

# FISHING IN THE DESERT: MODERNIZING ALASKAN SALMON MANAGEMENT TO PROTECT FISHERIES AND PRESERVE FISHERS' LIVELIHOODS

Connor Sakati\*

## ABSTRACT

*Many Alaskan salmon fisheries are in distress, threatening fishers' livelihoods, food sources, and cultures. This crisis – and the few, blunt tools managers possess to address it – reveals that the current state and federal legal framework for salmon management is inadequate to protect fisheries' health and preserve fishers' livelihoods, especially as the ocean warms and the distribution of species within it significantly changes. First, the current framework's regulatory tools, designed to combat human overuse of a single species, are poorly tailored to mitigating this multicausal, ecosystem-wide crisis. Current science indicates marine heatwaves, habitat degradation, and human use may be major culprits of salmon population decline, whereas existing fisheries management tools are largely designed to handle overharvesting and pit users against one another. A better framework would expand the toolset managers have at their disposal to combat these broader, ecological threats. Second, the tools managers do have within this framework impose the heaviest regulatory burdens on the poorest and most vulnerable, unfairly allocating the costs of managing a changing resource pool. Existing management tools often disproportionately burden the fishers who most directly rely on salmon to feed their families and support their communities. Moreover, as the ocean warms, fish habitats will shift and fish populations may*

---

Copyright © 2023 by Connor Sakati.

\* J.D. and M.P.P. Candidate, Duke University School of Law and Sanford School of Public Policy, 2024; B.S.F.S. International Politics, Georgetown University School of Foreign Service, 2018. I would like to thank Professor Jonas Monast for his helpful comments on this paper throughout its development, Dr. Jeremy Mathis for first exposing me to marine natural resource governance issues, and my former supervising attorneys at the Alaska Department of Law (especially Stephanie Galbraith-Moore) for providing me broad exposure to Alaskan law. Additionally, I would also like to thank the *Alaska Law Review* editorial team for their help and insights.

*even shrink overall. The users directly reliant on the fishery—subsistence fishers, small-scale fishers, businesses in rural villages, and Alaska Natives—are most vulnerable to changes in the resource stock itself. To protect these groups, a better framework would blunt regulatory tools’ impacts on these groups.*

## I. INTRODUCTION: PLUMMETING POPULATIONS AND COMMUNITIES IN CRISIS

The numbers are really low. There’s nothing out there.  
It’s like fishing in the desert.

—Walter Morgan, Lower Kalskag Village Resident<sup>1</sup>

Salmon fisheries—and those who rely on them—are in crisis. In Emmonak, Alaska, a small community near the banks of the Yukon River, salmon fishing underpins the local economy and culture.<sup>2</sup> In the past, local fisheries managers set out monitoring nets during salmon runs and captured up to “a hundred fish at a time,” but in 2021, days passed without their nets capturing a single salmon.<sup>3</sup> When one net caught three fish, “[w]ord traveled fast.”<sup>4</sup> In 2021, summer and fall Yukon River chum salmon runs declined approximately ninety percent from “normal numbers.”<sup>5</sup> King salmon dwindled to one of their lowest counts in the last two and a half decades.<sup>6</sup> Vanishing salmon runs have led state and federal fisheries managers to close the Yukon River to commercial and even subsistence fishing.<sup>7</sup> Kwik’Pak Fisheries, a local salmon processor, once injected ten million dollars per year into the 1,000-person Emmonak economy.<sup>8</sup> With recent fisheries closures, that number, too, has plunged

---

1. Yereth Rosen, *Fishery Managers Call For Deeper Look at Salmon Bycatch but Decline to Tighten Rules*, Anchorage Daily News (June 15, 2022), <https://www.adn.com/alaska-news/2022/06/15/fishery-managers-call-for-deeper-look-at-salmon-bycatch-but-decline-to-tighten-rules/>.

2. See Olivia Ebertz, *How Low Chum Runs Changed the Lives of These Western Alaska Fisheries Workers*, KTOO (Aug. 24, 2021), <https://www.ktoo.org/2021/08/24/how-low-chum-runs-changed-the-lives-of-these-western-alaska-fisheries-workers/> (describing Emmonak’s challenges caused by declining salmon runs).

3. Zachariah Hughes, *Amid an Unprecedented Collapse in Alaska Yukon River Salmon, No One Can Say For Certain Why There Are So Few Fish*, ANCHORAGE DAILY NEWS (Sept. 7, 2021), <https://www.adn.com/alaska-news/rural-alaska/2021/09/06/amid-an-unprecedented-collapse-in-alaska-yukon-river-salmon-no-one-can-say-for-certain-why-there-are-so-few-fish/>.

4. *Id.*

5. *Id.*

6. *Id.*

7. *Id.*

8. *Id.*

approximately ninety percent.<sup>9</sup>

This crisis is not unique to Emmonak. From Southeast Alaska to the Bering Sea, many salmon fisheries have crashed.<sup>10</sup> Since 2018, the United States Department of Commerce has declared disasters in the Southeast Alaska, Copper River, Prince William Sound, Cook Inlet, Chignik, Kuskokwim River, Yukon River, and Norton Sound salmon fisheries.<sup>11</sup> Alarmingly, multiple salmon species—chinook (king), sockeye, and chum—face disaster.<sup>12</sup> During the 2022 fishing season, emergency orders closed rivers across the state to sport, commercial, and subsistence salmon fishing.<sup>13</sup>

Puzzlingly, a few regions of Alaska are seeing salmon booms, not busts. In Bristol Bay, for example, salmon runs have broken records in recent years despite crashes immediately to the north and south.<sup>14</sup> In 2021, one chum salmon fishery south of the Alaska Peninsula near the South Uminak and Shumagin islands saw its highest-ever recorded harvest, with 1,168,601 salmon caught (compared to an annual average of 427,448 catches for the last decade).<sup>15</sup> However, in fisheries all across Alaska, average salmon size has decreased.<sup>16</sup>

---

9. Ebertz, *supra* note 2.

10. *Fisheries Disaster Determinations*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/national/funding-and-financial-services/fishery-disaster-determinations> (last visited May 12, 2023) [hereinafter *Fisheries Disaster Determinations*] (listing fisheries where, under the Magnuson Stevens Act or Interjurisdictional Fisheries Act, an official fisheries disaster exists).

11. *Id.*

12. *Secretary of Commerce Issues Multiple Fishery Disaster Determinations for Alaska*, NOAA (Jan. 21, 2022), <https://www.noaa.gov/news-release/secretary-of-commerce-issues-multiple-fishery-disaster-determinations-for-alaska>.

13. Maisie Thomas, *ADF&G Restricts Fishing Due to Weak King and Chum Runs*, FAIRBANKS DAILY NEWS-MINER, [https://www.newsminer.com/news/local\\_news/adf-g-restricts-fishing-due-to-weak-king-and-chum-runs/article\\_e4464ed2-ee68-11ec-b2e5-93d63c7ec04b.html](https://www.newsminer.com/news/local_news/adf-g-restricts-fishing-due-to-weak-king-and-chum-runs/article_e4464ed2-ee68-11ec-b2e5-93d63c7ec04b.html) (July 12, 2022).

14. Victoria Petersen, *Record Salmon in One Place. Barely Any in Another*, *Alarm All Around.*, N.Y. TIMES (Aug. 16, 2021), <https://www.nytimes.com/2021/08/12/dining/wild-alaskan-salmon.html>; Hal Bernton, *Alaska's Bristol Bay Salmon Run Shatters Records, and Is Not Done Yet*, SEATTLE TIMES (July 16, 2022, 10:05 A.M.), <https://www.seattletimes.com/seattle-news/environment/salmon-runs-shatter-records-as-peak-season-shows-no-sign-of-slowing/>.

15. ELISABETH K.C. FOX ET AL., ALASKA DEP'T OF FISH & GAME, 2021 SOUTH ALASKA PENINSULA SALMON ANNUAL MANAGEMENT REPORT AND 2020 SUBSISTENCE FISHERIES IN THE ALASKA PENINSULA, ALEUTIAN ISLANDS, AND ATKA-AMLIA ISLANDS MANAGEMENT AREAS 66 (2022), <https://www.adfg.alaska.gov/FedAidPDFs/RIR.4K.2022.01.pdf> [hereinafter 2021 ANNUAL MANAGEMENT REPORT].

16. See K. B. Oke et al., *Recent Declines in Salmon Body Size Impact Ecosystems and Fisheries*, NATURE COMM'N 1, 1 (2020), <https://www.nature.com/articles/s41467-020-17726-z> (collecting 12.5 million

For areas in crisis, more than a natural resource is at stake: salmon fishing is a cultural cornerstone for Alaska Natives and life-long fishers, the sole economic engine and food source in many small villages, and a lucrative state-wide industry. Alaska Natives and Canadian First Nations risk losing their ability to pass on an integral part of their culture.<sup>17</sup> More than 1,000 miles upstream from Emmonak, near Whitehorse, Canada, fishing camps once dotted the river's summer shores.<sup>18</sup> These camps were a fixture of the Kwanlin Dün First Nation's culture, where citizens would both obtain food for the winter and share their heritage with younger generations.<sup>19</sup> Yet today, as Kwanlin Dün citizen Brandy Mayes laments, "[a]ll of our fish camps are empty."<sup>20</sup> James McDonald, chair of Yukon First Nations Salmon Sub-Committee, believes that the local salmon fishery has reached a "biological tipping point" and is "a total natural disaster."<sup>21</sup> Stark salmon population statistics bolster his claims: although 52,000 chinook salmon typically swim up the Yukon River to cross the Canadian border, only around 12,000 crossed during the 2022 fishing season.<sup>22</sup>

The many Alaskans who feed their families via subsistence salmon fishing risk losing their most important food source. Over 2,500 households in extremely remote villages along the Yukon River—hundreds of miles from the North American road system—fish for survival.<sup>23</sup> Now, with fishery closures, these households must either accept government-donated fish or purchase flown-in substitute protein.<sup>24</sup> Governor Mike Dunleavy has called the crisis one of his "top priorities" and has managed to airlift "90,000 pounds of fish to needy villages."<sup>25</sup> Substitute foods are not cheap: in Emmonak, a small pack of

---

salmon size measurements from every region of Alaska, from Southeast past Kotzebue, and finding that salmon size has declined throughout the state).

17. NPR Morning Edition, *Scientists Scramble to Explain Why Western Alaska Salmon Stocks Are So Low*, NPR (Aug. 15, 2022, 5:13 A.M.), <https://www.npr.org/2022/08/15/1117486533/a-dearth-of-salmon-in-alaska-s-yukon-river-hurts-indigenous-residents>.

18. Sara Connors, *Kwanlin Dün First Nation in Yukon is Trying to Figure Out Where the Chinook Salmon Are*, APTN NEWS (Sept. 6, 2022), <https://www.aptnnews.ca/national-news/kwanlin-dun-first-nation-yukon-chinook-salmon-crisis-climate-change/>.

19. *Id.*

20. *Id.*

21. *Id.*

22. *Id.*

23. Victoria Petersen, *As Waters Warm, Alaska Experiences Salmon Booms and Busts*, HIGH COUNTRY NEWS (July 22, 2022), <https://www.hcn.org/articles/north-fish-as-waters-warm-alaska-experiences-salmon-booms-and-busts>.

24. NPR Morning Edition, *supra* note 17.

25. Nathan Howard & Gillian Flaccus, *Dwindling Alaska Salmon Leave Yukon River Tribes in Crisis*, ASSOC. PRESS (Oct. 2, 2021),

pork ribs costs nearly forty dollars.<sup>26</sup>

Due to declining salmon stocks, fisheries managers face unenviable tradeoffs; some policy choices risk decimating commercial fishers' livelihoods and leveling communities. Salmon fishers in the small town of Sand Point fear that new regulations will destroy their town's economy.<sup>27</sup> The nearby state-managed fishing ground, Area M, houses an intercept fishery, meaning that salmon migrate through coastal waters but do not spawn in local rivers.<sup>28</sup> Area M chum salmon migrate towards western Alaska, where many of the crashing river fisheries, including the Yukon, are located.<sup>29</sup> Some subsistence fishers therefore call for an Area M salmon fishing moratorium so that all share in the burden of salmon preservation.<sup>30</sup> But, in the words of Sand Point resident and fisher Kiley Thompson, "this community lives and dies by commercial fishing."<sup>31</sup>

To resolve this crisis, fisheries managers must make tough choices.<sup>32</sup> However, on a deeper level, this crisis – and the few, blunt tools managers possess to deal with it – reveals that the current state and federal legal framework for salmon management is inadequate to protect fisheries' health and preserve fishers' livelihoods, especially as the ocean rapidly warms and the distribution of species within it significantly changes.<sup>33</sup> First, the current framework's regulatory tools, designed to combat human overuse of a single species, are poorly tailored to mitigating this multicausal, ecosystem-wide crisis.<sup>34</sup> Second, the tools that managers do

---

<https://apnews.com/article/climate-change-science-lifestyle-business-environment-and-nature-cb0c966f43e52fd9559857969f1203a0>.

26. NPR Morning Edition, *supra* note 17.

27. Olivia Ebertz, *Who Does the Salmon in Area M Belong To?*, ALASKA PUB. MEDIA (July 18, 2022), <https://alaskapublic.org/2022/07/18/who-does-the-salmon-in-area-m-belong-to-%EF%BF%BC/> [hereinafter *Who Does The Salmon In Area M Belong To?*].

28. *Id.*

29. *Id.*

30. *Id.*

31. *Id.*

32. I take no position on which of these policy interventions are most appropriate; this is outside the scope of my expertise and the scope of this Note.

33. Steven Campana et al., *Shifting Fish Distributions in Warming Sub-Arctic Oceans*, SCI. REP. (Oct. 5, 2020), <https://www.nature.com/articles/s41598-020-73444-y>; see also Howard & Flaccus, *supra* note 25 (noting that Governor Dunleavy has cited a warming ocean as a cause of salmon decline).

34. The general principle that fisheries management "ignores" ecosystem-wide threats to fish species has led to the development of the ecosystem-based fisheries management paradigm. However, ecosystem-based fisheries management solutions often focus on how other marine species are managed. See E. K. Pikitch et al., *Ecosystem-Based Fishery Management*, 305 SCI. 346, 346–47 (July 16, 2004), <https://www.science.org/doi/10.1126/science.1098222> (describing ecosystem-based management as managing species' populations while also considering other species in the ocean). My critique, though similar, extends to

have within this framework impose the heaviest regulatory burdens on the poorest and most vulnerable, unfairly allocating the costs of managing a changing resource pool. Alaskan salmon management therefore requires modernization if salmon and the Alaskans who rely on it are to prosper over the long term.

First, the tools that managers have—closing fisheries, limiting gear and bycatch, and paying relief—are not designed to reverse a multicausal, ecosystem-wide crisis.<sup>35</sup> Current science indicates marine heatwaves and habitat degradation, in addition to human use, are major culprits of salmon population decline, whereas existing fisheries management tools are largely designed to handle overharvesting and pit users against one another.<sup>36</sup> Creating a better framework would give managers more options to combat these broader threats.<sup>37</sup>

Second, the current framework does not fairly allocate the regulatory burdens that managing a changing pool of resources imposes.<sup>38</sup> Existing management tools often disproportionately burden the fishers who most directly rely on salmon to feed their families and support their communities.<sup>39</sup> Moreover, as the ocean warms, fish habitat will shift and fish populations may even shrink overall.<sup>40</sup> The users directly reliant on the fishery—subsistence fishers, small-scale fishers, business in rural villages, and Alaska Natives—are most vulnerable to changes in the resource stock itself.<sup>41</sup> Creating a better framework would blunt regulatory tools' impacts on these groups.<sup>42</sup>

In short, reforms should, first, grant managers new tools to mitigate ecosystem-wide challenges and, second, more fairly distribute the regulatory burden of managing this resource pool. Under the current salmon management system, detailed in Part II, fisheries managers face jurisdictional hurdles and possess limited tools to combat species decline. Part III describes competing scientific explanations of salmon population decline. A summary of the strategies managers currently implement when facing declining salmon populations, outlined in Part IV, displays how managers can only deploy blunt tools that pit user groups against one another. The current system is simply not designed to address the

---

how existing natural resource policy ignores climate change's impacts and fails to meaningfully include in-watershed development projects.

35. See discussion *infra* Section V.A.

36. This is not to say that human use may not be a problem, too. See discussion *infra* Parts III–IV.

37. See discussion *infra* Section VI.A.

38. See discussion *infra* Section V.B.

39. See discussion *infra* Section V.B.

40. Campana et al., *supra* note 33.

41. See discussion *infra* Section V.B.

42. See discussion *infra* Section VI.B.

multiple, complex threats salmon face today and fails to protect those most reliant on salmon fishing, as Part V argues. Yet, as Part VI explains, these problems can be remedied; enabling fisheries managers to combat multicausal fisheries collapses through new tools would modernize fisheries protection. Similarly, as further explained in Part VI, policies that assign rights and burdens should protect the most vulnerable from bearing regulation's brunt. Part VII calls for managers to heed these general lessons in other natural resource contexts.

## II. MANY PLAYERS, OVERLAPPING JURISDICTIONS: HOW SALMON MANAGEMENT WORKS NOW

Salmon's anadromous<sup>43</sup> migration patterns spur jurisdictional lines, giving the species a more complex legal management structure than most. Importantly, although salmon fishery managers primarily regulate during the life stages when fishers extract them, harm to fish occurs throughout their life cycle.<sup>44</sup> Salmon begin their lives upstream, in small, shallow streams mostly under Alaska state government management (with important federal caveats).<sup>45</sup> As salmon grow older, they swim downstream—in some cases across international borders—before first entering state-controlled and then federally-controlled ocean waters (which are sometimes devolved to state control).<sup>46</sup> Some salmon continue onwards into international waters while others straddle the United States-Canada maritime border.<sup>47</sup> Later in life, salmon return to their streams of birth, where they spawn and die.<sup>48</sup> Adding an additional layer of complexity, salmon are harvested—intentionally and incidentally—both inland and at sea.<sup>49</sup> However, most intentional salmon catch occurs

---

43. Anadromous fish are species that are born in freshwater, migrate to the ocean, and later return to their native freshwater streams to spawn and die. *What Does Anadromous Mean?*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/node/8071> (last visited May 12, 2023).

44. See generally N. PAC. FISHERY MGMT. COUNCIL, FISHERY MANAGEMENT PLAN FOR THE SALMON FISHERIES IN THE EEZ OFF ALASKA (2021) (describing the various tools, all related to the fishing industry, that managers possess to manage salmon).

45. *The Salmon Life Cycle*, NAT'L PARK SERV. (July 22, 2019), <https://www.nps.gov/olym/learn/nature/the-salmon-life-cycle.htm>; see also N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 7-13.

46. NAT'L PARK SERV., *supra* note 45; see also N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 7-13.

47. NAT'L PARK SERV., *supra* note 45; see also N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 7-13.

48. Indeed, salmon return to the same stream where they were born. See NAT'L PARK SERV., *supra* note 45; see also N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 7-13.

49. NAT'L PARK SERV., *supra* note 45; see also N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 7-13.

in state waters due to limits on fishing on the high seas and in federal waters.<sup>50</sup>

Generally, Alaskan law governs inland fisheries and coastal fisheries up to three nautical miles from its shoreline.<sup>51</sup> The Alaska Constitution sets the backdrop for state fisheries management, declaring Alaska's natural resources policy as promoting "the maximum use consistent with the public interest."<sup>52</sup> For "replenishable resources" like salmon, this means that management must obey the "sustained yield principle, subject to preferences among beneficial uses."<sup>53</sup> The natural resources of the state, including its salmon, are "reserved to the people for common use."<sup>54</sup> Thus, the state cannot grant an "exclusive right or special privilege of fishery."<sup>55</sup> However, a later constitutional amendment qualified this restriction, permitting the state to limit "entry into any fishery for purposes of resource conservation, to prevent economic distress among fishermen and those dependent upon [fishing] for a livelihood."<sup>56</sup> Furthermore, all fishery regulations must "apply equally to all persons similarly situated[,]"<sup>57</sup> limiting Alaska's ability to adopt policies prioritizing different user groups.

Three Alaska state agencies implement these constitutional policies. The Alaska Board of Fisheries makes "allocative decisions" between different user groups through a public process that involves extensive public input.<sup>58</sup> The Alaska Department of Fish and Game then manages fisheries according to the Board's rules.<sup>59</sup> The Department possesses

---

50. See N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 10 (noting that, in most EEZ waters, commercial fishing is either limited to a subset of gear or has been banned for years).

51. See 43 U.S.C. § 1312 (defining a coastal State's seaward boundary as "a line three geographical miles" from its coastline); see also *Maritime Zones and Boundaries*, NOAA INT'L SECTION (Oct. 4, 2022), <https://www.noaa.gov/maritime-zones-and-boundaries> (generally explaining maritime zones and boundaries) [hereinafter *Maritime Zones and Boundaries*].

52. ALASKA CONST. art. VIII, § 1.

53. *Id.* § 4.

54. *Id.* § 3.

55. *Id.* § 15; see also Jack B. McGee, *Subsistence Hunting and Fishing in Alaska: Does ANILCA's Rural Subsistence Priority Really Conflict with the Alaska Constitution?*, 27 ALASKA L. REV. 221, 224–25 (2010) (discussing section 15 of the Alaska Constitution which states that "[n]o exclusive right or special privilege of fishery shall be created or authorized in the natural waters of the state.").

56. *Id.* § 15. This section also permits limiting entry "to promote the efficient development of aquaculture." *Id.*

57. ALASKA CONST. art. VIII, § 17.

58. *Welcome to the Alaska Board of Fisheries*, ALASKA DEP'T OF FISH & GAME, <https://www.adfg.alaska.gov/index.cfm?adfg=fisheriesboard.main> (last visited May 12, 2023); see also N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 16.

59. See FISHERY MGMT. COUNCIL, *supra* note 44, at 16 ("The Council relies on the Board to establish fishing regulations and allocate harvests among groups of



extensive emergency closure authorities, since managers can often only determine salmon run size once harvests begin.<sup>60</sup> If a fishery becomes overfished, the Alaskan Commercial Fisheries Entry Commission then steps in.<sup>61</sup> The Limited Entry Act, in accordance with Alaska Constitution article XV's exclusive right of fisheries exception, authorizes the Commission to limit the quantity of permits available and levy fees on fishers to buy excess permits.<sup>62</sup> Today, numerous salmon fisheries throughout the state are limited entry fisheries.<sup>63</sup>

The United States Constitution also constrains Alaska's policymaking purview. The Dormant Commerce Clause doctrine bars many protectionist natural resource policies that disrupt free trade between the states. The Commerce Clause, which contains "an affirmative grant of power to Congress to regulate interstate and foreign commerce," also limits the states from "imposing substantial burdens on such commerce."<sup>64</sup> For example, in the forestry context, Alaska tried to enforce a local content requirement, where the state would sell timber on the condition that the timber be processed in-state.<sup>65</sup> However, the Supreme Court struck this policy down, holding that "because of the protectionist nature of Alaska's local-processing requirement and the burden on commerce resulting therefrom" the law impeded "the flow of interstate commerce at a State's borders," thereby transgressing the Dormant Commerce Clause limitation.<sup>66</sup> Similarly, the Privileges and Immunities Clause forbids discriminating against out-of-state residents in many instances, although the Supreme Court has indicated resource conservation allows for differential treatment between in-state and out-of-state recreational resource users.<sup>67</sup>

The federal government, the largest landowner in Alaska, manages inland fisheries on federal lands and in navigable waterways.<sup>68</sup> Federal management policies can conflict with state policies. For example, although Alaska, per its Constitution, cannot grant priority access to rural subsistence fishers, federal management managers, following the Alaska

---

fishermen through a public forum that provides for public and agency input.").

60. *Id.*

61. ALASKA STAT. §§ 16.43.240, 16.43.250, 16.43.310.

62. *Id.*

63. ALASKA ADMIN. CODE tit. 20, § 05.310 (2022).

64. S. Cent. Timber Dev. v. Wunnicke, 467 U.S. 82, 87 (1984).

65. *Id.* at 84–85.

66. *Id.* at 100.

67. See *Baldwin v. Fish & Game Comm'n of Montana*, 436 U.S. 371, 390 (1978) (determining that different permit costs and regulations for in-state and out-of-state hunters are permissible).

68. CAROL VINCENT, CONG. RSCH. SERV., R42346, FEDERAL LAND OWNERSHIP: OVERVIEW AND DATA 7 (2020).

National Interest Lands Conservation Act, can and do.<sup>69</sup>

Beyond three nautical miles from the Alaskan shore, and up until two hundred nautical miles from shore, lies the United States exclusive economic zone (EEZ).<sup>70</sup> In the EEZ, fisheries management jurisdiction lies with the federal government.<sup>71</sup> There, the Magnuson-Stevens Fisheries Conservation and Management Act, the federal fisheries management framework, applies.<sup>72</sup> This law balances a desire to exploit the nation's fisheries resources with the need to prevent overfishing "to rebuild overfished stocks[ and] to ensure conservation."<sup>73</sup>

To reach this delicate equilibrium, the Magnuson-Stevens Act empowers regional fisheries management councils, composed of state and local stakeholders, to draft species-specific fishery management plans.<sup>74</sup> These plans fix catch quantities, regulate allowable gear, establish bycatch mitigation rules, and describe critical habitat.<sup>75</sup> Although delegated decision-making power, a council's fishery management plan must meet federal standards, including use of the best available science and achievement of an optimum yield that prevents overfishing.<sup>76</sup>

The North Pacific Fishery Management Council governs salmon fishing in federal waters off Alaska.<sup>77</sup> The Council includes representatives from the Alaska, Washington, and Oregon state governments, economic development specialists, and fishing industry experts, all of whom can vote.<sup>78</sup> Federal agencies, including the National Oceanic and Atmospheric Administration, the Department of State, the Coast Guard, and the Fish and Wildlife Service, also have a seat at the table but do not vote.<sup>79</sup> While the North Pacific Fisheries Management Council does have rural fishers and small-business owners as representatives, it has no designated subsistence users or Alaska Native representatives, unlike other regional councils, such as the Pacific

---

69. See discussion *infra* Section V.B (discussing ANILCA's federal grant of priority programs for rural subsistence fishers). *But see* McGee, *supra* note 55, at 221 (arguing that "there is no intractable contradiction between the Alaska Constitution and ANILCA").

70. The U.S. EEZ is defined differently in the Magnuson-Stevens Act than in the Law of the Sea. *Maritime Zones and Boundaries*, *supra* note 51.

71. N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 7.

72. 16 U.S.C. § 1811.

73. *Id.* § 1801.

74. *Id.* § 1852(h)(1).

75. *Id.* § 1853(a); N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 6-10.

76. 16 U.S.C. § 1851.

77. *Id.* § 1852(a)(1)(G).

78. *Council Members*, N. PAC. FISHERY MGMT. COUNCIL, <https://www.npfmc.org/about-the-council/council-members/> (last visited May 12, 2023) [hereinafter *Council Members*].

79. *Id.*; 16 U.S.C. § 1852.

Regional Management Council, which has a designated Indian tribe seat.<sup>80</sup>

While these councils can designate critical habitat, they cannot truly regulate it. The councils designate “essential fish habitat,” defined as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity.”<sup>81</sup> They can also determine “habitat areas of particular concern,” which are “rare, stressed by development, provide important ecological functions for federally managed species, or are especially vulnerable to anthropogenic (or human impact) degradation.”<sup>82</sup> To protect these designated habitats, councils may merely restrict some fishing activities—if setting those restrictions is already within their regulatory purview—and commission studies.<sup>83</sup>

The North Pacific Fishery Management Council’s salmon fishery management plan divides the Alaskan EEZ into two regions: one to the east of Cape Suckling and the other to its west.<sup>84</sup> In the East Area, all net fishing is forbidden; commercial fishers may only troll for salmon.<sup>85</sup> The federal government has delegated Alaska the authority to manage this fishery.<sup>86</sup> Within the West Area, the plan forbids all commercial fishing.<sup>87</sup> However, the plan delegates management of the Prince William Sound and a portion near the Alaska Peninsula—including Area M—to the state, which allows fishing there.<sup>88</sup> Federal courts placed a third excepted region, the Cook Inlet, back under federal jurisdiction, where commercial fishing is currently banned.<sup>89</sup>

When fisheries fail, several provisions of the Magnuson-Stevens Act and Interjurisdictional Fisheries Act kick in. The United States Secretary of Commerce can declare a fisheries disaster, unlocking funding for fishers and their communities from four different statutes.<sup>90</sup> The Secretary has only granted Alaskan fishers relief under two of those statutes, Magnuson-Stevens Act § 312 and Interjurisdictional Fisheries Act § 308.<sup>91</sup>

---

80. *Council Members*, *supra* note 78; 16 U.S.C. § 1852.

81. 16 U.S.C. § 1802(10).

82. N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 31; *Habitat Areas of Particular Concern Within Essential Fish Habitat*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/southeast/habitat-conservation/habitat-areas-particular-concern-within-essential-fish-habitat> (last visited Mar. 15, 2023).

83. *Id.*

84. *Id.* at 7–8.

85. *Id.* at 10. Trolling uses baited lines instead of nets to catch fish.

86. *Id.*

87. *Id.*

88. *Id.*

89. *Id.*

90. 16 U.S.C. § 1861a; ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE 3 (Apr. 7, 2020).

91. *See, e.g.*, Letter from Gina Raimondo, Sec’y of Com., to Mike Dunleavy,

Section 312 of the Magnuson-Stevens Act provides relief to fishermen, their communities, and for restoration projects when a commercial fishery fails due to natural causes, regulatory causes beyond the fishery management's control, or undetermined causes.<sup>92</sup> Similarly, § 308 of the Interjurisdictional Fisheries Act, triggered when commercial fisheries fail due to natural or undetermined causes, provides funding to restore the fishery and prevent future failures.<sup>93</sup> Both statutes restrict federal funding to seventy-five percent of project costs and require a specific congressional allocation.<sup>94</sup>

Although relief excludes noncommercial fishers, § 12005 of the Coronavirus Aid, Relief, and Economic Security Act (more colloquially called the CARES Act), temporarily allowed fisheries assistance for subsistence fishers "affected by the novel coronavirus."<sup>95</sup> Alaskan subsistence fishing communities became eligible for funding under this new provision.<sup>96</sup> This change is not permanent; the federal government needed to allocate any funding before September 30, 2021.<sup>97</sup>

The Secretary of Commerce has not invoked two other existing relief provisions to assist Alaskan salmon fishers.<sup>98</sup> Section 315 of the Magnuson Stevens Act provides any relief that either § 308 or § 312 authorizes while waiving the grant-matching requirement.<sup>99</sup> However, only a "catastrophic regional fishery disaster" triggers this provision, which occurs when "a natural disaster, including a hurricane or tsunami, or a regulatory closure . . . to protect human health or the marine

---

Governor of Alaska (Feb. 1, 2022) (available at <https://media.fisheries.noaa.gov/2022-02/The%20Honorable%20Mike%20Dunleavy%202.1.22.pdf>) [hereinafter Raimondo-Dunleavy Letter]. In each request letter from Alaska relating to salmon in the last three years the governor or other requesting official only mentions either § 312 or § 308, exclusively. For the complete set of letters, see *Fisheries Disaster Determinations*, *supra* note 10.

92. 16 U.S.C. § 1861a; ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE 3 (Apr. 7, 2020).

93. 16 U.S.C. § 4107(b); ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE 3 (Apr. 7, 2020).

94. 16 § 1861a(a)(3); 16 U.S.C. § 4107(b)(3).

95. CARES Act of 2022, Pub. L. No. 116-136 § 12005, 134 Stat. 281, 518 (2020).

96. ALASKA DEP'T OF FISH & GAME, DRAFT SPEND PLAN FOR FUNDS APPROPRIATED TO ADDRESS THE 2020 NORTON SOUND, YUKON RIVER, KUSKOKWIM RIVER, CHIGNIK, SOUTHEAST ALASKA; AND 2021 YUKON RIVER SALMON DISASTER DETERMINATION 4 (2022),

[https://www.adfg.alaska.gov/static/fishing/pdfs/2020-21\\_salmon\\_disaster\\_initial\\_draft\\_spend\\_plan.pdf](https://www.adfg.alaska.gov/static/fishing/pdfs/2020-21_salmon_disaster_initial_draft_spend_plan.pdf) [hereinafter *Draft Spend Plan*].

97. CARES Act of 2022, Pub. L. No. 116-136 § 12005, 134 Stat. 281, 518 (2020).

98. See discussion *supra* note 91 (omitting any mention of MSA § 315 or IJA § 312); see *Fisheries Disaster Determinations*, *supra* note 10.

99. 16 U.S.C. § 1864; ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE (Apr. 7, 2020).

environment” closes an interstate fishery.<sup>100</sup> Section 308 of the Interjurisdictional Fisheries Act contains another relief provision only applicable to natural disasters like hurricanes.<sup>101</sup>

Finally, the seas beyond 200 nautical miles from shore lie outside national jurisdiction.<sup>102</sup> Accordingly, salmon that swim past this boundary escape United States control. Although generally anyone may fish the high seas,<sup>103</sup> the United States, Canada, Russia, Japan, and South Korea cooperate to stop any salmon fishing in the North Pacific high seas, pooling enforcement efforts.<sup>104</sup> Salmon also swim between the United States and Canada, down rivers like the Yukon, and across Pacific maritime borders, spawning a complex web of bilateral management agreements.<sup>105</sup>

### III. SCIENTIFIC EXPLANATIONS FOR SALMON POPULATION DECLINE

Alaskan salmon populations suffer from many threats and stressors – in the ocean and in-stream, human-induced and natural. While scientists advance competing explanations for salmon population collapses, much is still unknown and multiple causes are likely entangled. Many theories abound; the late U.S. Representative for Alaska Don Young even suggested nuclear submarines could be leaching chemicals into the water.<sup>106</sup>

---

100. ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE 4 (Apr. 7, 2020).

101. 16 U.S.C. § 4107(d); ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE 3 (Apr. 7, 2020).

102. *Maritime Zones and Boundaries*, *supra* note 51.

103. United Nations Convention on the Law of the Sea, art. 87, Dec. 10, 1982, 1833 U.N.T.S. 397. Although the United States is not a party, it recognizes parts of the Law of the Sea as customary international law. *What is the Law of the Sea?*, NAT’L OCEAN SERV., <https://oceanservice.noaa.gov/facts/lawofsea.html> (last visited Mar. 15, 2023).

104. N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 19.

105. The complex United States and Canadian salmon treaty system, and its acrimonious history, is inseparable from Alaskan salmon governance but is worth an entire paper itself. Any international resource issues are outside this Note’s scope. *See* N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 18; *Yukon River Panel*, PAC. SALMON COMM’N, <https://www.psc.org/about-us/structure/panels/yukon-river/> (last visited May 12, 2023). Moreover, bilateral salmon negotiations between the United States and Canada are ongoing. *See, e.g.*, U.S. Dep’t of State, *Columbia River Treaty* <https://www.state.gov/columbia-river-treaty/> (last visited May 12, 2023).

106. Liz Ruskin, *What’s to Blame for Alaska’s Poor King Salmon Runs? Submarines, Suggests Rep. Young*, ALASKA PUB. MEDIA (Aug. 2, 2021), <https://alaskapublic.org/2021/08/02/whats-to-blame-for-alaskas-poor-king-salmon-runs-rep-young-suggests-submarines/> (“Young called for more

Scientists, industry groups, commercial fishers, and subsistence fishers hotly debate how much commercial bycatch has caused salmon population collapses. Subsistence fishers argue that industrial pollock fishers generate huge quantities of salmon bycatch and are therefore responsible for salmon population collapses.<sup>107</sup> Similarly, subsistence fishers contend that commercial salmon fishers in intercept fisheries deplete populations and should refrain from fishing until subsistence fisheries recover. Commercial groups dispute these accusations, maintaining their actions have little impact on languishing salmon populations.<sup>108</sup>

Regardless of commercial fishing's impact on salmon, climate change's effects, in particular a warming ocean, likely play a substantial role in explaining salmon population declines. Marine heatwaves have struck the Bering Sea and other high latitude waters with increasing frequency, which some scientists label the culprit behind a global decline in chum salmon.<sup>109</sup> Indeed, in seeking salmon fisheries disaster declarations, Governor Dunleavy cited marine heatwaves as the driver of salmon population declines.<sup>110</sup> Moreover, one study found increasing average ocean temperatures indirectly cause salmon size to decline by supporting increased competitor species and changing salmon metabolic rates.<sup>111</sup> Others link salmon population declines to droughts.<sup>112</sup> However, still other studies point in the opposite direction, suggesting that warming waters may help certain salmon populations by increasing available freshwater habitat.<sup>113</sup>

Salmon face numerous threats during their fragile freshwater life stages. In the Yukon River, scientists have found discrepancies between

---

research.”).

107. Rosen, *supra* note 1; Olivia Ebertz, *Area M: The Place in the Sea Where Alaska Commercial and Subsistence Interests Collide*, ALASKA PUB. MEDIA (July 12, 2022), <https://alaskapublic.org/2022/07/12/area-m-the-place-in-the-sea-where-alaska-commercial-and-subsistence-interests-collide/> [hereinafter *The Place in the Sea*].

108. See discussion *infra* Part IV.

109. Petersen, *supra* note 23.

110. See, e.g., Letter from Mike Dunleavy, Governor of Alaska to Gina Raimondo, Sec'y of Com. (Jul. 13, 2022) (available at [https://media.fisheries.noaa.gov/2022-10/Incoming\\_AK\\_PWS\\_CopperRiver.pdf](https://media.fisheries.noaa.gov/2022-10/Incoming_AK_PWS_CopperRiver.pdf)).

111. K. B. Oke et al., *supra* note 16.

112. Vanessa R. von Biela et al., *Premature Mortality Observations Among Alaska's Pacific Salmon During Record Heat and Drought in 2019*, 47 FISHERIES 157, 157 (2022).

113. Petersen *supra* note 23 (“With the warmer temperatures, the lakes are frozen for less time, and the juvenile sockeye may have been able to grow larger and be more competitive as they enter the ocean, thereby increasing their odds of survival. But as the Bering Sea continues to warm, it too could see the same salmon declines as the Yukon.”).

population counts downstream and upstream, indicating high in-stream mortality.<sup>114</sup> Salmon are susceptible to small changes in river environmental variables, including water temperature, streamflow, and precipitation.<sup>115</sup> Alaskan salmon face threats from warming stream temperatures, increasing stream sedimentation, increased pollutant discharge, predation from invasive pike, and even swollen streamflows, all factors that could be increasing salmon death rates.<sup>116</sup> In the Yukon River, where salmon must swim hundreds or thousands of miles without food, smaller stressors like viruses that normally would only sicken fish prove fatal.<sup>117</sup>

Among salmon's in-stream pressures, human-caused habitat degradation poses a severe long-term threat. The North Pacific Fisheries Management Council's salmon fishery management plan points to in-stream human actions as a threat to salmon, a view some citizen groups also share.<sup>118</sup> The plan notes that "by far, the most serious habitat concern for [c]hinoosk salmon is the degradation of the freshwater watersheds that support those stages of their life history."<sup>119</sup> The plan echoes similar concerns for four other salmon species.<sup>120</sup> Chum salmon are uniquely vulnerable because they rely on upwelling groundwater, estuaries, and tidal wetlands at different points in their life histories.<sup>121</sup> Therefore, activities like drilling that alter groundwater flows could impact chum

---

114. *Unsettled: A Podcast Examining the Legacy of the Alaska Native Claims Settlement Act: Episode 2, How ANCSA Reinforces, and Clashes, with Subsistence Traditions*, ALASKA PUB. MEDIA (Mar. 2, 2022), <https://alaskapublic.org/2022/03/02/unsettled-a-podcast-about-the-alaska-native-claims-settlement-act/> [hereinafter *Unsettled*]; *Talk of Alaska: Yukon River Salmon*, ALASKA PUB. MEDIA (Sept. 13, 2022), <https://alaskapublic.org/2022/09/13/talk-of-alaska-yukon-river-salmon/>.

115. Leslie Jones et al., *Watershed-Scale Climate Influences Productivity of Chinook Salmon Populations Across Southcentral Alaska*, 26 GLOB. CHANGE BIOLOGY 4919, 4919 (2020).

116. *Appendix A: Essential Fish Habitat (EFH) and Habitat Areas of Particular Concern (HAPC)*, N. PAC. FISHERY MGMT. COUNCIL 81-82 (Oct. 2018), <https://www.npfmc.org/wp-content/PDFdocuments/fmp/Salmon/SalmonFMPAppendix.pdf> [hereinafter *Appendix A*]; *Talk of Alaska: Yukon River Salmon*, ALASKA PUB. MEDIA (Sept. 13, 2022), <https://alaskapublic.org/2022/09/13/talk-of-alaska-yukon-river-salmon/>.

117. *Talk of Alaska, Yukon River Salmon*, ALASKA PUB. MEDIA (Sept. 13, 2022), <https://alaskapublic.org/2022/09/13/talk-of-alaska-yukon-river-salmon/>.

118. *Appendix A*, *supra* note 116, at 78; *Southeast Alaska*, STATE OF ALASKA'S SALMON & PEOPLE, <https://alaskasalmonandpeople.org/region/southeast-alaska/> (last visited May 12, 2023).

119. *Appendix A*, *supra* note 116, at 33.

120. *Id.* at 3-39.

121. *Id.* at 21-22.

salmon's reproductive success rates.<sup>122</sup> Although Alaskan rivers are largely undammed, "logging and associated road construction has resulted in degraded habitat by causing increased erosion and sedimentation, changes in river temperatures, and changes in seasonal flow patterns."<sup>123</sup> Mining and its attendant pollution risks are also major concerns.<sup>124</sup>

#### IV. PROPOSED REMEDIES TO REVERSE SALMON POPULATION DECLINES

Proposed strategies to stem salmon population decline have proven controversial, pitting commercial and subsistence salmon fishers against one another and demonstrating how few tools fisheries managers have to handle this crisis. So far, fisheries closures have been the predominant strategy both Alaska and the federal government have pursued.<sup>125</sup> Indeed, closures, bycatch management, and limiting entry are the only tools fisheries managers have in their toolboxes<sup>126</sup> and, since Alaska grants extensive emergency closure authority to local officials, closures are particularly easy to deploy.<sup>127</sup>

Some environmental and Alaska Native groups have petitioned regulatory authorities governing federal waters to enact strict rules limiting commercial salmon bycatch.<sup>128</sup> U.S. Representative for Alaska Mary Peltola, a former fisheries manager, has joined these advocates, asserting that ocean trawling bycatch is responsible for the Yukon and Kuskokwim Rivers' crashing salmon populations.<sup>129</sup> The commercial pollock fishery's salmon bycatch produces huge amounts of bycatch: in 2021, pollock fishers caught 546,043 chum salmon in the Bering Sea alone.<sup>130</sup> However, scientists debate the portion of these salmon destined for depleted rivers.<sup>131</sup> Governor Dunleavy convened a bycatch study group, which recommended that industrial fishers implement some new

---

122. *Id.*

123. *Id.* at 33.

124. *Id.* at 32.

125. *See id.*

126. N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44, at 21.

127. *See id.* at 17. In many instances, fisheries closures are necessary; I take no position on whether a particular closure is required and do not claim the requisite expertise to decide.

128. Rosen, *supra* note 1.

129. Liz Ruskin, *Peltola Lands a Spot on House Resources. Next Up: Magnuson-Stevens Fisheries Bill*, ALASKA PUB. MEDIA (Sept. 15, 2022), <https://alaskapublic.org/2022/09/15/alaskas-new-congresswoman-lands-a-spot-on-the-resources-committee-for-magnuson-stevens-rewrite/>.

130. Rosen, *supra* note 1.

131. *Id.*



bycatch mitigation measures.<sup>132</sup> However, major commercial fishing groups oppose bycatch mitigation measures as costly and ineffective, pointing to the existing web of regulations.<sup>133</sup>

Many subsistence fishers also call for closures of commercial salmon fisheries like Area M.<sup>134</sup> In 2021, during a record-breaking season, Area M fishers caught 1,168,601 chum salmon.<sup>135</sup> That same season, the Yukon River closed.<sup>136</sup> Commercial fishers respond that closures would destroy their way of life while doing little to impact the crisis.<sup>137</sup> Some Area M fishers make ninety percent of their annual earnings from a few weeks of salmon fishing.<sup>138</sup> Like pollock fishers, commercial salmon fishers in Area M cite old and arguably out-of-date Alaska Fish and Game statistics that fewer than one percent of intercepted salmon are bound for the Yukon and Kuskokwim Rivers.<sup>139</sup>

Alaskan state and tribal officials have petitioned the Secretary of Commerce and obtained federal disaster relief.<sup>140</sup> The Alaska Department of Fish and Game is finalizing plans to distribute \$55,928,849 in federal fisheries disaster assistance and CARES Act money the Secretary of Commerce allocated in response to the last two years' salmon fisheries collapses.<sup>141</sup> Most of these funds will replace commercial and subsistence fishers' lost income.<sup>142</sup> Much of the rest will go to state-wide research on

---

132. *Alaska Bycatch Review Task Force (ABRT) Overview*, ALASKA DEP'T OF FISH & GAME, <https://www.adfg.alaska.gov/index.cfm?adfg=bycatchtaskforce.main> (last visited May 12, 2023); ALASKA DEP'T OF FISH & GAME, ALASKA BYCATCH REVIEW TASK FORCE FINAL REPORT 10 (2022), [https://www.adfg.alaska.gov/static/fishing/PDFs/bycatchtaskforce/abrt\\_final\\_report.pdf](https://www.adfg.alaska.gov/static/fishing/PDFs/bycatchtaskforce/abrt_final_report.pdf).

133. Rosen, *supra* note 1.

134. *Who Does The Salmon In Area M Belong To?*, *supra* note 27.

135. Fox et al., *supra* note 15, at 74 (stating that in 2021, 3,165,808 salmon were caught in total in the area).

136. *Who Does The Salmon In Area M Belong To?*, *supra* note 27; *Fisheries Disaster Determinations*, *supra* note 10.

137. *Who Does The Salmon In Area M Belong To?*, *supra* note 27.

138. Olivia Ebertz, *Area M: The Place in the Sea Where Alaska Commercial and Subsistence Interests Collide*, ALASKA PUB. MEDIA (July 12, 2022), <https://alaskapublic.org/2022/07/12/area-m-the-place-in-the-sea-where-alaska-commercial-and-subsistence-interests-collide/> [hereinafter *The Place in the Sea*].

139. See *Who Does The Salmon In Area M Belong To?*, *supra* note 27 ("Though the decade-old genetics study says Area M is taking less than 1% of chum salmon from Arctic, Yukon, and Kuskokwim rivers, desperate subsistence users are begging the government to take every action possible.").

140. See, e.g., Raimondo-Dunleavy Letter, *supra* note 91. For a full database of letters, see *Fisheries Disaster Determinations*, *supra* note 10.

141. *Draft Spend Plan*, *supra* note 96, at 1-4.

142. *Id.* at 3 (stating that there will be "[d]irect payments to commercial fishery permit holders and their vessel crew who meet all eligibility criteria in the relevant area" and "[d]irect payments to

disaster prevention.<sup>143</sup> Although many communities have lost tax revenue, they generally have limited interest in these funds due to grant matching requirements and highly specific use restrictions.<sup>144</sup>

Alaska's federal lawmakers are working to resolve the crisis. Alaska's U.S. senators helped create a federally-funded Alaskan Salmon Research Task Force, charged with studying the decline of salmon populations and suggesting new management strategies.<sup>145</sup> U.S. Representative Peltola ran for office in large part due to "the depressed salmon stocks that we've been experiencing the last 13 years."<sup>146</sup> She hopes to ensure those with "an economic interest in our salmon and in our marine resources" shoulder their conservation burden.<sup>147</sup> Additionally, Peltola, a Yup'ik Alaska Native, has noted that since "[s]almon and our dependence on salmon is a relationship that we've had for 12,000 years . . . it's really incumbent upon us to make sure that that resource is available for the generations that come after us."<sup>148</sup>

## V. HOW SALMON MANAGEMENT FAILS FISH AND FISHERS

When we try to pick out anything by itself, we find it hitched to everything else in the Universe.

—John Muir<sup>149</sup>

The current salmon management framework is not designed to address the multiple, complex threats salmon face today and fails to protect those most reliant on salmon fishing. First, though different managers regulate different waters, all possess the same blunt tools: closing fisheries, limiting fishery access, and paying relief. These tools

---

subsistence households in the Norton Sound, Yukon, and Kuskokwim River areas").

143. *Id.* at 1 (stating that twelve percent of the allocated funds will go to research).

144. *See id.* at 5 (listing household eligibility requirements).

145. Press Release, United States Senator for Alaska Lisa Murkowski, Sullivan and Murkowski Introduce Alaska Salmon Research Task Force Act (Dec. 17, 2021); *Alaska Salmon Research Task Force*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/alaska/ecosystems/alaska-salmon-research-task-force> (last visited Apr. 13, 2023).

146. Nina Kravinsky, *Mary Peltola Talks Salmon, Bipartisanship and Winning Alaska's U.S. House Race*, ALASKA PUB. MEDIA (Sept. 1, 2022), <https://alaskapublic.org/2022/09/01/mary-peltola-talks-salmon-bipartisanship-and-winning-alaskas-u-s-house-race/>.

147. *Id.*

148. *Id.*

149. Harold Wood, *John Muir Misquoted*, SIERRA CLUB, [https://vault.sierraclub.org/john\\_muir\\_exhibit/writings/misquotes.aspx](https://vault.sierraclub.org/john_muir_exhibit/writings/misquotes.aspx) (last visited May 12, 2023).

manage salmon as a species in isolation and assume that human overfishing is the driving cause of decline. Therefore, managers cannot combat complex, climate-change induced ecological threats. Second, fisheries regulations leave behind those who rely on the resource the most; as policies restrict access, close fisheries, and distribute relief, the most vulnerable groups more often bear the brunt of regulation and disproportionately lose their fishing rights. This threatens Alaskan livelihoods and fishing communities' cultures.

#### **A. Failing Fish: Fisheries Managers Lack the Tools to Combat Multicausal Crises**

The tools managers have to protect salmon do not match the threats salmon face. All the tools managers have, instead, mainly mitigate the impact of the fishing industry on salmon. Catch limits restrict the fishing industry's salmon take. Gear and bycatch limits reduce incidental salmon take. Limited entry laws constrain the number of fishers participating in a fishery. Fisheries relief is targeted at commercial failures.<sup>150</sup> Admittedly, no matter the population decline's principal causes, fishing increases pressure on fish, so existing tools do provide salmon some protection.

Although climate change (and the changes in species distribution and ocean ecology it causes) and terrestrial land use changes (and their resulting habitat impacts) both harm salmon, fisheries managers have no power to mitigate these threats.<sup>151</sup> Managers only regulate salmon in isolation, ignoring ecological context.<sup>152</sup> Since salmon are managed species-by-species, management plans consider only salmon, not prey, competitor, or predator species that climate change and habitat loss also affect.<sup>153</sup> Yet, human take or bycatch of one of these other species can reverberate throughout the food web. Additionally, while the North Pacific Fisheries Management Council must designate critical habitat, it has little power to protect it. Regulating harmful land uses or development in salmon watersheds is outside the Council's purview.<sup>154</sup> Although many explanations of salmon population decline abound, uncertainty is not a license to ignore a crisis.

#### **B. Failing Fishers: Alaskan Salmon Governance Fails to Protect Those**

---

150. See discussion *infra* Section V.B.

151. See discussion *supra* Part II.

152. Pikitch et al., *supra* note 34, at 346.

153. The management plan is broken into individual sections for each salmon species without mention of other, ecologically related, species. See generally N. PAC. FISHERY MGMT. COUNCIL, *supra* note 44.

154. See discussion *supra* Part III.

### Most Reliant on Fisheries

Current fisheries policies disproportionately impact those most reliant on the fishery. Policies restricting access and closing fisheries do not effectively protect the most vulnerable groups, but rather force them to bear the brunt of regulation. First, fisheries relief statutes do not adequately protect fishing economies and livelihoods and ignore the most vulnerable and needy, especially subsistence users. Second, entry limitation laws, although helpful in reducing excess fishing capacity, as implemented, disproportionately deprive small-scale fishers of their fishing rights and place multigenerational fishing communities at risk of extinction.<sup>155</sup> Lastly, the existing legal framework fails to adequately protect Alaska Native and subsistence users' fisheries access. These issues are not merely a matter of fairness; they threaten the livelihoods of Alaskans, Alaskan fishing culture's longevity, and subsistence users' access to food.

#### *1. Protecting the Most Vulnerable Fishers from Shouldering the Burden of Change Is Already Federal and Alaskan Legal Policy*

That fisheries management should neither "leave behind those who rely on fisheries" nor force the vulnerable to "bear the brunt" of regulation is already Alaskan and federal legal policy. These recommendations simply call for the law to live up to its own stated goals.

Both Alaskan and federal law aim to protect the most vulnerable commercial fishers and rural communities. Alaskans amended their constitution through referendum to prevent "economic distress among fishermen" and "those dependent upon [fisheries] for a livelihood."<sup>156</sup> Similarly, the Limited Entry Act requires that permit issuance regulations balance "hardship standards" including the "degree of economic dependence upon the fishery," determined through factors such as the "percentage of income derived from the fishery, reliance on alternative occupations, availability of alternative occupations, [and] investment in vessels and gear."<sup>157</sup> Moreover, the Magnuson-Stevens Act notes that "[m]any coastal areas are dependent upon fishing and related activities, and their economies have been badly damaged."<sup>158</sup> The Act seeks to protect domestic fishers from foreign competition and provide them relief when needed.<sup>159</sup>

Both state and federal law also declare their intention to protect

---

155. See discussion *infra* Section V.B.

156. ALASKA CONST. art. VIII, § 15.

157. ALASKA STAT. § 16.43.250 (2021).

158. 16 U.S.C. § 1801(a)(3).

159. 16 U.S.C. § 1801(b).

subsistence and Alaska Native fishers. One Alaska state law on subsistence notes the intent of the legislature that subsistence uses of Alaska's fish and game resources receive "the highest preference."<sup>160</sup> This priority exists because "customary and traditional uses of Alaska's fish and game originated with Alaska Natives, and have been adopted and supplemented by many non-Native Alaskans as well" and "these uses, among others, are culturally, socially, spiritually, and nutritionally important and provide a sense of identity for many subsistence users."<sup>161</sup> Moreover, the Alaska legislature found that "while Alaska's fish and game are generally still plentiful, these resources are not unlimited and cannot provide for every desired use, now or in the future."<sup>162</sup> Federal law similarly reaffirms subsistence prioritization.<sup>163</sup>

2. *Fisheries Relief Laws Leave Behind the Most Vulnerable, Especially Subsistence Users*

Although federal relief may kick in when fisheries fail, relief statutes exclude the most vulnerable groups. First, since CARES Act funding expired, subsistence fishers are no longer covered under any existing relief statute.<sup>164</sup> Subsistence fishers often have no other major food sources, yet, because they are not involved in commercial fishing, they may not receive benefits under the Magnuson-Stevens Act or Interjurisdictional Fisheries Act.<sup>165</sup> Some subsistence fishers who engage in other fisheries-related jobs or live in commercial fishing communities may benefit from aid, but those solely reliant on subsistence fishing do not necessarily qualify.<sup>166</sup> Thus, these fishers must rely on other types of state and federal aid, if they exist. To provide sufficient food, the state government has resorted to flying fish into remote villages.<sup>167</sup> Putting aside the cultural and personal costs of losing a way of life, typical government assistance programs do little good a plane ride away from a supermarket.<sup>168</sup> Second, since the federal government disperses community relief through matching grants, the poorest communities do not benefit. And some communities do not request relief because funds are only available for limited purposes, such as replacing fisheries

---

160. An Act Relating to the Taking of Fish and Game (H.B. 601), § 1, 1992 Alaska Sp. Sess. Laws ch. 1.

161. *Id.*

162. *Id.*

163. 16 U.S.C. § 3112.

164. See discussion *supra* Part II.

165. See *id.*

166. ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE 15 (Apr. 7, 2020).

167. Howard & Flaccus, *supra* note 25.

168. *Id.*

infrastructure, not replacing lost revenues or providing social services.<sup>169</sup>

Structurally, relief statutes' strict guidelines are not designed to respond to local needs. Unlike all other fisheries governance tools, fisheries relief is a top-down process. While the North Pacific Regional Fisheries Council has members from small businesses and rural communities, fisheries relief can only be awarded after the Secretary of Commerce awards funds, Congress allocates funds, and state officials prepare a state-wide spending plan.<sup>170</sup>

3. *Entry Limitation Programs, as Implemented, Disproportionately Cut Small-Scale Fishers from the Market and Place Multigenerational Fishing Communities at Risk of Extinction*

While the Limited Entry Act helps protect salmon from overfishing by reducing commercial fishing pressure, a "large scientific literature, spanning decades, describes the ways in which Alaska's Limited Entry System disproportionately disadvantages rural and Alaska Native fishing families and communities."<sup>171</sup> One study of the Bristol Bay salmon fishery, the state's healthiest salmon fishery, demonstrated that, since limited entry began, fifty percent of local fishers lost their permits, the proportion of urban, nonresident, and commercial permit holders increased,<sup>172</sup> and the average setnet permit holder aged by over a decade.<sup>173</sup>

These disproportionate impacts are contrary to limited entry's goals.<sup>174</sup> When the Commission first limits a fishery, it determines a cap on permitholders.<sup>175</sup> To initially allocate permits, the Limited Entry Commission balances "hardship standards" including the "degree of economic dependence upon the fishery" and the "extent of past participation."<sup>176</sup> Yet, during the initial permit allocation process, many small-scale fishers do not receive permits despite their eligibility due to language barriers, informal business practices, and confusion, leaving fishers and communities lacking many permits they could have been

---

169. *Draft Spend Plan*, *supra* note 96, at 2.

170. *Id.* at 2-5 (describing the process for final spending approvals).

171. Rachel Donkersloot, *Righting The Ship: Restoring Local Fishing Access and Opportunity in Bristol Bay Salmon Fisheries*, NATURE CONSERVANCY 1, 1 (2021), [https://www.nature.org/content/dam/tnc/nature/en/documents/RightingTheShip\\_elec\\_2021.pdf](https://www.nature.org/content/dam/tnc/nature/en/documents/RightingTheShip_elec_2021.pdf).

172. *Id.* at 1-3.

173. *Id.* at 17; Paula Cullenberg et al., *Turning The Tide: How Can Alaska Address the 'Graying Of The Fleet' and Loss of Rural Fisheries Access?*, ALASKA SEA GRANT 2, 3 (Nov. 2017), <https://seagrant.uaf.edu/bookstore/pubs/M-215.html>.

174. See discussion *supra* Section IV.B.1.

175. ALASKA STAT. §§ 16.43.240, 16.43.250 (2021).

176. ALASKA STAT. § 16.43.250(a) (2021).

allocated.<sup>177</sup> Periodically, the Commission may further decrease the number of permits allowed in a fishery; in that case, the Commission may levy a fee on permit holders to buy out fishers losing their permits.<sup>178</sup>

After this initial allocation, the permit market's structure drives those the Limited Entry Act seeks to protect from the market. Rural and small-scale fishers disproportionately lose their permits (and thus, the right to fish) because they lack access to the financial resources, including commercial financing, needed to afford them.<sup>179</sup> Although the Act creates a permit market, ensuring fishing remains open to those willing to pay, prices increase with scarcity. Permits often cost more than cash-poor fishers can afford; lacking sufficient collateral, small, rural fishers have limited success obtaining loans, too.<sup>180</sup> Many small-scale fishers sell their permits in situations approaching "duress," such as community cash shortages.<sup>181</sup> Additionally, small-scale fishers, given their less-efficient business practices, often face pressure to sell to more efficient, highly capitalized operations.<sup>182</sup>

An aging fishing workforce, attributable to Limited Entry, directly threatens the future of small Alaskan fishing communities. When entry limitations programs began in 1975, more than half of fishers were under forty.<sup>183</sup> By 2016, only one quarter of fishers were under forty.<sup>184</sup> The Limited Entry Act is partly response for this "graying of the fleet," erecting financial barriers to younger, aspiring fishers pursuing their community's traditional industry.<sup>185</sup> Where communities have lost fishing fleets and sold away permits, younger fishers are unable to afford or find permits for purchase.<sup>186</sup> If this trend continues, future generations may be cut off from their fishing heritage, causing community populations to decline and cultures to die away.

#### 4. *The Existing Framework Fails to Protect Alaska Native and Subsistence Interests*

Alaska's salmon management framework inadequately protects subsistence users, particularly rural Alaska Natives. First, Alaska Natives,

---

177. Donkersloot, *supra* note 171, at 13.

178. ALASKA STAT. § 16.43.310 (2021).

179. Donkersloot, *supra* note 171, at 2; Cullenberg et al., *supra* note 173, at 3.

180. Donkersloot, *supra* note 171, at 14.

181. *Id.* at 9.

182. *Id.* at 2-3.

183. Cullenberg et al., *supra* note 173, at 3.

184. *Id.*

185. Donkersloot, *supra* note 171, at 14.

186. *See id.* at 10 ("Alaska's limited entry system displaced many rural and Alaska Native fishing families and established new and rising barriers to entry currently contributing to the graying of the fleet.").

many of whom rely on salmon for cultural, personal, and subsistence needs, cannot enforce historic subsistence rights, limiting their access to salmon resources. Second, all subsistence users receive disparate treatment under dueling state and federal rules. Overlapping, conflicting regulations harm subsistence users through regulatory whiplash<sup>187</sup> and deny subsistence users sufficient protections for legally recognized subsistence priorities.

With one exception, Alaska Natives cannot enforce historic subsistence rights. In 1971, through the Alaska Native Claims Settlement Act (ANCSA), the federal government “extinguished” all land claims, including hunting and fishing rights,<sup>188</sup> and granted tribes select lands amounting to about one ninth of the state’s total.<sup>189</sup> Importantly, Native Corporations own this land; none of it is reservation land.<sup>190</sup> Thus, Alaska Natives have significantly less regulatory authority over their land than tribes with reservations.<sup>191</sup> Moreover, the newly granted land is not coterminous with historic hunting and fishing grounds.<sup>192</sup> Furthermore, the settlement granted no waters where historically important fish stocks live.<sup>193</sup> However, one treaty still exists between an Alaska Native community and the federal government. The Metlakatla Indian Community, outside the ANCSA framework, possesses a reservation and retains its Annette Island Fishery Reserve, an area extending a mere 3,000 feet from shore, along with associated fishing rights.<sup>194</sup>

Enforceable subsistence rights make a difference. The Metlakatla Indian Community has leveraged its status outside ANCSA to preserve salmon fishing rights in the face of state regulation. In 2020, to conserve salmon populations in the saturated Southeast Alaska salmon fishery, Alaska attempted to incorporate Metlakatla Indian Community fishers into its limited entry program.<sup>195</sup> In response, the Community filed suit.

---

187. I use the phrase “regulatory whiplash” to describe a regulatory environment characterized by continuously changing regulations, impeding decision-making and expectation-setting.

188. 43 U.S.C. § 1603(b).

189. See generally *id.* § 1611 (describing the Alaska Native land selection). *Alaska Federal Subsistence Program*, U.S. DEPARTMENT DEP’T OF THE INTERIOR 4 (Jan. 10, 2022), [https://www.bia.gov/sites/default/files/dup/assets/as-ia/raca/pdf/Federal-Subsistence-Title-VIII-Overview\\_508.pdf](https://www.bia.gov/sites/default/files/dup/assets/as-ia/raca/pdf/Federal-Subsistence-Title-VIII-Overview_508.pdf); *Unsettled*, *supra* note 114.

190. *Alaska v. Native Village of Venetie Tribal Gov’t*, 522 U.S. 520, 526–34 (1998).

191. *Unsettled*, *supra* note 114.

192. *Id.*

193. *Id.*

194. Proclamation No. 1332, *reprinted in* 39 Stat. 1777–78 (1916).

195. *Metlakatla Indian Cmty. v. Dunleavy*, 48 F.4th 968, 970 (9th Cir. 2022), *opinion amended and superseded on denial of reh’g*, 58 F.4th 1034 (9th Cir. 2023).



In *Metlakatla Indian Community v. Dunleavy*, the Ninth Circuit held that Alaska cannot subject the Community to the Limited Entry Act, because these regulations would violate the Community's right to fish traditional off-reservation fishing grounds.<sup>196</sup> That court drew on the Community's economic, cultural, and subsistence reliance on salmon fishing to rule that the its fishery reserve included an implied off-reservation right to fish nearby waters.<sup>197</sup> Some attribute the Community's low poverty rate and low rate of population loss, compared to similar, rural Alaska Native communities, to these fishing rights.<sup>198</sup>

Without enforceable rights, other Alaska Native and non-Alaska Native subsistence users are caught between conflicting state and federal rules, leading to regulatory whiplash. In May 2022, federal land managers issued an emergency salmon fishing closure for Kuskokwim River, excepting federally-qualified subsistence users for several days.<sup>199</sup> Days later, Alaska also issued an emergency river closure but excepted *all* Alaskans on the same days the federal rules excepted only subsistence users (the state rules excepted all Alaskans on other days too).<sup>200</sup> The federal government sued to enjoin the state, but, at first, the federal district court denied this request for a preliminary injunction against the state's broader order.<sup>201</sup> A month later, the court granted the injunction.<sup>202</sup> In doing so, the court found that allowing all Alaskans to fish on federally-designated subsistence days would harm subsistence users.<sup>203</sup> It also found that the dueling laws caused substantial confusion, which may "dissuade a federally qualified user from legal fishing opportunities or may cause a non-federally qualified user to harvest fish in violation of federal law."<sup>204</sup> Moreover, allowing the state order to stand would have diminished the federal government's capacity to enforce its natural resources laws.<sup>205</sup>

This whiplash stems from broader differences in how state and federal law each prioritize subsistence fishers in resource allocation; caught between dueling laws, subsistence protections are substantially weakened. When it enacted ANCSA, Congress expected both the state

---

196. *Id.* at 973.

197. *Id.*

198. Donkersloot, *supra* note 171, at 24.

199. *United States v. Alaska*, No. 1:22-cv-00054-SLG, 2022 WL 1746844, slip op. at 3 (D. Alaska May 31, 2022).

200. *Id.*

201. *Id.* at 7.

202. *United States v. Alaska*, No. 1:22-cv-00054-SLG, 2022 WL 2274545, slip op. at 7 (D. Alaska June 23, 2022).

203. *Id.* at 6.

204. *Id.* at 5.

205. *Id.*

and federal governments to protect Alaska Native subsistence interests. But, by 1980, one federal representative declared that “overwhelming evidence of [both governments’] failure, or at best indifference, has been thoroughly documented.”<sup>206</sup> Responding to this concern, Congress passed a new federal law, the Alaska National Interest Lands Conservation Act (ANILCA), affirming subsistence use as the “priority consumptive use” on federal lands.<sup>207</sup> Subsistence uses are the “customary and traditional uses by rural Alaska residents of wild renewable resources” for a variety of personal uses, including “customary trade.”<sup>208</sup> The Federal Subsistence Board implements this policy and must include members who “possess personal knowledge of and direct experience with subsistence uses in rural Alaska.”<sup>209</sup> The remaining members work for federal land management agencies.<sup>210</sup>

State subsistence law differs from ANILCA’s approach. The Alaska Supreme Court has repeatedly struck down any laws mirroring the ANILCA rural priority rule, declaring that prioritizing fishers differently based on where they live within the state violates the Alaska Constitution.<sup>211</sup> Consequently, under Alaska law, all Alaskans, including urban Alaskans, can qualify as subsistence users.<sup>212</sup> The state has promulgated rules differing from federal rules providing weaker subsistence use protections.<sup>213</sup> As a result, as on the Kuskokwim River, while federal law provides strong subsistence use protections, state law can undercut these protections. This dynamic has led subsistence users to litigate to extend federal fisheries management jurisdiction.<sup>214</sup> One series of cases, for example, sought to broaden the federal government’s jurisdiction over internal Alaskan waters to create stronger inland fishing subsistence protections.<sup>215</sup>

## VI. REFORMING ALASKAN SALMON MANAGEMENT TO SUPPORT

---

206. U.S. DEP’T OF THE INTERIOR, ALASKA FEDERAL SUBSISTENCE PROGRAM 4 (2022), [https://www.bia.gov/sites/default/files/dup/assets/as-ia/raca/pdf/Federal-Subsistence-Title-VIII-Overview\\_508.pdf](https://www.bia.gov/sites/default/files/dup/assets/as-ia/raca/pdf/Federal-Subsistence-Title-VIII-Overview_508.pdf).

207. 16 U.S.C. § 3112.

208. *Id.* § 3113.

209. 36 C.F.R. § 242.10.

210. *Id.*

211. *McDowell v. State*, 785 P.2d 1, 9 (Alaska 1989).

212. *Id.*

213. *See United States v. Alaska*, No. 1:22-cv-00054-SLG, 2022 WL 1746844, slip op. at 2 (D. Alaska May 31, 2022). (comparing and discussing the rules federal and state agencies promulgated).

214. Robert T. Anderson, *The Katie John Litigation: A Continuing Search for Alaska Native Fishing Rights After ANCSA*, 51 ARIZ. ST. L.J. 845, 864–65 (2019).

215. *Id.*

## FISH AND FISHERS

To effectively resolve the crisis roiling Alaskan salmon fisheries and permit proactive management to avoid future collapses, Alaska's salmon fisheries management framework requires reform. Granting fisheries managers new tools to combat ecosystem-wide threats to salmon will ensure managers can protect salmon more effectively. Such tools could include allowing managers to use ecosystem-based fisheries management techniques, expanding managers' critical habitat protection authority, or granting managers the power to require salmon impact assessments for development projects. Additionally, policies managing a shrinking or changing resource pool should protect the most vulnerable from shouldering regulation's burden. Specifically, Alaska and the federal government must overhaul fisheries disaster relief, guarantee citizen voices are represented in decision-making, and revamp limited entry laws.

### A. Expand Fisheries Managers' Tools to Combat Complex, Ecosystem-Wide Threats to Fish

Salmon face ecosystem-wide threats; to remedy these problems, reforms should allow managers to use ecosystem-based fisheries management techniques. Studies suggest changing predator and prey populations have impacted salmon.<sup>216</sup> Bycatch, invasive species, and disease all appear to be driving salmon populations downward.<sup>217</sup> Following an ecosystem-based approach, managers stop looking at species in isolation, conduct research to understand the links between salmon and other species, and then regulate those related species to protect salmon populations.<sup>218</sup> Similarly, an ecosystem-based approach could empower managers to influence abiotic ecosystem factors for the benefit of salmon.<sup>219</sup> Although salmon are not currently managed using this strategy, federal regulators encourage ecosystem-based fisheries management as a best-practice.<sup>220</sup> Moreover, the Magnuson-Stevens Act's language is likely broad enough to accommodate this paradigm shift

---

216. *Talk of Alaska: Yukon River Salmon*, ALASKA PUB. MEDIA (Sept. 13, 2022), <https://alaskapublic.org/2022/09/13/talk-of-alaska-yukon-river-salmon/>.

217. *Id.*

218. Pikitch et al., *supra* note 34.

219. *Id.*

220. *Understanding Ecosystem-Based Fisheries Management*, NOAA FISHERIES, <https://www.fisheries.noaa.gov/insight/understanding-ecosystem-based-fisheries-management#what-is-ecosystem-based-fisheries-management?> (last visited May 12, 2023).

without amendment.<sup>221</sup> The major guiding principles of Magnuson-Stevens management – maximum sustainable yield and optimum yield – are both defined to require managers to consider ecological factors while setting catch allowances.<sup>222</sup>

Second, habitat degradation is a major threat to salmon populations; expanding managers' authorities to regulate critical habitat, including not only the waterways salmon use but also riparian lands, would significantly bolster their ability to protect salmon. However, since critical salmon habitat covers much of Alaska, complete protection of critical habitat and adjacent land would be expensive, difficult, and impractical.<sup>223</sup> Granting managers the authority to issue dynamic habitat control regulations is a possible compromise. Canada has implemented this strategy to protect North Atlantic Right Whales in the Gulf of St. Lawrence.<sup>224</sup> When endangered whales are sighted, local fisheries managers require that potentially harmful fishing activities cease.<sup>225</sup> Since climate change may alter salmon's habitat use, implementing a system of dynamic controls makes more sense than permanent use bans or land purchases. In the Alaskan salmon context, managers could issue orders temporarily circumscribing streamflow-altering land uses or groundwater discharges during spawns and runs. While legislative changes could enact this reform, because so much of Alaska is federally, state-, or Native Corporation-owned, these landowners could also implement this reform on their own. Landowners should consider inserting new terms in development leases

---

221. Andrea Treece, *Sweating the Small Stuff: Managing Fisheries and Fostering Marine Ecosystem Resilience in the Face of Climate Change*, 9 GOLDEN GATE UNIV. ENV'T L.J. 137, 155–56 (2016) (“The concepts of maximum sustainable yield and optimum yield form the basis of fishery management measures under the MSA. MSA regulations define maximum sustainable yield as the ‘largest long-term average catch or yield that can be taken from a stock or stock complex under prevailing ecological, environmental conditions and fishery technological characteristics . . . and the distribution of catch among fleets.’ The statute itself defines ‘optimum yield’ as the ‘amount of fish which will provide the greatest overall benefit to the Nation . . . taking into account the protection of marine ecosystems,’ and states that optimum yield is to be based on maximum sustainable yield ‘as reduced by any relevant economic, social, or ecological factor.’” (emphasis added)).

222. *Id.*

223. See generally Appendix A, *supra* note 116, at 42–71 (showing, through a series of maps, that critical habitat covers much of Alaska shoreline and huge watersheds).

224. Fisheries and Oceans (DFO) Canada, *Government of Canada Announces 2022 North Atlantic Right Whale Protection Measures*, CISION (Mar. 10, 2022), <https://www.newswire.ca/news-releases/government-of-canada-announces-2022-north-atlantic-right-whale-protection-measures-886759225.html>.

225. *Id.*

requiring projects on their lands to comply with dynamic regulations.

Third, fisheries managers should have the power to require studies reviewing major development and natural resource projects' impacts on salmon, including indirect impacts, if they have reasonable grounds to suspect substantial adverse impacts. Of course, since requiring studies would impose substantial regulatory burdens on any in-watershed development, it could be impractical to apply such a requirement to small development proposals that pose little threat.

However, studies would ensure regulators and political leaders have complete information before granting or denying approval for a project.<sup>226</sup> A review process would also provide regulators the opportunity to consider alternatives and mitigation measures.

Review processes can be powerful. After assessments of the proposed Pebble Mine's salmon impacts came to light, Alaskan leaders previously supportive of major development projects stated their opposition to the mine.<sup>227</sup> Major development is currently planned along rivers with crashed salmon stocks and studying impacts could help developers and managers mitigate or stop those impacts. For example, along a major Kuskokwim River tributary, a goldmine larger than Manhattan, replete with barge ports, a "two-square mile pit filled with toxic water[.]" and "a 470-foot-tall dam to corral a nearly four-square mile slurry pond filled with toxic chemicals like arsenic and mercury[.]" is under consideration.<sup>228</sup>

Study requirements are an extension of weaker, existing laws. While Alaska law does already require those who "conduct work in fish-bearing water bodies" to consult with fisheries managers, this process is only focused on actions that directly limit salmon migration such as building dams and culverts impeding fish passage.<sup>229</sup> Absent legislation strengthening the review process, major state, federal, and Native Corporation landowners should consider including study requirements in their development leases. The federal government, which owns the Tongass National Forest, where logging leases and operations have major

---

226. The National Environmental Policy Act requires federal agencies, when acting, to assess the expected impacts of projects, compare alternatives, and respond to public comments on these actions and studies. *See generally* 42 U.S.C. §§ 4321–4370h. This act, in simplified form, could serve as a model for reforms.

227. Benjamin J. Hulac, *Murkowski Says She'll Use Appropriations to Block Alaskan Mine*, ROLL CALL (Oct. 16, 2020), <https://rollcall.com/2020/10/16/murkowski-says-shell-use-appropriations-to-block-alaskan-mine/>.

228. Joseph Lee, *A Native Corporation Wants to Mine Gold on The Kuskokwim River. Alaska Natives Say No.*, GRIST (July 20, 2022), <https://grist.org/indigenous/a-native-corporation-wants-to-mine-gold-on-the-kuskokwim-river-alaska-natives-say-no/>.

229. ALASKA STAT. §§ 16.05.841, 16.05.871.

salmon impacts,<sup>230</sup> has a particularly strong responsibility to assess the salmon impacts of its regulatory choices.

These new tools may help fisheries managers moderate other, indirect threats. Unfortunately, combatting some threats to salmon, like marine heat waves caused by climate change, remains outside the scope of possible fishery management tools. However, since climate change itself is an indirect threat that causes more proximate harms, fisheries managers may be able to treat climate change's symptoms indirectly through these tools. Importantly, creating new tools does not mean that managers should ignore existing tools, such as regulations limiting bycatch, when useful.

### **B. Ensure the Most Vulnerable Are Not Forced to Shoulder Regulation's Burden**

Reforming the limited entry system, revamping fisheries relief, and ensuring all citizens can participate in policymaking are all reforms that would prevent policy from leaving the most vulnerable behind. Additionally, reforms expanding fisheries managers' tools would better distribute the regulatory burden of managing fisheries, because new measures would provide managers tools that do not directly impose costs on fishers.

To protect small-scale commercial fisheries and rural fishing villages, a revamped limited entry law should allow for the creation of community fishing permit trusts.<sup>231</sup> These collective permit ownership entities would be able to purchase permits and then share these permits among their members.<sup>232</sup> This would ensure that permits would remain locally owned as fishers age or change professions. Additionally, such collective arrangements could help smaller-scale fishers access permits during tough economic times.<sup>233</sup> Community trusts would effectively grant a community fishing rights, even if—in the case of Alaska Natives under ANCSA—those rights have been extinguished. A revamped limited entry law should also create a new learner's permit, with lower

---

230. *Southeast Alaska*, *supra* note 118.

231. Donkersloot, *supra* note 171, at 25. In federally managed fisheries only, a similar program called "community development quotas" exists. This program guarantees western Alaskan communities near the Bering Sea and Aleutian Islands a portion of the total permitted catch for several different fish species, including Chinook salmon. NOAA FISHERIES, THE WESTERN ALASKA COMMUNITY DEVELOPMENT QUOTA PROGRAM 5-18 (2018).

232. Cullenberg et al., *supra* note 173, at 4.

233. *See id.* ("Fishery trusts have been established in east and west coast fisheries of the United States as a tool to help new fishermen enter the industry by lowering capital barriers to entry").

prices, for younger fishers trying to enter a fishery, helping remove cost barriers for the next generation of fishers.<sup>234</sup> Because only individual fishers can currently own permits, this reform would require legislative action.<sup>235</sup> Corporate entities are now barred from owning permits to prevent corporate fisheries consolidation; likewise, community fishing trusts must be regulated to ensure they serve their intended function.<sup>236</sup>

Federal fisheries disaster relief statutes also require reforms to better help impacted communities. The Magnuson-Stevens Act generally delegates much decision-making locally, marrying local resource governance preferences with federal enforcement and scientific resources. Fisheries disaster relief should cease to be the exception; more local discretion for how funding is used would make that funding more responsive to local needs. As climate change renders future marine heatwaves, and therefore disasters, ever more likely,<sup>237</sup> relief funding should also be restructured. New forms of funding should proactively assist communities diversify their economies or build economic buffers for down years. Moreover, funding cannot exclude the most vulnerable. The current framework largely targets commercial fishers, not laborers or subsistence fishers, for whom the costs of fisheries failure are difficult to value.<sup>238</sup> Updating the law to compensate subsistence loss and improve compensation to fisheries-adjacent businesses would help support small-town economies and livelihoods.<sup>239</sup>

Government management decisions impact citizens' lives, livelihoods, communities, and cultures; citizen voices should be at the center of decision-making. Alaska has highly participatory management bodies and the Magnuson-Stevens Act devolves much decision-making power; these structures should be lauded. Yet, there is no substitute for managers travelling to impacted and regulated communities, discussing policy options in town halls, and actively soliciting citizen opinions. Similarly, management boards should strive to include diverse perspectives and user groups in their membership. Even if managers do not adopt the policies that citizens advance, transparency, openness, and inclusivity will increase policies' apparent legitimacy. The Governor's Bycatch Review Task Force echoes these recommendations

---

234. *Id.* at 26–27.

235. *Id.* at 25. See ALASKA STAT. §§ 16.43.250, 16.05.450 (describing permit eligibility criteria only applicable to people).

236. Cullenberg et al., *supra* note 173, at 25.

237. *Marine Heatwaves*, IUCN, <https://www.iucn.org/resources/issues-brief/marine-heatwaves> (last accessed Mar. 17, 2023).

238. ANTHONY MARSHAK, CONG. RSCH. SERV. RL34209, FISHERY DISASTER ASSISTANCE 14 (Apr. 7, 2020).

239. *Id.*

and has endorsed increased public engagement and information sharing on management decisions.<sup>240</sup>

Finally, multifactor permit tests, designed carefully, could approximate the federal subsistence rules in the fisheries context without running afoul of the Alaska Constitution. Although granting a “preference to rural residents to take fish and game for subsistence purposes” is not allowed under the exclusive rights provision of the Alaska Constitution,<sup>241</sup> multifactor subsistence permit tests may be.<sup>242</sup> Considering a caribou regulation, the Alaska Supreme Court found that a subsistence hunting permitting system that preferences hunters based on the “cost of food and gasoline in the community where the permit applicant’s household purchased most of its food and gas,” did not violate the Alaska Constitution.<sup>243</sup> Because the “cost of groceries was a reasonable way to determine the applicant’s access to store-bought food” and the “cost of gasoline was a reasonable way to measure the applicant’s ability to access alternative game hunts,” the multifactor test for a permit could stand.<sup>244</sup>

## VII. CONCLUSION: AN INTERCONNECTED WORLD REQUIRES ECOLOGICAL THINKING

I know some people are losing hope, it’s a small number of salmon that are coming back, but we have hope, we’re optimistic. Salmon are resilient.

—James MacDonald, Yukon Salmon Sub-Committee Chairman<sup>245</sup>

These dual challenges facing Alaska salmon fisheries management—first, ensuring managers have the tools to mitigate broad, ecosystem-wide threats and, second, ensuring the law fairly allocates rights and regulatory burdens in a changing resource pool—are by no means unique to Alaska. A changing climate, rapid development, and pollution all force scientists and managers to reckon with ecological threats to the species they steward. Similarly, no matter how effective management strategies are,

---

240. ALASKA BYCATCH REVIEW TASK FORCE, FINAL REPORT, ALASKA DEP’T FISH & GAME 17 (2022), [https://www.adfg.alaska.gov/static/fishing/PDFs/bycatchtaskforce/abrt\\_final\\_report.pdf](https://www.adfg.alaska.gov/static/fishing/PDFs/bycatchtaskforce/abrt_final_report.pdf).

241. *McDowell v. State*, 785 P.2d 1, 9 (Alaska 1989).

242. *State, Dep’t of Fish & Game v. Manning*, 161 P.3d 1215, 1225 (Alaska 2007).

243. *Id.* at 1224.

244. *Id.*

245. Connors, *supra* note 18. The Yukon Salmon Sub-Committee is “an advisory board under the Yukon First Nations final agreements.” *Id.*



the physical distribution of many resources—if not also their overall quantity—is changing, impacting how entire communities have organized themselves. These two challenges are connected: we must mitigate the underlying threats to our natural resources to protect the people, communities, and cultures that rely on and structure themselves around these resources.

We can no longer manage resources in isolation. As with salmon, many regulatory structures govern a single resource’s use without a comprehensive view of the resource’s broader ecology. Ecosystem-based management is a partial solution to this problem in the fisheries context; more broadly, regulatory frameworks should strive towards comprehensive and ecosystem-wide management.

We cannot forget that humans are part of this interconnected web too. Resource distributions shift, impacting communities and people. Policy must consider those most reliant on those resources and most vulnerable to their loss. Whether resource users be fishers in Alaska, coal miners in Kentucky, or lobstermen in Maine, no resource management strategy or climate change adaptation plan can ignore the people who rely on these resources. And no policy should burden the most vulnerable with the greatest costs of change.