

Submitted via [AquaSciencePlan@usda.gov](mailto:AquaSciencePlan@usda.gov).

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Re: Comments on Draft Outline for the National Strategic Plan for Federal Aquaculture Research, 2020-2024

Dear Mr. Rexroad:

Please accept the following comments on behalf of Friends of the Earth, Food & Water Watch, Greenpeace-USA, Sierra Club, Northwest Atlantic Marine Alliance, Healthy Gulf, Recirculating Farms Coalition, Inland Ocean Coalition, and Friends of the San Juans, regarding the Subcommittee on Aquaculture's (SCA) Science Planning Task Force draft outline for the National Strategic Plan for Federal Aquaculture Research, 2020-2024 (draft outline).<sup>1</sup>

Industrial ocean fish farming – also known as marine finfish aquaculture – is the mass cultivation of finned fish in the ocean, in net pens, pods, and cages. These are essentially floating feedlots in our ocean, which can have devastating environmental and socio-economic impacts. We have been closely tracking – and are entirely opposed to – the Trump Administration's brazen push to recklessly develop and expand this destructive and unnecessary industry in the United States. The draft outline reinforces our deep concerns with the Administration's promotion of marine finfish aquaculture without sufficient regard for its myriad environmental, public health, and socio-economic impacts.

At the end of this comment letter we have included language to address our concerns, which we urge SCA to incorporate into its outline and plan.

**I. The draft outline turns a blind eye to the range of risks and impacts of marine finfish aquaculture in the United States.**

The draft outline – titled “Ensuring Sustainable and Responsible Aquaculture Production in the United States” – fails to acknowledge the socio-economic, public health, and environmental problems associated with marine finfish aquaculture, and does not indicate that it will research these issues. Ignoring these issues as part of a national strategy to ensure “sustainable and responsible” marine finfish aquaculture is folly.

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<sup>1</sup> [Outline for: National Strategic Plan for Federal Aquaculture Research 2020-2024, Ensuring Sustainable and Responsible Aquaculture Production in the United States](#) (March 25, 2019).

Other countries with marine finfish aquaculture have suffered extensive environmental, socio-economic, and public health problems associated with the industry. As detailed below, these impacts are varied and widespread, and oftentimes do not come to light until years after the damage has been done. The SCA must heed the lessons learned in other countries and do all it can to research and prevent these types of harms *prior* to any commercial permitting of marine finfish aquaculture facilities in the United States.

Marine finfish aquaculture routinely results in a massive number of farmed fish escapes that adversely affect wild fish stocks. In August 2017, a Cooke Aquaculture facility in Washington State spilled more than 263,000 farmed Atlantic salmon into Puget Sound. Long after the escape, many of these non-native, farmed fish continued to thrive and swim free – some were even documented as far north as Vancouver Island, west of the Strait of Juan de Fuca, and south of Tacoma, traveling at least 100 miles from the farm.<sup>2</sup> Escaped fish increase competition with wild stocks for food, habitat, and spawning areas. Moreover, reliance on the sterility of farmed fish to prevent interbreeding is *never* 100% guaranteed; therefore, the “long-term consequences of continued farmed [fish] escapes and subsequent interbreeding . . . include a loss of genetic diversity.”<sup>3</sup> Finally, escaped farmed fish will likely spread a multitude of parasites and diseases to wild stocks, which could prove fatal when transmitted.<sup>4</sup>

While on the topic of parasites and diseases, we have significant concerns over the pervasive use of antibiotics, herbicides, pesticides, and other veterinary drugs for prevention and treatment of outbreaks in marine finfish aquaculture facilities. The use of these chemicals creates environmental and public health concerns. It is no secret that housing large populations of animals will breed pests and disease. In response, the agriculture and aquaculture sectors administer a pharmacopeia of chemicals – and in the open ocean, residues of these drugs are discharged and absorbed into the marine ecosystem. For example, the marine finfish aquaculture industry often treats sea lice with Emamectin benzoate (marketed as SLICE®), which has caused “widespread damage to wildlife,” including “substantial, wide-scale reductions” in crabs, lobsters and other crustaceans.<sup>5</sup> Indeed, in Nova Scotia, an 11-year-long study found that lobster

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<sup>2</sup> Lynda V. Mapes, SEATTLE TIMES, Despite agency assurances, tribes catch more escaped Atlantic salmon in Skagit River (Dec. 1, 2017), available at <https://www.seattletimes.com/seattle-news/environment/despite-agency-assurances-tribes-catch-more-escaped-atlantic-salmon-in-skagit-river/>.

<sup>3</sup> Fisheries and Oceans Canada, Newfoundland and Labrador Region, Stock Assessment of Newfoundland and Labrador Atlantic Salmon (2016), available at <http://waves-vagues.dfo-mpo.gc.ca/Library/40619655.pdf> (“Genetic analysis of juvenile Atlantic Salmon from southern Newfoundland revealed that hybridization between wild and farmed salmon was extensive throughout Fortune Bay and Bay d’Espoir (17 of 18 locations), with one-third of all juvenile salmon sampled being of hybrid ancestry.”); see also Mark Quinn, CBC News, *DFO study confirms ‘widespread’ mating of farmed, wild salmon in N.L.* (Sept. 21, 2016) <https://www.cbc.ca/news/canada/newfoundland-labrador/farmed-salmon-mating-with-wild-in-nl-dfo-study-1.3770864>.

<sup>4</sup> Jillian Fry, PhD MPH, David Love, PhD MSPH, & Gabriel Innes, VMD, Johns Hopkins University, Center for a Livable Future, “Ecosystem and Public Health Risks from Nearshore and Offshore Finfish Aquaculture” at 6-7 (2017) [https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/pdf/research/clf\\_reports/offshor-finfish-final.pdf](https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/pdf/research/clf_reports/offshor-finfish-final.pdf)

<sup>5</sup> Rob Edwards, The Sunday Herald, *Scottish government accused of colluding with drug giant over pesticides scandal*, (June 2, 2017) [http://www.heraldscotland.com/news/15326945.Scottish\\_government\\_accused\\_of\\_colluding\\_with\\_drug\\_giant\\_over\\_pesticides\\_scandal/](http://www.heraldscotland.com/news/15326945.Scottish_government_accused_of_colluding_with_drug_giant_over_pesticides_scandal/).

catches plummeted as harvesters got closer to marine finfish aquaculture facilities.<sup>6</sup> In addition, the use of antibiotics in marine finfish aquaculture facilities is contributing to the public health crisis of antibiotic resistance. For farmed fish, antibiotics not only leave residues in your seafood, but they also leach into the ocean, contaminating nearby water and marine life. In fact, up to 75% of antibiotics used by the industrial ocean fish farming industry are directly absorbed into the surrounding environment.<sup>7</sup>

Another vital concern is the direct discharge of untreated toxins, including excess food, feces, antibiotics, and antifoulants associated with industrial ocean fish farms. Releasing such excess nutrients can negatively impact water quality surrounding the farm and threaten surrounding plants and animals. These underwater factory farms can also physically impact the seafloor by creating dead zones, and change marine ecology by attracting and entangling predators and other species to congregate around fish cages. These predators – such as birds, seals, and sharks – can easily become entangled in net pens, stressed by acoustic deterrents, and hunted. Indeed, an industrial ocean fish farm caused the death of an endangered monk seal in Hawaii, which was found entangled in the net.<sup>8</sup> In August 2018, Cooke Aquaculture entangled an endangered Humpback whale in large gillnets it cast to recapture escaped farmed fish from a Canada facility.<sup>9</sup> These examples are merely two of many unfortunate entanglements.

Large populations of farmed fish will require an incredible amount of fish feed, which carries its own environmental, public health, and human rights risks.<sup>10</sup> Most industrially farmed finfish, like salmon, are carnivorous and need protein in their feed. This often consists of lower-trophic level “forage fish,” which are at risk of collapse. Lately, aquaculture facilities are relying more on genetically-engineered ingredients such as corn, soy, and algae as substitute protein sources, which do not naturally exist in a fish’s diet. Use of these ingredients can lead to heightened, widespread environmental degradation, a heightened demand on natural resources, and a less nutritious fish for consumers. Moreover, the fish feed industry is a global contributor to human trafficking and slavery.<sup>11</sup> There are very few requirements for the industry to include traceability of ingredients or sourcing methods in fish feed, allowing these serious problems to pervade.

Finally, permitting commercial, marine finfish aquaculture in the United States could bring formidable economic harm to our coastal communities, food producers (on land and at sea), and

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<sup>6</sup> I. Milewski, et al., (2018) *Sea Cage aquaculture impacts market and berried lobster catches*, Mar Ecol Prog Ser 598: 85-97, available at <https://www.int-res.com/articles/meps2018/598/m598p085.pdf>.

<sup>7</sup> United Nations, “Frontiers 2017: Emerging Issues of Environmental Concern” at 15 (2017) <https://www.unenvironment.org/resources/frontiers>.

<sup>8</sup> Caleb Jones, USA Today, *Rare Monk Seal Dies in Fish Farm off Hawaii* (Mar. 17 2017), available at <https://www.usatoday.com/story/news/nation/2017/03/17/rare-monk-seal-dies-fish-farm-off-hawaii/99295396/>.

<sup>9</sup> Terri Coles, CBC News, *Humpback whale freed from net meant for escaped farm salmon in Hermitage Bay* (Aug. 14, 2018), <https://www.cbc.ca/news/canada/newfoundland-labrador/whale-caught-gill-net-cooke-aquaculture-1.4784732>.

<sup>10</sup> *See generally*, Changing Markets Foundation, *Until the Seas Run Dry* (2019), available at <http://changingmarkets.org/wp-content/uploads/2019/04/REPORT-WEB-UNTILL-THE-SEAS-DRY.pdf> (concluding that using wild fish to feed farmed fish “raises concerns of overfishing, poor animal welfare and disruption of aquatic food webs; it also undermines food security in developing countries, as less fish is available for direct human consumption”).

<sup>11</sup> Tickler, David, et al. (2018) *Modern slavery and the race to fish*, Nature Communications 9: 4643, available at <https://www.nature.com/articles/s41467-018-07118-9>.

other marine-reliant industries. Members of the wild-capture fishing industry have collectively voiced their trepidations over attempting to coexist with the marine finfish aquaculture industry, stating that “this emerging industrial practice is incompatible with the sustainable commercial fishing practices embraced by our nation for generations and contravenes our vision for environmentally sound management of our oceans.”<sup>12</sup> These massive facilities could also close-off and essentially privatize large swaths of the ocean that are currently available for numerous other commercial purposes, including fishing, tourism, shipping, and navigation. Finally, given what we know about economies of scale and the business models of modern agriculture and terrestrial food production, we can only expect a similar trend at sea: that is, the marine finfish aquaculture industry could easily push out responsible, small-scale seafood producers and crop growers. This dynamic equates to an alarming imbalance of power, and allows corporations to dominate business structures, production methods, and management policies within the industry. Giving corporations disproportionate influence over food production also severely limits consumer choices.<sup>13</sup>

## **II. There is a significant conflict-of-interest risk in the Administration’s proposed framework for promoting and regulating marine finfish aquaculture.**

There is a significant conflict-of-interest risk within the National Oceanic and Atmospheric Administration (NOAA), which has proclaimed itself as the lead federal agency on policy formulation and regulation of domestic marine finfish aquaculture. However, in addition to its regulatory efforts, NOAA also has prioritized the explicit goal of promoting and expanding marine finfish aquaculture production in the United States. For 2019, NOAA Fisheries states:

A high priority objective in the Department of Commerce strategic plan is “increasing marine aquaculture production.” Supplementing U.S. wild-caught fisheries, a healthy marine aquaculture industry has the potential to greatly increase our overall U.S. seafood production and reduce the seafood trade deficit. In 2019, we will give our full support to growing a healthy U.S. marine aquaculture industry. Our first step will be to address the bureaucratic hurdles an applicant faces in the federal permitting process.<sup>14</sup>

The SCA’s draft outline confirms our deep concern that the Administration is charging full-steam ahead with regulating and promoting this potentially disastrous industry without exercising due diligence to fully understand the risks and impacts of commercial permitting of these facilities in U.S. waters. In fact, the dearth of environmental, public health, and other socio-

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<sup>12</sup> Open letter to Members of the U.S. House of Representatives and Senate, Dec. 4, 2018, re: Opposition to marine finfish aquaculture in U.S. waters, *available at* <http://foe.org/DecFishFarmingSignOnLetter/>.

<sup>13</sup> *See generally*, Undercurrent News, “World’s 100 Largest Seafood Companies” (Oct. 7, 2016) <https://www.undercurrentnews.com/report/undercurrent-news-worlds-100-largest-seafood-companies-2016/>; Tom Seaman, Undercurrent News, “World’s top 20 salmon farmers: Mitsubishi moves into second place behind Marine Harvest” (June 29, 2016) <https://www.undercurrentnews.com/2016/06/29/worlds-top-20-salmon-farmers-mitsubishi-moves-into-second-place-behind-marine-harvest/>; Aslak Berge, Undercurrent News, “These are the world’s 20 largest salmon producers” (July 30, 2017) <http://salmonbusiness.com/these-are-the-worlds-20-largest-salmon-producers/>.

<sup>14</sup> NOAA Fisheries, Priorities and Annual Guidance 2019 at 1, *available at* <https://www.fisheries.noaa.gov/webdam/download/88539344>.

economic issues mentioned in the draft outline seems to confirm that the Administration is already suffering from a conflict of interest, which will lead to a national strategic plan that sacrifices sufficient regulation, enforcement, and transparency to achieve industry growth and profitability. Such swift success for marine finfish aquaculture will no doubt be achieved at the expense of our ocean ecosystem, coastal economies, and public health.

**III. The SCA must devote a significant portion of the draft outline to researching the potential socio-economic, public health, and environmental problems associated with marine finfish aquaculture.**

To truly “ensur[e] sustainable and responsible aquaculture production in the United States,” the SCA must devote sufficient resources to studying and understanding the risks and impacts of the industry for the environment, society, and the economy. Instead, the draft outline focuses on a utopian view of aquaculture, including, but not limited to, new market opportunities, the benefits of aquaculture, improved genetics for promising aquaculture species, and developing biologics and pharmaceuticals for the industry. We are alarmed that the draft outline lacks any discussion of the risks and impacts we have enumerated above, and urge the SCA to prioritize and incorporate this research into its final outline and plan.

We suggest incorporating the following goal and objectives into the outline:

**Goal 1. Comprehensively analyze the risks and impacts of commercial aquaculture in the United States.**

Objective 1.1: Conduct socioeconomic research to discover the impacts that aquaculture would have on marine-reliant industries, coastal economies, and land-based crop production

Objective 1.2: Compile and analyze the range of environmental harms of commercial-scale aquaculture

Objective 1.3: Research environmental and public health impacts of veterinary drugs and other chemicals administered by the aquaculture industry

Objective 1.4: Implement proper mitigation and alleviation strategies, including consideration of alternatives to marine finfish aquaculture, like recirculating systems on land, and elimination of marine finfish aquaculture production from the national strategic plan.

We also urge SCA to require that all research carried out pursuant to the National Strategic Plan be entirely independent, to ensure that there is no conflict of interest or bias in the analysis and conclusions.

Thank you for the opportunity to submit these comments. We look forward to engaging further in this process at every available opportunity.

Sincerely,

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