

Submitted via [Aqua.RegPlan@noaa.gov](mailto:Aqua.RegPlan@noaa.gov).

September 17, 2021

Kristine Cherry  
Chair, Regulatory Efficiency Task Force  
National Oceanic and Atmospheric  
Administration 1315 East-West Highway, Room  
14461  
Silver Spring, MD 20910-3282

Re: Comments on A Strategic Plan to Enhance Regulatory Efficiency in Aquaculture, 86 FR 48973

Dear Ms. Cherry:

Please accept the following comments on behalf of the groups listed below regarding the National Science and Technology Council's Committee on Environment's Subcommittee on Aquaculture's Regulatory Efficiency Task Force's "A Strategic Plan to Enhance Regulatory Efficiency in Aquaculture" ("Report").

Industrial ocean fish farming – also known as marine finfish or offshore aquaculture – is the mass cultivation of finned fish in marine waters, in net pens, pods, cages and other confinements. These are essentially floating feedlots in our ocean, which can have devastating environmental and socio-economic impacts. Other forms of aquaculture can also be destructive to habitat and water quality when poorly sited and scaled. We have been closely tracking – and are entirely opposed to – the current Administration's dedication of significant resources and ongoing push to quickly and recklessly develop and expand potentially destructive and unnecessary forms of the aquaculture industry in the United States.

The Report reinforces our deep concerns with the government's promotion of marine aquaculture in all its forms, without sufficient regard for the wide-ranging environmental, public health, and socio-economic impacts.

Because we are entirely opposed to open water marine finfish aquaculture, we urge you to cease all plans for expansion of this industry in United States' waters, as enough money and resources have been frivolously expended on such endeavors for many years, even in the face of massive public opposition.

Before delving into comments regarding the details of the Report, further below, the following are general concerns about the task force's stated focus and purpose.

We are concerned by the title of the document. Enhancing "regulatory efficiency" essentially means reducing transparency, and shortcutting adequate notice, comment, and review of policies

related to aquaculture. This is troubling; the United States does not yet have a regular permitting plan for marine aquaculture, as it has been widely opposed and unpopular, and thus it has not been advanced through Congressional legislation nor agency regulations. Also, federal agencies lack specific authority to permit marine aquaculture. To be focused on “streamlining” permitting and approval processes for development and expansion of marine aquaculture is incredibly premature and irresponsible.

Another notable issue is the lack of discussion regarding matters such as climate change, and impacts especially for Black, Indigenous, People of Color (BIPOC) communities. There is no acknowledgment of how offshore marine aquaculture may harm or disrupt cultural and historic practices related to natural resources and wildlife, nor any discussion about how streamlining various processes might further skew the balance of power in food production away from rural, coastal, and indigenous communities, and toward corporatization.

Following are comments specific to matters in the Report:

**I. The Report ignores the range of risks and impacts of offshore aquaculture in the United States.**

The Report makes clear that the federal government’s current focus is on efficiency and streamlining for aquaculture industry participants, and vastly expanding the aquaculture industry in the United States without much consideration of other industries that could be negatively impacted. Indeed, the relevant stated charge of the task force was to “identify Federal agency and partner opportunities for 1) improving efficiencies in aquaculture permitting and authorization programs using existing Federal authorities...[and] 3) refining and disseminating tools for aquaculture regulatory management.”<sup>1</sup> The task force’s very first goal and objective clearly expresses how the overarching goal is the expansion of aquaculture. Goal 1 is to “Improve Efficiencies in Aquaculture Permitting and Authorization Programs,” while Objective 1.1 is “Expand the range of aquaculture activities authorized under general permits and through programmatic consultations.”<sup>2</sup> The task force is putting the cart before the horse, at significant risk to public health, the environment, and the economy, particularly for coastal and fishing communities.

What must come first – well before any policy streamlining – is an acknowledgement and thorough review of the socio-economic, public health, and environmental concerns associated with marine aquaculture generally, and open water marine finfish aquaculture more specifically. Yet, the Report ignores these important issues. Failure to include these critical aspects as part of building a national offshore aquaculture program renders the Report meaningless and essentially a promotional piece for marine aquaculture.

Globally, many countries with marine finfish aquaculture programs have suffered extensive

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<sup>1</sup> Report at i.

<sup>2</sup> *Id.* at 5.

environmental, socio-economic, and public health problems associated with the industry. As detailed below, these impacts are varied and widespread, and often do not come to light until years after the damage has been done. The task force should heed the lessons learned in other countries and commit to researching and preventing these types of harms *prior* to any commercial permitting of marine finfish aquaculture facilities in the United States, or discussion of streamlining for permitting and policies.

Marine finfish aquaculture routinely results in a massive number of farmed fish escapes that adversely affect wild fish stocks. In January 2020, 73,600 salmon escaped from a net pen during a storm in Mowi, Scotland, marking the third major escape in the area since October 2019.<sup>3</sup> A series of storms in Norway resulted in approximately **four million** escaped fish in a single year.<sup>4</sup> A November 2020 fire in Tasmania, Australia resulted in the escape of 50,000 salmon and an accident nine days later during a net-clearing operation caused the escape of another 130,000 fish.<sup>5</sup> In a notorious August 2017 incident, an industrial net pen operation maintained by Cooke Aquaculture Pacific, LLC in Washington state failed and allowed for what was originally reported as 160,000, but later found to be approximately 300,000, farmed Atlantic salmon to escape 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. Escaped fish increase competition with wild fish for food, habitat, spawning areas and mates.<sup>6</sup> 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>7</sup> Finally, escaped farmed fish might spread a multitude of parasites and diseases to wild stocks, which could prove fatal when transmitted.<sup>8</sup>

On the topic of parasites and diseases, we have significant concerns over the pervasive use of

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<sup>3</sup> *Escape calls high energy salmon sites into question*, The Fish Site (Jan. 20, 2020), <https://thefishsite.com/articles/mowi-reports-mass-salmon-escape-from-colonsay>.

<sup>4</sup> O.H. Diserud, et al., *Escaped farmed Atlantic salmon in Norwegian rivers during 1989-2013*, 76 ICES Journal of Marine Science 1140 (2019), <https://academic.oup.com/icesjms/article/76/4/1140/5289588>.

<sup>5</sup> Cliff White, *Huon reports AUD 128 million loss, addresses JBS takeover bid*, *SeafoodSource*, Aug. 27, 2021, <https://www.seafoodsource.com/news/business-finance/huon-reports-aud-128-million-annual-loss-addresses-jbs-takeover-bid>

<sup>6</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>7</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>8</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://clf.jhsph.edu/publications/ecosystem-and-public-health-risks-nearshore-and-offshore-finfish-aquaculture>.

pharmaceuticals and other chemicals for prevention and treatment of outbreaks in marine finfish aquaculture facilities. The use of these chemicals creates environmental and public health concerns. It is known that large concentrated populations of animals are more susceptible to pests and diseases due to confined spaces and increased stress. In response, the agriculture and aquaculture sectors administer a range 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>9</sup> In Nova Scotia, an 11-year-long study found that lobster catches plummeted closer to marine finfish aquaculture facilities.<sup>10</sup> In addition, the use of antibiotics in marine finfish aquaculture facilities is contributing to the public health crisis of antibiotic resistance. In farmed fish, there may still be antibiotic and other chemical residues by the time they reach consumers, and they can 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>11</sup>

Another serious concern is the direct discharge of untreated toxins, including excess food, waste, antibiotics, and antifoulants associated with industrial ocean fish farms. Releasing such excess nutrients can degrade water quality around the farm and threaten surrounding plants and animals. Dilution is not the solution to pollution – it all goes somewhere. Massively developing and expanding an industry with direct discharges into our marine waters is creating a new form of marine pollution with certain serious future consequences.

These factory farms can also physically impact the seafloor, and change marine ecology by attracting and harming predators and other species that congregate around fish cages. These predators – such as birds, seals, and sharks – can easily become entangled in lines and pens, stressed by acoustic deterrents, and more easily captured and killed. For example, an industrial ocean fish farm caused the death of an endangered monk seal in Hawaii, which was found entangled in the net.<sup>12</sup> Also, in August 2018, Cooke Aquaculture entangled an endangered Humpback whale in large gillnets, which were cast to recapture escaped farmed fish from a Canada facility.<sup>13</sup> These 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>14</sup> Most industrially farmed finfish,

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<sup>9</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/).

<sup>10</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>11</sup> United Nations, “Frontiers 2017: Emerging Issues of Environmental Concern” at 15 (2017), <https://www.unep.org/resources/frontiers-2017-emerging-issues-environmental-concern>.

<sup>12</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>13</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>14</sup> See generally, Changing Markets Foundation, *Until the Seas Run Dry* (2019), available at

like salmon, are carnivorous and require protein in their feed. This often consists of lower-trophic level “forage fish,” some of which are at risk of collapse. The Food and Agriculture Organization (FAO) estimates that one-fifth of the combined world-capture of wild marine fish is processed into fish meal/fish oil (FMFO), the majority of which is used to feed farmed fish.<sup>15</sup> Aquaculture facilities are also relying more on genetically engineered non-marine ingredients such as corn and soy, as substitute protein sources, which do not naturally exist in a fish’s diet. Use of these ingredients can lead to increased, widespread environmental degradation, more 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>16</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 continue.

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 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>17</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, and shipping. 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, smaller-scale seafood producers and others. 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>18</sup> Additionally, this means we are essentially swapping one industry for others – without a meaningful increase in jobs or boost to the economy – just a shift from smaller scale and independent to industrialized and corporate. This also often equates to shifting power away from people who have experienced historic discrimination,

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<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>15</sup> Global Banking & Finance Review, *Aquaculture's Profitability is at Stake*, <https://www.globalbankingandfinance.com/aquacultures-future-profitability-is-at-stake/>.

<sup>16</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>.

<sup>17</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>18</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/>.

including indigenous Tribes.

## **II. There are significant legal and conflict-of-interest concerns with streamlining regulations and permitting of marine aquaculture.**

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

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>19</sup>

The Report confirms our concerns that the Administration is charging full-steam ahead with promoting this potentially disastrous industry without exercising due diligence to fully understand the risks and impacts of permitting commercial facilities in United States’ waters. In fact, the dearth of environmental, public health, and other socio-economic concerns mentioned in the Report seems to confirm that the Administration is already displaying harmful outcomes from a conflict of interest - a work plan that sacrifices even basic regulation, enforcement, and transparency, to achieve rapid and easy industry growth and profitability. Such swift development of marine aquaculture will be achieved at the expense of our ocean ecosystems, coastal and fishing economies, and public health.

As noted above, the first objective of this Report, “[e]xpand the range of aquaculture activities authorized under general permits and through programmatic consultations,” clearly shows that the overarching goal of this report is to encourage unfettered offshore aquaculture expansion, with no regard to the environmental, health, or socioeconomic impacts.

The legality of using general permits for such efforts has been, and is currently being, challenged on various fronts. In fact, earlier this year, the U.S. Court of Appeals for the Ninth Circuit affirmed a lower court ruling revoking a Clean Water Act general permit used to authorize the vast majority of commercial shellfish aquaculture in Washington state.<sup>20</sup> The District Court had found the Nationwide Permit unlawful, including for failing to adequately evaluate cumulative

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<sup>19</sup> NOAA Fisheries, Priorities and Annual Guidance 2019 at 1, *available at*

<https://media.fisheries.noaa.gov/dam-migration/noaa-priorities-2019-final-march-2019.pdf>.

<sup>20</sup> Center for Food Safety, *Court of Appeals Backs Environmentalists: Federal Greenlight of Industrial Shellfish Aquaculture Unlawful*, Feb. 11, 2021, <https://www.centerforfoodsafety.org/press-releases/6264/court-of-appeals-backs-environmentalists-federal-greenlight-of-industrial-shellfish-aquaculture-unlawful>.

impacts to the environment from the tens of thousands of acres of aquaculture. Using general permits for open water marine aquaculture is especially problematic, as each space - each environment - is unique. Even areas off of the same states, for example Florida, can be dramatically different from north to south – with varying species, currents, temperatures and more – all significant for siting of facilities. General permits are an unacceptable means of streamlining development too, because it allows for less notice, comment and thoughtful process from multiple agencies and stakeholders for these facilities. Given the potential for extensive and possibly permanent damage resulting from offshore marine aquaculture, general permits should not be used.

Finally, offshore aquaculture is not a resilience strategy for climate change, rather the practice could be extremely detrimental to people and the planet in light of a changing climate. Beginning in 1980, climate change has contributed to an increase in risk of hurricanes and other tropical cyclones.<sup>21</sup> Intensity of storms is also increasing, as was clearly demonstrated by Hurricane Ida that hit the United States Gulf Coast on August 29, 2021 at 150 mph, and then proceeded up to the northeast where it also caused considerable damage, flooding and deaths. These storms can impact different areas over a wide geographic range. Real concerns remain on how offshore aquaculture facilities will secure equipment under the force of a major, or series of major, storms. Global climate models consistently project a significant increase in sea surface temperatures, which would drive an increase in destructive tropical storms with high-intensity winds, extreme rainfall, and high storm surge, all of which could impact aquaculture operations. The increasing frequency of extreme precipitation events is also compounding coastal flooding risk, when storm surge and heavy rainfall occur together.<sup>22</sup> As climate change continues, the intensity of tropical storms is projected to continually increase, making hurricanes and other storms more and more destructive.

Climate change also exacerbates the possibility of disease spread. Fish are vulnerable to changes in their aquatic habitat, especially, in the case of net pens, where they cannot move away.<sup>23</sup> Climate change increases the risk of pathogen prevalence and/or virulence and host susceptibility (immunosuppression) and transmission.<sup>24</sup> Planning to streamline permitting for marine aquaculture is a wasteful use of resources at this time, as offshore aquaculture facilities, and the fish they contain will be highly vulnerable to a changing climate.

### **III. If it moves forward, the task force must devote significant resources to researching the potential socio-economic, public health, and environmental problems associated with industrial offshore aquaculture and transparency.**

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<sup>21</sup> Hiroyuki Murakami, et al., *Detected climatic change in global distribution of tropical cyclones*, PNAS (May 4, 2020), <https://www.pnas.org/content/117/20/10706>.

<sup>22</sup> See generally Tom Knutson, *Global Warming and Hurricanes: An Overview of Current Research Results*, Geophysical Fluid Dynamics Laboratory, last revised Aug. 9, 2021, <https://www.gfdl.noaa.gov/global-warming-and-hurricanes/>.

<sup>23</sup> Food and Agriculture Organization of the United Nations, *Impacts of Climate Change on Fisheries and Aquaculture*, at 526 (2018), <http://www.fao.org/policy-support/tools-and-publications/resources-details/en/c/1152846/>.

<sup>24</sup> *Id.*

To promote only sustainable and responsible aquaculture development and production in the United States, the task force must devote sufficient resources to studying and understanding the risks and impacts of the industry for the environment, society, and the economy. This includes both *thorough and separate* review of all forms of aquaculture. Not all aquaculture is the same, and finfish facilities, in particular, pose very different threats and consequences than others.

However, the Report focuses on a utopian view of streamlined aquaculture, including, but not limited to, improving efficiencies (rather than traceability, health, or quality) for drug approvals, biologics, and feed ingredients; developing surveillance strategies and emergency response plans for “priority” pathogens (rather than natural prevention or mitigation of *all* pathogens); the movement, import, and export of aquaculture product; and improving efficiency of siting, permitting, and authorizing of operations in at least two marine areas.

In fact, the only section of the Report dedicated to the risks we highlight is “Objective 1.4: Improve aquaculture-specific outreach on the NPDES program and continue to provide information on the water quality risks associated with aquatic animal production” and the only other mention of these risks is a passing mention of the need for science-based tools to “to site and manage aquaculture facilities, identify strategies to minimize, and avoid negative impacts to protected species and habitats, reduce the risk of invasive species introductions, minimize use conflicts, and evaluate risks associated with disease and genetic risk interactions between farmed and wild populations.”<sup>25</sup>

Thus, it is very clear that the task force, and federal agencies involved, are prematurely pushing forward with streamlined permitting of an industry about which very little is being studied. The process also raises questions about the task force interplay with National Environmental Policy Act (NEPA) requirements.

Additionally, if the task force moves forward, ongoing transparency is required. This means noticing meetings, encouraging and soliciting public input, and allowing for a meaningful comment period with any future plans. Failing to disclose and notice any work of the task force in the name of efficiency is problematic, as marine aquaculture affects public resources, meant to be used and managed for the benefit of the public, not just special interests.

We are alarmed that the Report lacks meaningful discussion of, or planning for, the risks and impacts discussed above. We urge the task force to prioritize and incorporate such information.

As we discussed in our previous comments on the Draft Outline for a Workplan for a Federal Aquaculture Regulatory Task Force (FARTF) dated November 8, 2019, we again strongly recommend placing a hold on the task force actions, and any related activity, to improve regulatory efficiency and predictability, until the following action items are implemented:

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<sup>25</sup> Report, at 26.



**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 (shellfish, finfish and plants)

Objective 1.3: Research environmental and public health impacts of veterinary drugs and other chemicals used in aquaculture

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

We also urge the task force to require that all research carried out pursuant to its work be entirely independent, to ensure that there is no conflict of interest or bias in the analysis and conclusions.

We look forward to engaging further in this process at every available opportunity.

Sincerely,

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