggregate benefits from water use, policymakers will be well advised to look first to improvements in the private rights system and second to regulation of the choices made through private exchange and agreement. Public ownership is a third conceivable tool for improved allocative efficiency, but the nature of the political process makes public ownership more likely to result in distributive approaches to decisionmaking.[222]

To the extent that objectives other than allocative efficiency are the focus of government policy, regulation and public ownership are the tools to which policymakers should look.[223] They must agree on how public, and consequently private, rights are to be more clearly defined under the standards of beneficial use, reasonable use, and public interest.

Agricultural water use in the Columbia River Basin cannot be considered in isolation. The potential harm to Columbia River Basin stream flows from expanded irrigation of the region's desert lands is very real. Whether the cost in terms of diminished stream flows and the many other opportunity costs[224] of expanded irrigation will be outweighed by the benefits of that irrigation is the fundamental issue. The private marketplace is a strong tool for striking the proper balance among competing interests. Northwest water managers should take full advantage of that tool, particularly in view of the pervasive role of private water rights in Northwest. When the market fails to allocate resources efficiently or fairly, policymakers must regulate that market. However, the same characteristics of human behavior that make the marketplace a powerful tool also make public decisionmaking a second

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other water use alternatives. If more social good would result from allocating certain water to a nonagricultural use, any policy favoring agricultural use of that water is inefficient.

222. For example, the Multiple-Use and Sustained-Yield Act of 1960, 16 U.S.C. § 528 (1976), is, in part, a statutory commitment to manage the national forests for distributive purposes. Efficiency is not the exclusive objective.

223. Government regulation is not the only way of achieving redistribution. Significant redistributive activities take place through various types of private activity, for example, private charities and environmental funds.

224. Opportunity cost, in the language of the economist, is the value of net benefits of alternative allocations of the resource in question.

best tool for resource allocation. The political process, which is responsive to individual and group interests, ensures that the most influential user groups will get the largest share of the available water supply, whether or not the resulting allocation optimizes aggregate social welfare. Careful structuring of the decision-making process and of the issues for decision is necessary if water resources are to be allocated in a manner acceptable to competing water users, if not optimal from a social point of view.