

New England Fishery Management Council

Aquaculture Policy

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Introduction

NOAA Fisheries defines aquaculture as “the breeding, rearing, and harvesting of fish, shellfish, algae, and other organisms in all types of water environments”¹. Aquaculture activities occur in onshore, nearshore, and offshore environments. Construction and operation of aquaculture facilities can have both positive and negative impacts on marine habitats, species, and fisheries. Various state and federal agencies are involved in permitting aquaculture projects. Potential impacts are considered during the siting and environmental review process, and in many cases are able to be mitigated via project siting or design choices. NEFMC’s [Aquaculture Background Document](#) provides more information on current and future aquaculture activities in the New England region, the process for permitting aquaculture projects, and the potential impacts of aquaculture on marine fishery species and their habitats.

The NEFMC’s Habitat Policy ([Operations Handbook](#), page 42) recognizes that all species are dependent on the quantity and quality of their habitat, and therefore establishes that the NEFMC shall assume an active role in the protection of such habitats. As required under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) implementing regulations (CFR Part 600 Subpart J), the NEFMC designates essential fish habitat for each of the species it manages, and for some species and in some locations, identifies habitat areas of particular concern. Part 600 Subpart K of the MSA regulations detail NOAA Fisheries and Regional Fishery Management Council responsibilities to consult with federal agencies when their activities may affect essential fish habitats. Beyond habitat considerations, as a steward of the species it manages, the NEFMC has an interest in ensuring that these species are not negatively affected by non-fishing activities occurring in the marine environment. The NEFMC also has an interest in promoting safe operation of commercial and recreational fisheries for these species. To this end, the Council provides input and guidance on the conduct of other marine activities in a way that promotes compatibility with fishing.

Given the NEFMC’s regulatory responsibilities, interests, and expertise, the Council is committed to consulting with NOAA Fisheries, other federal and state agencies, and aquaculture developers to ensure that aquaculture activities in New England are developed in a manner that is compatible with the protection of Council-managed species and their habitats, and with commercial and recreational fishing activities. This includes but is not limited to providing input on project siting or design, based on the

¹ NOAA (2019). What is aquaculture? <https://oceanservice.noaa.gov/facts/aquaculture.html>

following list of considerations and best management practices. Consultation should take an “early and often” approach, whenever possible, to communicate concerns during the design phase, thus increasing opportunities for modification, rather than mitigation, of impacts. Given that Council-managed species and their EFH occur both nearshore and offshore, projects in various locations and of both smaller and larger scales are of interest to the Council. Because individual aquaculture operations do not occur in isolation from one another, or from other types of development, it is important to consider the potential for cumulative effects when siting and designing projects. The Council recognizes that, like wild capture fisheries, aquaculture contributes to food production and food security, and that aquaculture is a valid and valuable use of the coastal zone and the EEZ.

The primary audience for this policy is the Council itself, as it engages in these consultations. Secondary audiences include NOAA Fisheries, other federal agencies, state agencies, fishermen, aquaculture developers, and other members of the public.

Specific considerations and best management practices

The remainder of this policy is organized around general, higher-level principles for project design, followed by specific considerations and best management practices. The general principles encompass the Council’s major areas of concern. The lists of specific considerations are not exhaustive but provide examples of best practices. Generally, projects should comply with local, state, and federal permitting guidelines, and adhere to existing best management practices relevant to the type of operation being considered (see background document for a list of BMP resources). Where BMPs cannot be met, proponents should provide a rationale as to why in the application materials.

1. General principle: Aquaculture projects should be sited and designed in the context of ecosystem functions and services, including biodiversity, with no degradation of these beyond their resilience.
 - a. Siting should consider the intersection between aquaculture facilities and designated essential fish habitat and habitat areas of particular concern and avoid installations in areas where adverse effects are more than minimal or more than temporary. Developers and action agencies should document how conclusions regarding magnitude and duration of impacts were reached.
 - b. Siting should consider interactions with fishery management areas including those designated for habitat and spawning protection and consider whether installation compromises achievement of these conservation objectives, with a particular focus on maintaining function of rocky habitats.
 - c. Siting should consider oceanographic conditions such as currents, waves, and the potential for severe weather. For projects producing effluents, modeling should be conducted to ensure adequate dispersal of wastes. In addition, structures should be designed to withstand routine and historic weather events to minimize the risk of escapement of cultured animals and formation of marine debris from storm related damage.

- d. Siting should avoid marsh and seagrass habitats to minimize adverse effects on these habitats. Allow for a buffer between these habitats and any infrastructure where possible, as recommended by state and federal resource managers. If sensitive habitats such as seagrasses cannot be avoided, consider whether an alternative type of gear could be used to minimize effects. Specific to seagrasses, since these habitats are reduced relative to their historic distribution but recovering in some locations due to water quality improvements, siting should ideally avoid locations where these habitats historically occurred. Current site conditions should be confirmed via on-site inspection. State resource managers can provide information about past habitat distributions. Because resource managers are interested in the restoration of habitat value associated with seagrass, operators should communicate if they notice that seagrasses are regrowing at the site, so that operational impacts to seagrasses can be minimized.
 - e. Siting should avoid habitat types and other resources including existing shellfish beds that could be sensitive to the discharge of organic material or effluent from aquaculture operations. Even if facilities are installed in the water column, discharges could affect both the water column and seabed near or below the facility.
 - f. Siting should avoid areas where coral and sponge habitats occur, including within the Council's coral protection zones. Anchoring of vessels and grow out structures, as well as deposition of organic material, could negatively impact deep-sea corals and sponges, which are in many cases long-lived and fragile. These habitats are spatially rare and therefore possible to avoid. NOAA Fisheries can serve as a resource in terms of identifying coral habitats.
 - g. In addition to relying on existing data, site surveys may be required to determine exactly where specific habitats occur.
2. General principle: Adopt operational practices that minimize adverse environmental effects wherever possible.
- a. All proposed gear and structures should be designed and secured in a manner sufficient to withstand routine and episodic site conditions in order to reduce the risk of creating marine debris or other hazards that could result in negative interactions with sensitive habitats, vessels, and/or marine species.
 - b. If the addition of unconsolidated materials or fill (e.g. sediments, cultch) is proposed, ensure they are compatible with those naturally occurring at the site.
 - c. Minimize indirect impacts (i.e. increased turbidity and siltation in adjacent areas, access through sensitive areas, etc.) associated with maintenance and harvest activities.
 - d. Gear maintenance and husbandry practices should be conducted in a manner that minimizes the potential for culled and fouling organisms to negatively impact sediment and water quality or exacerbate the spread of invasive species.
 - e. Disease testing and other practices should be adopted to minimize the risk of the introduction or spread of shellfish or fish diseases or parasites that could negatively impact wild populations.

- f. Use only native or naturalized species unless the best available science demonstrates that the use of non-native or other species would not cause undue harm to wild species, habitats, or ecosystems, in the event of an escape.
3. General principle: Development should consider the cumulative effects of multiple aquaculture facilities on the ecosystem, within the context of ecosystem change and resilience.
 - a. Resilience refers to both the aquaculture operation itself and the associated ecosystem perturbations.
 - b. Consider whether there is a synergistic relationship with other ocean uses.
4. General principle: Aquaculture should improve human well-being with equity for all relevant stakeholders.
 - a. Project design and siting should consider issues such as coastal access rights and fair shares of incomes across sectors.
5. General principle: Aquaculture operators should contribute positively to local and regional coastal communities. This could include actions such as:
 - a. Creating jobs in coastal communities.
 - b. Supporting traditional fishing communities.
 - c. Revitalizing working waterfronts.
 - d. Restoring depleted species and habitats.
 - e. Supporting efforts to reduce runoff and improve coastal water quality at both local and regional scales.
6. General principle: Aquaculture should be developed in the context of other sectors, policies, and goals.
 - a. Planning and zoning should consider safety and compatibility with other marine operations.
 - b. Aquaculture siting should rely on high-quality information about both regional and local environmental conditions and the distribution and characteristics of other human uses in the area.
 - c. Facilities should be sited to avoid well-known vessel transit lanes, including those used by fishermen.
 - d. Facilities should be sited to avoid fishing grounds, considering such factors as the number of individuals participating in commercial or recreational fishing, the type of fishing gear used, the number of fishing days, and the amount of harvest. Developers should consider multiple years of fishery usage data to determine overlaps, as fishing activities can vary over time.
 - e. Facilities should be physically marked to be visible from a vessel approaching the site, in accordance with state and U.S. Coast Guard guidelines. Facilities should also be marked on electronic navigational charts as appropriate.
 - f. Pilot or demonstration-scale projects are encouraged to better evaluate impacts of novel types of operations (e.g. species not previously cultured in the region, or in locations not previously used for aquaculture).

7. General principle: Clear and ongoing communication between all parties is important. These parties include fishery management councils, commercial and recreational fishermen, developers, regulating and consulting agencies, and members of the public.
 - a. Information about the project should be provided to the public (including the Council and its stakeholders) during the project design phase to allow for early input and mitigation of impacts to fish habitats and fisheries.
 - b. Aquaculture developers should consult with the fishing community, early and often, when identifying potential sites. Organizations like the NEFMC, NOAA Fisheries, ASMFC, or state agencies may be able to provide information on spatial distribution of fishing activity at broad scales, but local fishing organizations will be important contacts when determining use patterns at spatial scales relevant to aquaculture projects.
 - c. Permitting agencies should consider the need for public scoping sessions during the siting process to understand the concerns that stakeholders may have.
 - d. Permitting agencies and developers should describe how project design choices avoid or mitigate impacts on fish, fish habitats, and fisheries.
 - e. Developers should provide advisories about at-sea construction, survey, and maintenance operations to mariners.