# ONE STEP FORWARD, TWO STEPS BACK: NOAA'S ASSERTION OF JURISDICTION OVER AQUACULTURE FACES CONTINUING CHALLENGES[1]

Sierre Anton[2] and Katherine Hupp[3]

## I. INTRODUCTION

In 2019, Americans consumed 6.3 billion pounds of seafood.[4] The source of seafood consumed in the United States over the last 30 years has changed significantly. In 1990, U.S. seafood consumption was based primarily on landings of wild fish.[5] By 2017, that consumption had shifted to aquaculture species, especially shrimp, salmon, canned tuna, catfish, and tilapia.[6] Globally, aquaculture accounts for nearly half the seafood in human diets.[7] In 2018, global aquaculture production exceeded 82 million tons.[8] Most of this aquaculture production, however, occurs outside the United States. The U.S. is a leading importer of seafood, and ranks just 17th on a global scale for aquaculture production.[9] Yet, the U.S.'s ocean territory is one of the largest in the world. There is room to grow.

---

[1] The authors would like to thank Catherine Janasie, Stephanie Otts, and Zachary Klein for their guidance and assistance in formulating and editing this article. This product was prepared by the National Sea Grant Law Center under award number NA18OAR4170079, Amendment No. 6, from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce. The statements, findings, conclusions, and recommendations are those of the authors and do not necessarily reflect the views of NOAA or the U.S. Department of Commerce.

[2] 2022 J.D. Candidate, University of Mississippi School of Law, National Sea Grant Law Center Research Associate 2020-21.

[3] 2022 J.D. Candidate, Florida State University College of Law, National Sea Grant Law Center 2021 Summer Research Associate.

[4] NAT'L. MARINE FISHERIES SERV., FISHERIES OF THE UNITED STATES 2019, 3 (2021), https://media.fisheries.noaa.gov/2021-05/fus-2019-fact-sheet-v4.2-webready.pdf?null.

[5] Gina M. Shamshak et al., *U.S. Seafood Consumption*, 50 J. OF THE WORLD AQUACULTURE SOCIETY 715, 721 (2019), https://onlinelibrary.wiley.com/doi/epdf/10.1111/jwas.12619.

[6] *Id*.

[7] XIAOWEI ZHOU, THE STATE OF WORLD FISHERIES AND AQUACULTURE, 2-5 (2020) (explaining that "[a]quaculture accounted for 46 percent of the total production and 52 percent of fish for human consumption.").

[8] FOOD & AGRIC. ORG., THE STATE OF WORLD FISHERIES AND AQUACULTURE 2020: SUSTAINABILITY IN ACTION 3 (2020), http://www.fao.org/3/ca9229en/ca9229en.pdf.

[9] *U.S. Aquaculture*, NAT'L. MARINE FISHERIES SERV. (July 8, 2021), https://www.fisheries.noaa.gov/national/aquaculture/us-aquaculture.

Regulatory uncertainty, among other factors, is often cited as a barrier to growth of aquaculture in the United States.[10] Unlike offshore energy development, there is no one lead federal agency for authorizing aquaculture operations in the Exclusive Economic Zone (EEZ), the ocean area 12 - 200 nautical miles offshore. Permits and approvals are required from multiple federal agencies under a variety of federal statutes.

The National Oceanic and Atmospheric Administration (NOAA) within the U.S. Department of Commerce has regulatory authority over fisheries, marine mammals, marine sanctuaries, and certain endangered and threatened species.[11] The National Marine Fisheries Service (NMFS) within NOAA implements the Magnuson-Stevens Fishery Conservation and Management Act (MSA), the primary law governing marine fisheries management in federal waters. Although NOAA lacks express authority from Congress to regulate aquaculture, the agency has established an Office of Aquaculture that asserts authority to address regulatory and policy issues, based on aquaculture policies, Administration priorities, legislative mandates, and executive orders that charge NOAA with ensuring that U.S. marine aquaculture develops sustainably, in concert with healthy, productive, and resilient coastal ecosystems.[12] In 1993, the NOAA Office of General Counsel issued an opinion interpreting the scope of the agency's MSA authority to include offshore aquaculture permitting. Although this interpretation was recently rejected by the U.S. Fifth Circuit Court of Appeals, NOAA continues to move forward with aquaculture policy and regulatory initiatives.[13]

This article begins in Section II with a brief overview of marine aquaculture, including the economic, social, and environmental costs and benefits. Section III discusses the current regulatory framework for marine aquaculture operations, with particular attention paid to the role of NOAA in the permitting

[10] Gunnar Knapp & Michael C. Rubino, *The Political Economy of Marine Aquaculture in the United States*, 24 REVIEWS IN FISHERIES SCIENCE & AQUACULTURE (2016), https://www.tandfonline.com/doi/abs/10.1080/23308249.2015.1121202?journalCode=brfs21.

[11] *See* AGRIC. RSCH. SERV., FEDERAL AQUACULTURE REGULATORY FACT SHEET SERIES: DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) (Feb. 2016), https://www.ars.usda.gov/SCA/Fact%20Sheets/NOAA%20Federal%20Aquaculture%20Regulatory%20Fact%20Sheet%20Series2016.pdf.

[12] *Office of Aquaculture Priorities*, NAT'L. MARINE FISHERIES SERV. (July 26, 2021), https://www.fisheries.noaa.gov/national/aquaculture/office-aquaculture-priorities.

[13] *See Potential Aquaculture Management Program in the Pacific Islands*, NAT'L. MARINE FISHERIES SERV. PAC. REG'L OFFICE (June 10, 2021), https://www.fisheries.noaa.gov/action/potential-aquaculture-management-program-pacific-islands.

process. Next, in Section IV, the article discusses NOAA's Aquaculture Opportunity Area initiative which was directed through an executive order issued by President Trump. The article then examines several assertions of authority over marine aquaculture that NOAA has made since the issuance of the 1993 General Counsel Opinion. Section V details the use of special permits to authorize aquaculture operations in Hawaii and Section VI discusses the development of an aquaculture fishery management plan by the Gulf of Mexico Fishery Management Council. Finally, in Section VII, this article discusses efforts by the Western Pacific Fishery Management Council to develop an aquaculture program in the Pacific Islands Region. The article concludes with some thoughts on the legal questions that NOAA may face as it continues to assert jurisdiction over aquaculture.

## II. AQUACULTURE OVERVIEW

Marine aquaculture, sometimes referred to as "mariculture," is the breeding, rearing, and harvesting of marine plants and animals in a saltwater environment.[14] This can include shellfish, such as shrimp and mussels; finfish, such as salmon; or aquatic plants, such as seaweed and other macroalgae.[15] Marine aquaculture encompasses a range of activities, from "seeding" operations that breed small shellfish on the seafloor for later harvesting,[16] to finfish operations that rear fish far offshore in floating pens or cages, to aquaponics operations, which combine aquaculture and hydroponics to create highly efficient food producing systems.[17] Marine aquaculture systems can also be multi-trophic, meaning finfish and shellfish, shellfish and plants, or all three aquaculture types can be grown together in a system.

Like any food production system, there are economic, social, and environmental costs and benefits associated with marine aquaculture. According to the U.N. Food and Agriculture Organization (FAO), total food fish

[14] *See* NAT'L. MARINE FISHERIES SERV, MARINE AQUACULTURE IN THE U.S, https://media.fisheries.noaa.gov/2021-01/fact-sheet-marine-aquaculture-in-the-us.pdf?null (last visited Aug. 29, 2021).
[15] *Id.*
[16] News Release, Nat'l Ctrs. for Coastal Ocean Science, New Technique Shows Oyster Seeding is Possible in Open Water (Oct. 1, 2019), https://coastalscience.noaa.gov/news/new-technique-shows-oyster-shell-seeding-is-possible-in-open-water/.
[17] Simon Goddek et al., *Challenges of Sustainable and Commercial Aquaponics*, 7 SUSTAINABILITY 4199, 4200 (2015), https://www.mdpi.com/2071-1050/7/4/4199.

consumption from 1990 to 2018 rose by a staggering 122%.[18] Expanding marine aquaculture in the United States could help meet the growing global demand for seafood and address broader concerns about food security. A shift to an aquaculture-based diet could result in a reduction in the acreage of land needed for food and livestock production, potentially decreasing the environmental impact of traditional agriculture.[19] Increased aquaculture production may also help alleviate the severe strain that wild fisheries in the U.S. and abroad are experiencing due to overfishing.

Mariculture can also result in positive and negative economic and social costs. Aquaculture can create jobs and generate revenue for coastal communities, including providing opportunities for fishermen who are out of work because of depleted fish stocks. The ocean is a busy place, however, and aquaculture operations can generate conflicts with other users of marine space, including fishermen and recreational boaters. Such user conflicts present concerns beyond mere stakeholder frustration and anger. Marine aquaculture operations can reduce public access and threaten public safety.[20]

The environmental concerns associated with marine aquaculture vary significantly depending on the species being raised and the location of the farm. Shellfish and seaweed extract their nutrients from the water and generate minimal waste, reducing pollution concerns. Finfish, like salmon, on the other hand, must be fed. Although progress has been made toward the development of alternative feed sources, a lot of wild fish are caught and processed into fish feed. The FAO estimates that only about 65% of commercial fisheries are within biologically sustainable levels (e.g., are not overfished).[21] The growth of marine finfish aquaculture has the potential to increase pressures of wild stocks of fish caught for fish feed. Marine finfish aquaculture may also raise concerns about the discharge of fish waste from nets and cages and use of pharmaceuticals to treat or manage diseases.

---

[18] FOOD & AGRIC. ORG., THE STATE OF WORLD FISHERIES AND AQUACULTURE 2020: INTERACTIVE STORY, http://www.fao.org/state-of-fisheries-aquaculture (last visited Aug. 29, 2021).

[19] Halley E. Froehlich et al., *Comparative terrestrial feed and land use of an aquaculture-dominant world*, 115 PROC. OF THE NAT'L ACAD. SCI. 5295 (2018) https://www.pnas.org/content/115/20/5295.

[20] *See*, *e.g.*, Julia Cart, *Did sea farm debacle sink California aquaculture?*, ABC10 (May 13, 2020), https://www.abc10.com/article/news/local/california/did-sea-farm-debacle-sink-california-aquaculture/103-da22c517-42e4-4b03-8a46-cb20d8659a74.

[21] *See* FOOD & AGRIC. ORG., *supra* note 18.

Escapes of farmed fish are also a concern. Escapes can introduce invasive species and genetic mutations, expose wild stocks of fish to disease, or increase competition with wild populations. In August 2017, for example, the collapse of a marine aquaculture net pen near Cypress Island, Washington released an estimated 250,000 salmon into Puget Sound.[22] Although the escape fish had a poor chance of survival in a natural environment, the long-term environmental impacts of such an escape are unknown. In response, Washington State enacted legislation to phase out aquaculture of non-native marine finfish.[23]

Shellfish have been raised in nearshore coastal waters for centuries. Although such operations have not been around quite as long, finfish and seaweed farms are also permitted in nearshore, state waters.[24] Space is limited along the coast, however, and local opposition can make operations difficult to site. Aquaculture facilities in shallow, coastal waters can pose an environmental risk due to waste from fish and excess feed settling on the seafloor after drifting out of enclosures. By moving offshore, aquaculture operations can minimize conflicts with coastal users and access deeper water. Currents offshore tend to be stronger, which help to flush out wastes from the farm, rather than letting waste settle on the seafloor and damage benthic ecosystems.[25] Recent developments in aquaculture technology enable pens and cages to be sunk beneath the ocean surface to weather out storms in the relatively calm waters beneath the waves.[26]

## III. CURRENT REGULATORY FRAMEWORK FOR AQUACULTURE

As mentioned in the Introduction, there is no one lead federal agency or unified authorization process for offshore aquaculture permitting. To obtain

---

[22] *See* WASH. DEP'T OF NAT. RES., 2017 CYPRESS ISLAND ATLANTIC SALMON NET PEN FAILURE: AN INVESTIGATION AND REVIEW 109-10 (2018), https://www.dnr.wa.gov/sites/default/files/publications/aqr_cypress_investigation_report.pdf?vdqi7rk&vgvjv.

[23] WASH. REV. CODE § 79.105.170 (disallowing new finfish aquaculture leases and any renewal or extension of leases as of June 7, 2018).

[24] Pursuant to the Submerged Lands Act, coastal states exercise jurisdiction over coastal lands and waters out to 3 nautical miles (nm). 43 U.S.C. § 1312. The Supreme Court of the United States extended the boundaries of the Gulf Coast of Florida and Texas to 9 nm. United States v. Louisiana, 363 U.S. 1 (1960).

[25] Marc Gunter, *Can Deepwater Aquaculture Avoid the Pitfalls of Coastal Fish Farms,* YALE ENVIRONMENT 360 (Jan. 25, 2018), https://e360.yale.edu/features/can-deepwater-aquaculture-avoid-the-pitfalls-of-coastal-fish-farms.

[26] Charles C. Mann, *The Bluewater Revolution*, WIRED (May 1, 2004), https://www.wired.com/2004/05/fish/?pg=2.

permission to operate in the U.S. EEZ, most aquaculture operations must apply for permits from the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (Corps) pursuant to the Clean Water Act and the Rivers and Harbors Act. While NOAA does not have direct authority to permit commercial aquaculture operations, the agency may authorize scientific activities for marine aquaculture in federal waters through Exempted Fishing Permits.[27] Further, NOAA is involved in the permitting processes of other agencies to fulfill obligations and issue authorizations required by other statutes, such as the Endangered Species Act, Marine Mammal Protection Act, and Coastal Zone Management Act.

### A. Clean Water Act

The EPA and the Corps have joint authority to implement the CWA. Two permitting programs authorized by the CWA are potentially applicable to offshore aquaculture: the Section 402 National Pollutant Discharge Elimination System (NPDES) Program and Section 404 Dredge and Fill Program. Both of these programs apply to discharges of regulated pollutants and dredge and fill materials into navigable waters, which the CWA calls "waters of the United States." The EPA oversees the NPDES program, while the Corps oversees the Section 404 program. However, the EPA does have some jurisdiction under Section 404, which includes among other duties overseeing the state assumption program, working with the Corps to develop policy and guidance, and possessing the right to deny permits.[28]

The CWA is an example of cooperative federalism, meaning the EPA and the Corps set standards at the federal level, and states have the ability to apply to run both the NPDES and Section 404 programs. While the majority of states have received approval to administer the NPDES program on behalf of the EPA, only a couple of states have received the authority to issue Section 404 Permits.[29] However, with offshore aquaculture, the operations would be outside of state waters and thus, the EPA and Corps are the relevant permitting authorities.

---

[27] *See* 50 CFR § 600.745.4.
[28] Brigit Rollins, *The Clean Water Act, the Corps, & Section 404*, NAT'L AGRIC. LAW CTR., https://nationalaglawcenter.org/the-clean-water-act-the-corps-section-404/ (last visited Aug. 30, 2021).
[29] *State or Tribal Assumption of the CWA Section 404 Permit Program*, U.S. ENVTL. PROT. AGENCY (Mar. 23, 2021), https://www.epa.gov/cwa-404/state-or-tribal-assumption-cwa-section-404-permit-program.

The NPDES program is intended to improve water quality by limiting point source discharges of pollutants into waters of the United States.[30] It requires any operation that discharges pollutants into waters of the United States to obtain a permit.[31] These permits require industry-specific technology-based or water-quality-based limitations and monitoring/reporting requirements.[32]

Technology-based limitations have been developed for Concentrated Aquatic Animal Production (CAAP) facilities (i.e. aquaculture facilities) that produce 100,000 pounds of fish annually.[33] Facilities that do not produce 100,000 pounds of fish annually are subject to technology-based limits based on the EPA's Best Professional Judgement.[34] Reporting and monitoring requirements cover concerns such as drug use, containment structure failure or damage, and spills of feed, drugs, or pesticides.[35] These monitoring requirements also require permittees to develop and maintain best management practices.[36]

The Section 404 Program establishes permitting and regulatory programs for operations that discharge dredge or fill materials into open waters, wetlands, or vegetated shallows that qualify as waters of the United States.[37] This applies to aquaculture facilities engaged in larval shellfish seeding and construction of containment structures.[38] The Corps can issue Section 404 permits as part of a Nationwide Permit, which is discussed more fully below.

[30] 40 C.F.R. § 122.1(b)(1) ("The NPDES program requires permits for the discharge of 'pollutants' from any 'point source' into 'waters of the United States.'").
[31] *Id*.
[32] *Id.* § 122.41-50.
[33] *Id.* at Part 451.
[34] *Which Aquaculture Discharges Require an NPDES Permit?*, U.S. ENVTL. PROT. AGENCY, https://www.epa.gov/npdes/npdes-aquaculture-permitting (last visited Aug. 30, 2021).
[35] 40 C.F.R. § 451.3(a)-(c).
[36] *Id.* § 451.3(d)(1).
[37] *Id*.
[38] AGRIC. RSCH. SERV., FEDERAL AQUACULTURE REGULATORY FACT SHEET SERIES: U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) 1 (July 2018) https://www.ars.usda.gov/SCA/Fact%20Sheets/Aquaculture%20-%20EPA%20Fact%20Sheet%20July%202018.pdf (last visited Aug. 30, 2021).

B. Rivers and Harbors Act

Section 10 of the Rivers and Harbor Act of 1899 requires permits for structures built in the navigable waters of the United States.[39] It is important to note that the term "navigable waters" means different things under the CWA and RHA.[40] The geographic scope of the two statutes are, therefore, not identical. Structures can include any structure or work that may affect the course, location, condition, or capacity of navigable waters, which may be triggered by aquaculture facilities seeking to build cages, buoys, floats, or other containment structures in navigable waters.

The Corps issues permits under both the RHA and CWA in four ways: (1) standard individual permits; (2) letters of permission; (3) nationwide permits (NWP); and (4) regional general permits. Standard individual permits require public notice and comment periods before issuance. Letters of permission are for minor, non-controversial activities. NWPs create streamlined processes for categories of activities. Finally, regional general permits are issued at the district level to authorize categories of activities within a state or geographic region.

On January 13, 2021, the Corps published a Final Rule for certain modified and new NWPs.[41] Among the modified and new NWPs were three relevant to marine aquaculture operations. The new NWPs became effective on March 15, 2021, though it has not been determined at this time which Corps regions will adopt the NWPs.

The Corps's Final Rule included a modified NWP 48 for shellfish mariculture, which covers both structures under the RHA and discharges under

[39] 33 U.S.C. § 403 ("The creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited […] except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army.").
[40] "This regulation defines the term 'navigable waters of the United States' as it is used to define authorities of the Corps of Engineers...This definition does not apply to authorities under the Clean Water Act which definitions are described under 33 C.F.R. parts 323 and 328." 33 C.F.R. § 329.1. "Navigable waters of the United States are those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce." *Id*. § 329.4.
[41] Reissuance and Modification of Nationwide Permits, 86 Fed. Reg. 2744 (Jan 13, 2021) (to be codified at 33 C.F.R. Chapter 11), https://www.federalregister.gov/documents/2021/01/13/2021-00102/reissuance-and-modification-of-nationwide-permits.

Section 404 of the CWA.[42] The NWPs include new permits for both seaweed (NWP 55) and finfish (NWP 56) operations. Both NWP 55 and 56 authorize only structures and do not authorize any of the operational aspects of a farm's activities.[43] Both NWP 55 and 56 allow for multi-trophic mariculture operations, meaning the farm could be a mix of seaweed, finfish, and shellfish. Notably, both permits only cover the RHA, as the Corps has taken the position that activities under either permit do not result in discharges that would implicate the CWA.[44]

C. Endangered Species Act

Congress passed the Endangered Species Act (ESA) in 1973 to protect both imperiled species and their ecosystems by establishing "a program for the conservation of such endangered species and threatened species."[45] The ESA is administered by the U.S. Fish and Wildlife Service (FWS) in the Department of the Interior for terrestrial species and by NMFS for listed marine species. Once a species is listed as endangered or threatened under Section 4 of the ESA, the Act's other provisions, such as Section 7 consultation and Section 9 take, come into play. While the Section 9 take provisions apply to all actors, Section 7 consultation only applies to the actions of federal agencies.

NMFS plays a vital role in the Section 7 consultation process. Section 7 aims to ensure that any proposed action by a federal agency will not place a listed species in jeopardy of extinction.[46] Section 7 requires the acting federal agency to consult with NMFS on actions that could jeopardize listed marine species. For instance, if the Corps is considering whether to issue a RHA Section 10 permit to an offshore aquaculture operation that could jeopardize an ESA listed marine species, the Corps would have to consult with NMFS on whether it could issue the permit.

[42] The previous version of NWP 48, which took effect in 2017, limited the area of impacted submerged aquatic vegetation in project areas that have not been used for commercial shellfish aquaculture activities in the past 100 years to a half-acre. In the new modified NWP, the Corps has removed this limitation in favor of a pre-construction notification (PCN) requirement for new and existing commercial shellfish aquaculture activities that will directly impact greater than a half-acre of submerged aquatic vegetation. *Id.* at 2863.
[43] *Id.* at 2864-65.
[44] *Id*. at 2852.
[45] 16 U.S.C. § 1531. The goal of the ESA is to recover a species to the point where the protections of the Act are no longer necessary. *Id.* §1532(3).
[46] *Id.* § 1536(a)(2).

In such an instance, NMFS and the Corps would work together to assess the potential impacts of a proposed federal action on the listed species. If it is possible that the proposed action "may affect" listed species or its critical habitat, then NMFS will produce a Biological Opinion (BiOp) based on information provided by the Corps, unless the Corps determines, with the written concurrence of NMFS, that the proposed action is not likely to adversely affect any listed species or critical habitat.[47] If NMFS determines the action and its cumulative effects are "likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat,"[48] then NMFS must formulate Reasonable and Prudent Alternatives (RPAs) that can be implemented by the Corps to avoid jeopardizing the species or harming its critical habitat.[49]

If applicable, NMFS could also issue an Incidental Take Permit (ITP) to the aquaculture operator, under ESA Section 10. The ITP would insulate the aquaculture operator from liability for certain "takes" of the listed marine species. Take, under the ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct," and can include both lethal and non-lethal actions.[50] For instance, "harm" and "harass" include activities that interrupt a creature's essential life functions of breeding, feeding, or sheltering. However, the aquaculture operator would only be protected from liability for takes that NMFS specifies in the ITP.

### D. MMPA

The Marine Mammal Protection Act of 1972 (MMPA) affords a variety of protections to all marine mammals and seeks to prevent their populations from declining "beyond the point at which they cease to be a significant functioning element in the ecosystem of which they are a part [...]."[51] While the ESA only applies to species that are listed under the statute, the MMPA applies to all marine mammals. Under the MMPA, NMFS is responsible for the protection of whales, dolphins, porpoises, seals, and sea lions.

Similar to the ESA, the MMPA prohibits the "taking" of marine mammals without a permit.[52] Take, under the MMPA, is defined as "to harass, hunt,

[47] 50 C.F.R. § 402.14(a)-(b).
[48] *Id*. § 402.14(h).
[49] *Id*. § 402.02.
[50] 16 U.S.C. § 1532(19).
[51] *Id*. § 1361(2).
[52] *Id*. § 1371(a).

capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal."[53] Permits may be issued for direct takes of marine mammals, such as capturing or tagging individuals for research or public display, and indirect takes, which are the unintentional result of an activity such as commercial fishing, oil and gas development, or aquaculture.

NMFS may permit the taking of a small number of marine mammals incidental to specific activities upon a finding that such takes would have, among other things, a negligible impact on marine mammal stocks.[54] This is known as an Incidental Take Authorization (ITA) and, according to NMFS, most ITAs have been issued for activities that produce underwater sound.[55] In certain circumstances, aquaculture operations may need to obtain an ITA from NMFS if the farm's operations would directly or indirectly affect marine mammals.[56]

### E. Magnuson-Stevens Act[57]

The Magnuson-Stevens Fishery Conservation and Management Act of 1976 (Magnuson Act or MSA) asserts federal jurisdiction over wild fish stocks found within U.S. federal waters.[58] The MSA also established eight regional Fisheries Management Councils (Councils). These Councils develop fishery management plans (FMPs), including annual catch limits, for fisheries under their respective authority requiring conservation and management.[59] NMFS reviews these FMPs and, upon approval, the agency implements the plans through the issuance of regulations.[60] The authority of the Councils and NMFS only extends to federally managed species that require conservation and management. For species that do not require conservation and management, there are no FMPs or federal regulations controlling how such species are caught.

---

[53] *Id*. § 1362(13).
[54] 50 C.F.R. § 216.102.
[55] *Understanding Permits and Authorizations for Protected Species*, NAT'L. MARINE FISHERIES SERV., https://www.fisheries.noaa.gov/insight/understanding-permits-and-authorizations-protected-species#for-what-activities-does-noaa-fisheries-issue-permits (last visited Aug. 30, 2021).
[56] *See* 16 U.S.C. § 1387.
[57] This section is adapted from Memorandum from Stephanie Showalter Otts, NSGLC Director, to David Alves, NMFS Greater Atlantic Region Aquaculture Coordinator (June 16, 2014), http://nsglc.olemiss.edu/Advisory/finfish_request.pdf.
[58] 18 U.S.C. § 1801(b)(1).
[59] *Id*. § 1852.
[60] *Id*. § 1854.

The MSA defines "fishing" as "the catching, taking, or harvesting of fish" and any operations at sea in support of such activities.[61] In 1993, NOAA's Office of General Counsel issued a legal opinion concluding that "aquaculture facilities are subject to the [MSA] because they engage in the 'harvest' of fish from the EEZ."[62] In the NOAA attorneys' opinion, the inclusion of the term "harvesting" is significant as it broadens the reach of the Magnuson Act beyond traditional fishing activities (i.e., catching fish).[63] According to the NOAA attorneys, "harvesting connotes the gathering of a crop" and aquaculture operations involve "plans to plant, cultivate, and harvest" fish.[64] Aquaculture is therefore, in NOAA's view, "fishing" under the MSA.

In response to the 1993 attorneys' opinion, NOAA has taken steps to regulate the culture of federally managed species. Some of these attempts have been more successful than others. For instance, the South Atlantic FMC developed and established a live rock aquaculture permit and management system under Amendment 3 to the Coral FMP in 1995. Under the Coral FMP, a federal permit is necessary to culture live rock in federal waters of the Gulf of Mexico and South Atlantic. Each permit is site specific and sites are limited to 1 acre (0.4 hectare) in size. Currently, the federal live rock permitting program is only active in federal waters of the Gulf of Mexico and South Atlantic off the coast of Florida. In the early 2010s, NOAA issued special permits authorizing aquaculture trials off the coast of Hawaii. Although the issuance of these permits was challenged in court, NOAA's authority was upheld in part because of the limited scope of the agency action (e.g., one-year permit for discrete projects). However, as is discussed more thoroughly below, a more recent effort by the Gulf of Mexico Fishery Management Council to develop an Aquaculture FMP was struck down in court before it could be implemented.

[61] *Id*. § 1802(16).
[62] Memorandum from Jay S. Johnson, NOAA Deputy General Counsel, & Margaret F. Hayes, NOAA Assistant General Counsel for Fisheries, to James W. Brennan, NOAA Acting General Counsel 1 (Feb. 7, 1993) [hereinafter 1993 Opinion].
[63] *Id*.
[64] *Id*.

## IV. NOAA AQUACULTURE AUTHORITY UNDER TRUMP EXECUTIVE ORDER ACTIONS

Throughout the last forty years, legislative and executive actions have encouraged NOAA to contribute to the expansion of offshore marine aquaculture. For example, in 1980, Congress passed the National Aquaculture Act, which identified aquaculture a national policy priority and created an Aquaculture Working Group in the Executive branch.[65] In 2011, the Department of Commerce and NOAA jointly published a "Marine Aquaculture Policy" which set out the goals for NOAA and other DOC agencies (e.g., Economic Development Agency, National Institute of Standards and Technology) to be more involved in aquaculture development through their scientific, regulatory, and outreach efforts.[66]

In addition to the national policies and statutory authorities discussed above, NOAA recently received executive direction to take specific actions related to aquaculture. On May 7, 2020, President Trump signed Executive Order 13,921 titled "Promoting American Seafood Competitiveness and Economic Growth" (Executive Order), which instructs NOAA to designate geographic areas referred to as "Aquaculture Opportunity Areas" or AOAs. The Executive Order requires that NOAA "identify at least two geographic areas containing locations suitable for commercial aquaculture within one year of the date the executive order was signed."[67] NOAA must also "identify two additional geographic areas suitable for commercial aquaculture" each year for four years, starting in May 2021.[68] Meeting this timeline would ensure that NOAA establishes ten opportunity areas nationwide by 2025.[69]

---

[65] National Aquaculture Act of 1980, Pub. L. 96-198, 96-362 as amended, 94 Stat. 1198 (codified as amended 16 U.S.C. §§ 2801-2810).

[66] NAT'L OCEANIC & ATMOSPHERIC ADMIN., MARINE AQUACULTURE POLICY (2011), https://media.fisheries.noaa.gov/2021-01/2011-noaa-marine-aquaculture-policy.pdf?null; U.S. DEP'T OF COMMERCE, AQUACULTURE POLICY (2011) https://media.fisheries.noaa.gov/2021-01/doc-aquaculture-policy-2011.pdf?null.

[67] Exec. Order 13,921, 85 Fed. Reg. 28,471 (May 12, 2020).

[68] *Id.* (Section 7 of the EO requires NOAA to designate the first two AOAs within one year of the May 2020 effective date. After that, "(ii) for each of the following 4 years, identify two additional geographic areas containing locations suitable for commercial aquaculture and, within 2 years of identifying each area, complete a programmatic EIS for each area to assess the impact of siting aquaculture facilities there.").

[69] News Release, Nat'l Marine Fisheries Serv., NOAA Announces Regions for First Two Aquaculture Opportunity Areas under Executive Order on Seafood (Aug. 20, 2020) [hereinafter AOA News Release], https://www.fisheries.noaa.gov/feature-story/noaa-announces-regions-first-two-aquaculture-opportunity-areas-under-executive-order.

Each time NOAA identifies potential regions for AOA designation, it must first allow the public to comment on the proposed regions in order to "minimize unnecessary resource conflicts as appropriate."[70] Once the public comment period ends, NOAA then compiles the public input and completes an initial spatial analysis to identify specific parcels of water that look promising for aquaculture development in the selected regions. Once NOAA identifies those smaller parcels in the larger region, it must complete a NEPA programmatic environmental impact statement (PEIS) within two years of the initial region selection "to assess the impact of siting aquaculture facilities" in those areas.[71]

Three months after President Trump signed the Executive Order, NOAA identified two general regions suitable for AOA designation—one off the coast of Southern California and a second in the Gulf of Mexico.[72] NOAA selected these regions based on industry interest and "already available spatial analysis data."[73] NOAA has not yet, however, identified exact locations in the EEZ off the coast of Southern California or in the Gulf of Mexico that may be designated an AOA. Since August 2020, NOAA has been working through its proposed AOA timeline—a sequence of actions that NOAA plans to take each time it selects an AOA. Accordingly, in line with the abovementioned AOA designation process, in October of 2020 NOAA published a request for information soliciting public input on the best sites for sustainable aquaculture development throughout the Southern California and Gulf of Mexico regions, as well as public input on what areas NOAA should consider nationally for future AOAs.[74]

NOAA has already collected public input and compiled the spatial analysis data necessary to determine suitable sites for aquaculture in the first two regions selected, and is currently creating "Aquaculture Opportunity Atlases."[75] The Atlases will be technical memoranda issued by NOAA which will incorporate the collected spatial planning data and public input for each selected AOA region; the final Atlas will include a series of geospatial maps reflecting the suitability of aquaculture throughout the studied regions. Following an expert peer review, the Atlases for the first two AOA regions—"An Aquaculture Opportunity

[70] Exec. Order 13,921, *supra* note 67.
[71] *Id.*
[72] AOA News Release, *supra* note 69.
[73] *Id.*
[74] Aquaculture Opportunity Areas, 85 Fed. Reg. 67,519 (Oct. 23, 2020).
[75] *Aquaculture Opportunity Area Timeline*, NAT'L OCEANIC & ATMOSPHERIC ADMIN. (Apr. 2021), https://media.fisheries.noaa.gov/2021-04/AOA-timeline-042121.pdf?null.

Atlas for Southern California" and "An Aquaculture Opportunity Atlas for the Gulf of Mexico"—will be publicly released.[76] At the time of publication, NOAA had yet to release either of the intended Atlases to the public.[77] NOAA has released peer review guidelines that require comments to be submitted no later than 30 days after distribution to reviewers.[78] After peer review and publication of both technical memos, NOAA will publish a Notice of Intent (NOI) to prepare a Programmatic Environmental Impact Statement (PEIS) for the first AOAs in those regions.[79]

In constructing the Atlases, NOAA hopes to identify three preliminary AOA alternatives per regional study area (subparts of the larger selected regions) using a "suitability modeling process."[80] These alternatives will then be considered and narrowed further in the EIS process under NEPA. Each alternative is expected to be between 500 and 2,000 acres in size.[81] To derive these alternatives, NOAA has narrowed down its pool of potential areas within each selected region by eliminating plots of the EEZ that are not deep enough or the correct distance from shore.[82] NOAA has also constructed hundreds of data layers to determine whether the study areas selected are compatible with aquaculture.[83] NOAA maps this data in what looks like a heat-map; the "higher heat" portions of the model show areas with low suitability for aquaculture, and the "lower heat" represents higher aquaculture suitability.[84] High suitability areas are more

[76] *Aquaculture Opportunity Areas Atlases for the Gulf of Mexico and Southern California (ID424)*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., https://www.noaa.gov/organization/information-technology/information-quality-peer-review-id424 (last visited Aug. 30, 2021).
[77] At the time of publication, NOAA had last updated its Atlases webpage on March 18, 2021. *See id.*
[78] *Charge Statement for Peer Review of the NOAA Technical Memorandum NOS NCCOS*, NAT'L OCEANIC & ATMOSPHERIC ADMIN., https://www.noaa.gov/sites/default/files/legacy/document/2021/Mar/ID424-charge-statement-AOA-atlas.pdf (last visited Aug. 30, 2021).
[79] *Aquaculture Opportunity Areas Atlases for the Gulf of Mexico and Southern California (ID424)*, *supra* note 76.
[80] Feb. 24, 2021 Habitat Committee Meeting Recording, Pacific Fishery Management Council (Feb. 24, 2021, 1:00 PM – 5:00 PM), https://www.pcouncil.org/events/habitat-committee-to-hold-online-meeting-february-24-2021/ [hereinafter PFMC Committee AOA Meeting]; NOAA, AQUACULTURE OPPORTUNITY AREAS: GULF OF MEXICO FISHERY MANAGEMENT COUNCIL SHRIMP ADVISORY PANEL MEETING (Mar. 23, 2021), https://gulfcouncil.org/wp-content/uploads/X.-AOA-Update-Presentation-ShrimpAP_03_23_2021.pdf [hereinafter GMFMC Shrimp Panel AOA Meeting].
[81] GMFMC Shrimp Panel AOA Meeting, *supra n*ote 80.
[82] PFMC Committee AOA Meeting, *supra n*ote 80.
[83] GMFMC Shrimp Panel AOA Meeting, *supra n*ote 80.
[84] PFMC Committee AOA Meeting, *supra n*ote 80.

conducive to aquaculture because they are not heavily inundated with other incompatible activities such as hard bottom habitat, oil and gas wells, submarine cables, or vessel traffic.[85]

For example, in the Gulf of Mexico, NOAA has considered data layers in each study area like the number of Marine Protected Areas, deep sea corals, oil and gas wells, submarine cables, vessel traffic, military interactions, other industry interactions, etc. to narrow which areas would be most suitable for aquaculture given other activities in a given area.[86] The completed "suitability composite" then compiles all "submodels"—or the data layers—into a cluster map across the entire region, which gives NOAA a general idea of which areas to pursue as "preliminary alternatives" within a Draft PEIS (DPEIS).[87] The Atlases that NOAA should be releasing soon will analyze composite maps—which incorporate all data layers—to pinpoint patterns that are driving the heat map results.[88] Additionally, the Atlases will document precision siting models, which pinpoint two or three 500-2,000 acre areas in the entire study area (or region) that received the highest suitability scores and are best to pursue for AOAs.[89]

NOAA intends to publish a NOI for each PEIS in late summer or early fall of 2021.[90] These PEISs will address the preliminary alternatives for AOAs selected through the spatial planning analysis.[91] It is unclear at this time what impact the issuance of these AOAs will have on the existing permitting process for marine aquaculture in the EEZ. While the Atlases will synthesize key scientific data that can inform applicant and federal agency decision-making, there is no legal mechanism that would require the EPA or the Corps to use them. In theory, reliance on the Atlases and the associated environmental reviews could save the EPA and the Corps staff time during the permitting process. However, the EPA and the Corps each have unique responsibilities that are different from NOAA's mission that must be fulfilled before issuing permits. These responsibilities, as well as agency regulations, may constrain their ability to rely on the Atlases during decision-making.

---

[85] *Id.*
[86] GMFMC Shrimp Panel AOA Meeting, *supra n*ote 80.
[87] PFMC Committee AOA Meeting, *supra n*ote 80. From these submodels, NOAA may be able to eliminate entire areas, like off the coast of San Diego, which have substantial military interactions).
[88] *Id.*
[89] *Id.* (the precision siting analysis considers things like "Department of Defense mission compatibility").
[90] *Aquaculture Opportunity Area Timeline*, *supra* note 75.
[91] GMFMC Shrimp Panel AOA Meeting, *supra n*ote 80.

## V. Assertion of Authority #1: Special Permits

In 2010, a Hawaii-based marine aquaculture company proposed a pilot aquaculture project in the U.S. EEZ off the coast of Hawaii.[92] The company proposed a second trial in 2011. Both trials involved the use of a copper-alloy meshed Aquapod®, stocked with around 2,000 pounds of kampachi (*S. rivoliana*), a species also known as almaco jack.[93] During the first trial in 2011, the net pen was attached to a feed barge that drifted with the currents between 3 and 75 miles offshore.[94] During the second in 2012, the net pen was moored in water 6,000 feet deep about six miles offshore.

Relying on the interpretation of the MSA set forth by NOAA Office of General Counsel in 1993, NMFS asserted jurisdiction over the aquaculture projects.[95] NOAA reasoned it could regulate the proposed operation because almaco jack is a managed species pursuant to the MSA—specifically, under the Pacific Regional Fishery Management Council's Fisheries Ecosystem Plan for the Hawaiian Archipelago (FEP).[96] However, the FEP does not discuss or provide management options for aquaculture or aquaculture gear. As such, NOAA needed to issue a special permit—a Special Coral Reef Ecosystem Fishing Permit (SCREFP)—to authorize the operation and its gear.

NMFS issued a SCREFP to Kampachi Farms in July 2011 authorizing it to "stock, culture, and harvest" almaco jack in federal waters off the coast of Hawaii.[97] The permitted project was known as the "Velella Concept."[98] In 2012, KAHEA and Food & Water Watch (referred to below as the plaintiffs) challenged

---

[92] NAT'L MARINE FISHERIES SERV., ENVIRONMENTAL ASSESSMENT: PROPOSED ISSUANCE OF A PERMIT TO AUTHORIZE THE CULTURE AND HARVEST OF A MANAGED CORAL REEF FISH SPECIES (SERIOLA RIVOLIANA) IN FEDERAL WATERS WEST OF THE ISLAND OF HAWAII, STATE OF HAWAII 7 (July 6, 2011) [hereinafter Kampachi Farms EA], https://repository.library.noaa.gov/view/noaa/691. The project was proposed by Kona Blue Water Farms. Kampachi Farms, which was founded in 2011 by former executives of Kona Blue Water Farms, took over the project. The company is now known as Ocean Era. *See Overview*, OCEAN ERA, http://ocean-era.com/our-research (last visited Aug. 30, 2021).

[93] *Ocean Era Research Projects*, OCEAN ERA, http://ocean-era.com/projects (last visited Aug. 30, 2021).

[94] *Id*.

[95] 1993 Opinion, *supra* note 62.

[96] Kampachi Farms EA, *supra* note 92, at 8.

[97] KAHEA v. Nat'l Marine Fisheries Serv., No. 11-00474 SOM, 2012 WL 1537442, at *1 (D. Haw. Apr. 27, 2012).

[98] *Id.* at *2.

NMFS' decision to issue the SCREFP. The plaintiffs sued NMFS in federal district court under the MSA, the Administrative Procedure Act (APA), and the National Environmental Policy Act (NEPA).[99] Subsequent proceedings involving the same parties warrant labeling the first district court case "*KAHEA 1*" and the second as "*KAHEA 2*" to distinguish the phases of litigation.

In the litigation, the plaintiffs asserted that NMFS lacked statutory authority to issue the SCREFP.[100] Secondly, the plaintiffs claimed that by issuing the SCREFP, NMFS engaged in *de facto* rulemaking in violation of the APA. They argued that through this permit, NMFS effectively made a rule "that aquaculture is fishing under the MSA" without going through proper rulemaking procedures.[101] Finally, the plaintiffs asserted that NMFS violated NEPA because it failed to prepare an Environmental Impact Statement (EIS).[102] In other words, the plaintiffs argued that the SCREFP would have significant environmental consequences, and therefore NMFS impermissibly issued a "Finding of No Significant Impact" (FONSI) and failed to engage in additional procedures required by NEPA.

### A. *KAHEA v. NMFS 1:* District Court Opinion

In *KAHEA 1*, the U.S. District Court for the District of Hawaii (Hawaii District Court) granted NMFS' motion for summary judgment on all three of the plaintiffs' claims. First, the court deferred to NMFS' interpretation that the Kampachi Farms' aquaculture project is "fishing" under the MSA, which gave the agency authority to issue the permit.[103] Likewise, the court held that NMFS' interpretation was not arbitrary and capricious and did not violate the APA.[104] The court agreed with NMFS that the definition of "fishing" in the MSA, which includes "harvesting of fish," is broad.[105] NMFS considered the aquaculture operation to be "fishing" under the MSA because, NMFS argued, the project is a method of harvesting fish.[106] To defend its interpretation, NMFS presented dictionary definitions of "harvesting" which ubiquitously involves gathering

[99] *Id.* at *1.
[100] *Id.*
[101] *Id.*
[102] *Id.*
[103] *Id.* at *9-11.
[104] *Id.*
[105] *Id.* at *9; *see* 16 U.S.C. § 1802(16).
[106] *KAHEA*, 2012 WL 1537442, at *9-11.

crops.[107] Next, NMFS pointed to the dictionary definition of "crop"; NMFS reasoned that fish are a kind of crop because they are an "animal . . . that can be grown and harvested extensively for profit or subsistence."[108] NMFS also argued that this interpretation does not contravene Congress's intent because the MSA also delegates power to NMFS to regulate "any operations at sea in support of, or in preparation for" fishing.[109] The district court found that NMFS' interpretation "was not irrational or contrary to plain meaning" of the statute.[110] The court reasoned that the MSA does not define harvesting or aquaculture, nor does legislative history discuss the meaning of harvesting in the MSA.[111] Therefore, because NMFS' interpretation was reasonable, it could receive deference from the court.[112] Finally, the *KAHEA 1* court rejected the plaintiffs' contention that the MSA delegates the authority to define the term "harvest" to the fishery management councils.[113]

Next, the court analyzed whether NMFS had created a *de facto* rule when it authorized Kampachi Farms' aquaculture project by issuing a SCREFP. The plaintiffs argued that the permit was a *de facto* rule which declared that aquaculture is "fishing."[114] The court rejected this argument. Not only did the SCREFP not explicitly authorize "aquaculture," it did not guarantee that NMFS would always grant permits for proposed aquaculture operations as long as the permitting requirements are met.[115] Significantly, the court explained that in order for aquaculture operations to acquire a permit in the future, NMFS will have to consider whether each individual aquaculture project involves fishing under the MSA's definition; simply calling a project aquaculture will not guarantee that NMFS will consider it fishing.[116] Thus, the court ruled that NMFS' decision to issue one permit for one party does not possess the characteristics of an agency rule—rules have future effect and bind many parties.[117] Therefore, the SCREFP was not a *de facto* rule.[118] Lastly, in dicta, the *KAHEA 1* court indicated that if

[107] *Id.* at *9 (NMFS quoting the definition of crop in the Merriam-Webster dictionary, http://www.merriam-webster.com/dictionary/crop (last visited Aug. 30, 2012)).
[108] *Id.*
[109] *Id.* (citing 16 U.S.C. §1802(16)(D)).
[110] *Id.*
[111] *Id.*
[112] *Id.*
[113] *Id.* at *10.
[114] *Id.* at *11.
[115] *Id.*
[116] *Id.*
[117] *Id.*
[118] *Id.*

NMFS had instead offered the same interpretation as part of its decision to implement an amendment to a Fishery Management Plan (FMP)—which would have future effect and bind many parties—that would present a different case.[119]

In response to the plaintiffs' final claim—that NMFS violated NEPA—the *KAHEA 1* court concluded that the claim was moot. The court reasoned that there was no possible relief the court could issue that would remedy NMFS' alleged NEPA violations because there existed no continuing harm from the already completed pilot project.[120]

### B. *KAHEA v. NMFS 1:* Ninth Circuit Opinion

The plaintiffs appealed the district court's ruling to the U.S. Court of Appeals for the Ninth Circuit. On appeal, the Ninth Circuit affirmed the *KAHEA 1* court's decisions regarding the plaintiffs' first two claims by holding that NMFS had authority to issue the fishing permit to Kampachi Farms under the MSA.[121] However, on the plaintiffs' NEPA claim, the Ninth Circuit determined that an exception to the mootness doctrine applied and thus remanded that claim back to the district court.[122] Though the NEPA claim was no longer a "live" controversy because the permit was expired at the time of appeal, the Ninth Circuit reasoned that both requirements under the "capable of repetition yet evading review" exception were met: (1) a "reasonable expectation" existed that Food & Water Watch would be subject to the same alleged injury as a result of Kampachi Farm's planned second permit application, and (2) the alleged injury was "inherently limited in duration" such that it would likely become moot before any subsequent federal litigation was completed.[123] The Ninth Circuit accordingly remanded the case to the district court to hear the NEPA claim.[124]

### C. *KAHEA v. NMFS 2:* District Court Remand

In 2014, KAHEA returned to the Hawaii District Court. In accordance with the Ninth Circuit's ruling, the plaintiffs were forced to drop their substantive claims challenging NMFS' authority to issue a SCREFP to Kampachi Farms. Thus, on remand, KAHEA and Food & Water Watch were left with just one

---

[119] *See id.*
[120] *Id.* at *6-7.
[121] KAHEA v. Nat'l Marine Fisheries Serv., 544 F. App'x 675, 675, ¶ 3 (9th Cir. 2013).
[122] *Id.* at ¶ 4 (citing Ctr. for Biological Diversity v. Lohn, 511 F.3d 960, 965 (9th Cir. 2007)).
[123] *Id.*
[124] *Id.*

claim: NMFS failed to complete an allegedly required EIS for the original SCREFP.[125] In *KAHEA 2*, NMFS and the plaintiffs submitted cross-motions for summary judgment in relation to the NEPA claim.[126] The plaintiffs argued that NMFS did not comply with NEPA because it issued a FONSI and correspondingly determined that an EIS was not required for the SCREFP.[127] The plaintiffs asserted essentially two arguments. First, the plaintiffs argued that NMFS should have completed an EIS because the aquaculture project was highly controversial.[128] Second, the project's impacts and precedential effect was highly uncertain.[129] The plaintiffs claimed that in its Environmental Assessment, NMFS did not properly consider the cumulative impacts resulting from the SCREFP permit.[130] More specifically, plaintiffs asserted that NMFS did not consider the potential for "future aquaculture development" in the region as a result of the permit.[131]

The *KAHEA 2* court employed an arbitrary and capricious analysis in reviewing NMFS' decision to forego an EIS. An agency's decision is arbitrary and capricious if the agency failed to take a "hard look" at the consequences of its actions.[132] An agency must consider the relevant factors and explain the reasons for its decision to meet the hard look standard.[133] In the situation where an agency determines that an EIS is not necessary, the agency must "provide[] a convincing statement of reasons to explain why a project's impacts are insignificant."[134] Under this standard, the court rejected the plaintiffs' argument regarding cumulative effects. The *KAHEA 2* court reasoned that the alleged cumulative effect—that the SCREFP would increase aquaculture development in the region—was not reasonably foreseeable; there were no other proposed projects in the region at the time, and NMFS cannot base its decision of whether an EIS is necessary on speculative or premature environmental impacts.[135] Likewise, the

[125] KAHEA v. Nat'l Marine Fisheries Serv., No. CIV. 11-00474 SOM, 2014 WL 3726122 (D. Haw. July 24, 2014).
[126] *Id.* at *1.
[127] *Id.* at *2.
[128] *Id.* at *8.
[129] *Id.* at *4-11.
[130] *Id.* at *7. The plaintiffs also alleged NMFS failed to adequately consider the permit's effect on cultural resources.
[131] *Id.*
[132] *Id.* at *3.
[133] *Id.*
[134] *Id.* (quoting Native Ecosystems Council v. U.S. Forest Serv., 428 F.3d 1233, 1239 (9th Cir. 2005)).
[135] *Id.* at *7-8.

*KAHEA 2* court accepted NMFS' explanation that the one-time only nature of the SCREFP mitigates concerns that the permit might "open NMFS to a flood of applications for permits by operators wishing to undertake oceanic aquaculture in federal waters."[136]Accordingly, the court found that NMFS had a reasonable basis for determining an EIS was not required, and its decision was not arbitrary and capricious.[137]

## VI. ASSERTION OF AUTHORITY #2: GULF AQUACULTURE FISHERY MANAGEMENT PLAN

The Gulf of Mexico Fishery Management Council (GMFMC) is responsible for managing fisheries off the coast of Louisiana, Mississippi, Alabama, Texas, and Florida.[138] In 2009, the GMFMC approved a FMP that would establish a comprehensive regulatory framework for offshore aquaculture in the Gulf of Mexico, referred to as the Gulf Aquaculture Plan or "GAP".[139] To date, the GMFMC is the only regional council to use the 1993 NOAA Office of General Counsel's legal interpretation of the MSA to establish a permitting system for aquaculture through the development and implementation of a FMP.[140]

After developing the GAP, the GMFMC submitted the plan to NMFS for approval. However, NMFS never approved or disapproved the plan, and the plan went into effect by operation of law.[141] Once effective, initial attempts to challenge the GAP in court failed. The U.S. Court of Appeals for the D.C. Circuit dismissed the lawsuit brought by environmental groups for lack of standing, finding that the GAP by itself had no regulatory effect.[142] The court found that the GAP was not ripe for review until NMFS issued regulations implementing the plan.[143]

---

[136] *Id.* at *4.
[137] *See id.*
[138] 16 U.S.C. § 1852(a)(1)(E).
[139] Presentation by NOAA Fisheries, NOAA Fisheries Gulf Aquaculture Permit (GAP) Program for Federal Waters of the Gulf of Mexico, slide 3 (Oct. 14, 2016), https://s3.amazonaws.com/nefmc.org/GMFMC-Aquaculture-Presentation-Updated.pdf.
[140] *See* 1993 Opinion, *supra* note 62.
[141] 50 C.F.R. § 622; STEPHANIE S. OTTS & TERRA BOWLING, NATL. SEA GRANT L. CENTER, OFFSHORE FINFISH CULTURE OPERATIONS: CURRENT LEGAL FRAMEWORK AND REGULATORY AUTHORITY 5 (2014) (explaining that NMFS did not disapprove the plan because "the only grounds for disapproval was a finding that aquaculture was not 'fishing' under the MSA; a position the agency did not want to take.").
[142] Gulf Restoration Network v. Nat'l Marine Fisheries Serv., 730 F. Supp. 2d 157, 166 (2010).
[143] *Id.* at 172.

In August 2014, NMFS proposed regulations to implement the GAP and requested public comment.[144] After receiving more than 1,100 comments, NMFS published the final rule in the Federal Register in January 2016.[145] The final rule went into effect in February 2016 and provided 115 responses to the public comments. The finalized GAP regulations established the United States' first regional permitting process to manage the development of an aquaculture industry in the U.S. EEZ.[146]

Once NMFS' final GAP rule became effective, claims against the GAP as implemented were ripe for review. Consequently, the Center for Food Safety, joined by others including the Gulf Fishermen's Association and a number of other environmental groups, immediately sued NMFS in federal district court, arguing that the MSA does not give NMFS authority to regulate aquaculture.[147] The plaintiffs argued that the Gulf Council's interpretation of the MSA, which was supported by NOAA's Office of General Counsel 1993 opinion, was not reasonable, and thus NMFS' final rule implementing the GAP was invalid. NMFS, on the other hand, argued that the MSA's definition of fishing is ambiguous, and that under the Administrative Procedure Act the court should defer to NMFS's interpretation.[148]

### A. *Gulf Fishermen's Association v. NMFS*: District Court Opinion

The U.S. District Court for the Eastern District of Louisiana (Louisiana District Court) agreed with the plaintiffs and found that NMFS' MSA-delegated authority to regulate fishing does not give NMFS authority to regulate aquaculture.[149] In its decision, the court performed a Chevron analysis—the analysis created by the U.S. Supreme Court in its 1984 *Chevron, U.S.A., Inc. v. Natural Resources Defense Council, Inc.* decision and used by courts to determine whether a federal agency has reasonably interpreted its delegated authority under

[144] Proposed Rule, Fisheries of the Caribbean, Gulf, and South Atlantic; Aquaculture, 79 Fed. Reg. 51424 (Aug. 28, 2014).
[145] Fisheries of the Caribbean, Gulf, and South Atlantic; Aquaculture, 81 Fed. Reg. 1761 (Jan. 13, 2016) (final rule codified at 50 C.F.R. § 622).
[146] *Id.* (final rule effective February 12, 2016).
[147] Gulf Fishermen's Ass'n v. Nat'l Marine Fisheries Serv., 341 F. Supp. 3d 632 (E.D. La. 2018).
[148] Chevron v. Nat. Res. Def. Council, 467 U.S. 837 (1984) (finding that when there is ambiguity in an enabling statute, the Administrative Procedure Act requires courts to defer to the agency's interpretation of the statute so long as it is a reasonable one).
[149] *Gulf Fishermen's Ass'n*, 341 F. Supp. 3d. at 637-42.

a federal statute through rulemaking.[150] In this case, the Chevron Doctrine applies because NMFS interpreted the terms of the MSA in developing the GAP regulations.

The Chevron Doctrine instructs courts to perform a two-step analysis. First, "a court reviewing an agency's construction of a statute must . . . ask 'whether Congress has directly spoken to the precise question at issue.'"[151] If the court finds that Congress's intent is clear, "that is the end of the matter."[152] If the court determines Congress's intent is unclear because the statute is silent or ambiguous on the question at issue, the second step courts must take is determining whether the agency action in question is "based on a permissible construction of the statute."[153]

The district court in *Gulf Fishermen's Ass'n* ended its analysis at step one of its Chevron analysis, finding that the terms of the MSA were clear and not ambiguous.[154] The district court reasoned that the MSA's grant of authority to NMFS to regulate "fishing," which is defined to include "harvesting,"[155] does not authorize the agency to regulate aquaculture.[156] The court found there to be "no ambiguity in the term 'harvesting' such that the NMFS was authorized to fill a gap therein."[157] The court relied on legislative history to demonstrate that "harvesting" is an unambiguous term in the MSA; specifically, the word "harvesting" in the MSA's legislative history consistently refers to traditional fishing, or fishing wild fish.[158] Furthermore, the court reasoned that if Congress intended to give NMFS regulatory authority over aquaculture under the MSA, "it would have said more than 'harvesting.'"[159] Additionally, the court considered the

---

[150] 467 U.S. 837 (1984).
[151] *Gulf Fishermen's Ass'n*, 341 F. Supp. 3d at 636 (quoting *Chevron, U.S.A., Inc.*, 467 U.S. at 842).
[152] *Id.* (quoting *Chevron, U.S.A., Inc.*, 467 U.S. at 843).
[153] *Id.* (quoting *Chevron, U.S.A., Inc.*, 467 U.S. at 843-44).
[154] *Id.* at 641-42.
[155] 16 U.S.C. § 1802 defines "fishing" to include:

> (A) the catching, taking, or harvesting of fish;
> (B) the attempted catching, taking, or harvesting of fish;
> (C) any other activity which can reasonably be expected to result in the catching, taking, or harvesting of fish; or
> (D) any operations at sea in support of, or in preparation for, any activity described in subparagraphs (A) through (C).

[156] *Gulf Fishermen's Ass'n*, 341 F. Supp. 3d at 642.
[157] *Id.*
[158] *Id.* at 640.
[159] *Id.* at 642.

purpose of the statute: conservation of natural resources found off the coasts of the United States. The court determined farmed aquaculture species are neither "found" off the coast nor can they be considered "natural resources."[160] As a result, the court granted summary judgment for the plaintiff groups.

### B. *Gulf Fishermen's Association v. NMFS*: Fifth Circuit Opinion

NOAA attempted to assert its regulatory authority over aquaculture once more when it appealed the district court ruling to the U.S. Court of Appeals for the Fifth Circuit, which covers the federal district courts of Mississippi, Louisiana, and Texas. However, in August 2020, the Fifth Circuit affirmed the Louisiana District Court's holding, finding that the GAP regulations exceeded the statutory authority granted to NMFS in the MSA.[161]

Ultimately, the court was unconvinced by NMFS's argument and found that the MSA was not ambiguous enough to confer deference to the agency's interpretation. It also was not convinced by NMFS's argument that the definition of fishing, which includes "harvesting" under the MSA, is broad enough to include aquaculture facilities. Lastly, the court noted that the MSA grants NOAA authority over fisheries, but notably says nothing about aquaculture facilities. The court stated that the drafters of the statute were more than aware of the practices of aquaculture at the time the bill was being created, and thus, the seemingly deliberate lack of mention of aquaculture is proof of the drafter's intentions. Indeed, NOAA even admitted in their rulemaking process that "many of the principles and concepts that guide wild stock management under the MSA are either of little utility or not generally applicable to management of aquaculture operations."[162] All of these factors contributed to the court finding in favor of the plaintiffs, invalidating the GAP regulations.

One of the appellate judges ruling on the case dissented from the majority, arguing three points. First, Judge Higginson discussed the MSA's delegation of authority to NOAA to regulate "all fish, and all Continental Shelf fishery resources, within the [EEZ]."[163] Second, he pointed out that, while aquaculture is not specifically mentioned, many of the methods and tools used in aquaculture, such as nets, lines, pots, cages, and other types of enclosures, are mentioned and included under the definition of fishing in the MSA. Third, the dissent was more

[160] *Id.*
[161] Gulf Fishermens Ass'n v. Nat'l Marine Fisheries Serv., 968 F.3d 454 (5th Cir. 2020).
[162] Fisheries of the Caribbean, Gulf, and South Atlantic; Aquaculture, *supra* note 145, at 1,762.
[163] 16 U.S.C. § 1811(a).

convinced by the ambiguity of the MSA and argued that the court should defer to NMFS's interpretation of the term "fishing."

### C. *Gulf Fishermen's* relation to *KAHEA*

The Louisiana District Court decision in *Gulf Fishermen's Ass'n* cited to and detailed *KAHEA 1*. The plaintiffs in *Gulf Fishermen's* advanced the same principal argument as the plaintiffs in *KAHEA 1*—the MSA does not delegate authority to NMFS to authorize aquaculture because aquaculture is not fishing under the MSA.[164] Notably, the *KAHEA 1* court deferred to NMFS' interpretation categorizing the aquaculture project as fishing.[165] But the Louisiana District Court distinguished *KAHEA 1* from *Gulf Fishermen's*; the widespread and comprehensive GAP that was at issue in *Gulf Fishermen's* would be an "entirely new regulatory scheme permitting aquaculture facilities throughout the Gulf," unlike the single permit for one individual project that was at issue in *KAHEA 1*.[166] This reasoning aligns with dicta in the *KAHEA 1* district court opinion. There, the Hawaii District Court indicated that if NMFS had instead offered the same interpretation as part of its decision to implement an amendment to a FMP that would present a different case, as a FMP would have future effect and bind many parties.[167] Thus, the Louisiana District Court reasoned, "*Kahea* is not binding, applicable, or persuasive" in a case involving the Gulf Aquaculture Plan.[168] However, this position was not unanimous among the court. While the Fifth Circuit affirmed the district court's decision, one dissenting judge cited *KAHEA 1* as evidence that the MSA grants NMFS "capacious" authority to regulate offshore aquaculture.[169] Despite the 2-1 Fifth Circuit opinion, NOAA decided to not ask the U.S. Supreme Court to weigh in on whether fishing under the MSA could include aquaculture.

---

[164] *Gulf Fishermen's Ass'n*, 341 F. Supp. 3d at 641.
[165] KAHEA v. Nat'l Marine Fisheries Serv., No. 11-00474 SOM, 2012 WL 1537442 (D. Haw. Apr. 27, 2012).
[166] *Gulf Fishermen's Ass'n*, 341 F. Supp. 3d at 641 (mirroring the dicta in *KAHEA 1* indicating that the court's decision may have been different had the WPFMC issued a rule, such as an amendment to an FMP, instead of the one-time permit).
[167] *KAHEA*, 2012 WL 1537442, at *11.
[168] *Id.*
[169] Gulf Fishermen's Ass'n v. Nat'l Marine Fisheries Serv., 968 F.3d 454, 469-70 (5th Cir. 2020) (Higginson, J. dissenting) (citing *KAHEA*, 2012 WL 1537442, at *8-10).

## VII. ASSERTION OF AUTHORITY #3: WESTERN PACIFIC MANAGEMENT COUNCIL

The Western Pacific Fishery Management Council (WPFMC) is responsible for managing the waters of the Pacific Islands of Hawaii, American Samoa, Guam, the Commonwealth of the Northern Mariana Islands, and a range of remote islands in the central and western Pacific.[170] The area of major concern for these fisheries is the special circumstances of regional coral reefs, and how to permit aquaculture operations without posing a risk to the extremely sensitive coral reef ecosystems. Previously, these operations were allowed through special permits. However, with recent developments there may be opportunities for these permits to be streamlined.[171]

The Pacific Islands Region (PIR) consists of American Samoa, the Commonwealth of the Northern Mariana Islands, Guam, and Hawaii. As alluded to previously, except for a few cultured species and types of gear used in the PIR,[172] offshore aquaculture operations in the PIR do not need to obtain any aquaculture-specific permits from NMFS. Therefore, offshore aquaculture facilities in the PIR, generally, are not subject to conditions to operate except for conditions placed in any applicable permits issued by other federal agencies, such as the RHA and CWA permits discussed above. Currently, there are only two offshore aquaculture facilities located in the PIR: one commercial operation in Hawaii state waters and one research facility in federal waters.[173] Thus, there are currently no commercial offshore aquaculture facilities located in federal waters in the PIR.

Through its PIR Regional Administrator, NMFS has a seat on the WPFMC.[174] With the help of this relationship, NMFS has been working with the

---

[170] 16 U.S.C. § 1852(a)(1)(H).
[171] Press Release, Western Pac. Reg'l Fishery Mgmt. Council, Federal Managers Agree to a US Pacific Island Marine Aquaculture Management Program (Mar. 15, 2018) http://www.wpcouncil.org/press-release-federal-managers-agree-to-a-us-pacific-island-marine-aquaculture-management-program-ecosystem-component-species-reclassification-15-march-2018/.
[172] 50 C.F.R. §§ 665.121, 665.221, 665.421, 665.621 (regulating the culture of Coral Reef Ecosystem Component Species (CRECS) through a Special Coral Reef Ecosystem Fishing Permit (SCREFP)).
[173] NAT'L MARINE FISHERIES SERVICE, PACIFIC ISLANDS AQUACULTURE MANAGEMENT PROGRAM, DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT 0648-XA867 21 (May 7, 2021) [hereinafter 2021 DPEIS-PIR].
[174] *Id.*

WPFMC to establish a formal aquaculture management program for the PIR, a process the WPFMC began in 2009.[175] NMFS hopes to establish a formal management program in the PIR to provide enhanced planning, coordination, and oversight; to mitigate the "proliferation of unmanaged aquaculture operations" in federal waters; and to "allow for sustainable development of offshore aquaculture."[176]Accordingly, NMFS undertook an initial step toward its goal: analyzing the environmental impacts of a potential regional aquaculture management program.[177] In 2016, NMFS published a notice of intent to prepare a PEIS on aquaculture management in the PIR.[178] Nearly six years later, in June 2021, NMFS issued a notice of availability of a DPEIS, which examines the environmental impacts of different potential comprehensive management alternatives for regulating offshore aquaculture in the PIR.[179] The action area for the programmatic assessment includes nearly 1.5 million square miles and accounts for half of the EEZ.[180]

If NMFS moves forward with one or two (out of the three) alternatives examined in the DPEIS, offshore aquaculturists would be required to obtain aquaculture-specific permits to participate in the suggested limited entry program in the PIR. The alternatives suggested in the DPEIS are:

1. A no-action alternative, under which NMFS would leave offshore aquaculture largely unmanaged in the PIR,

2. Establish a limited entry program with aquaculture-specific permits for currently managed species (those in the relevant pelagic or archipelagic Fishery Ecosystem Plan (FEP)), or

[175] In 2009, the WPFMC began soliciting public feedback and developing ideas for permitting schemes in the PIR. *Id.* at 25-26.
[176] *Id.* at 3, 19. NMFS also stated that the alternatives presented in the DPEIS "are intended to align with its Marine Aquaculture Strategic Plan." *Id.* at 24 (citing NOAA FISHERIES, MARINE AQUACULTURE STRATEGIC PLAN FY 2016-2020 (2015), https://media.fisheries.noaa.gov/dam-migration/noaa_fisheries_marine_aquaculture_strategic_plan_fy2016-2020.pdf).
[177] *See generally* 2021 DPEIS-PIR, *supra* note 173.
[178] A programmatic review under NEPA assesses the environmental impacts of proposed policies or programs at a broad or high (non-site specific) level. *Id.* at 3.
[179] Notice of Availability of a Draft Programmatic Environmental Impact Statement for Surveying and Mapping Projects in U.S. Waters for Coastal and Marine Data Acquisition, 86 Fed. Reg. 33663 (notice issued June 25, 2021).
[180] 2021 DPEIS-PIR *supra* note 173, at 18.

3. Establish a limited entry program with permits for a broader range of cultured species (but still limited to native species) and longer permit durations.[181]

The alternative selected would be incorporated in the WPFMC's FEPs. Notably, the second and third alternatives both prohibit the culture of non-native species through offshore aquaculture without a permit, a regulatory control not currently in place in the PIR and thus not available under the first no-action alternative in the DPEIS.[182]

## VIII. CONCLUSION

The Fifth Circuit *Gulf Fishermen's* decision rejecting NMFS' assertion of authority over aquaculture management in the Gulf of Mexico under the MSA does not mark the end of NOAA's attempts to regulate offshore aquaculture. While the Gulf Council was the first regional fishery management council to attempt to craft an FMP that regulates offshore aquaculture, it most likely will not be the last. As mentioned above, an opinion by one circuit court is not binding on another. Consequently, regional management councils in other regions may rely on the NOAA Office of General Counsel's 1993 opinion to draft and submit aquaculture FMPs. Some fishery management councils have already begun such work. In addition to the Western Pacific Fishery Management Council's efforts related to an aquaculture management plan for the PIR, the North Pacific Fishery Management Council has begun developing a regional aquaculture team to help craft mapping tools for aquaculture siting.[183]

Because the Fifth Circuit *Gulf Fishermen's* decision is not binding on other circuits, recent developments invite the following questions:

- How would the Ninth Circuit rule on fishery ecosystem plans created by the Western Pacific Fishery Management Council and implemented by NMFS that manage aquaculture in the region?

[181] *Id.* at 3-4, 40 (The second "alternative would only permit [the culture of] native species managed by the WMPFMC." Managed species are those listed in the relevant Archipelagic or Pelagic FEP as a management unit species (MUS) or Ecosystem Component Species (ECS)).
[182] *Id.* at 3-4, 174 (Therefore, the second and third alternatives would mitigate the detrimental health effects of introducing non-native species to the regional ecosystems).
[183] NAT. OCEANIC & ATMOSPHERIC ADMIN., ALASKA GEOGRAPHIC STRATEGIC PLAN 2020 – 2023 9 (2020).

- More specifically, would the Ninth Circuit strike down the foreseeable Pacific Islands Region (PIR) aquaculture management plan which is anticipated to be incorporated into the WPFMC's Fishery Ecosystem Plans (FEPs)?

Based on the district court's reasoning in *KAHEA 1*, a decision to incorporate aquaculture management into FEPs—which are like FMPs but are more comprehensive ecosystem management plans rather than species-specific plans—might present legal trouble for NMFS in the Ninth Circuit.[184] If NMFS implements one of the new management alternatives proposed in its DPEIS, those regulations could be challenged in court, and accordingly, struck down as outside of NMFS' MSA authority. In this situation, when NMFS' potential rule comes in front of a district court in the Ninth Circuit, the court would be forced to address the question the district court in KAHEA 1 did not—whether aquaculture, generally, is "fishing" under the MSA, not simply whether one aquaculture project is "fishing."

A district court hearing a challenge to an aquaculture management program in the PIR might determine that the aquaculture permits available under the FEP(s) govern activities that constitute "harvesting" fish—depending on the gear type, species, and methods of growing fish. It would follow that so long as the FEP(s) include aquaculture permitting measures for processes that fit the definition of "harvesting"—for instance, the dictionary definitions relied on by NMFS in *KAHEA 1*—then the Ninth Circuit could find that the plain meaning of "harvesting" in the MSA includes aquaculture, and thus approve any relevant future NMFS implementing regulations. In this situation, the Ninth Circuit and Fifth Circuit interpretations would be at odds, a circuit split is possible, and the U.S. Supreme Court could be called on to resolve the matter.

Deference would also play a crucial role in a potential lawsuit in the Ninth Circuit. The Ninth Circuit Court of Appeals, when it addressed *KAHEA 1* on appeal, indicated that even if the court could not employ *Chevron* deference because NMFS' issuance of the SCREFP was not a rule, NMFS satisfied *Skidmore* deference—the type of deference appropriate when analyzing agencies' more informal actions like interpretive rules or guidance documents. Under *Skidmore* deference, a court will defer to an agency's reasoning if it is persuasive

[184] *See* 2021 DPEIS-PIR, *supra* note 173. Two alternatives proposed in the DEIS would establish an aquaculture permitting program in the PIR. The WPFMC has adopted a more place-based management framework through FEPS, rather than the traditional species-based framework seen in FMPs.

enough in the court's view.[185] NMFS' reasoning in *KAHEA 1* was persuasive enough to warrant a metaphorical green light from the Ninth Circuit, which deferred to NOAA's interpretation of the definition of fishing under the MSA to regulate individual aquaculture projects under special circumstances.[186] Despite this, questions still remain:

- Will the dicta in the *KAHEA 1* district court opinion indicating that the court may have ruled differently if NMFS had instead offered the same interpretation as part of its decision to implement an amendment to a FMP instead of a one-time permit come into play?

- Would a Ninth Circuit court be swayed by the *Gulf Fishermen's* decision?

In the end, the Fifth Circuit *Gulf Fishermen's* decision may mark a defeat for NOAA, but it does not spell the end of NOAA's involvement in offshore aquaculture. AOAs are small, defined areas that show high potential for commercial aquaculture. AOAs prioritize expanding economic opportunities for coastal communities, finding sustainable spaces for aquaculture, and minimizing interactions with other marine resource users, such as cargo, fishing, and military vessels. The NOAA Office of Aquaculture has already announced AOA evaluations in southern California and the Gulf of Mexico. NOAA is not currently accepting comments on these AOAs, as the exact locations have not been announced yet. The comment period for the PIR DPEIS closed on August 5, 2021. Future agency action related to the AOAs or the Pacific Islands aquaculture program will be subject to public notice and comment requirements in the Federal Register.

[185] KAHEA v. Nat'l Marine Fisheries Serv., 544 F. App'x 675, 675, ¶ 3 (9th Cir. 2013).
[186] *Id.*