

**FISHEYE LENS: DATA STEWARDSHIP AND PRIVACY
RIGHTS UNDER THE NORTHEAST MULTISPECIES
FISHERY MANAGEMENT PLAN’S AMENDMENT 23’S
PROPOSED ELECTRONIC MONITORING**

Ryan Clemens*

INTRODUCTION	324
I. HISTORICAL AND CONTEMPORARY COD FISHERY; IMPACTS OF HUMAN EXPLOITATION OF NATURAL FISH STOCKS	327
A. Historical Landscape, Fishery, and Crash.....	327
B. Fisheries’ Role Within Ocean Management	329
II. CONTEMPORARY GROUND FISH MANAGEMENT AND REBUILDING EFFORTS	331
A. New England Fishery Management Council’s Current Regime	331
B. Electronic Monitoring Systems.....	334
III. PRIVACY AND ACCESS RIGHTS UNDER FEDERAL AUTHORITIES .	335
A. National Oceanic and Atmospheric Administration Rules	336
B. Magnuson-Stevens Fishery Conservation and Management Act	336
C. Freedom of Information Act	337
D. The Fourth Amendment	337
IV. THE GOVERNMENT MOST LIKELY MAY COLLECT AMENDMENT 23’S ELECTRONIC-MONITORING FOOTAGE UNDER FOURTH AMENDMENT EXCEPTIONS.....	338
A. The Open-Field Doctrine	340
B. The Curtilage Doctrine.....	341
C. The Third-Party Doctrine	344
D. Pervasively Regulated Business.....	345
V. APPLYING FEDERAL DATA DISCLOSURE PROTECTIONS TO EM UNDER AMENDMENT 23	348
A. Freedom of Information Act	349
1. Crew Depictions	349
2. Vessel and Business Information.....	352
3. GPS Data.....	354
B. Magnuson Stevens Fishery Conservation and Management Act	

* Ryan Clemens is a JD/MEM student at Vermont Law School and Yale School of the Environment. He thanks Adam Mittermaier, Madison Pevey, Emily Spiegel, Andrew Cliburn, Nathan Carrier, Lancee Whetman, and the rest of the *Vermont Law Review* staff very much for their invaluable reviews and recommendations.

.....	355
C. National Oceanographic and Atmospheric Administration Rules	
.....	357
D. Summary	360
VI. RECOMMENDATIONS.....	360
CONCLUSION.....	363

INTRODUCTION

“He brought back reports of cod ‘so plentiful, so great, and so good, with such convenient drying as can be wished,’ that the fishery there was said to be even better than at Newfoundland. These bold words were accurate in one regard: the most immediately profitable resource that New England possessed was undoubtedly cod.”¹

- Captain George Weymouth, 1605

Figure 1: 2019 Recreational Season for Gulf of Maine Cod Fishery²

Gulf of Maine Cod		
Cod Possession Limit	Minimum Fish Size	Open Season
1 fish per angler	21 inches	Sept 15-30

The Atlantic Cod, *Gadus morhua*, once held a prime ecological and economic presence in the North Atlantic Ocean. The Ocean’s colder northern

1. DANIEL VICKERS, FARMERS & FISHERMEN 85 (1994) (quoting James Rosier, *A True Revelation of the Most prosperous voyage made this present yeere 1605, by Captain George Weymouth, in the discovery of the land of Virginia 1605*, in THE ENGLISH NEW ENGLAND VOYAGES 1602–1608 287 (David B. Quinn & Alison M. Quinn, eds., 1983)).

2. *Reminder: Gulf of Maine Cod and Haddock Recreational Measures*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. (Sept. 26, 2019), <https://www.fisheries.noaa.gov/bulletin/reminder-gulf-maine-cod-and-haddock-recreational-measures-0>.

waters support fewer species than warmer southern waters but allow for an extreme abundance of those species.³ Before exploitation, cod was one such abundant species.⁴ European colonizers capitalized on this resource by establishing a cod fishery in Newfoundland as far back as 1517.⁵ By the early 1600s the fishery extended south to the Gulf of Maine.⁶ And, “[b]y the eighteenth century, cod had lifted New England from a distant colony of starving settlers to an international commercial power.”⁷ The East Coast owes a significant portion of its development to the prolific cod fishery, but this seemingly inexhaustible resource did not last.

In 1992, Newfoundland’s fishery nearly eliminated its cod stocks,⁸ and the Gulf of Maine’s stocks were dying three times as fast as managers predicted.⁹ The fishery became one of the world’s most concrete examples of the *tragedy of the commons*, a situation where harvesters exhaust an open-access resource.¹⁰ The body responsible for rebuilding New England’s cod fishery is the New England Fisheries Management Council (NEFMC).¹¹ Guiding NEFMC’s management effort is a tremendous amount of fisheries modeling aimed at estimating a requisite fishery’s stock size, using landings, discards, and survey data.¹² The Northeast Fisheries Science Center (NEFSC) sources and verifies “catch, gear, fishing effort, and biological data” partly through the Northeast Fisheries Observer Program (NEFOP).¹³ Among the observers’ duties is physically boarding industry vessels to record data.¹⁴ The

3. Anne Hayden et al., *Spatial and Temporal Patterns in the Cod Fisheries of the North Atlantic*, 13 CONSERVATION & SOC’Y 414, 415 (2015).

4. *Id.*

5. VICKERS, *supra* note 1, at 87.

6. *Id.* at 90.

7. MARK KURLANSKY, *COD: A BIOGRAPHY OF THE FISH THAT CHANGED THE WORLD* 78 (Penguin Books 1998) (1997).

8. See Lawrence C. Hamilton & Melissa J. Butler, *Outport Adaptations: Social Indicators through Newfoundland’s Cod Crisis*, 8 HUM. ECOLOGY REV. 1, 1 (2001) [hereinafter Hamilton & Butler, *Outport Adaptations*] (illustrating how Newfoundland’s cod stock collapsed in the early 1990s).

9. Steven A. Murawski et al., *Groundfish Stocks and the Fishing Industry*, in NORTHWEST ATLANTIC GROUND FISH: PERSPECTIVES ON A FISHERY COLLAPSE 27, 37 (John Boreman et al. eds., 1997).

10. F. Berkes et al., *Globalization, Roving Bandits, and Marine Resources*, 311 SCI. 1557, 1557 (2006) (“Harvesters have no incentive to conserve [since] whatever they do not take will be harvested by others.”).

11. Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. § 1852(a)(A) (2018).

12. NORTHEAST FISHERIES SCI. CTR., NAT’L OCEANIC & ATMOSPHERIC ADMIN., OPERATIONAL ASSESSMENT OF 19 NORTHEAST GROUND FISH STOCKS 3–4 (2017) [hereinafter *2017 Assessment*], <https://repository.library.noaa.gov/view/noaa/16091>.

13. *Fisheries Sampling in the Northeast*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. [hereinafter *Fisheries Sampling*], <https://www.fisheries.noaa.gov/new-england-mid-atlantic/fisheries-observers/fisheries-sampling-northeast> (last updated Oct. 1, 2020).

14. *Id.*

observers' physical bias, however, could produce inaccurate data, leading the NEFMC to make inaccurate decisions and hinder the northeastern U.S. cod fishery's recovery.¹⁵ Inaccurate data would thus hinder managers' ability to rebuild this historically profitable fishery and the lack of cod would continue to deprive the Northeast's ecosystem of a key predator.¹⁶

In response to the concern over bias, the NEFMC is currently considering several alternatives to the traditional human observer program in Amendment 23 to the Northeast Multispecies Fisheries Management Plan.¹⁷ One such alternative is electronic monitoring (EM). EM is a system of cameras that captures video of fishing activities onboard vessels—a crucial tool to produce high-quality and low-cost fisheries data to better inform management decisions.¹⁸ However, Northeast fishers have several concerns about EM.¹⁹ The opportunity to design a program that is amenable to fishers could speed up implementing EM and its benefits to the Northeast's ecological and economic marine communities, especially in light of conditions that completely prevent human observers like the COVID-19 pandemic.²⁰

This Note explores the data stewardship of the EM program proposed by Amendment 23 to the Northeast Multispecies Fishery Management Plan. Part I discusses the background of the cod and larger groundfish fishery in New England, contextualizing its ecological and economic value to the region. Part II details the current management regime and rebuilding efforts for the fishery and highlight the benefits and concerns of EM. Part III establishes the framework of data and document reporting and accountability for federal agencies and federal fisheries management. Part IV applies the Fourth Amendment to Amendment 23, and Part V identifies areas where fishers' privacy might be exposed under federal disclosure laws. Part VI

15. See *infra* Part II.A.

16. See generally Kenneth T. Frank et al., *Trophic Cascades in a Formerly Cod-Dominated Ecosystem*, 308 SCI. 1621, 1621–23 (2005) (constructing a historical ecology to examine the impact of cod's absence and subsequent multiple trophic-level decline in the Atlantic).

17. NEW ENGLAND FISHERY MGMT. COUNCIL, NAT'L MARINE FISHERIES SERV., DRAFT AMENDMENT 23 TO THE NORTHEAST MULTISPECIES FMP 16–17 (2019) [hereinafter *Amendment 23*], https://s3.amazonaws.com/nefmc.org/190905_Draft_Groundfish_A23_alternatives.pdf.

18. Claire Fitz-Gerald et al., *Electronic Monitoring in the Groundfish Fishery*, NAT'L MARINE FISHERIES SERV. [hereinafter *EM Pilot Report*], https://s3.amazonaws.com/nefmc.org/3c_GF-EM-in-the-northeast-for-AP-and-Cmte-8_6.pdf (last visited Dec. 8, 2020).

19. See *infra* Part II.B.

20. See *NOAA Fisheries Issues Emergency Action to Waive Observer Coverage on a Case-by-Case Basis*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Mar. 24, 2020), <https://www.fisheries.noaa.gov/feature-story/noaa-fisheries-issues-emergency-action-waive-observer-coverage-case-case-basis> (waiving human-observer requirements by emergency rule to limit the spread of COVID-19).

recommends solutions for managers to incorporate into Amendment 23, thus making EM a viable option for fishers. The goal of this Note is to provide a framework to promote the recovery of New England's marine environment through coastal stakeholder and federal management cooperation on EM.

I. HISTORICAL AND CONTEMPORARY COD FISHERY; IMPACTS OF HUMAN EXPLOITATION OF NATURAL FISH STOCKS

A. *Historical Landscape, Fishery, and Crash*

The Northwest Atlantic Ocean once fostered a balanced ecosystem comprised of sea mink, cod, lobster, sea urchin, and kelp forests.²¹ Cod preyed on sea urchins, limiting the urchins' destructive consumption of kelp and preserving the forests' services for other species.²² The Ocean's colder temperatures allowed for a higher abundance of species,²³ whose numbers sustained indigenous and early colonial fishing for several thousand years.²⁴ Cod is very easy to catch, boasts high protein and low fat counts, dries and cures easily, and its entire body is consumable.²⁵ The fish's extreme numbers and high value attracted European explorers and settlers to harvest the fish in the 1500s²⁶ and establish fishing colonies in Massachusetts in the 1600s.²⁷ With its milder seasons and prime location between Newfoundland and Virginia, Massachusetts Bay Colony grew by exporting cod to Europe and importing popular European products.²⁸ Boston became a capital of trade, embellishing its town hall with a golden cod.²⁹ The fishery's seemingly limitless prosperity lasted for over 300 years before ending abruptly in 1992.³⁰

While early fishing operations were sustainable, cod's high value motivated fishers to continuously expand their harvest.³¹ Small vessels

21. Jeremy B. C. Jackson et al., *Historical Overfishing and the Recent Collapse of Coastal Ecosystems*, 293 SCL 629, 631 (2001).

22. *Id.*

23. Hayden et al., *supra* note 3, at 415.

24. *See* Jackson et al., *supra* note 21, at 631.

25. KURLANSKY, *supra* note 7, at 33–35.

26. VICKERS, *supra* note 1, at 87.

27. KURLANSKY, *supra* note 7, at 78–79.

28. *Id.* at 73–74.

29. *Id.* at 78–79.

30. *See* Hamilton & Butler, *supra* note 8, at 1 (explaining how cod resources collapsed throughout the traditional North Atlantic fishery).

31. Hayden et al., *supra* note 3, at 416 (“As human populations and the scale of markets increase, demands for quantity, quality and stability of supply create incentives for increasing scales of fishing in the face of increasing patchiness in the resource.”).

covered local stocks in the Gulf of Maine fishery, while larger commercial vessels traveled offshore to support their investment with higher fishing returns.³² Technological advancements further increased harvesting pressure.³³ Between the 1890s–1950s, Northeastern fishers landed 400,000–625,000 tons of cod.³⁴ Twentieth-century New England’s annual landings peaked in the early 1980s at over 70,000 tons.³⁵ The Gulf of Maine fishery peaked in 1991 with an 18,000-ton harvest, while the Georges Bank fishery reached 28,000 tons before the same year.³⁶ The centuries of intensive fishing pressure eventually broke the Northeast’s cod stocks: in 1992, the stock’s biomass, or estimated weight,³⁷ crashed to 1% of its prior level.³⁸ For perspective, the northwestern Atlantic cod fell to less than 5% of its maximum historical biomass.³⁹ The Gulf of Maine and Georges Bank fisheries harvested three times their management target in 1993, placing extreme pressure on an already small stock.⁴⁰ In Newfoundland, Canadian fisheries managers declared a moratorium, spurring fishers to riot.⁴¹ Since the devastating crashes of the 1990s, Gulf of Maine cod has yet to return to historic population levels; the latest assessment by the National Oceanic and Atmospheric Administration (NOAA) declared that the stock is “overfished”—meaning the stock is too small for harvest—and that “overfishing” is occurring—meaning that the catch rate is too high.⁴²

The cod fishery devolved into a now-classic example of the *tragedy of the commons*, where harvesters will deplete—rather than conserve—open-access resources to limit competitors from doing the same.⁴³ Fishers crashed stocks and shifted to new populations, repeatedly collapsing fisheries.⁴⁴

32. *Id.* at 417.

33. *Id.* at 417–18, 421.

34. Murawski et al., *supra* note 9, at 32.

35. See Hayden et al., *supra* note 3, at 421–22.

36. Murawski et al., *supra* note 9, at 37–38.

37. PATRICK KILDUFF ET AL., GUIDE TO FISHERIES SCIENCE AND STOCK ASSESSMENTS 1 (Tina L. Burger ed. 2009) [hereinafter *Fisheries Science Guide*].

38. Hamilton & Butler, *supra* note 8, at 1.

39. Frank et al., *supra* note 16, at 1623.

40. Murawski et al., *supra* note 9, at 37; *Fisheries Science Guide* 1, *supra* note 37 (defining “fishing mortality” as the rate of fishing or exploitation, and qualifying mortalities higher than targets as “overfished”).

41. 1992: *Cod Fishing and ‘The biggest layoff in Canadian history’* (CBC television broadcast July 2, 1992), <https://www.cbc.ca/player/play/1769461892>.

42. 2017 *Assessment*, *supra* note 12; *Status of U.S. Fisheries*, NAT’L OCEANIC & ATMOSPHERIC ADMIN. FISHERIES, <https://www.fisheries.noaa.gov/national/population-assessments/status-us-fisheries> (last visited Dec. 8, 2020).

43. Berkes et al., *supra* note 10.

44. Hayden et al., *supra* note 3, at 418.

Without access to the prolific fishery, Northeastern economies and social communities declined.⁴⁵ Ecological communities declined as well.⁴⁶ Cod was the New England marine community's dominant predator, and its absence forced a four-level trophic cascade;⁴⁷ without cod's predatory control, sea urchins overgrazed on kelp forests, whose presence and benefits disappeared.⁴⁸ Other popular fish species declined as well, including haddock, white hake, silver hake, pollock, and several flounders and skates.⁴⁹ Harvesters' sequential depletion exacerbated this ecological impact.⁵⁰ Eliminating entire trophic levels weakens communities' resilience, and thus increases vulnerability to "eutrophication, hypoxia, disease, storms, and climate change."⁵¹

B. Fisheries' Role Within Ocean Management

Human populations require ocean services and demand for these services increases with population.⁵² Humans thus rely on ocean ecosystem health to sustain its services and thus must manage its rehabilitation at scale.⁵³ The most physically direct way that humans interact with and manipulate marine environments is through fishing and harvesting activity.⁵⁴ Thus, fisheries management is an effective tool to promote human wellbeing and ocean health as a whole.⁵⁵ By controlling fishing effort on ecologically

45. See Hamilton & Butler, *supra* note 8, at 9.

46. See, e.g., Jackson et al., *supra* note 21, at 629 ("Severe overfishing drives species to ecological extinction because over-fished populations no longer interact significantly with other species in the community.").

47. Frank et al., *supra* note 16, at 1621 ("Trophic cascades [are] defined by (i) top-down control of community structure by predators and (ii) conspicuous indirect effects two or more links distant from the primary one . . .").

48. E.g., Jackson et al., *supra* note 21, at 631.

49. Frank et al., *supra* note 16, at 1621.

50. See Berkes et al., *supra* note 10, at 1557 ("Sequential depletions of species that are major conduits for the flow of energy and materials in marine food webs pose the greatest ecological risks . . . In Maine, the green sea urchin (*Strongylocentrotus droebachiensis*) proliferated after the loss of its fish predators in the mid-1980s.").

51. Jackson et al., *supra* note 21, at 635.

52. Benjamin S. Halpern et al., *A Global Map of Human Impact on Marine Ecosystems*, 319 *SCI.* 948, 951 (2008).

53. Jackson et al., *supra* note 21, at 636.

54. *Id.* at 635–36; Margit Eero et al., *Multi-Decadal Responses of a Cod (*Gadus Morhua*) Population to Human-Induced Trophic Changes, Fishing, and Climate*, 21 *ECOL. APPLICATIONS* 214, 214 (2011); Halpern et al., *supra* note 52, at 951; Frank et al., *supra* note 16, at 1623; Ahmed Khan & Ratana Chuenpagdee, *An Interactive Governance and Fish Chain Approach to Fisheries Rebuilding: A Case Study of the Northern Gulf Cod in Eastern Canada*, 43 *AMBIO* 600, 601 (2014).

55. Halpern et al., *supra* note 52, at 951; Eero et al., *supra* note 54, at 214.

important species, such as cod, humans can allow marine communities to rebalance and rebuild ecological structure.⁵⁶ Stronger ecosystems, in return, can sustain higher populations and a wider variety of fish for sustainable harvest.⁵⁷ Fisheries pose a complex management challenge, however, because of their intrinsic link with human activity, namely through diverse economic interests.⁵⁸ Further, fisheries with incentives to harvest unsustainably require multilevel management to create stewardship and build conservation values.⁵⁹

Fisheries' complexities call for multi-level management.⁶⁰ Fisheries managers can craft rules that adequately address cod exploitation by accessing multiple levels of information through scientific and local knowledge.⁶¹ Cod fishery management would also need to create conservation incentives to limit its roving bandit effect.⁶² Economist Elinor Ostrom proposed eight principles to achieve conservation in common-pool resource systems.⁶³ Principle 3 states that individuals affected by management should participate in crafting management: rules can thus conform to the local situation and adapt to changes which individuals experience.⁶⁴ Principles 4 and 5 respectively state that participants should hold resource monitors accountable and participants should hold each other accountable.⁶⁵ Through self-commitments and mutual monitoring, harvesters are more likely to recognize management and increase compliance with conserving their resource.⁶⁶ The solutions to incorporating local knowledge and creating a conservation incentive in the cod fishery are thus one and the same: incorporate stakeholders—in this case fishers—into management decisions.⁶⁷

56. See Jackson et al., *supra* note 21, at 631, 636.

57. See Frank et al., *supra* note 16, at 1621.

58. Khan & Chuenpagdee, *supra* note 54, at 610.

59. Berkes et al., *supra* note 10, at 1558.

60. Hayden et al., *supra* note 3, at 423.

61. *Id.*

62. Berkes et al., *supra* note 10, at 1557–58 (“Roving banditry is different from most commons dilemmas in that a new dynamic has arisen in the globalized world: New markets can develop so rapidly that the speed of resource exploitation often overwhelms the ability of local institutions to respond.”).

63. ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 90 (22nd prtng. 2008) (1990).

64. *Id.* at 93.

65. *Id.* at 94.

66. *Id.* at 99–100.

67. Hayden et al., *supra* note 3, at 424.

II. CONTEMPORARY GROUND FISH MANAGEMENT AND REBUILDING EFFORTS

A. *New England Fishery Management Council's Current Regime*

New England's cod fishery is currently overfished and experiencing overfishing.⁶⁸ Specifically, cod stocks are too small and fishers are harvesting too much.⁶⁹ The estimated spawning biomass is between 3,752 and 3,838 tons, an increase from recent years⁷⁰ but well below historical levels.⁷¹ The New England Fisheries Management Council (NEFMC) manages federal fisheries off the coasts of Maine, Massachusetts, New Hampshire, Rhode Island, and Connecticut, including these cod stocks under the umbrella of the greater Northeast Multispecies Fishery.⁷² Collectively, these stocks are "groundfish."⁷³ Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA), Fishery Management Councils prepare fishery management plans (FMPs) to prevent overfishing while maintaining optimum yield.⁷⁴ The NEFMC's members represent government, scientific, policy, and industry interests from the federal government and each member state.⁷⁵ These members vote on management measures to craft or update FMPs.⁷⁶

68. NE. FISHERIES SCI. CTR., OPERATIONAL ASSESSMENT OF 14 NORTHEAST GROUND FISH STOCKS 26 (2018) [hereinafter *2019 Assessment*], <https://s3.amazonaws.com/nefmc.org/Prepublication-NE-Grndfsh-10-3-2019.pdf>.

69. *Status of U.S. Fisheries*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. FISHERIES, <https://www.fisheries.noaa.gov/national/population-assessments/status-us-fisheries> (last visited Dec. 8, 2020).

70. *2019 Assessment*, *supra* note 68, at 26.

71. Andrew A. Rosenberg et al., *The History of Ocean Resources: Modeling Cod Biomass Using Historical Records*, 3 FRONTIERS ECOL. & ENV. 84, 84 (2005) (estimating historical cod biomass at 1.26 million tons in the neighboring Scotian shelf).

72. Murawski et al., *supra* note 9, at 57; *History and Organizational Structure*, NEW ENGLAND FISHERY MGMT. COUNCIL, <https://www.nefmc.org/about/history> (last visited Dec. 8, 2020); Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1852(a), 1861(a),(f)(1) (2018).

73. The Northeast Multispecies Fishery also encompasses cod, haddock, yellowtail flounder, pollock, plaice, witch flounder, white hake, windowpane flounder, Atlantic halibut, winter flounder, redfish, ocean pout, and Atlantic wolffish. NEW ENGLAND FISHERY MGMT. COUNCIL, NAT'L MARINE FISHERIES SERV., AMENDMENT 16 TO THE NORTHEAST MULTISPECIES FISHERY MANAGEMENT PLANS (Oct. 16, 2009) [hereinafter NEW ENGLAND FISHERY MGMT. COUNCIL, *Amendment 16*], <https://www.nefmc.org/library/amendment-16> (last visited Dec. 8, 2020).

74. 16 U.S.C. § 1851(a)(1) (2018); *see also* 50 C.F.R. § 600.310(b)(2)(ii) (2019) ("The determination of OY is a decisional mechanism for resolving the Magnuson-Stevens Act's conservation and management objectives, achieving an FMP's objectives, and balancing the various interests that comprise the greatest overall benefits to the Nation.")

75. 16 U.S.C. § 1851(b) (2018).

76. *History and Organizational Structure*, *supra* note 72.

The current Northeast Multispecies FMP specifies who can harvest how much groundfish through a catch-share system.⁷⁷ Catch-share systems confer individual fishing rights that can be limited and tradable.⁷⁸ Theoretically, these shares confer stewardship incentives by granting individuals financial stake in fisheries, which may then disincentivize and prevent overfishing.⁷⁹ The NEFMC calculates an allowable biological catch (ABC) for the entire fishery within U.S. territory, which acts as a proxy for shares.⁸⁰ The FMP then distributes the ABC between Canadian and U.S. fishers, then even further down to different divisions of the U.S. groundfish fishery, and finally converts ABC to annual catch limits (ACLs) by reducing shares to compensate for management uncertainty.⁸¹

Calculating ABCs and ACLs requires a tremendous amount of data, including estimated stock sizes (SSBMSY) and fishery mortality rate (F).⁸² The NEFMC calculates these estimates using a variety of data, including vessel trip reports and observer data.⁸³ Since the NEFMC controls the fishery through catch allocations from stock-size estimates, accurate data is critically important to groundfish management and rebuilding.⁸⁴

The NEFMC supplements its data using the Northeast Fisheries Observer Program (NEFOP).⁸⁵ The NEFOP employs human observers to collect “catch, gear, fishing effort, and biological data” in Northeast and Mid-Atlantic fisheries.⁸⁶ Several circumstances may impede the accuracy of

77. *Framework Adjustment 58 to the Northeast Multispecies Fishery Management Plan*, NAT’L OCEANIC & ATMOSPHERIC ADMIN., <https://www.fisheries.noaa.gov/action/framework-adjustment-58-northeast-multispecies-fishery-management-plan> (last visited Dec. 8, 2020); *Framework Adjustment 58*, 50 C.F.R. 648 app. II at 3 (2019).

78. Christopher Costello et al., *Can Catch Shares Prevent Fisheries Collapse?*, 321 SCI. 1678, 1679 (2008).

79. *Id.* at 1679–80.

80. *2019 Assessment*, *supra* note 68, at 98.

81. 50 C.F.R. 648 app. II at 5.

82. NEW ENGLAND FISHERY MGMT. COUNCIL, *Amendment 16*, *supra* note 73; *see also Glossary: Fishing Mortality Rate [F]*, INT’L SEAFOOD SUSTAINABILITY FOUND., <https://iss-foundation.org/glossary/fishing-mortality-rate/> (last visited Dec. 8, 2020) (defining “[i]nstantaneous [f]ishing mortality rate” as “[a] measure of the intensity with which a stock is being exploited.”); *see also Glossary: Spawning Stock Biomass Capable of Producing Maximum Sustainable Yield [SSBMSY]*, INT’L SEAFOOD SUSTAINABILITY FOUND., <https://iss-foundation.org/glossary/spawning-stock-biomass-capable-of-producing-maximum-sustainable-yield/> (last visited Dec. 8, 2020) (“Spawning stock biomass capable of producing maximum sustainable yield[.] This is the stock size (biomass) of spawners that would result on average if FMSY was applied constantly year after year. SSBMSY is often measured by the biomass of female spawners.”).

83. *2019 Assessment*, *supra* note 68, at 3–4.

84. *See Amendment 23*, *supra* note 17, at 27.

85. *2019 Assessment*, *supra* note 68, at 3–4.

86. *Fisheries Sampling*, *supra* note 13.

human observers, however.⁸⁷ Randomly selecting vessels for observation, which would increase observer data's accuracy, is nearly impossible in large and diverse fisheries since fishers who do not like observers can more easily dodge observer placement.⁸⁸ Next, observers' experience and skills in observation vary, which detracts from data uniformity.⁸⁹ Most importantly, human observers' physical presence may directly influence fisher behavior since "there are strong economic incentives for [fishers] to fish differently with an observer on board,"⁹⁰ which does not accurately represent the entire, unobserved fishery.⁹¹ Relationships between observers and fishers may be strained as well, leading to tension and misrepresentation through altered practices or skewed reporting.⁹² These collective human-observer biases create uncertainty in fisheries data and thus jeopardize the sustainable use and rebuilding of stocks.⁹³

87. William A. Karp & Howard McElderry, *Catch Monitoring by Fisheries Observers in the United States and Canada*, in PROC. OF THE INT'L CONF. ON INTEGRATED FISHERIES MONITORING 271 (C.P. Nolan ed., 1999).

88. *Id.*; see *Amendment 23*, *supra* note 17, at 22 (describing "sampling bias," also referred to as the "deployment effect," which results from non-randomized selection of vessels for observation).

89. Karp & McElderry, *supra* note 87, at 272–73.

90. *Amendment 23*, *supra* note 17, at 19; Mark Zimring & Mike Sweeney, *Catalyzing the Growth of Electronic Monitoring in Fisheries: Building Greater Transparency and Accountability at Sea*, THE NATURE CONSERVANCY, 27–28 [hereinafter Zimring & Sweeney], https://www.nature.org/content/dam/tnc/nature/en/documents/Catalyzing_Growth_of_Electronic_Monitoring_in_Fisheries_9-10-2018.pdf (last visited Dec. 8, 2020) (highlighting that fishery observers not only influence the manner in which fishers fish, they may also lead to attempts of coercion and bribery on behalf of fishers).

91. Karp & McElderry, *supra* note 87, at 273; Zimring & Sweeney, *supra* note 90, at 27–28 (summarizing a survey reporting that fishers pressured human observers to change data, and explaining that human observers themselves held personal incentives to report inaccurate data).

92. See Karp & McElderry, *supra* note 87, at 276 ("Unfortunately, certain types of data collection objectives may provide incentives for crewmembers to be unappreciative, suspicious, or even hostile."); see *Meet Zach Fyke, Observer Compliance Liaison*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN. (Aug. 27, 2019), <https://www.fisheries.noaa.gov/feature-story/meet-zach-fyke-observer-compliance-liaison> ("Conditions may be uncomfortable. Long trips in close quarters and the observer's role in monitoring compliance can sometimes lead to tensions on a vessel."); Meg Wilcox, *The Future of Fishing is Big Data and Artificial Intelligence*, PUB. RADIO INT'L (May 10, 2018), <https://www.pri.org/stories/2018-05-10/future-fishing-big-data-and-artificial-intelligence> ("'It's an unsafe situation,' says Muto, a first-generation fisherman . . . 'Sure, an observer has insurance, but on top of all the other headaches, I now have responsibility for this other person, with all their scales and baskets. It makes a small boat even smaller.'").

93. See generally Zimring & Sweeney, *supra* note 90, at 27–28 (analyzing the various factors that encourage human-observer bias); *Amendment 23*, *supra* note 17, at 19.

B. Electronic Monitoring Systems

The NEFMC is currently considering replacing human observers in the groundfish fishery with electronic monitoring (EM), and already adopted 100% monitoring coverage.⁹⁴ EM is a system of cameras and other technology that tracks and records fishing-vessel activity to generate observer data and verify vessel trip reports.⁹⁵ Data from the NEFSC's EM Pilot Study included weights for species discards, fishing effort, fish length and catch time, and catch event footage.⁹⁶ The NEFMC drafted an amendment—Amendment 23—to the groundfish FMP that introduced several monitoring alternatives that incorporate EM.⁹⁷ By removing the human presence of a NEFOP observer and maintaining continuous monitoring,⁹⁸ EM would theoretically disincentivize fishers from altering their behavior by subjecting all fishing activity to review and thus improve industry-reported stock data.⁹⁹ Replacing human observers would remove their observer bias and improve groundfish fishery estimates, thus improving management decisions and creating a safer environment on vessels, and ensure data verification when human observation is infeasible.¹⁰⁰

As EM transfers footage of private vessels between third-party contractors and a federal agency,¹⁰¹ fishers are significantly concerned over privacy rights.¹⁰² For example, a fisherman from Cape Cod was concerned over the confidentiality of and access to EM data.¹⁰³ Since the video data may require the third-party reviewer to flag sections for further review at the NMFS, footage of private fishing vessels may be subject to federal

94. *Amendment 23*, *supra* note 17, at 30–36; *Groundfish Amendment 23: Council Adopts 100% Monitoring Target; Industry to be Reimbursed if Federal Funds Available*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Oct. 6, 2020), <https://s3.amazonaws.com/nefmc.org/NEFMC-Adopts-100-Groundfish-At-Sea-Monitoring-Target-Industry-to-be-Reimbursed-if-Funds-Available.pdf>.

95. *Id.* at 28.

96. *EM Pilot Report*, *supra* note 18, at 6, 14.

97. *Amendment 23*, *supra* note 17, at 30–36.

98. *Id.* at 22 (detailing some of the inherent biases of human observation).

99. *Id.* at 19; *see also* Zimring & Sweeney, *supra* note 90, at 16 (emphasizing that implementing electronic monitoring resulted in a significant change in reported data).

100. *Amendment 23*, *supra* note 17, at 19; *see also* Zimring & Sweeney, *supra* note 90, at 16 (showcasing multiple studies which show that electronic monitoring significantly changed fishers' behavior when reporting data); *see also* *Northeast Observer Waiver Extended Through July 31, 2020*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (June 30, 2020), <https://content.govdelivery.com/accounts/USNOAAFISHERIES/bulletins/29356b8> (extending COVID-19 waivers for groundfish observers for a period longer than four months).

101. *See EM Pilot Report*, *supra* note 18, at 7–8 (noting the third-party partners and providers working in conjunction with implementing agencies).

102. Wilcox, *supra* note 92.

103. *Id.*

accountability laws.¹⁰⁴ And specifically because of the third-party review of video data,¹⁰⁵ there is also the concern that data can serve unintended purposes beyond the scope of fisheries management.¹⁰⁶ However, EM would greatly improve groundfish monitoring and management, especially in light of the NEFMC's shift to requiring 100% monitoring coverage, and therefore Amendment 23 should introduce the system.¹⁰⁷ Because fishers and industry members hold voting status on the NEFMC, Amendment 23 will likely only pass if it adequately addresses fishers' concerns on data stewardship.¹⁰⁸ Further, gaining—rather than forcing—fishers' approval would be a form of self-commitment and thus increase the likelihood of fisher observance of and compliance with EM.¹⁰⁹ In sum, Amendment 23 should seek to protect fishers privacy rights under its proposed EM in order to improve groundfish stock estimates and thus increase cod's chance at recovery.

III. PRIVACY AND ACCESS RIGHTS UNDER FEDERAL AUTHORITIES

Applying federal privacy and data rules to Amendment 23's proposed EM produces interesting results.¹¹⁰ NOAA holds several policies that seek to protect fishers' privacy through data use, including the Rule of Three, NOAA Administrative Order (AO) 216-100, and regulations implementing the MSA.¹¹¹ The MSA itself includes several provisions on confidentiality as well.¹¹² The Freedom of Information Act (FOIA) guides the disclosure of records that federal agencies either create, or are in control of, yet retains several exceptions.¹¹³ And, while the Fourth Amendment protects U.S. citizens' privacy, the Open-Field, Curtilage, and Third-Party doctrines

104. *EM Pilot Report*, *supra* note 18, at 14–15.

105. *Amendment 23*, *supra* note 17, at 31.

106. Wilcox, *supra* note 92.

107. *See supra* notes 86–99 and accompanying text (comparing human-observer bias to the benefits of camera monitoring in a fisheries data context).

108. *See New England Fishery Management Council*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., https://s3.amazonaws.com/nefmc.org/Council-member-bios_updated_September-2019.pdf (last visited Dec. 8, 2020) (listing the current council members who would need to account for fishers' concerns).

109. *See supra* notes 63–66 and accompanying text (developing Ostrom's principles of effective self-governance).

110. *See infra* Parts IV and V.

111. Monica Medina & Scott Nuzum, *Electronic Reporting and Monitoring in Fisheries: Data Privacy, Security, and Management Challenges and 21st-Century Solutions*, 49 ENVTL. L. REP. NEWS & ANALYSIS 10670, 10688–90 (2019).

112. *Id.* at 10687–88.

113. *Id.* at 10690–91.

provide exceptions for Amendment 23's purposes.¹¹⁴ The following Subparts expand on each authority before applying them to Amendment 23.

A. National Oceanic and Atmospheric Administration Rules

NOAA's informal policy, the "Rule of Three," (the Rule) seeks to protect fishers' identities when disclosing fisheries data.¹¹⁵ The Rule allows NOAA to publicly release fishery data only if the data derives from at least three industry sources.¹¹⁶ This precaution theoretically hinders identifying individuals by their reports.¹¹⁷ The next NOAA rule is an AO, which is an intra-agency directive.¹¹⁸ NOAA AO 216-100 guides confidentiality for data that the Agency and NMFS collect.¹¹⁹ The AO's policy allows for confidential data disclosure through FOIA, court order, and NOAA General Counsel-approved subpoenas.¹²⁰ The AO also retains data's individual identifiers unless NMFS or "good scientific practice" does not need them.¹²¹ Due to these rules' informal nature, however, they may be vulnerable to an Administrative Procedure Act (APA) challenge.¹²²

B. Magnuson-Stevens Fishery Conservation and Management Act

The MSA includes several confidentiality provisions for fisheries data that the Act grants NOAA authority to collect.¹²³ The MSA protects any information that any MSA-compliant person shares with federal fishery management, subject to many exceptions.¹²⁴ The MSA extends to protect observer information as well, subject to the same general MSA exceptions—plus three extras.¹²⁵ Subsection (3) of that same MSA provision allows

114. *Id.* at 10684–87.

115. *Id.* at 10690.

116. *Id.*

117. *Id.*

118. NAT'L OCEANIC & ATMOSPHERIC ADMIN. NAO 216-100: PROTECTION OF CONFIDENTIAL FISHERIES STATISTICS § 1.01 (1994) [hereinafter NAO 216-100], <https://www.noaa.gov/organization/administration/noaa-administrative-orders-chapter-216-program-management> (last visited Dec. 8, 2020).

119. *Id.* (explaining that the Administrative Order covers all confidential data received, maintained, or used by NMFS).

120. *Id.* § 4a.

121. *Id.* § 4b.

122. Medina & Nuzum, *supra* note 111, at 10690.

123. Magnuson-Stevens Fishery Conservation and Management Act, 16 U.S.C. §§ 1881(a)(1), (b)(1)(A) (2018).

124. 16 U.S.C. § 1881a(b)(1).

125. 16 U.S.C. § 1881a(b)(2)(A)–(C).

NOAA to expand confidentiality protections through rulemaking.¹²⁶ Without preventing the internal use of data for fisheries conservation and management, the MSA substantially protects industry members' confidentiality.¹²⁷

C. Freedom of Information Act

FOIA allows the public to request federal agency records and prescribes rules to direct such requests.¹²⁸ FOIA narrowly defines "agency" to focus on federal administrative agencies,¹²⁹ and "person" as "an individual, partnership, corporation, association, or public or private organization other than an agency . . ."¹³⁰ FOIA, however, expansively defines "records" to include any record subject to FOIA that an agency maintains, including in electronic form, as well as those records that a government contractor stores for the purpose of records management.¹³¹

FOIA also contains several exceptions through which agencies may withhold records.¹³² Exceptions 3, 4, 6, and 7 likely apply to EM fisheries data.¹³³ Exception 3 protects records "specifically exempted from disclosure by statute" and exception 4 protects privileged or confidential "trade secrets and commercial or financial information obtained from a person . . ."¹³⁴ Next, exception 6 protects "personnel and medical files and similar files the disclosure of which would constitute a clearly unwarranted violation of privacy . . ."¹³⁵ Finally, exception 7 protects "records or information compiled for law enforcement purposes," and includes many other qualifiers for its protection.¹³⁶

D. The Fourth Amendment

Finally, the Fourth Amendment protects individuals' "persons, houses, papers, and effects, against unreasonable searches and seizures . . ."¹³⁷

126. 16 U.S.C. § 1881a(b)(3).

127. 16 U.S.C. § 1881a(b)(3).

128. Freedom of Information Act, 5 U.S.C. § 552 (2018).

129. Administrative Procedure Act, 5 U.S.C. § 551(1) (2018).

130. 5 U.S.C. § 551(2).

131. 5 U.S.C. § 552(f)(2).

132. 5 U.S.C. § 552(b).

133. 5 U.S.C. § 552(b)(3)–(4), (6)–(7).

134. 5 U.S.C. § 552(b)(3)–(4).

135. 5 U.S.C. § 552(b)(6).

136. 5 U.S.C. § 552(b)(7).

137. U.S. CONST. amend. IV.

However, several doctrines limit the Fourth Amendment's reach. Under the Open-Field Doctrine, Fourth Amendment privacy does not extend to open fields since "effects" is narrower than "property."¹³⁸ Next, the Curtilage Doctrine determines how far a home's privacy extension covers based on several factors:

[T]he proximity of the area claimed to be curtilage to the home, whether the area is included within an enclosure surrounding the home, the nature of the uses to which the area is put, and the steps taken by the resident to protect the area from observation by people passing by.¹³⁹

Ultimately, the Third-Party Doctrine excludes Fourth Amendment privacy protections from those who voluntarily share information with third parties.¹⁴⁰

IV. THE GOVERNMENT MOST LIKELY MAY COLLECT AMENDMENT 23'S ELECTRONIC-MONITORING FOOTAGE UNDER FOURTH AMENDMENT EXCEPTIONS

EM consists of cameras, sensors, and GPSes that record a wide range of fishing-activity data.¹⁴¹ EM's purpose is to verify fishing data on vessel trip reports (VTR) by matching its sensor and video recordings to VTR catch and discard numbers—similar to the role of human observers.¹⁴² Amendment 23 proposes three main EM alternatives to human observers in the groundfish fishery: (1) an optional substitute of EM with coverage rates matched to current observer-selection rates; (2) an audit model of constant EM coverage, where the system remains on for the entirety of fishing trips; and (3) a maximized-retention model where vessels retain bycatch and discards, removing discard monitoring.¹⁴³ Under each option, third parties would review video coverage,¹⁴⁴ which implicates three main privacy concerns.

138. *Oliver v. United States*, 466 U.S. 170, 176–77 (1984).

139. *United States v. Dunn*, 480 U.S. 294, 301 (1987).

140. *Smith v. Maryland*, 442 U.S. 735, 743–44 (1979).

141. *Amendment 23*, *supra* note 17, at 25.

142. *Id.* at 28. "Vessel Trip Report (VTR): Fishermen are required to fill out and submit self-reported trip reports for every trip, which provide information on when and where catch occurred. Information reported includes fishing location, time of fishing activity, gear characteristics, and estimates of catch and discards by species." *Id.* at 25.

143. *Id.* at 30–36.

144. *Id.* at 31–32.

EM of fishing activity records video footage of a vessel's fishing operations.¹⁴⁵ Extrapolating from examples of video stills in EM reports and diagrams, footage generally covers three main areas: (1) the hauling and discard point, where fishers take in catch and toss discards overboard; (2) the sorting table, where fishers measure catch and determine what to take and what to discard; and (3) the deck in general.¹⁴⁶ Each category includes three challenges and privacy concerns, depending on what kind of fishing and general activity the EM system captures on vessels: individuals' faces, business practices, and positioning (GPS) data.¹⁴⁷

The privacy concerns implicit in EM footage of fishing activity, and GPS data overall, first require a review under constitutional privacy guarantees. The rest of this Part applies Fourth Amendment jurisprudence and exceptions to fishing-activity footage and GPS location data, to isolate challenges to EM under Amendment 23. The Part starts by examining the Open-Field Doctrine,¹⁴⁸ the Curtilage Doctrine second,¹⁴⁹ the Third-Party Doctrine third,¹⁵⁰ and ends with exceptions for pervasively regulated businesses.¹⁵¹ Overall, Amendment 23's proposals are likely permissible under the Fourth Amendment.

145. See *EM Pilot Report*, *supra* note 18, at 2 (identifying EM's camera component as a tool to monitor fishing activity and displaying a generalized diagram of EM on a fishing vessel, including camera positions).

146. *Id.* at 12, 24, 28 (displaying a generalized sketch of a vessel with EM and screenshots of EM review software and recorded fishing activity from the groundfish pilot study); see *Implementing Electronic Monitoring in Alaska Fisheries*, NAT'L OCEANIC AND ATMOSPHERIC ADMIN., <https://www.fisheries.noaa.gov/feature-story/implementing-electronic-monitoring-alaska-fisheries> (last updated Nov. 10, 2017) (displaying a screenshot of EM footage of bycatch on an Alaskan halibut vessel); Electronic Monitoring, NORTHEAST FISHERIES SCI. CTR., NAT'L OCEANIC & ATMOSPHERIC ADMIN., <https://www.nefsc.noaa.gov/fsb/ems/> (last updated Nov. 15, 2019) (explaining the components of the EM pilot study and that its cameras recorded fishing activity on the vessels' decks); David Bartholomew et al., *Remote Electronic Monitoring as a Potential alternative to On-board Observers in Small-scale Fisheries*, 219 BIOLOGICAL CONSERVATION 35, 39, 43 (2018) (displaying photographs from a fishing vessel used for conducting a study); Howard McElderry, *At-Sea Observing Using Video-Based Electronic Monitoring*, ARCHIPELAGO MARINE RESEARCH LTD. 15 (2008) ("Usually multiple cameras are placed outboard of the hauling station, providing a close up of where most catch items occur as well as a wider angle view of the entire retrieval area.").

147. McElderry, *supra* note 146, at 47.

148. See *infra* Part IV.A.

149. See *infra* Part IV.B.

150. See *infra* Part IV.C.

151. See *infra* Part IV.D.

A. The Open-Field Doctrine

Most likely, NMFS can constitutionally collect fishing-activity footage. The Fourth Amendment generally prohibits “unreasonable searches and seizures” of “persons, houses, papers, and effects.”¹⁵² While these Fourth Amendment protections do extend to commercial property,¹⁵³ the Supreme Court decided in *Katz v. United States* that they do not extend to property that the owner knowingly exposes to the public.¹⁵⁴ The Open-Field Doctrine states that the Fourth Amendment does not extend to, literally, open fields.¹⁵⁵ The Supreme Court affirmed this rule in *Oliver v. United States*, expanding on the doctrine by denoting “no societal interest” in and no reasonable expectation of privacy in open fields.¹⁵⁶ The Court justified the lack of privacy with practical considerations, such as public accessibility and the ability to view fields from the air.¹⁵⁷ Publicly accessible open land, such as in *Oliver*, holds no reasonable expectation of privacy; open water is definitely less accessible, yet courts categorize fishing activity as similarly open.¹⁵⁸

Fishing activity on vessels largely conforms to the Open-Field Doctrine. A group of tuna fishers challenged NOAA’s authority to require human observers on their boats in *Balelo v. Baldrige*.¹⁵⁹ Preliminarily, the Ninth Circuit outlined the observers’ scope to only include fishing operations on the open sea and vessels’ decks.¹⁶⁰ Citing *Katz*, the court determined that these activities were sufficiently “in plain view” as to not implicate the Fourth Amendment.¹⁶¹ Additionally, because the observers were limited in observing and reporting only fishing activity, the program did not raise privacy concerns over the rest of the vessel.¹⁶² The requirements for warrantless searches of fishing activity thus appear to be lenient and reasonable under the Fourth Amendment.

Turning to Amendment 23, EM prescribes an identical scope to human observers’ roles. EM cameras would only capture fishing activity on a

152. U.S. CONST. amend. IV.

153. *Marshall v. Barlow’s, Inc.*, 436 U.S. 307, 312 (1978) (quoting *Camara v. Mun. Court*, 387 U.S. 523, 538–39 (1967)).

154. *Katz v. United States*, 389 U.S. 347, 351 (1967) (“What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.”).

155. *Hester v. United States*, 265 U.S. 57, 59 (1924).

156. *Oliver v. United States*, 466 U.S. 170, 178–79 (1984).

157. *Id.*

158. *Balelo v. Baldrige*, 724 F.2d 753, 764 (9th Cir. 1984).

159. *Id.* at 755.

160. *Id.* at 763–64.

161. *Id.*

162. *Id.*

vessel's haul zone, deck, and sorting table.¹⁶³ These fishing areas are the exact same ones where NEFOP observers focus their attention: activities in plain view.¹⁶⁴ Further, EM eliminates the risk posed by human observers necessarily witnessing private vessel areas because the cameras sit at a fixed angle¹⁶⁵ and do not require the same shelter and sustenance as humans. EM footage thus fits squarely within the Open-Field Doctrine's exceptions, allowing NMFS to collect video of fishing activity. Although this distinction between plain-view activities and private vessel areas seems simplistic, courts can also validate the difference under the Curtilage Doctrine.

B. *The Curtilage Doctrine*

Similar to the Open-Field Doctrine, the Curtilage Doctrine examines whether expectations of privacy for land are reasonable, and thus may clarify privacy rights for footage of a crew and fishing activity. The Curtilage Doctrine differs by certifying Fourth Amendment protections for land "immediately surrounding" the home, or curtilage, in tune with the Amendment's privacy guarantee for "houses."¹⁶⁶ The doctrine may apply since fishers generally consider their vessels as homes at sea, with fishing activity occurring right outside.¹⁶⁷ The Court built on *Oliver* in *United States v. Dunn*, delineating factors to determine "whether an individual reasonably may expect that the area in question should be treated as the home itself."¹⁶⁸ The four factors are:

[T]he proximity of the area claimed to be curtilage to the home, whether the area is included within an enclosure surrounding the home, the nature of the uses to which the area is put, and the steps taken by the resident to protect the area from observation by people passing by.¹⁶⁹

163. See *supra* note 145 and accompanying text (establishing several camera angles and subsequent subjects of EM).

164. *Fisheries Sampling*, *supra* note 13; see also *Balelo v. Baldrige*, 724 F.2d 753, 763 (9th Cir. 1984) (identifying observers' scope as fishing activity, limited to the deck and open sea, and thus within plain view).

165. *EM Pilot Report*, *supra* note 18, at 43.

166. U.S. CONST. amend. IV; *United States v. Dunn*, 480 U.S. 294, 300 (1987).

167. NAT'L OBSERVER PROGRAM, NAT'L OCEANIC & ATMOSPHERIC ADMIN., SECOND NATIONAL ELECTRONIC MONITORING WORKSHOP 24 (2016), <https://www.fisheries.noaa.gov/webdam/download/63743350> (last visited Dec. 8, 2020).

168. *Dunn*, 480 U.S. at 300 (citing *Oliver v. United States*, 466 U.S. 170, 180 (1984)).

169. *Id.* at 301.

For the first factor, the barn in question was 50 yards away from a fence and 60 yards from the house, which the Court held was simply too far.¹⁷⁰ The fence itself did not enclose the barn, failing the second factor as well.¹⁷¹ Third, law enforcement officers testified that the barn smelled like acid and that they heard a large motor running, both of which the Court did not consider part of “domestic life.”¹⁷² Finally, nothing showed that the owner protected the barn from public view, failing the last factor.¹⁷³ As such, the Court held that the barn was not within the house’s curtilage; and thus, the warrantless search was constitutional.¹⁷⁴ Again, this analysis is primarily for land, so application to water and seafaring vessels requires its own considerations.

The Fifth Circuit affirmed two convictions after balancing the owner’s and government’s interests in searching a vessel for drugs without a warrant in *United States v. Whitmire*.¹⁷⁵ Although the case’s substance and analysis differ from both fisheries inspection and the Curtilage Doctrine, the court identifies several important privacy considerations on vessels as dwelling structures.¹⁷⁶ First, while some vessels may be homes, the area where the search focuses is “crucial” for reasonableness: crew quarters or houseboats are highly private.¹⁷⁷ In contrast, open decks and cargo holds carry far lower expectations for privacy.¹⁷⁸ The court also raised a very interesting point on vessels’ locations: vessel owners do not live on a fixed location while on water, and so cannot claim that they are subject to more searches based on their location, in contrast to land-based residences that are geographically fixed.¹⁷⁹ As a counterpoint, the court also noted the frequency of searches in combination with a vessel’s location may impact the reasonableness of a search.¹⁸⁰ *United States v. Whitmire* highlights several unique characteristics of seafaring dwellings, all relevant to running EM through *Dunn*’s factors.

EM under Amendment 23 likely falls outside the Curtilage Doctrine’s protection. Fishers generally consider their vessels as homes at sea,¹⁸¹ but the

170. *Id.* at 302.

171. *Id.*

172. *Id.* at 301–03, 301 n.4.

173. *Id.*

174. *Id.* at 296.

175. *United States v. Whitmire*, 595 F.2d 1303, 1315–16 (5th Cir. 1979), *cert. denied*, 448 U.S. 906 (1980).

176. *Id.* at 1312–13.

177. *Id.* at 1312.

178. *Id.*

179. *Id.* at 1313.

180. *Id.*

181. *Second Workshop*, *supra* note 167, at 24.

distance between a vessel's private areas and its deck may carry little weight for the first *Dunn* factor.¹⁸² Regardless of the distance, the plain-view nature of the deck, as the Fifth Circuit distinguished from other potential curtilage areas in *Whitmire*, may automatically exempt a vessel from the first factor.¹⁸³ Again, EM would record activity on a vessel's haul zone, deck, and sorting table, all within plain view.¹⁸⁴ Further, the fixed camera angle means that solely the plain-view activities are part of EM recordings; and thus, EM creates less privacy risk than human observers who require access to vessels' private areas.¹⁸⁵ For the next factor on whether a home's structure encloses the area, decks and sorting tables are within the enclosure of the entire vessel, the same as a crew's residence or other private areas.¹⁸⁶ Conversely, the actual enclosure of private areas likely does not extend to the open deck.¹⁸⁷

The second factor seems ambiguous, but again, the deck's plain view and a *Whitmire*-style classification would fail EM footage for *Dunn*'s Curtilage test. Third, fishing activity of hauling nets and sorting fish is unique to vessels, and not traditionally domestic homes. Industrial activities such as fishing are more similar to the barn's hidden machine in *Dunn*, and thus are not part of domestic life.¹⁸⁸ Finally, decks' open-view nature would again likely fail the fourth *Dunn* factor, whether the owner took steps to conceal the area from the public.¹⁸⁹ As above, the Ninth Circuit decided that fishing activities on deck are sufficiently in plain view as to not implicate the Fourth Amendment.¹⁹⁰ While this test would require an analysis specific to a vessel's own structure, generally vessels do not shield the public's plain view of their decks. Searches of fishing decks are thus likely outside the curtilage per *Dunn*'s four factors.

Although each of these factors are highly fact-dependent and slightly ambiguous, they all lean towards an unreasonable expectation of privacy for

182. *United States v. Dunn*, 480 U.S. 294, 300 (1987).

183. *See, e.g., United States v. Whitmire*, 595 F.2d 1303, 1312 (5th Cir. 1979), *cert. denied*, 448 U.S. 906 (1980) (“[I]t is difficult to see that a crew member might legitimately claim privacy on the open deck of a fishing smack or in the hold of a cargo vessel available for hire.”).

184. *See supra* note 145 (scoping EM cameras' field of view); *see also* Part IV.A.

185. *See supra* note 144 and accompanying text (analyzing camera angles that only cover plain view areas and not vessel interiors).

186. *Dunn*, 480 U.S. at 303 (contrasting the barn's openness and strong smell to domestic life); *EM Pilot Report*, *supra* note 18, at 2, 12.

187. *EM Pilot Report*, *supra* note 18, at 2, 12.

188. *Id.*; *see supra* text accompanying note 172 (differentiating “domestic life” and the sound of a large motor running).

189. *Dunn*, 480 U.S. at 303.

190. *See supra* text accompanying note 160–61 (delineating the Ninth Circuit's connection between the Open-Field Doctrine and fishing vessels).

EM footage. Further, the *Dunn* list is exclusive; any failure bars activity from protection of curtilage.¹⁹¹ EM footage of fishing activity thus would likely fail *Dunn*, granting NMFS authority to collect the data. The data's next stage of federal stewardship again limits fishers' privacy.

C. *The Third-Party Doctrine*

While NMFS can collect and review EM data, third parties primarily review data for inconsistencies under Amendment 23's proposals.¹⁹² Fishers sent their EM recordings to third parties under the Northeast Pilot Program, and Amendment 23 plans to do the same.¹⁹³ This action nearly destroys any potential privacy claim under the Third-Party Doctrine. The Supreme Court again built on *Katz* in *Smith v. Maryland*, where the Court certified that submissions of information to third parties carry "no legitimate expectation of privacy . . ."¹⁹⁴ By revealing information to another person, an individual "assume[s] the risk' of disclosure" to the government via the third party and thus cannot expect that information to remain private.¹⁹⁵ The Third-Party Doctrine is cut and dry and extends even to individuals who dial phone numbers—thus sending the numbers to the phone company—as the petitioner did in *Smith*.¹⁹⁶ Applying the Third-Party Doctrine to Amendment 23 produces equally dire results.

Third-party access to EM data is implicit in EM generally and Amendment 23 specifically.¹⁹⁷ Since fishers knowingly send their data to third-party reviewers,¹⁹⁸ they therefore assume the risk of government disclosure per *Smith*.¹⁹⁹ Fishers thus have no reasonable expectation that any aspect of EM data, personal depictions, or GPS data, remains private and so could not challenge government use of said data. The lack of privacy rights and means of redress through the Third-Party Doctrine should concern fishers. Conversely, the doctrine only strengthens the scope of information available to NMFS to adequately refine groundfish catch data and enforce its

191. *See Dunn*, 480 U.S. at 301 (ending the list of Curtilage Doctrine factors with "and," requiring each factor as necessary).

192. *Amendment 23*, *supra* note 17, at 30–36.

193. *EM Pilot Report*, *supra* note 18, at 4–5; *Amendment 23*, *supra* note 17, at 30–36.

194. *Smith v. Maryland*, 442 U.S. 735, 744 (1979) (quoting and reaffirming *United States v. Miller*, 425 U.S. 435, 442 (1976)).

195. *Id.*

196. *Id.* at 737–38, 744–45.

197. *EM Pilot Report*, *supra* note 18, at 11, 13, 15; *Amendment 23*, *supra* note 17, at 30–36 (explaining that third-party providers would review the videos).

198. *EM Pilot Report*, *supra* note 18, at 4–5; *Amendment 23*, *supra* note 17, at 30–36.

199. *Smith*, 442 U.S. at 744.

regulations. However, the government's authority to collect and review EM data does not stop at these three doctrines: the Fourth Amendment has yet one more loophole.

D. Pervasively Regulated Business

Again, Fourth Amendment protections extend to commercial property, which is further subject to the property's type of commerce and associated exceptions.²⁰⁰ Descending from Congress's broad power to regulate commerce,²⁰¹ the Supreme Court recognized that "an inspection program may in some cases be a necessary component of federal regulation" in *Donovan v. Dewey*.²⁰² Whether a government inspection is reasonable, and thus permissible under the Fourth Amendment, depends on if it is necessary for federal interests and is not so random, infrequent, or unpredictable to diminish the expectation of inspection.²⁰³ Finally, determining whether inspecting commercial property is reasonable requires a case-specific evaluation.²⁰⁴ Examining how these requirements relate to fisheries and observer issues yields further insight.

U.S. courts generally uphold close inspections of fishing activity. The Third Circuit in *Lovgren v. Byrne* reviewed a challenge to a dockside inspection pursuant to the MSA and the Northeast Multispecies FMP.²⁰⁵ The court summarized and refined the rule from *Dewey*:

Whether a warrantless search is nevertheless a reasonable one depends on the reasonableness of the expectation of privacy in the area searched, the importance of the governmental interest occasioning the search, and the degree to which alleged authority for the search is tailored to that interest and minimizes the intrusion.²⁰⁶

The court then held that the fishing industry is both currently and historically pervasively regulated, resulting in a diminished expectation of

200. *Marshall v. Barlow's, Inc.*, 436 U.S. 307, 311, 312 (1978) (quoting *Camara v. Mun. Court*, 387 U.S. 523, 538–39 (1967)).

201. U.S. CONST. art. I., § 8, cl. 3.

202. *Donovan v. Dewey*, 452 U.S. 594, 599 (1981).

203. *Id.* (citing *Marshall*, 436 U.S. at 323).

204. *Marshall*, 436 U.S. at 321 ("The reasonableness of a warrantless search, however, will depend upon the specific enforcement needs and privacy guarantees of each statute.").

205. See *Lovgren v. Byrne*, 787 F.2d 857, 860–61, 863–64 (3rd Cir. 1986) (citing 16 U.S.C. §§ 1861(b)(1)(A)(ii), (iv), 1853(b)(8) (2016)).

206. *Id.* at 865 (citing *Dewey*, 452 U.S. at 599).

privacy, thus placing fishers “on notice” that inspections occur.²⁰⁷ Next, the court qualified the compelling federal interest in protecting natural fishing resources as “vital to the country,” citing Congress’s intent in enacting the MSA.²⁰⁸ Finally, the court held that limiting inspections to when and where fish may actually be found and limiting fines to when fishers refused a search was closely tailored and minimized government intrusion.²⁰⁹ Overall, the court held that dockside inspections were reasonable under the Fourth Amendment.²¹⁰ The line of Fourth Amendment industry exemptions also applied to human observers.²¹¹

Balelo v. Baldrige, where tuna fishers challenged observer requirements, also offers a *Dewey* analysis.²¹² The Ninth Circuit applied *Dewey* but focused on the expectation requirement, clarifying the second prong: warrants are unnecessary where the inspection is sufficiently comprehensive and predictable.²¹³ The court decided that the human-observers requirement was a constitutionally adequate substitute for a warrant, partly because the fishers received observer schedules in so far advance that they had the opportunity for judicial review and because the observers’ duties only included and stringently defined *data observation*.²¹⁴ Although the federal interest in *Balelo* was porpoise conservation, the court ultimately held that the combination of the legitimate interest and the program’s narrow tailoring that limits intrusions to fishers’ privacy justified human observers.²¹⁵ While Amendment 23’s EM implicates a similarly legitimate federal interest to *Balelo* and *Lovgren*, EM’s scope presents a different—yet defensible—form of inspection notice.

EM presents a novel set of privacy concerns. Under Amendment 23, EM cameras would only film areas of the boat where fishing activity takes place,²¹⁶ which, by and large, is in plain view and identical to a human observers’ scope; and thus not subject to Fourth Amendment protection.²¹⁷ While human observers have visual access to nearly all vessels, they only

207. *Id.* at 865–66.

208. *Id.* (citing 16 U.S.C. § 1801(a) (2016)).

209. *Id.* at 867.

210. *Id.* at 865.

211. *Balelo v. Baldrige*, 724 F.2d 753, 755 (9th Cir. 1984).

212. *Id.*

213. *Id.* (citing *Donovan v. Dewey*, 452 U.S. 594, 599–602 (1981)).

214. *Id.* at 766 (citing *Dewey*, 452 U.S. at 604–05) (“[T]hey are not ‘to record extraneous comments, editorials, or personal opinions . . . or evaluate or interpret data.’”).

215. *Id.* at 166–67.

216. *See supra* note 142 (scoping the extent of what EM cameras capture).

217. *See supra* Parts IV.A, B (discussing the Open-Field and Curtilage Doctrines).

record numbers and textual data.²¹⁸ EM introduces full visuals of private vessels into the federal data stream. EM differs by introducing video footage of crew members and vessels' business practices, as well as GPS data, to federal and third-party review.²¹⁹ These differences may not matter, however: the first test of whether a warrantless search of a regulated industry is reasonable requires that the search is necessary for a government interest.²²⁰ Here, the government interest is improving catch data accuracy to better manage the Northeast groundfish stock.²²¹ Congress certified American fish stocks' value, finite and threatened status, and need for conservation and management, including data collection, by enacting the MSA.²²² Groundfish's historic presence and modern science's call for rehabilitation enhance this interest.²²³ Improving groundfish management by enhancing catch data with EM footage²²⁴ thus likely satisfies the first test for Fourth Amendment exemption, similar to dockside inspections in *Lovgren*.²²⁵

As Amendment 23 stands now, the second test for a warrantless search produces an interesting twist. The second test for a warrantless yet reasonable search of a private business requires that the investigation be so predictable that the owner has notice of an inspection.²²⁶ First, fishers have express notice of video footage of vessels' crew and business operations. The fishers in *Balelo* had notice because they received observer schedules in advance.²²⁷ To contrast, under Amendment 23, EM would either be an opt-in program or a mandatory program with 100% camera runtime.²²⁸ Fishers, both captain and crew, would therefore know that EM constantly surveils their appearances and activities, all subject to review, because of the constant physical presence of cameras. Fishers thus have explicit, constant notice that fishing activity is prone to inspection. And while GPS data is implicitly included with EM footage, fishers are subject to further notice specifically for location data.²²⁹

218. *Balelo*, 724 F.2d at 765–66.

219. See *supra* text accompanying note 145–47 (categorizing the components of EM footage).

220. *Donovan v. Dewey*, 452 U.S. 594, 599 (1981) (citing *Colonnade Catering Corp. v. United States*, 397 U.S. 72, 77 (1970)).

221. *Amendment 23*, *supra* note 17, at 28.

222. 16 U.S.C. § 1801(a)(1)–(3), (5), (6), (8) (2018).

223. See *supra* Parts I.A, II.A (explaining the history behind fishery exploitation and the current NEFMC regime).

224. See *supra* Part II.B.

225. *Lovgren v. Byrne*, 787 F.2d 857, 866 (3rd Cir. 1986).

226. *Donovan v. Dewey*, 452 U.S. 594, 599 (citing *Marshall v. Barlow's, Inc.*, 436 U.S. 307, 323 (1978)).

227. *Balelo v. Baldrige*, 724 F.2d 753, 765 (9th Cir. 1984).

228. *Amendment 23*, *supra* note 17, at 25.

229. *Id.*

Fishers on a multispecies, or groundfish, permit must install a Vessel Monitoring System (VMS) on their boats.²³⁰ The VMS then periodically transmits location data to NMFS.²³¹ If Amendment 23 introduces EM, fishers would then be on double notice that NMFS inspects location data, which, in combination with constant notice of fishing activity inspection, would satisfy the second element of *Dewey*.

EM, therefore, satisfies both elements under *Dewey* for reasonable, warrantless searches under the Fourth Amendment. Fishers are highly on notice for government review of their activity and location data, which the government is highly interested in viewing for the groundfish stock's sake. The test does not consider instances of constant government inspection, which Amendment 23 proposes, along with a limited review rate.²³² The Court likely did not need to consider this angle since the Court decided *Dewey* 39 years ago, before this sort of video-review technology was feasible.²³³ Under current Supreme Court jurisprudence, NMFS is very free to collect EM data without Fourth Amendment privacy concerns. Delineating said data's release is thus highly important to guarantee fisher cooperation with Amendment 23.

V. APPLYING FEDERAL DATA DISCLOSURE PROTECTIONS TO EM UNDER AMENDMENT 23

NMFS can likely collect EM data since fishing activity is largely exempt from Fourth Amendment protections.²³⁴ As EM data encompasses more than just catch data, however, the program's new aspects implicate new privacy concerns for the federal disclosure of crew members' likenesses, vessels' business practices, and vessels' location data.²³⁵ This Note next applies the legal standards that govern federal fisheries data disclosure. At the highest level, FOIA regulates the public disclosure of all federal agency records, subject to many privacy exemptions.²³⁶ The next rung of rules likely affecting EM comes from the MSA and its governance of fisheries data.²³⁷ Finally,

230. 50 C.F.R. § 648.10(b)(4) (2019).

231. 50 C.F.R. § 648.10(c)(1).

232. *Amendment 23*, *supra* note 17, at 25.

233. *Donovan v. Dewey*, 452 U.S. 594, 604–05 (1981).

234. *See supra* Part IV.

235. *See supra* text accompanying notes 144–45 (reviewing EM stills and program materials to determine EM subject matter).

236. *See infra* Part V.A.

237. *See infra* Part V.B.

NOAA has its own internal disclosure rules and procedures.²³⁸ Understanding how these rules apply to Amendment 23 requires individually examining each privacy interest. The analysis first works through each body of protections for crew depictions,²³⁹ then vessel and business information,²⁴⁰ and finally GPS data.²⁴¹ Overall, fishers' privacy is partially guarded from public disclosure, but these rules also help to highlight gaps in federal law for this emerging technology.

A. Freedom of Information Act

FOIA directs federal agencies to make all records available to the public by request.²⁴² By "records," Congress intended that agencies release "any information . . . when maintained by an agency in any format, including an electronic format; and any [similar] information . . . that is maintained for an agency by an entity under Government contract, for the purposes of records management."²⁴³ Video files from EM would clearly constitute a federal record once NMFS "maintains" them; thus, EM footage is presumptively subject to potential public release under FOIA. Luckily for fishers, FOIA directs agencies to withhold records that fall under certain categories or as law requires.²⁴⁴

1. Crew Depictions

EM footage most glaringly captures a fishing vessel's crew members' faces and personal appearances.²⁴⁵ While NMFS regularly releases fisheries data to the public, images of private individuals within federal control presents a serious privacy risk to those individuals.²⁴⁶ FOIA, in turn, provides a generous protection for such data.²⁴⁷

Only one FOIA exemption likely covers EM footage of fishing crews: Exemption 6. Exemption 6 directs agencies to withhold "personnel . . . files

238. *See infra* Part V.C.

239. *See infra* Part V.A.1, B, C.

240. *See infra* Part V.A.2, B, C.

241. *See infra* Part V.A.3, B, C.

242. Freedom of Information Act, 5 U.S.C. § 552(a)(2)(D), (3)(A) (2018).

243. 5 U.S.C. § 552(f)(2)(A)–(B).

244. 5 U.S.C. § 552(a)(8)(A)(i)(I).

245. *See supra* text accompanying notes 145–47 (reviewing EM stills and program materials to determine EM subject matter, including gear types, vessel structure, and potential vessel markings).

246. *See infra* text accompanying notes 247–52 (qualifying the danger to privacy by publicly disclosing images of human likenesses).

247. *See infra* Part V.A.1.

and similar files the disclosure of which would constitute a clearly unwarranted invasion of personal privacy”²⁴⁸ While Exemption 6 uses the niche language of “personnel” files, the Supreme Court affirmed that the exception extends broadly.²⁴⁹ Reviewing FOIA’s legislative history, the Court settled on Congress’s intent to protect individuals and citizens generally with Exemption 6 “by excluding those kinds of files the disclosure of which might harm the individual.”²⁵⁰ Specifically, those files are “records on an individual which can be identified as applying to that individual.”²⁵¹ Exemption 6 thus protects any individual from unwarranted invasions of privacy, which courts determine on a case-specific basis.²⁵²

The case *Sack v. CIA* reviewed a FOIA request for many Central Intelligence Agency (CIA) and Defense Intelligence Agency (DIA) records.²⁵³ The plaintiff, among other requests, sought thermal-image photographs of Department of Defense employees, which the DIA withheld pursuant to FOIA Exemption 6.²⁵⁴ Upon challenge, the D.C. court determined that releasing the images would be an unwarranted invasion of privacy after balancing the privacy interest of withholding the images against the public interest of release.²⁵⁵ While the public interest in *Sack* was minimal because the thermal images did not contain much information on agency activities, the court found that the images created a modest privacy interest, outweighing the public’s.²⁵⁶ The court specifically looked to whether the photos could identify the subject’s “gender, age, facial shape . . . facial hair . . . [and] detailed facial features that make each person unique.”²⁵⁷ The thermal images, while certainly less detailed than a regular photograph, could still identify the subjects and thus could damage their privacy interest if the DIA publicly released the images.²⁵⁸ The Supreme Court precluded the same consideration in *Dow Chemical Co. v. United States*, where Chief Justice Burger wrote that “identifiable human faces . . . implicate more serious privacy concerns.”²⁵⁹ Images of individuals clearly create an identification

248. 5 U.S.C. § 552(b)(6).

249. U.S. Dep’t of State v. Washington Post Co., 456 U.S. 595, 602 (1982).

250. *Id.* at 599 (quoting H.R. REP. NO. 1497, at 11 (1966), reprinted in 1966 U.S.C.C.A.N. 2418, 2428).

251. *Id.* at 602.

252. *Id.*

253. *Sack v. Cent. Intel. Agency*, 53 F. Supp. 3d 154, 159 (D.D.C. 2014).

254. *Id.* at 172–73.

255. *Id.* at 173 (quoting *Lepelletier v. FDIC*, 164 F.3d 37, 46 (D.C. Cir. 1999)).

256. *Id.* at 173–74.

257. *Id.* at 173.

258. *Id.* at 173–74.

259. *Dow Chemical Co. v. United States*, 476 U.S. 227, 238 n.5 (1986).

and subsequent privacy risk should an agency release the images to the public, especially in the case of EM.

In the case of EM under Amendment 23, stills from EM videos clearly show individual crew members'—who are private citizens—bodies and faces.²⁶⁰ A member of the public could use EM footage to identify its subjects, thus falling within Exemption 6's scope.²⁶¹ In order for NMFS to successfully defend withholding the footage by showing that a release would be an unwarranted privacy violation, the next test is whether the individual's privacy interest outweighs the public's interest in release.²⁶² Here, the individual's interest is very high because EM footage clearly shows all the factors mentioned in *Sack*, culminating in a unique identification of private individuals.²⁶³ The public's interest in requesting the images, meanwhile, is likely low.

Seemingly the only purpose of requesting EM data would be a public accountability check of the EM system. Environmentally concerned parties may wish to verify that EM is an adequate substitution for NEFOP and subsequent protection for the groundfish stock.²⁶⁴ While this interest relates to the congressional intent in the MSA to conserve fish stocks,²⁶⁵ EM footage still holds images of private individuals. The *Sack* court noted that even a public interest in the taxpayer-funded government's activities, including government employees, is low compared to the risk of identifying those government-employed individuals in thermal photographs; here, the images depict private citizens, in high detail, images that would not improve catch data, and thus lower the public interest. The individual crew members' heightened interest in withholding EM footage of their depictions therefore outweighs the public's meager interest in disclosure; disclosure of EM data depicting crew members is an unwarranted invasion of fishers' privacy, which FOIA Exemption 6 flatly prohibits.

260. See *supra* text accompanying notes 145–47 (reviewing EM stills and program materials to determine EM subject matter, including gear types, vessel structure, and potential vessel markings).

261. See *supra* text accompanying notes 251–52 (linking FOIA Exemption 6 with case law on personal identifier data).

262. *Sack*, 53 F. Supp. 3d at 173.

263. *Id.* at 173–74; see *supra* text accompanying note 251 (certifying protections for personally identifying data).

264. See *Oceana, Inc. v. Locke*, No. 08–1881, 2010 WL 2363940, at *1 (D.D.C. May 18, 2010) (issuing a court order releasing observer data to public-interest plaintiffs who sued after NOAA withheld the data).

265. 16 U.S.C. § 1801(b)(5) (2018).

2. Vessel and Business Information

The next area for EM privacy concerns is footage depicting unique vessel identifiers and confidential fishing practices.²⁶⁶ Releasing this footage may allow the public to identify vessels, and subsequently captains and crew, and link catch data with specific vessels, destroying confidentiality. Further, competitive fishers may seek an unfair advantage by requesting footage of confidential business practices. The FOIA protections for business information mirror the strong protections for personal identifiers.

FOIA offers fishers strong privacy protections for their confidential business information. Again, FOIA allows the public to request agency records, which includes EM footage, subject to several exemptions that withhold private information.²⁶⁷ Exemption 4 protects “trade secrets and commercial . . . information obtained from a person and privileged or confidential,” and is thus most relevant to footage of vessels and fishing practices.²⁶⁸ The Supreme Court decided in *Food Marketing Institute v. Argus Leader Media* that “confidential,” for the purposes of Exemption 4, means information that the owner customarily and actually treats as private and which the owner provides to the government with privacy assurance.²⁶⁹ The test for Exemption 4 covers fishing information in EM, affording a strong barrier to public release.

First, gear and vessel depictions on their own fall within Exemption 4. The first half requires that the owner treats the information as private.²⁷⁰ For EM footage of fishing and business practices, fishers guard gear use and seasonality as trade secrets and express concern over their confidentiality.²⁷¹ Fishers’ gear information may be valuable to their competitors, who might then attempt to request EM footage to improve their own businesses. Gear and fishing-practice depictions would thus likely satisfy the Exemption 4 test from *Argus*, providing NMFS cause to withhold the EM footage. However, the test also includes the condition that information owners “actually” treat

266. See *supra* text accompanying notes 145–47 (reviewing EM stills and program materials to determine EM subject matter, including gear types, vessel structure, and potentially vessel markings).

267. See *supra* text accompanying notes 242–44 (summarizing FOIA’s purpose, scope, and capabilities).

268. Freedom of Information Act, 5 U.S.C. § 552(b)(4) (2018).

269. *Food Mktg. Inst. v. Argus Leader Media*, 139 S.Ct. 2356, 2366 (2019).

270. *Id.*

271. See Cliff White, *Flywire Taking a Fresh Approach to Onboard Monitoring*, SEAFOODSOURCE (June 27, 2019), <https://www.seafoodsource.com/news/supply-trade/flywire-taking-a-fresh-approach-to-onboard-monitoring> (interviewing third-party EM reviewers who take a holistic and intensive approach to guarding fishers’ privacy).

the information as confidential.²⁷² Despite this highly fact-specific requirement, business practices and gear still have a strong chance at Exemption 4 protection. NMFS guarantees confidentiality for any EM footage that fishers submit for review under the MSA.²⁷³ NMFS's guarantee then satisfies the second half of Exemption 4's test. EM captures more than just gear use, however, providing another aspect for privacy protections.

In addition to gear use, EM also records vessels' location data.²⁷⁴ Combining GPS data with uniquely identifiable gear and vessel images presents a serious privacy concern for fishers: FOIA requestors could observe successful catches, identify vessels by their gear and their markings, and link the vessels' footage to corresponding GPS data, thus disclosing the vessels' fishing locations and secrets.²⁷⁵ Again, the test for Exemption 4 requires that the owner customarily and actually treats the information as confidential and that the owner provides the information to the government under a privacy assumption.²⁷⁶ Similar to gear and vessel depictions, EM location data would satisfy the second element.²⁷⁷ For the first, fishers closely guard fishing locations as a trade secret, and thus deserve a high degree of privacy from public release.²⁷⁸ Fishing spots would easily satisfy the custom element of the Exemption 4 test, but similar to above, an outright bar to public disclosure would depend on an individual fisher's *actual* confidential treatment.²⁷⁹ Exemption 4 then likely protects fishing locations as confidential, and thus would likely prohibit disclosure of EM data depicting vessels' fishing practices with location metadata.

Under Exemption 4, business practices such as gear type and fishing locations are likely precluded from public release. Both satisfy Exemption 4's test, but both still depend on a specific fisher's actual treatment of the information in EM footage. NOAA should promulgate regulations to presumptively withhold business information and only inquire into the fishers' *actual* business practices in response to a challenge. This approach

272. *Argus*, 139 S.Ct. at 2366.

273. *See infra* Part V.B.

274. *Amendment 23*, *supra* note 17, at 25.

275. *See infra* text accompanying notes 279–81 (exploring the liability in releasing fishers' GPS data).

276. *Argus*, 139 S.Ct. at 2366.

277. *See supra* text accompanying notes 270–73 (applying the second half of *Argus* to gear and vessel depictions).

278. Kate Wing, *Public Fish – Public Data?*, BLOOMBERG DATA FOR GOOD EXCHANGE (Sept. 16, 2018), https://data.bloomberglp.com/company/sites/2/2018/09/public_fish.pdf; White, *supra* note 271.

279. *Argus*, 139 S.Ct. at 2366; *see supra* text accompanying note 272 (identifying the *actual* test component).

would best protect the privacy of fishers' business practices, subsequently boosting cooperation with EM.

3. GPS Data

GPS data is a critical component of EM under Amendment 23.²⁸⁰ EM uses GPS to record where and when fishing activity occurs, either in video file metadata or sensor recordings, which aids in verifying catch locations and other important fisheries data.²⁸¹ Fishers closely guard their fishing locations as a highly important trade secret.²⁸² Publicly releasing video footage or screenshots with locational metadata may thus inadvertently share trade secrets, harming fishers' businesses, leading to conflict, and greatly disincentivizing EM use.

Once more, FOIA grants public releases of agency records subject to a list of exemptions.²⁸³ The exemption list does not, however, offer an exemption relevant to GPS data. At first, Exemption 9 seems promising, advertising a protection for geologic and geophysical information.²⁸⁴ But the exemption is narrow and protects only geologic and geophysical information relating to wells.²⁸⁵ Therefore, Exemption 9 is not relevant here. Exemption 4 again offers the surest route for EM data protection, as vessels' GPS data represents the confidential, trade-secret information of fishing spots and routes.²⁸⁶ The test for whether business information is truly confidential requires that the owner customarily and actually treat the information as private, and that the owner provided the information to the government with an assurance of privacy.²⁸⁷ Here, GPS information likely satisfies that test.

And yet once more, NMFS guarantees confidentiality for EM data, including GPS data, by virtue of fishers submitting said data to NMFS.²⁸⁸

280. *Amendment 23*, *supra* note 17, at 25.

281. See Farron Wallace et al., *Innovative Camera Applications for Electronic Monitoring*, in: FISHERIES BYCATCH: GLOBAL ISSUES AND CREATIVE SOLUTIONS 99 (Gordon H. Kruse et al. eds., Alaska Sea Grant, Univ. of Alaska Fairbanks 2015), <http://doi.org/10.4027/fbgics.2015.06> (continuing that mapping locations with high bycatch rates will help vessels avoid those areas and reduce bycatch); Bartholomew et al., *supra* note 146, at 43 (citations omitted) ("When combined with GPS data it can provide a powerful tool to identify fishing grounds, areas of high bycatch risk and other important data for fishery management and conservation.").

282. Wing, *supra* note 278; White, *supra* note 271.

283. Freedom of Information Act, 5 U.S.C. § 552(b) (2018).

284. 5 U.S.C. § 552(b)(9).

285. 5 U.S.C. § 552(b)(9) ("[G]eological and geophysical information and data, including maps, concerning wells.").

286. 5 U.S.C. § 552(b)(4).

287. *Food Mktg. Inst. v. Argus Leader Media*, 139 S.Ct. 2356, 2366 (2019).

288. See *supra* Part V.A.2.

The guarantee satisfies the second half of the Exemption 4 test, which next requires that the information be customarily and actually private.²⁸⁹ Again, fishers prize their fishing spots as highly confidential, if not the *most* confidential.²⁹⁰ GPS and vessel location data then satisfies Exemption 4's test for custom private treatment, but the actual treatment prong then leaves disclosing GPS information open to uncertainty. FOIA then treats GPS information from EM the same as individual identifiers and business practices,²⁹¹ thus warranting the same consideration: NOAA should presumptively withhold GPS data from FOIA release.

B. Magnuson Stevens Fishery Conservation and Management Act

NOAA's rules governing data privacy stretch from congressional mandates under the MSA to internal agency policies. At the highest level, the MSA guarantees that *any* information sent to NOAA is confidential, short of several exceptions.²⁹² Personal depictions, business information, and GPS data in EM footage are all confidential under the MSA by virtue of fishers' submitting the data to NMFS and NOAA.²⁹³ The MSA does not further distinguish between types of data,²⁹⁴ and so the MSA's confidentiality guarantees thus apply to all components of EM data.

None of the MSA's confidentiality exceptions include general requests for public release.²⁹⁵ The court order exemption, however, grants courts broad authority to request information "pursuant to a protective order."²⁹⁶ Further, Exception F allows data disclosure "when the Secretary has obtained written authorization from the person submitting such information to release such information to persons for reasons not otherwise provided for in this subsection"²⁹⁷ Additionally, the MSA singles out that observer information, which includes EM information,²⁹⁸ is confidential.²⁹⁹ The

289. *Argus*, 139 S.Ct. at 2366.

290. *Wing*, *supra* note 278; *White*, *supra* note 271.

291. *See supra* Part V.A.1, 2.

292. 16 U.S.C. § 1881a(b)(1) (2018).

293. 16 U.S.C. § 1881a(b)(1)(B), (2).

294. *See* 16 U.S.C. § 1881a(b)(1)(B) (specifying the types of data that NMFS and NOAA can collect and disclose).

295. 16 U.S.C. § 1881a(b)(1)(B).

296. *Locke*, 2010 WL 2363940, at *3.

297. 16 U.S.C. § 1881a(b)(1)(F) ("[A]nd such release does not violate other requirements of this chapter")

298. 16 U.S.C. § 1802(32) ("The term 'observer information' means any information collected, observed, retrieved, or created by an observer or electronic monitoring system").

299. 16 U.S.C. § 1881a(b)(2).

exceptions to observer confidentiality include the same exceptions for data generally: use in a North Pacific Fishery Management Council program; observer certifications and training; and validation of observer accuracy.³⁰⁰ As the MSA limits “observer[s]” to “person[s]” under the MSA, however, none of the observer confidentiality exceptions apply to EM.³⁰¹

Returning to the general protection and exceptions for any data, the MSA provision allowing data disclosure pursuant to court order is potentially dangerous because EM is so novel. In *Oceana, Inc. v. Locke*, the D.C. district court ordered NOAA to release nine observer logs pursuant to a protective order.³⁰² There, *Oceana* challenged a biological opinion and requested the observer logs as part of the administrative record.³⁰³ The court decided, in the absence of any other decision or legislative history, that disclosing the logs under a protective order would preserve the MSA’s goal of candid data.³⁰⁴ The MSA provision allowing court-ordered disclosures, 16 U.S.C. § 1881a(b)(1)(D), was key to the court’s decision: the court viewed the provision as an “express grant of authority”³⁰⁵ The court-order provision thus has the potential to disclose observer data without a firm test once a public party reaches far enough in the legal system.

While the MSA expressly grants confidentiality for all EM data, the protections may not last forever. The statute’s blanket privacy protection, § 1881a(b)(1), would make any EM data confidential, the same as any other data fishers or third parties send to NMFS or NOAA.³⁰⁶ The MSA even treats EM data the same as regular observer data for the purposes of observer-data confidentiality.³⁰⁷ Because crew depictions are part of such EM data, they gain the default confidentiality. As in *Locke*, however, this confidentiality may not survive a court’s own judgment.³⁰⁸ MSA § 1881a(b)(1)(D), in the absence of additional guiding rules or jurisprudence, grants courts broad authority to issue court orders disclosing previously confidential observer information.³⁰⁹

300. 16 U.S.C. § 1881a(b)(2)(A),(C)(i)–(ii).

301. 16 U.S.C. § 1802(31) (“[O]bserver” means any person required or authorized to be carried on a vessel for conservation and management purposes by regulations or permits under this chapter.”).

302. *Oceana, Inc. v. Locke*, 2010 WL 2363940, at *3 (D. D.C. May 18, 2010).

303. *Id.* at *1.

304. *Id.* at *2–3.

305. *Id.* at *3.

306. 16 U.S.C. § 1881a(b)(1).

307. See *supra* text accompanying notes 298–99 (correlating the MSA’s protection for “observer data,” which includes both human and EM observation data).

308. *Locke*, 2010 WL 2363940, at *3.

309. *Id.*; 16 U.S.C. § 1881a(b)(1)(D).

Hypothetically, assuming that only MSA confidentiality rules apply to a request for EM data, a court could seemingly release footage depicting crew members should the court consider the release to uphold the court's own conception of MSA confidentiality.³¹⁰ The same potential vulnerability to business or GPS information exists.³¹¹ Using the *Locke* court's rationale of promoting candid log reporting,³¹² the threat of releasing trade secrets like gear type and fishing location would greatly disincentivize fishers from participating in or submitting accurate data for EM. Giving competitors an unfair advantage in fishing³¹³ is highly undesirable for fishers, and by providing inaccurate or incomplete data to NMFS to mitigate this risk fishers would compromise the quality of observer data. The outcome of this gamble with court orders still depends on the type of court because few have considered observer and fisheries data releases.³¹⁴

In a vacuum, the MSA does not guarantee ironclad privacy protections for EM data, only a blanket guarantee subject to judicial interpretation. Therefore, predicting whether fishers receive adequate protection for personal crew identifiers, business information, and GPS location data under the MSA is unclear. NOAA may further protect information confidentiality,³¹⁵ but the MSA ultimately allows NOAA to publicly release information that does not disclose the personal or business identity of the supplier.³¹⁶ This provision then grants NOAA broad authority to decide EM data disclosure's limits.

C. National Oceanographic and Atmospheric Administration Rules

NOAA has several internal rules that keep fishers' identities confidential. The "Rule of Three" requires that data that NOAA releases to the public stem from at least three sources.³¹⁷ Theoretically, three or more sources of data "makes it very difficult to identify how much an individual might have reported," thus concealing fishers' identities from the public.³¹⁸

310. *Locke*, 2010 WL 2363940, at *3.

311. *Cf.* 16 U.S.C. § 1881a(b)(1)(D) (granting power to the court to release confidential information); *Locke*, 2010 WL 2363940, at *3.

312. *Locke*, 2010 WL 2363940, at *3.

313. *See supra* text accompanying notes 275, 281–82 (characterizing the unfair business practices that could result from disclosing fishing trade secrets).

314. *Locke*, 2010 WL 2363940, at *2.

315. *See* 16 U.S.C. § 1881a(c)(1) (restricting the use of information gathered voluntarily aboard a ship dedicated to conservation efforts).

316. 16 U.S.C. § 1881a(b)(3).

317. *Medina & Nuzum, supra* note 111, at 10690.

318. *Id.*

The Rule likely follows the MSA provision allowing the release of aggregate information.³¹⁹ This theory extends to the Atlantic Coastal Cooperative Statistics Program,³²⁰ which aggregates and provides Atlantic fisheries data, including the groundfish fishery.³²¹

The second NOAA policy, AO 216-100, directs NMFS to “only . . . disclose[] [confidential data] to the public if required by . . . FOIA . . . or by court order.”³²² While this Note applies FOIA to EM elsewhere,³²³ the policy’s part on court orders mirrors the corresponding MSA provision paramount in *Locke*.³²⁴ AO 216-100 further allows agencies to subpoena fisheries data with NOAA General Counsel approval.³²⁵ Individual identifiers remain with data under AO 216-100, and would thus follow data that NOAA releases, unless “good scientific practice” requires deleting identifiers.³²⁶ AO 216-100 delineates several requirements to delete individual identifiers: “future uses of data have thoroughly been evaluated . . . consultation with the agency(s) collecting data (if other than NMFS), the relevant Council(s), and NMFS Senior Scientist; and . . . concurrence by the Assistant Administrator [of NOAA] has been received prior to deletion.”³²⁷ NOAA’s own rules largely protect identifiable fisheries data as confidential but holds several avenues for publication similarly to the MSA.³²⁸ To better protect fishers’ privacy, NOAA should either clarify or promulgate new rules to protect EM data, as shown below.

First, the Rule of Three does not adequately address the risks of disclosing crew members’ images. The Rule works by assuming that aggregating numbers will mask which vessel provided the data.³²⁹ EM includes far more than raw numbers, however. Images of individuals raise

319. See 16 U.S.C. § 1881a(b)(3) (“[T]he Secretary may release or make public any such information in any aggregate or summary form which does not directly or indirectly disclose the identity or business of any person who submits such information.”).

320. *Ahoy! Welcome to the ACCSP Data Warehouse!*, ATL. COASTAL COOP. STAT. PROGRAM, https://safis.accsp.org:8443/accsp_prod/f?p=1490:1:3842214830011::: (last visited Dec. 8, 2020) (“The ACCSP policy for confidentiality requires that any data summary that is publicly disclosed must include landings from at least three dealers, three harvesters and three vessels to be considered non-confidential.”).

321. *Data Warehouse*, ATL. COASTAL COOP. STAT. PROGRAM, <https://www.accsp.org/what-we-do/data-warehouse/> (last visited Dec. 8, 2020).

322. *NAO 216-100*, *supra* note 118, § 4(a).

323. See *supra* Part V.A.

324. See *supra* note 304 and accompanying text (classifying MSA court-ordered disclosures as a grant of authority).

325. *NAO 216-100*, *supra* note 118, § 4(a).

326. *Id.* § 4(b).

327. *Id.* § 6.02(c).

328. See *supra* Part V.B.

329. See *supra* text accompanying notes 317–19 (laying out the aspects of the “Rule of Three”).

serious privacy concerns because their faces can identify the individuals, thus creating a risk to privacy.³³⁰ Combining three or more images from three or more vessels will not diminish the visibility of individual crew members, thus increasing the chance to identify vessels and destroy anonymity. The Rule of Three is therefore too outdated to handle confidentiality of EM data, and cannot adequately protect individual crew members' privacy.

AO 216-100 contains similar pitfalls. The order's privacy protections start strong, then quickly devolve. AO 216-100's preliminary rule defers to FOIA protections, which under Exemption 6 are likely strong for crew depictions.³³¹ The second half of the Rule, however, defers to court orders which are prone to the court's own interpretation of fisheries data confidentiality and therefore have the potential to disclose crew images.³³² However, ambiguity arises over whether courts are likely to disclose EM data since no court case has discussed AO 216-100, let alone on the precise EM issue. Ambiguity also arises in AO 216-100's provision allowing fellow agencies to subpoena fisheries data. The provision includes zero qualifiers, directions, or restrictions on NOAA's General Counsel, and so cross-agency disclosure of crew depictions may be rampant, leading to potential leaks and disclosure of private-citizens' likenesses.

AO 216-100's individual-identifiers provision creates further complications. Although facial depictions can already easily identify individuals,³³³ assigning a digital file identifier to an EM image adds another avenue to correlate and identify individuals. Should an image not clearly present an individual's likeness, a secondary identifier could link that image with another, clearer image. Individuals could then string EM footage together to craft an identity for the footage's subjects, violating the subjects' privacy. AO 216-100 promises to delete these identifiers pending a lengthy review of "good scientific practice."³³⁴ The provision does not further define "good scientific practice," because it does not clarify whether deleting identifiers can be a blanket rule for all entries of a specific kind of data, or much other information.³³⁵ Additionally, approval from NOAA's Scientists, Administrators, and Councils would likely be glacial. Again, there are no cases that review this agency process, and so protection for crew member depictions under AO 216-100 are ambiguous at best. NOAA needs to revisit

330. *See supra* Part V.A.1.

331. *See supra* Part V.A.1.

332. *See supra* Part V.B (discussing courts' interpretations of MSA protections and exceptions).

333. *See supra* Part V.A.1.

334. *NAO 216-100, supra* note 118, § 4(b).

335. *See id.*

this internal rule to better account for the new wave of fisheries data that EM promises.

The same two internal NOAA rules apply for gear and fishing locations, as extensions of vessel and business information, since the rules apply to all fisheries data.³³⁶ And, similarly to the MSA rules above,³³⁷ NOAA's internal rules do not distinguish between GPS and other types of EM data. Thus, the same exceptions apply as well. Neither the rules nor their exceptions distinguish between types of data,³³⁸ nor are there court cases that interpret the rules and proscribe tests. The results for personal identifiers are then the same for business information in EM footage: NOAA's privacy protections are inadequate to ensure the confidentiality of fishers' EM information. This discrepancy speaks to the revolutionary aspect of EM and the sheer volume of personally identifying information that EM captures on hours of digital video. While fisheries data used to be raw numbers on observers' logs, Amendment 23 proposes to introduce highly detailed videos and images into the federal data stream; old agency rules may not be able to handle the influx.

D. Summary

To summarize, FOIA strongly protects EM footage depicting crew members, business practices, and GPS data as a business practice from public disclosure.³³⁹ The MSA's protections for EM data are somewhat promising but still grant courts broad authority to release the footage.³⁴⁰ Meanwhile, NOAA's internal rules guiding data disclosure fail to address these privacy concerns, and are due for an update to guarantee privacy rights for fishers and cooperatively introduce EM to modern fisheries management.³⁴¹

VI. RECOMMENDATIONS

Upon reviewing the Fourth Amendment's limits to privacy, the government has broad license to requisition EM footage from private fishing vessels to verify catch data.³⁴² However, fishers' strongest privacy

336. *Commercial Data*, *supra* note 115; *NAO 216-100*, *supra* note 118 § 2 ("This Order covers all confidential data received, collected, maintained, or used by NMFS.").

337. *See supra* Part V.B (covering how any information sent to NOAA is confidential under the MSA, with few exceptions).

338. *Commercial Data*, *supra* note 115; *NAO 216-100*, *supra* note 118.

339. *See supra* V.A.

340. *See supra* V.B.

341. *See supra* Part V.C (referencing NOAA's internal rules and guidance).

342. *See supra* Part IV.

protections stem from FOIA, which only protects EM data from public FOIA requests.³⁴³ The MSA and NOAA's internal rules, however, leave EM data release up to court and inter-agency discretion for release.³⁴⁴ Vagueness for EM data protection still persists within and beyond this Note's analysis.

The scrupulous reader may notice the lack,³⁴⁵ scarcity,³⁴⁶ and creative analysis³⁴⁷ of cases in each analysis section. The author believes that this absence underscores the novel nature of EM, which in turn, heightens the need for explicit privacy guarantees. Courts have not considered many of these issues, and even if they have, current frameworks are ill-equipped to cover each aspect of video footage.³⁴⁸ Further, the many tests prohibiting public release of confidential information are highly fact-specific, and so most privacy issues with EM would depend on unforeseen circumstances.³⁴⁹ Temporally, the potential raw footage of EM³⁵⁰ does not account for new technology that may enhance privacy. Fishers' privacy depends even more on the contracts NMFS enters into with third parties to outsource data review.³⁵¹ This Note also does not consider the liability or privacy guarantees of third-party contractors or means of redress from subsequent breaches, apart from NOAA's ability to collect EM data under the Third-Party Doctrine.³⁵²

NMFS should therefore continue to work and communicate with fishers to adequately cover fishers' needs for privacy in order to promote EM and achieve its goals.³⁵³ The two largest liabilities to fishers' privacy is the court-order exception to the MSA and the general release of data under NOAA and its internal policies' guidance.³⁵⁴ First, a surefire solution to protect fishers' privacy while employing EM would be to amend the MSA. The MSA grants NOAA the authority to "promulgate regulations to restrict the use, [both] in civil enforcement or criminal proceedings," of observer information, whether

343. *See supra* Part V.A; Freedom of Information Act, 5 U.S.C. § 552(a) (2018).

344. *See supra* Part V.B and C.

345. *See supra* Part V.C.

346. *See supra* Part V.B.

347. *See supra* Part V.A and B (analyzing federal data disclosure protection under FOIA and MSA).

348. *See supra* Part V.

349. *See supra* Part V.

350. *See supra* note 145 and accompanying text (analyzing frames of EM test footage).

351. *See Amendment 23, supra* note 17, at 31 (specifying that third parties would review EM data thus likely requiring a contractual relationship between the third parties, fishers, and NOAA).

352. *See supra* Part IV.C.

353. *See supra* Part II.B.

354. *See supra* Part V.B and C.

from human observers or EM data.³⁵⁵ Theoretically this would protect fishers' EM data from unintended consequences, but the protection only extends to "voluntary" observation, which neither the MSA nor its regulations require.³⁵⁶ As Amendment 23 could require fishers to employ EM, this MSA provision would not protect the subsequent video footage.³⁵⁷

Amending the MSA to outright withhold EM footage from any public release would best protect fishers' privacy. First, it would bolster fishers' FOIA protections. FOIA Exception 3 protects records "specifically exempted from disclosure by statute"³⁵⁸ Thus, a presumptive ban by the MSA would automatically shield footage of private vessels from public request. Completely shielding fishers' privacy could be as simple as a new subsection to 1881a(b) that states: "Electronic monitoring data shall be confidential and shall not be disclosed," omitting any exceptions. To uphold public accountability of fisheries management and provide scientists with an opportunity to improve methods, however, a more practical and realistic amendment might distinguish controversial EM data: "Electronic monitoring data depicting identifiable personal or vessel likeness shall be confidential and shall not be disclosed," omitting exceptions again. The remaining uncontroversial fish, landings, and potential bycatch data would fall into the MSA's blanket confidentiality protection, and thus be subject to regular public request.³⁵⁹ Next, should the MSA outright prohibit EM footage release, not only would the blanket protection trump NOAA's internal rules,³⁶⁰ but it would also cut out the MSA's court-order exception.³⁶¹

Apart from congressional action, NOAA should also refresh its regulations and internal policies to protect EM data. The "Rule of Three" and AO-216 would not adequately protect fishers' data.³⁶² Outright privacy guarantees for EM data as a whole, the three categories of sensitive information that this Note covers,³⁶³ or clearer protections for observer data would prevent private and unnecessary information from public consumption.

355. 16 U.S.C. § 1881a(c)(1) (2018).

356. *Id.*

357. *Amendment 23*, *supra* note 17, at 31–33.

358. Freedom of Information Act, 5 U.S.C. § 552(b)(3) (2018).

359. 16 U.S.C. § 1881a(b)(1), (2) (2018).

360. *See supra* Part V.C.

361. 16 U.S.C. § 1881a(b)(1)(D); *see also* Part V.B (analyzing how the court-order provision grants a troubling amount of discretion to courts in light of EM's new privacy implications).

362. *See supra* Part V.C (explaining NOAA's "Rule of Three" and AO-216 policies).

363. *See supra* note 144 and accompanying text (synthesizing personal identifiers, business and vessel information, and GPS data from EM footage).

Finally, NOAA should ensure that the contracts that fishers and third-party EM reviewers sign employ sufficient privacy guarantees. The Third-Party Doctrine provides wide authority for the government to collect data like EM.³⁶⁴ Potentially requiring fishers to send footage of their vessels to third parties,³⁶⁵ and subsequently the government, should carry a duty to prohibit the mistreatment of such data.

CONCLUSION

The Northeast groundfish fishery currently represents the region's historic cod fishery, which crashed in the late 20th century, depriving an entire economic industry and ecological community of a vital resource. Restoring cod would therefore benefit the Northeast as a whole. Yet rebuilding efforts under the Northeast Multispecies FMP rely partly on vessel-supplied catch data that human observers verify. The human observers may influence the catch data by their presence alone, however, leading to inaccurate results that may delay cod recovery, or simply be unavailable to verify data due by virtue of their physical presence.³⁶⁶ The COVID-19 pandemic exemplifies how human observers' inherent physical presence may not even be possible; as a result of observer waivers, nearly five months of fishing trips have unverified data.³⁶⁷ As the fishery transitions to 100% monitoring coverage, EM is a seemingly simple solution to human observers, but it produces highly detailed video and image data instead of pure numbers, which could identify private individuals, businesses, or their trade secrets. EM thus presents uncertainty in fishers' private information, leading to apprehension of EM systems. NMFS should, therefore, cooperate with fishers to guarantee their data security and introduce EM's benefits to the Northeast ground fishery.

Amending the MSA, promulgating strong privacy regulations and internal rules, and ensuring privacy guarantees in third-party contracts would best protect fishers' privacy, which NOAA should consider in light of their broad authority to collect EM data. Strong fisheries management requires

364. See *supra* Part IV.C.

365. *Amendment 23*, *supra* note 17, at 31–33 (detailing that, under Amendment 23, EM's "[v]ideo review would be conducted by third-party providers.").

366. *Greater Atlantic Regional Administrator Announces Temporary Waivers on Observers, Monitors*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Apr. 2, 2020), <https://www.fisheries.noaa.gov/bulletin/greater-atlantic-regional-administrator-announces-temporary-waivers-observers-monitors> (waiving human-observer requirements in light of the COVID-19 global pandemic).

367. See *supra* notes 20, 100, and accompanying text.

strong cooperation and mutual respect; guaranteeing strong privacy rights for EM data furthers everyone's interests.