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 (SCREEFP) 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 SCREEFPs 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 (50 CFR 600.745), as well as other law, key reasons for eliminating an alternative is that it does not meet the purpose and need of the proposed action; is not
“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 a of Alternatives 2 and 3, with Alternative 1 included where relevant for comparison purposes.
Table 1 Comparison of Alternatives

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Permit Requirement</td>
<td>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.</td>
<td>Permit required in federal waters of the Pacific Islands Region. Would authorize facility siting and operation, and possession, transport and sale of cultured species.</td>
<td>Same as Alt. 2.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
<td>Additional option for research and innovation permits.</td>
</tr>
<tr>
<td></td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permit Eligibility</td>
<td>U.S. citizen, U.S. national or resident alien.</td>
<td>Same as Alt. 1.</td>
<td>Same as Alt. 1.</td>
</tr>
<tr>
<td>Permit Transferability</td>
<td>Transferrable to qualified applicant.</td>
<td>Same as Alt. 1.</td>
<td>Same as Alt. 1.</td>
</tr>
<tr>
<td>Permit Duration and Renewal</td>
<td>CRECS: SCREFPs are short-term, with opportunities for renewal.</td>
<td>Effective up to 10 years. Unlimited renewal if in good standing.</td>
<td>Commercial permits: Effective up to 20 years. Unlimited renewal if in good standing.</td>
</tr>
<tr>
<td></td>
<td>MUS: EFP duration is typically 1 or 3 years with opportunities for renewal depending on species, gear type and location</td>
<td></td>
<td>Research and innovation permits: Effective up to 3 years with option for one renewal of 3 years.</td>
</tr>
<tr>
<td></td>
<td>All others: No permits, no limits on duration.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dealer Permit</td>
<td>No dealer permit required</td>
<td>Dealer permit required for purchasing cultured organisms. Non-transferable.</td>
<td>Same as Alt. 2.</td>
</tr>
<tr>
<td>Program Capacity</td>
<td>No limit to the number of permits that may be issued.</td>
<td>No limits to the number of permits that may be issued.</td>
<td>Limited entry program. Capacity criteria could include location, density, type and amount of fish, harvest timing.</td>
</tr>
</tbody>
</table>

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.”

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>General Application Requirements</td>
<td>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></td>
<td>• Applicant information;</td>
<td>Same as 2.</td>
</tr>
</tbody>
</table>
| Permit Application and Review Process | Application process can be found at the permits website: https://www.fisheries.noaa.gov/pacific-islands/resources-fishing/pacific-islands-fishing-permits | 1. Pre-Application Screening  
2. Application Review  
3. Public Comment  
4. Council Consultation  
5. Determination on Permit Issuance  
6. Permit Issuance and Operational Phase | Same as 2.                                       |
| Siting Restrictions       | CRECS: Siting specified in SCREFP.                                                         | Prohibited where all commercial fishing is prohibited.                                                         | Same as 2.                                       |
|                           | MUS: Siting specified in EFP.                                                              | 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.  
Other restriction criteria may include, amongst others, depth, current, bottom type, wildlife attraction, potential algal blooms or hypoxia, or migratory pathways.  
Potential to establish a limited number of aquaculture opportunity areas throughout the PIR based on likelihood of economic viability, site suitability, and interest. | Same as 2.                                       |
<p>|                           | All others: Review and permitting by other agencies requires NMFS coordination for protected species, essential fish habitat and other relevant laws. |                                                                                                               | Same as 2.                                       |
| Allowable Marine Aquaculture Systems | CRECS: Specified in SCREFP.                                                               | 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. |
|                           | MUS: Specified in EFP.                                                                    |                                                                                                               |                                                  |</p>
<table>
<thead>
<tr>
<th></th>
<th>All others: Review and permitting by other agencies requires NMFS coordination for protected species, essential fish habitat and other relevant laws.</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Allowable Species</td>
<td>CRECS: Specified in SCREFP.</td>
<td>Only native MUS or ECS in the applicable FEP could be cultured. Culture of non-native species would be prohibited.</td>
<td>Any native species could be cultured. Culture of non-native species would be prohibited.</td>
</tr>
<tr>
<td></td>
<td>MUS: Specified in EFP.</td>
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<tr>
<td></td>
<td>All others: No restrictions on species.</td>
<td>May be limited to only species that have been previously cultured or likely to be successfully, sustainably cultured.</td>
<td></td>
</tr>
<tr>
<td>Record Keeping and Reporting</td>
<td>CRECS: Specified in SCREFP.</td>
<td>Record keeping and monitoring required consistent with the operation plan requirements and as appropriate to the level of operation.</td>
<td>Same as Alt. 2.</td>
</tr>
<tr>
<td>Requirements</td>
<td>MUS: Specified in EFP.</td>
<td>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,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>All others: No NMFS requirements unless required by other applicable law including, but not limited to, protected species, essential fish habitat, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aquaculture Advisory Panel (AAP)</td>
<td>N/A</td>
<td>N/A, NMFS, Council and SSC to evaluate aquaculture proposals.</td>
<td>AAP established to provide guidance and recommendations on:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• The marine aquaculture program and proposed projects;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Annual production levels;</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Effects on environment, protected species, habitat; and</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Related economic and social considerations.</td>
</tr>
</tbody>
</table>
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...
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 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;
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
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.

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
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.

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.

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.

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**