

## 1.1 Description of the Alternatives

In an environmental review document, NMFS must assess the environmental impacts of a proposal and reasonable and feasible alternatives to the proposal in comparative form. The purpose of this comparison of alternatives is to provide NMFS and the public with a clear basis for choosing among the alternatives. Alternative 1 is the No Action Alternative, as required under 40 CFR 1502.14. The No Action Alternative provides a benchmark, to compare the magnitude of environmental effects of the action Alternatives 2 and 3.

NMFS developed the following alternatives, in part, based on the values and objectives expressed through public comments received during a scoping period from August 23 through October 31, 2016, as described in Section 2.1. Appendix A is the Scoping Report. The alternatives capture those values and objectives while remaining consistent with the Magnuson-Stevens Act and other applicable federal law (see Section 1.4). Analysis of the effects of the proposed alternatives is presented in Chapter 4.

Any aquaculture program, if implemented, must provide sound conservation of the living marine resources, and socially and economically viable fisheries and fishing communities; minimize human-caused threats to protected species; and maintain healthy habitats for marine resources. The action Alternatives 2 and 3 must achieve the objectives stated in the purpose and need Section 1.1 without violating the federal environmental statutes and regulations described in Section 1.4.

### Alternative 1: No Action

Under the No Action Alternative, NMFS would not develop a specific aquaculture management program. However, NMFS would continue to require aquaculture permits under certain conditions. For example, for species classified as coral reef ecosystem component species (CRECS) in 50 CFR §§665.121, 665.221, 665.421, and 665.621, NMFS would continue to require a special coral reef exempted fishing permit (SCREFP) to conduct aquaculture in federal waters (i.e., waters of the U.S. EEZ from 3-200nm offshore) as described in 50 CFR §665.13 and subsequent archipelagic regulations for American Samoa, Hawaii, the Marianas, and the PRIA. This special permit allows harvesting CRECS with gear that is not otherwise authorized, and may include conditions to control, monitor, and mitigate potential environmental effects. For species classified as a management unit species (MUS), NMFS would continue to require an Exempted Fishing Permit (EFP) as provided at 50 CFR 600.745. Permits are not currently required for species that are neither classified as CRECS nor MUS. Section 1.1.3 below provides more information on SCREFPs and EFPs.

### Alternative 2: Restricted Aquaculture Management Program

Under Alternative 2, the FEPs and regulations would be amended to establish a restricted aquaculture management program including permit, application, and operational requirements based on expected level of operation. However, this management program would be based on current aquaculture activities in the PIR, only allow culture of current FEP MUS, and thus more limited with regard to gear types and species than Alternative 3. This alternative would also provide a streamlined avenue for navigating permitting processes with other relevant agencies.

### Alternative 3: Comprehensive Aquaculture Management Program

This alternative would establish a more comprehensive aquaculture management program. Like Alternative 2, it would include aquaculture permit, application, and operational requirements, and a streamlined avenue for navigating permitting processes. Beyond Alternative 2, this alternative would allow for culture of any native species and encompass research and innovation activities.

### Alternatives Considered and Rejected from Further Analysis

Following NEPA and related guidance (NAO 2016-6A), as well as other laws, key reasons for eliminating an alternative is that it does not meet the purpose and need of the proposed action; is not

**Commented [TS1]:** Note for discussion: OAQ flagged references to MSA as something to minimize where possible in case we lose the Gulf case.

**Commented [MF2]:** Need to decide whether we are going to say "federal waters" or "waters of the U.S. EEZ" and then use it consistently throughout. "Waters of the U.S. EEZ is cumbersome. Maybe define "federal waters" early on to include U.S. EEZ and then stick with it.

**Commented [TS3R2]:** Agreed; changed to federal waters throughout.

**Commented [MF4]:** Do we need to describe which MUS? E.g., Pelagic Fisheries FEP MUS?

**Commented [TS5R4]:** I lean towards not having further description, but we can chat about it if you like.

**Commented [MF6]:** Is this correct? If so, I've tried to include reference to Non-CRECS/Non-MUS species in the Table.

**Commented [TS7R6]:** Yup!

**Commented [MF8]:** If they don't have to be at the end of Ch. 2, like the rejected, environmentally preferred and preferred alternatives sections up front to get them out of the way rather than at the end.

**Commented [TS9]:** How important is it that we address each and every alternative raised in scoping an rejected? I'd be down to fill this section out more if it seems necessary, or we can just redirect to the scoping appendix?

**Commented [BDS10R9]:** I don't think it has to be exhaustive, especially if an option wasn't really "considered." It seems fine to me to redirect to the appendix if that will be a place to make sure ideas from scoping are reported.

**Commented [MF11]:** This may require more an understandable citation.

**Commented [TS12R11]:** I've simply removed it; that order does offer the broad guidance but I'm not convinced we need to reference it here.

**Commented [MF13]:** The single term "laws" encompasses both statutes and regulations/rules.

"reasonable" or "practicable"; or does not reduce environmental impacts when compared to the proposed action. For fishery management actions, "reasonable alternatives" are those derived from the statement of purpose and need of the action, in context of the MSA's National Standards and requirements of other applicable laws, and which satisfy, in whole or substantial part, the objectives of the proposed action. Alternatives that are impractical, remote, speculative, or would otherwise not achieve stated purposes and needs are not "reasonable alternatives."

#### *Aquaculture of Non-native Species or Non-Management Unit Species*

NMFS considered, but eliminated, an alternative that would allow aquaculture of non-native species that are not native to the PIR or species not listed in the FEP. Evidence of the detrimental effects of non-native species on ecosystems supports the concern shared by NMFS that this type of alternative could pose significant risk to the health of the PIR ecosystem. These risks and the likelihood of escapes are reduced or avoided by only allowing native, non-genetically engineered and non-transgenic species for culture. For these reasons, NMFS eliminated this as a potential alternative.

#### *Prohibiting Aquaculture Operations in Federal Waters*

Prohibiting aquaculture would not supplement the harvest of domestic fisheries with cultured product nor would it help the U.S. meet consumers' growing demand for seafood and reduce the Nation's dependence on seafood imports. This alternative would not meet the purpose and need of the action and was, therefore, rejected.

#### **Environmentally Preferable Alternative**

An environmentally preferable alternative is one that best meets the goals set forth in Section 101 of NEPA (42 U.S.C. 4331) because it causes the least damage to biological and physical environments and "best protects, preserves, and enhances historic, cultural, and natural resources" (50 FR 15618). In consideration of an agency's statutory mission, the environmentally preferable alternative may not be the agency-preferred alternative. The environmentally preferable alternative would be identified in the Final PEIS.

#### **Identifying a Preferred Alternative**

NEPA guidance directs an agency to identify a preferred alternative in the Final EIS "unless another law prohibits the expression of such a preference" (40 CFR 1502.14(e)). NMFS would identify a preferred alternative in the Final PEIS and subsequent Record of Decision (ROD). Although not required, cooperating agencies have the option to identify separate agency-preferred alternatives, which could also be identified in the Final PEIS.

#### **1.2 Comparison of Alternatives**

Table 2-2 is a side-by-side comparison of the three alternatives. Following that is a discussion of the details of Alternatives 2 and 3, with Alternative 1 included where relevant for comparison purposes.

**Commented [KT14]:** Consider adding the definition of "reasonable" from appendix c of the companion manual: "For fishery management actions, "reasonable alternatives" are those derived from the statement of purpose and need of the action, in context of the MSA's National Standards and requirements of other applicable laws, and which satisfy, in whole or substantial part, the objectives of the proposed federal action. Alternatives that are impractical, or would not achieve stated purposes and needs, as identified by the FMC, or not meet NMFS's statutory, regulatory and policy requirements, are not "reasonable alternatives." "

**Commented [MF15]:** I like having this comparison table early rather than having to wait until the end to get the overall picture. I tried to trim out some stuff and make it as short as possible. Maybe it can be shortened even more.

**Commented [BDS16]:** I haven't read through to see how it goes, but I've been told in other NEPA that the first comparison is always to the no action/baseline alternative, so you want to compare everything to that first and then to the other alternatives.

**Table 1 Comparison of Alternatives**

Component	Alternative 1. No Action	Alternative 2. Restricted Aquaculture Program	Alternative 3. Comprehensive Aquaculture Program
<b>Permit Requirement</b>	<p>CRECS: SCREFP may include terms and conditions to control, monitor, and mitigate potential environmental effects; and others required by law on a case-by-case basis.</p> <p>MUS: EFP may include terms and conditions to control, monitor, and mitigate potential environmental effects; and others required by law on a case-by-case basis.</p> <p>All others: No NMFS aquaculture permit required for non-coral reef ecosystem and non-MUS in federal waters. Review and permitting by other agencies (e.g., USACE, EPA, USCG) requires NMFS coordination for protected species, essential fish habitat and other relevant laws.</p>	<p>Permit required in federal waters of the Pacific Islands Region. Would authorize facility siting and operation, and possession, transport and sale of cultured species.</p>	<p>Same as Alt. 2.</p> <p>Additional option for research and innovation permits.</p>
<b>Permit Eligibility</b>	U.S. citizen, U.S. national or resident alien.	Same as Alt. 1.	Same as Alt 1.
<b>Permit Transferability</b>	Transferable to qualified applicant.	Same as Alt 1.	Same as Alt 1.
<b>Permit Duration and Renewal</b>	<p>CRECS: SCREFPs are short-term, with opportunities for renewal.</p> <p>MUS: EFP duration is typically 1 or 3 years with opportunities for renewal depending on species, gear type and location</p> <p>All others: No permits, no limits on duration.</p>	<p>Effective up to 10 years. Unlimited renewal if in good standing.</p>	<p>Commercial permits: Effective up to 20 years. Unlimited renewal if in good standing.</p> <p>Research and innovation permits: Effective up to 3 years with option for one renewal of 3 years.</p>
<b>Dealer Permit</b>	No dealer permit required	Dealer permit required for purchasing cultured organisms. Non-transferable.	Same as Alt. 2.
<b>Program Capacity</b>	No limit to the number of permits that may be issued.	No limits to the number of permits that may be issued.	Limited entry program. Capacity criteria could include location, density, type and amount of fish, harvest timing.

**Commented [MF17]:** Let's number tables sequentially throughout the entire document, i.e., 1, 2, 3, etc. and not have any reference to which Chapter they come from.

**Commented [TS18R17]:** The only downside to numbering sequentially for the whole document is that I think we'll have to wait until we've completely finished all the chapters before we update the in-text citations

**Commented [MF19]:** Not sure if I got differences between CRECS, MUS and all others correct in each cell where they appear under Alt. 1. Please check.

**Commented [BDS20]:** Under 508 compliance rules, tables aren't supposed to have merged cells. That makes it harder to make efficient use of space, but if two adjacent cells would have the same response, I write everything in the first cell and then in the second cell just write something like, "Same as Alt. 2"

Component	Alternative 1. No Action	Alternative 2. Restricted Aquaculture Program	Alternative 3. Comprehensive Aquaculture Program
General Application Requirements	Application requirements can be found at the permits website: <a href="https://www.fisheries.noaa.gov/pacific-islands/resources-fishing/pacific-islands-fishing-permits">https://www.fisheries.noaa.gov/pacific-islands/resources-fishing/pacific-islands-fishing-permits</a>	<ul style="list-style-type: none"> <li>• Applicant information;</li> <li>• Detailed descriptions of site, systems, feeding;</li> <li>• Assurance bond and decommissioning plan;</li> <li>• Emergency plan;</li> <li>• Aquatic animal health plan;</li> <li>• Veterinarian identification and commitment.</li> </ul>	Same as Alt. 2.
Permit Application and Review Process	Application process can be found at the permits website: <a href="https://www.fisheries.noaa.gov/pacific-islands/resources-fishing/pacific-islands-fishing-permits">https://www.fisheries.noaa.gov/pacific-islands/resources-fishing/pacific-islands-fishing-permits</a>	<ol style="list-style-type: none"> <li>1. Pre-Application Screening</li> <li>2. Application Review</li> <li>3. Public Comment</li> <li>4. Council Consultation</li> <li>5. Determination on Permit Issuance</li> <li>6. Permit Issuance and Operational Phase</li> </ol>	<p>Same as Alt. 2.</p> <div style="border: 1px solid red; padding: 5px; margin-top: 10px;"> <b>Commented [TS21]:</b> Need to add in for CRECS and SCREFP     </div> <div style="border: 1px solid lightblue; padding: 5px; margin-top: 10px;"> <b>Commented [MF22R21]:</b> And EFP     </div>
Siting Restrictions	<p>CRECS: Siting specified in SCREFP.</p> <p>MUS: Siting specified in EFP.</p> <p>All others: Review and permitting by other agencies requires NMFS coordination for protected species, essential fish habitat and other relevant laws.</p>	<p>Prohibited where all commercial fishing is prohibited.</p> <p>Restrictions or prohibition near or within critical habitat, artificial reefs, special management areas, military training/transit areas, tidal buoys, legal FADs, or commercial shipping lanes.</p> <p>Other restriction criteria may include, amongst others, depth, current, bottom type, wildlife attraction, potential algal blooms or hypoxia, or migratory pathways.</p> <p>Potential to establish a limited number of aquaculture opportunity areas throughout the PIR based on likelihood of economic viability, site suitability, and interest.</p>	<p>Same as Alt. 2.</p> <div style="border: 1px solid lightblue; padding: 5px; margin-top: 10px;"> <b>Commented [BDS24]:</b> I tried to split cells for 508 compliance, though I'm not sure if this is still correct as far as the details for Alt 3 in particular.     </div> <div style="border: 1px solid lightblue; padding: 5px; margin-top: 10px;"> <b>Commented [MF23]:</b> Why not have this here and not just in Alt. 3?     </div>
Allowable Marine Aquaculture Systems	<p>CRECS: Specified in SCREFP.</p> <p>MUS: Specified in EFP.</p> <p>All others: Review and permitting by other agencies requires NMFS coordination for protected species, essential fish habitat and other relevant laws.</p>	Only cages and net pens of specific construction and ranges of sizes would be authorized in federal waters.	No specific prohibitions. Applicants must submit detailed information to evaluate functionality, safety, risks to habitat, protected species, wild stocks, public health or safety, or other considerations.

<b>Component</b>	<b>Alternative 1. No Action</b>	<b>Alternative 2. Restricted Aquaculture Program</b>	<b>Alternative 3. Comprehensive Aquaculture Program</b>
<b>Allowable Species</b>	<p>CRECS: Specified in SCREFP.</p> <p>MUS: Specified in EFP.</p> <p>All others: No restrictions on species.</p>	<p>Only native MUS or ECS in the applicable FEP could be cultured. Culture of non-native species would be prohibited.</p> <p>May be limited to only species that have been previously cultured or likely to be successfully, sustainably cultured.</p>	Any native species could be cultured. Culture of non-native species would be prohibited.
<b>Record Keeping and Reporting Requirements</b>	<p>CRECS: Specified in SCREFP.</p> <p>MUS: Specified in EFP.</p> <p>All others: No NMFS requirements unless required by other applicable law including, but not limited to, protected species, essential fish habitat, etc.</p>	<p>Record keeping and monitoring required consistent with the operation plan requirements and as appropriate to the level of operation.</p> <p>Required records could include, amongst others, production, escapes, recapture, disease outbreaks, broodstock harvest, water quality monitoring, protected species interaction, safety issues, gear conflict issues, feed and seed records, gear failure,</p>	Same as Alt. 2.
<b>Aquaculture Advisory Panel (AAP)</b>	N/A	N/A. NMFS, Council and SSC to evaluate aquaculture proposals.	<p>AAP established to provide guidance and recommendations on:</p> <ul style="list-style-type: none"> <li>• The marine aquaculture program and proposed projects;</li> <li>• Annual production levels;</li> <li>• Effects on environment, protected species, habitat; and</li> <li>• Related economic and social considerations.</li> </ul>

### **1.2.1 Permits**

#### **Permit Requirements**

Permits are frequently required in fisheries to identify participants, limit entry, and restrict fishing activities. As described in Chapter 1, NMFS, EPA and USACE all have permitting responsibilities for offshore aquaculture operations.

*Alternative 1:* A SCREFP would be required for species classified as a coral reef ecosystem component species, an EFP would be required for species classified as MUS, and no aquaculture permit would be required for other species that do not fall within these categories. Examples of potential aquaculture species requiring a SCREFP or EFP include, but are not limited to tunas, jacks and snappers. Information regarding the species classified as MUS and coral reef ecosystem component species can be found at the West Pacific Regional Fisheries Management Council website (<http://www.wpcouncil.org/>). Additional information about permit requirements can be found at the NOAA NMFS permit webpage (<https://www.fisheries.noaa.gov/pacific-islands/resources-fishing/pacific-islands-fishing-permits>).

*Alternatives 2 and 3:* Under these alternatives, the implementation of an aquaculture-specific permit would place NMFS as the lead agency in the management of aquaculture in PIR federally managed waters.. This regulatory requirement is intended to aid law enforcement and ensure that landings are reported and accounted for when determining compliance with the Magnuson-Stevens Act.

One aquaculture permit would be required for conducting offshore marine aquaculture in federal waters. Permits would authorize deployment of approved gear; operation of the approved facility at the approved site; harvest, possession, transport, landing, and sale of allowable aquaculture species.. Any vessel, aircraft, or vehicle authorized for use in aquaculture operations would be required to have a copy of the permit on board to assist law enforcement in determining compliance with aquaculture regulations.

*Additional for Alternative 3:* There will be an option for a research permit, which can be utilized as a stepping-stone to a full operational permit. Restrictions for this permit are discussed in the subsequent sections.

#### **Eligibility and Transferability**

*Alternatives 1, 2, and 3:* Any U.S. citizen, U.S. nationals, or permanent resident is eligible to apply for an aquaculture permit(s). All permits issued would be transferable. Permit transferability requires written notice to the NMFS Regional Administrator (RA) for the PIR. Permits may only be transferred to U.S. citizens, U.S. nationals, or permanent residents.

#### **Permit Duration and Renewal**

Permit duration would depend on request of applicant and nature of operation, species, previous experience, and potential environmental effects. Permits could be revoked at any time if permit conditions are not met. Duration and timing would be coordinated with other corresponding permit durations. Permits may be renewed for applicants in good standing. There is no limit on the number of times a permit may be renewed.

*Alternative 2:* Permits could be issued and renewed for terms of up to 10 years each.

*Alternative 3:* Permits could be issued and renewed for terms of up to 20 years each, except for research permits that could be issued and renewed for terms of up to 3 years each.

A permittee must submit a completed renewal application form and all required supporting documents to NMFS at least 180 days prior to expiration of an existing permit. Information required for a renewed permit would be streamlined for a permittee that is in good standing. Depending on scope, a permit

**Commented [MF25]:** Do we need to add a few sentences here to give a bit more description of SCREFPs and EFPs, some examples of the kinds of fish and invertebrates fall within coverage of each, and a reference of somewhere to find additional information on CRECS/SCREFPs and MUS/EFPs?

**Commented [TS26R25]:** Great idea! I added a bit in here; that permit page link is really long and I'd maybe vote to have them both be inserted as footnotes.

modification may require information and review similar to the initial permit application as described below.

#### **Dealer Permit**

Non-transferable dealer permits would be required for anyone purchasing cultured organisms from a permitted facility for resale. Dealer reporting requirements would be analogous to existing requirements for dealers in the Pacific Islands and will be coordinated with analogous permits from regional and local (e.g., state and territorial) authorities.

#### **Program Capacity**

##### *Alternative 2: No limit*

There would be no limit to the number of aquaculture permits approved.

##### *Alternative 3: Limited entry permitting program*

Under this option, NMFS can restrict the number of permits issued. This could be done on a region-wide basis or by sub-regions (e.g., for each island area). As with other fisheries, the number of permits may be modified based on new information developed as aquaculture proceeds. This could include establishing a limit on participation, timing of fish harvest, amount of fish allowed for culture on an annual basis (i.e., production cap), cultured species, location, or density of the activity (i.e., how many facilities within an area).

Research permits would be limited to a set value (e.g., volume) for production units.

#### **General Application Requirements**

Applications must include, but are not limited to, the following:

- Applicant name, address, telephone number;
- If applicable, business name, address, telephone number, date that the business was formed;
- Description of the exact location and dimensions of proposed aquaculture site (e.g., center GPS coordinates, map of proposed site to scale);
- The objectives of the aquaculture activity for which the permit is needed, including:
  - Description of the species intended for culture, including anticipated annual production (e.g., number and weight);
  - Detailed description of the aquaculture systems and equipment to be employed;
  - Detailed description of all supporting equipment to be used for maintenance, transport, inputs (e.g., feed) and personnel;
  - Contact information and location of each feed supplier that will provide feed to the project;
  - Contact information and location of each hatchery that will provide juveniles to the facility; and
  - General description of the expected disposition of the resources harvested under the permit (e.g., stored live, fresh, frozen, preserved, sold for food, ornamental, research, or other use).
- For operations where broodstock will be collected from the wild:
  - A comprehensive description of the planned fishing operations, including duration, location of fishing, gear types and operations, species expected to be harvested, and anticipated total catch for the purposes of broodstock on an annual basis;

- Certification that any broodstock collected for culture at the facility would be harvested from the same population or subpopulation (based on the best scientific information available) from federal waters of the same region where the facility is located;
- Documentation that broodstock would be marked or tagged at the hatchery (e.g., via a Passive Integrated Transponder, coded wire, dart, or internal anchor tag); and
- Catch of wild-caught broodstock would count towards catch limits implemented by NMFS under the Magnuson-Stevens Act for MUS
- Documentation of an assurance bond and decommissioning plan.
- An emergency response plan, including a contingency plan for escaped cultured fish.
- An aquatic animal health plan with evidence of approval from an accredited veterinarian.
- Copy of a contractual arrangement with an accredited veterinarian, and a commitment that the following assurances will be made:
  - Certification that no genetically engineered or transgenic species would be used for culture; and
  - Certification that juveniles are free from pathogens of concern (defined as any OIE-listed pathogens or emerging pathogens) prior to stocking.
- Any other information concerning the aquaculture facility or its operations or equipment, as specified on the application form.

### Permit Application and Review Process

The process for obtaining permits to establish an offshore aquaculture operation in federal waters would have six basic steps:

1. Pre-Application Screening. A pre-application checklist will be developed prior to program implementation. Prospective applicants would provide information outlined in the checklist to the NMFS Regional Aquaculture Coordinator (coordinator), who would forward this information to other federal permitting and authorizing agencies for review and comment. The coordinator will collect all agency comments and return them to the applicant. At the applicant's request, the coordinator may also schedule a pre-application meeting with NMFS and other applicable agencies, during which time agencies and the applicant discuss any questions or concerns about the proposed project and guidance regarding application process. Following the pre-application step, the applicant may prepare and submit a permit application in the form provided by NMFS.
2. Application Review. A completed aquaculture permit application and required supporting documents submitted to NMFS would be reviewed and a preliminary determination made whether the application contains all required information (i.e., is "complete") and warrants further consideration. An applicant will be notified of an incomplete application within 30 working days of NMFS's receipt of the application, including a description of incomplete or additional information required. If NMFS deems an application complete, notification of receipt of the application will be published in the Federal Register with a brief description of the proposal and requesting public comment. The permit review and issuance process could take approximately 180 days to complete from the time the applicant submits a completed permit request. Based on permitting requirements of other federal agencies, prospective applicants would submit other required information or agency-specific permit applications to those agencies in tandem (or sooner depending on other agency permit timelines) with the NMFS application process. Failure

**Commented [TS27]:** I've changed the wording on this just a little bit; while it may be a given that early years of this program might rely heavily on collection of wild broodstock, the whole point of aquaculture is that you don't have to rely 100% on wild-caught broodstock. Working with 'domesticated' stock could pose other concerns, but I think it's important to make sure we're not inadvertently promoting ranching operations.

Furthermore, I'm curious to know where we could place any requirement on the sustainability of the stocks themselves. Aquaculture projects in our region shouldn't be collecting broodstock from wild stocks that are experiencing overfishing (but maybe this is already taken care of in the point that the only species raised in aquaculture in the PIR would be from WPRFMC managed species?)

**Commented [BDS28R27]:** Managed species would still be experiencing overfishing or be overfished, so this is a good point to consider. I put a couple lines in here about catch of broodstock counting towards catch limits. Those would be in place for MUS whether they're overfished or not, but this would make sure they're counted.

If catch can be effectively controlled, is there a conservation advantage to allowing collection of broodstock (not ranching) for overfished species...if aq would take pressure off the wild populations? Or is it generally thought to be a bad idea?

One other thought is that depending on the size of fish they catch for broodstock, in HI there are rules on commercial sale of some species. If the aq operator is buying broodstock from a supplier, they would either have to be legal size for sale, or there would be an exemption of some sort. It's sometimes easier to acclimate younger fish to captivity, so they may try to get young fish and then grow them up to breeding size.

Or is it to avoid competition with fisheries if there are going to be reduced catch limits?

**Commented [TS29R27]:** I think a lot of these details are important to save for further subsequent guidance

**Commented [BDS30]:** Yay!

**Commented [MF31]:** Putting in lower case in the event that doesn't end up being the actual name of the document.

**Commented [TS32]:** Some of the deleted wording here specifies the RA for reviewing permit applications. I prefer to keep it broad - I prefer the edits you've made - but just wanted to flag whether we need to specifically mention that the RA does things? I don't honestly know....

**Commented [TS33]:** Keeping this, but wanted to flag: Previous feedback from Jess (RAC in SERO) indicates that this is a really short timeframe based on their experience in order to get all the other permits from other agencies in order

to submit required information to other agencies in a timely manner could result in a delay in NMFS's decision on the application and issuance of the permit.

3. **Public Comment.** Upon publication in the Federal Register, the public will be allowed up to 45 days to submit comments to NMFS for review.
4. **Council Consultation.** Concurrent with the public comment period, NMFS would also consult with the Council concerning the application. NMFS would notify applicants in advance of any Council meeting where the application may be considered and the applicant will be offered the opportunity to appear in support of the application through public testimony. The Council may also seek guidance from its Scientific and Statistical Committee (SSC) on the proposed project and provide recommendations to NMFS.

*Additional for Alternative 3:* The Council may establish and seek guidance from an Aquaculture Advisory Panel (AAP) on the proposed project and provide recommendations to NMFS. Guidelines for creation of an AAP are outlined in Section 2.1.9.

5. **Determination on Permit Issuance.** As soon as is practicable after the public comment period, or within approximately 180 days from the time the applicant submits a completed permit request, NMFS will make a decision whether or not to issue the aquaculture permit. NMFS may recommend that the applicant revise the application in response to public, Council and/or AAP comments before making a final decision. Upon reaching a final decision, NMFS will notify the applicant in writing, including reasons for approval or denial, then publish a notice in the FR announcing the decision. The decision to approve or deny the application could be based on, amongst others:
  - a) Information provided by the applicant;
  - b) Current harvest and stock status of the cultured species;
  - c) Estimated impacts of the proposed activity on ecosystems, habitats, and protected species; and
  - d) Other biological and ecological information relevant to the proposal.
6. **Permit Issuance and Operational Phase.** If approved, NMFS will issue the written permit simultaneously with its approval notice to the applicant. The permit will specify terms and conditions that must be incorporated into the construction, deployment, operation, and maintenance of the project. Some permit requirements would be common to all aquaculture operations, such as adherence to protected species laws, while others may be tailored to an individual operation. Note that each federal agency that issues a permit is required to consult with other regulatory agencies and may solicit public input regarding the potential impacts of each proposed project, which may be reflected in the permit terms and conditions. NMFS will endeavor to coordinate these processes amongst permitting agencies. All required permits must be issued before operations may commence (i.e., before structures or animals may be placed in the water).

### 1.2.2 Siting Restrictions

Proper siting of an aquaculture facility is critical to both an operation's success and the protection of the surrounding physical, biological, and ecological environments. In considering potential sites, a number of factors are particularly relevant, and the applicant should be aware that these would be material considerations when assessing permit applications.

For Alternatives 2 and 3, aquaculture would not be permitted in areas where fishing is prohibited. Spacing between aquaculture facilities would be determined on a project-specific basis according to the facility details and best available science. Aquaculture facilities would be required to mark the boundaries of the facility and be responsible for maintaining those markers.

Other siting factors which may be taken into account could include, but are not limited to:

- Environmental considerations, such as:
  - Proximity to critical habitat, artificial reefs, or special management areas;
  - Depth, current, bottom type;
  - Wildlife attraction or migratory pathways;
  - Potential algal blooms or hypoxia, or migratory pathways.
- Cumulative interactions with existing area activities;
  - Impact on navigation and fisheries interests (e.g., commercial shipping lanes or the proximity of a proposed site to fishing grounds, including indigenous fishing grounds)
  - Impact and proximity to military activities or restricted areas (e.g., training ranges or transit areas)
  - Effects on recreation and tourism;
  - Impact and proximity to other marine spatial planning frameworks.
- Impacts from methods of operation (e.g., lighting, noise, visual amenity etc.);
- Availability of any access and necessary infrastructure;

To prevent impacts to the biological and physical environments, other siting restriction criteria could be considered by NMFS on an individual project basis. Siting guidance, requirements, and restrictions will be established by NMFS and partner agencies.

#### *Additional for Alternative 3 – Establishment of marine Aquaculture Opportunity Areas (AOAs)*

A limited number of marine aquaculture opportunity areas (AOAs) may be established throughout the PIR, potentially allowing a streamlined approach to permitting. AOAs would be established through a public process and assessed based on the likelihood of economic viability, interest in aquaculture in the area, and suitability of the site considering the factors described above. AOAs may not be exclusively for aquaculture.

**Commented [TS34]:** Ah geez of course we come out with new terminology in the EO, right after I went through changed these all from 'aquaculture management zones' to 'management areas'

### 1.2.3 Allowable Marine Aquaculture Systems

#### *Alternative 2 – Cages and net pens only*

Under this alternative, only cages and net pens of specific construction and ranges of sizes would be authorized for use in federal waters in the PIR. Floating or submerged net-pens or cages are the most commonly used offshore aquaculture systems. Therefore, this alternative limits the allowable aquaculture

**Commented [MF35]:** Maybe delete this here if a this and other definitions are spelled out somewhere early in the document.

**Commented [TS36R35]:** Yeah let's put it in Ch1. Removing it here...

**Commented [MF37]:** Need to decide whether we're going to say "federal waters" or "waters of the U.S. EEZ" and then use it consistently throughout.

systems to only these types to minimize the uncertainty associated with the potential effects of new systems. The use of known systems may also help to expedite application review. The use of future aquaculture system designs that do not meet the definition of a cage or net pen would not be allowed. Any new technology, (i.e.; future designs that are not cages or net pens) would require that the Council amend the FEPs to allow these new aquaculture systems.

**Commented [MF38]:** Not sure if this is correct. Might require new rules, but not sure if FEP amendment would be required.

**Commented [TS39R38]:** I'd like to know how we can figure this out!

#### *Alternative 3 – No prohibitions on marine aquaculture systems*

This alternative proposes no specific prohibitions for marine aquaculture systems, so systems other than cages and net pens could be permissible. Applicants would be required to submit detailed information on the proposed system in their application, which would allow NMFS to conduct project-specific reviews. In addition, applicants must submit documentation sufficient to evaluate the structural integrity of the system, especially with regards to the proposed system's ability to withstand physical stresses associated with the open ocean and storm events. NMFS will provide specific guidance on this requirement at a later date. NMFS may deny use of a proposed system or specify conditions for its use if it poses significant risks to essential fish habitat, endangered or threatened species, marine mammals, wild fish and invertebrate stocks, public health, or safety.

**Commented [MF40]:** Don't think it's necessary to say this now.

**Commented [TS41R40]:** I think we need to, at least somewhere, make it clear that this is intended to be broad and detailed guidance for all of these things would become available later. Maybe it's best to just keep it in an intro to the alternatives, rather than restate it haphazardly throughout?

#### **1.2.4 Allowable Species**

##### *Alternative 2 - Council managed native species only*

This alternative would only permit native species listed as MUS or ECS in the Pelagic FEP for culture. Stock enhancement or the intentional release of cultured fish into the wild would be prohibited.

**Commented [TS42]:** I'm not sure how this would fly for the Council. Proposing this based on lessons learned from SERO.

Comment from Jess Beck Stimpert in SERO:

*There are many fish that are not managed by the Council that are native species. What about them? If you don't include non-managed species, then what is the avenue for permitting those non-managed native species for aquaculture?*

*The Gulf AQ FMP only allows culture of managed Council species and therefore popular species such as pompano and red gorgy cannot be cultured except for 1-year periods under an EFP which isn't for commercial culture anyway. Not a great move on the part of the Council...*

**Commented [BDS43R42]:** I agree that it should be limited to native species, but since there are so many ECS relative to MUS in the PIR now, limiting it to MUS seems too restrictive. This is maybe a semantics discussion of what managed means, but we populated the ECS list with species that aren't in need of (Federal) management. They're still in the FEP, but not actively managed.

#### *Alternative 3 – All native species allowed*

This alternative would allow all species to be cultured as long as they are native to the region of the proposed aquaculture facility and are not currently experiencing overfishing.

#### **1.2.5 Recordkeeping and Reporting Requirements**

Record-keeping and reporting requirements would be part of the conditions for maintaining an aquaculture permit and would allow NMFS to evaluate the impacts of a marine aquaculture operation. These requirements intend to ensure the operations of all offshore aquaculture facilities permitted in the PIR are consistent with the Magnuson-Stevens Act National Standards and do not compromise Council objectives.

##### *Record keeping*

Records must be kept for the following categories:

- Valid paperwork for all required federal, state and/or territorial permits or licenses;
- Number and pounds of harvested cultured species;
- Major escapements of the cultured species;
- Entanglements or other interactions with protected species;
- Detection or outbreak of reportable diseases or pathogens as required by OIE-or in the National Aquatic Animal Health Plan;
- Human health and safety issues;

- Records relating to feed purchases, juvenile and seed suppliers, sales records, transport records;
- Names, addresses and phone numbers of employed or contracted captains, pilots, aircraft and vessel owners, along with documentation or identification numbers for project vessels and aircraft; and
- Any other appropriate recordkeeping and reporting requirements necessary for evaluating and assessing the environmental impacts of an aquaculture operation and compliance with permit terms and conditions;

#### *Reporting*

NMFS must be notified by phone and electronic web-based form of:

- Escapes. For major escapes, the following information shall be provided to NMFS within 24 hours of discovery of the event:

- Aquaculture permit number, contact person name and phone number;
- Specific location of escapement;
- Cause(s) for the escapement;
- Number, species, size and percent of cultured organism that escaped; and
- Response taken by the permittee, including any recaptures, system repairs and further prevention measures.

If no major escape occurs during a given year, then the permittee shall provide the NMFS RA with an annual report on or before January 31 each year indicating this.

- Interactions with protected species. For any interactions, including entanglement, with protected species (e.g., marine mammals, sea turtles, migratory birds) the following information shall be provided within 24 hours of discovery of the event:

- Permit Number, contact person name and phone number;
- Date and time of entanglement or interaction, if known;
- Nature of entanglement or interaction, and species and numbers of individuals affected;
- Number of mortalities and/or acute injuries observed and detailed nature of incident;
- Cause and resolution of the entanglement or interaction; and
- Actions to prevent future entanglements or interactions.

If no entanglement or interaction occurs during a given year, then the permittee shall provide the NMFS RA with an annual report on or before January 31 each year indicating this.

- Disease. Any findings or suspected findings of reportable diseases or pathogens as required by OIE or the National Aquatic Animal Health Plan shall be reported within 24 hours including the following information:

- Permit Number, contact person name and phone number;
- Identification of the pathogen;
- Percent of cultured species infected;
- Findings of the aquatic animal health expert;

**Commented [TS44]:** Is this OK to require if we haven't created it yet? Should this language be more inclusive of other forms of notification?

**Commented [MF45]:** Instead of using the undefined term "major escapes," would it be best to say "...escapes of more than # animals..."?

**Commented [TS46R45]:** Gulf FMP defines this as major:

Major escapement is defined as the escape of 10 percent of the cultured organisms from a single allowable aquaculture system (e.g., one cage or one net pen) within a 24 hour period or the cumulative escape within a 24 hour period from all allowable aquaculture systems (e.g., all cages or net pens) at an aquaculture facility representing 5 percent or more of the total cultured organisms or the cumulative escape of 10 percent or more of the cultured organisms from all allowable aquaculture systems at an aquaculture facility in any 30-day consecutive period

**Commented [TS47]:** check with PRD-this might need to be 'within hours' rather than 24h

- Plans for submission of specimens for confirmatory testing;
- Testing results (where applicable);
- Actions taken to address the episode.

If no outbreak occurs during a given year, then the permittee shall provide NMFS with an annual report on or before January 31 each year indicating this.

- Transport or harvest. At least 72 hours prior to transport or harvest, a permittee shall provide NMFS the following information:
  - Intended time, date and estimated number of juveniles or adult by species of fish to be transported; or
  - Intended time, date and estimated amount in pounds by species of fish to be harvested.
- Capture of broodstock. At least 30 days prior to collection activities, a permittee shall provide the following information:
  - Number of animals, species, and size;
  - Methods, gears, and vessels (including USCG documentation or state registration) to be used for capturing, holding, and transporting;
  - Date and specific location of intended harvest; and

Location to which broodstock will be delivered.

#### **1.2.6 Creation of an Aquaculture Advisory Panel (AAP)**

##### *Alternative 2 – Use of current Scientific and Statistical Committee*

An Aquaculture Advisory Committee would not be created under Alternative 2. The Council may decide to request the existing SSC review and provide guidance on permit applications and the marine aquaculture program. Opportunities for public comment would be provided at any Council or SSC meeting where permit applications or the aquaculture program are being discussed.

##### *Alternative 3 – Creation of an Aquaculture Advisory Panel*

Under this alternative, an AAP would be established to review and provide guidance on the marine aquaculture program and permits. This advisory body would meet at least biannually in conjunction with Council and SSC meetings and follow a terms of reference document developed by the Council, which would describe the operations and structure of the AAP and identify the stakeholder groups and experts to be represented. These would include members from each island area, representing government and private sector along with Council and NMFS staff, and SSC members. Individual members of an AAP would be appointed by their respective stakeholder group and subject to term limits.

The Council may request the AAP address and review, at a minimum, the following:

- Guidance and recommendations for proposed projects;
- Annual production levels;
- Effects on environment, protected species, habitat; and
- Related economic and social considerations.

The Council may seek AAP guidance on adjustments or changes to the aquaculture management program, future management measures based on performance and implementation, regulatory processes that could adapt to ongoing changes in the industry. This could support the developing industry, reduce potential negative economic and social impacts, facilitate timely review and implementation of regulatory

measures. When engaged by the Council and after following its operational and deliberative processes, the AAP would prepare a written report of its analysis and recommendations.

### **1.2.7 Program Implementation**

#### **Framework Regulations and Procedures**

This action would establish framework regulations similar to those existing in 50 CFR 665.18, which includes considering periodic reports and input from Council members and advisory bodies like the SSC AAP to the Council, and periodic review of the management program by the Council for recommending modifications to and new management measures for the program. Measures that could be adjusted through framework procedures and subsequent NFMS regulations include, but are not limited to:

- Adjustments to harvest limits;
- Permit application requirements;
- Aquaculture operational requirements and restrictions;
- Requirements for allowable aquaculture systems and gear
- Siting requirements;
- Recordkeeping and reporting requirements; and
- Species not managed by the Council that can be added to the allowable list of species for culture.

The Council would review any proposed recommendations and determine whether changes to the program are needed. Opportunities for public comment and input would be available before any proposed changes to regulatory measures are approved. After public input, the Council would submit findings on the need for changes to aquaculture management measures and, if changes are needed, the Council would advise NMFS in writing of its recommendations. The Council's recommendations would be accompanied by relevant background material, analysis and public comments.

NMFS would review the Council's recommendations for consistency with the goals and objectives of the Aquaculture FEP, the Magnuson-Stevens Act, and other applicable laws. If NMFS concurs with the recommendations, regulations could be drafted and implemented through standard federal rulemaking processes, notices and opportunity for public comment. If NMFS rejects the recommendations, NMFS shall notify the Council in writing of the reasons for rejection and existing regulations would remain in effect.

#### **Best Management Practices**

NMFS recognizes the importance of using BMPs during development and throughout implementation of the offshore aquaculture program. Section 4.7.2 discusses BMPs and mitigation measures that would be part of implementing the preferred alternative. These BMPs would be further addressed by NMFS in the development of the PIRO Aquaculture Operational Guidance. BMPs would help minimize potential impacts to wild fish stocks, marine mammals, protected resources, EFH, and other resources managed by NMFS and the Council to ensure they would not be adversely affected by aquaculture through inadequate management practices. Applicants would need to provide enough detail about their proposed aquaculture project to allow NMFS to determine whether the proposed project satisfies specific BMP criteria and Magnuson-Stevens Act standards, and would not pose unacceptable risk to the marine or human environment.

#### **Mitigation Measures**

- Regulations for implementing NEPA require that EISs include appropriate mitigation measures not already included in the proposed action or alternatives. Under all alternatives (including SCREFPs and EFPs under alternative 1), mitigation measures would be components of the permit approval and

aquaculture operational processes. The following mitigation measures are intended to avoid or minimize potential negative impacts of offshore marine aquaculture: Siting analysis, limitations and requirements;

- USACE and USCG review and permitting with respect to siting, anchoring, aids to navigation, and identification and marking to protect maritime navigation;
- Monitoring of the physical and biological environment, water quality, feed, and effluent, including required EPA discharge permitting and monitoring;
- Regular inspections by permittees of all equipment to ensure proper function, condition, maintenance, and repair;
- Required record keeping and regular reporting by permittees, and periodic onsite inspection by NMFS and other authorities to ensure compliance with permit terms and conditions and to inform adaptive management;
- Prohibitions on culturing non-native species under alternatives 2 and 3; and
- Required compliance with existing regulations of the Food, Drug and Cosmetic Act, [21 USC 321](#); the Clean Water Act, and related federal codes, [40 CFR 122](#), [40 CFR 101-124](#), [21 CFR 500-599](#), and [40 CFR 150-189](#).

**Commented [MF48]:** If appropriate, pull 33 CFR citations from the deleted text below re USACE and USCG and insert them here.  
Confirm that all CFR and USC citations are correct and relevant.

**Commented [TS49R48]:** I kind of like it without!

**Commented [MF50]:** Figure out if citations below can be properly inserted here, e.g., 40 CFR 451.21 re EPA requirements

**Commented [TS51R50]:** Same response as above

**Commented [MF52]:** Find out what these are and, if relevant, name them in addition to citing their CFR sections.  
Confirm all USC and CFR citations are relevant and current.

**Commented [TS53R52]:** These are basically lifted from the gulf PEIS. I could use some guidance on whether this level of detail is necessary. I vote to remove them