



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
1315 East-West Highway  
Silver Spring, Maryland 20910  
THE DIRECTOR

**RECORD OF DECISION**

**FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT**

**FOR THE**

**FISHERY MANAGEMENT PLAN FOR REGULATING OFFSHORE MARINE**

**AQUACULTURE IN THE GULF OF MEXICO**

National Marine Fisheries Service  
Southeast Region  
St. Petersburg, Florida

**Introduction**

*Background*

This Record of Decision (ROD) documents the determination by NOAA's National Marine Fisheries Service (NMFS), on behalf of the Secretary of Commerce (Secretary), to promulgate regulations implementing the Fishery Management Plan for Regulating Offshore Marine Aquaculture in the Gulf of Mexico (Aquaculture FMP), which entered into effect by operation of law on September 3, 2009. On June 4, 2009, NMFS published in the *Federal Register* a Notice of Availability of the Gulf of Mexico Fishery Management Council's (Council) proposed Aquaculture FMP. The public comment period on the Aquaculture FMP ended on August 3, 2009. Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the Secretary may approve, disapprove, or partially approve a Fishery Management Plan (FMP) within 30 days of the end of the comment period (in this case by September 2, 2009). If the Secretary does not notify the Council within 30 days that he has taken one of the specified actions, the statute provides that the FMP shall take effect as if approved. Because the statutory period passed without any action being taken, the Aquaculture FMP entered into effect by operation of law.

The Aquaculture FMP contains measures to establish: An aquaculture permitting system; operational conditions and restrictions for permit issuance and use; a list of species allowed for aquaculture; grow-out systems allowed for culture; siting requirements for aquaculture facilities; restricted access zones surrounding aquaculture facilities; recordkeeping and reporting requirements; biological reference points and status determination criteria; and a framework procedure for modifying aquaculture regulations. These measures are in accordance with the procedures prescribed in the Magnuson-Stevens Act. This ROD is issued pursuant to the

THE ASSISTANT ADMINISTRATOR  
FOR FISHERIES



National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) NEPA regulations at 40 CFR Parts 1500-1508, and NOAA's Administrative Order NAO 216-6, Sections 6.03(a)(2) (Consolidated NEPA Documents, Management Plans and Plan Amendments), and 6.03(d)(2) (Fisheries Actions that Require an Environmental Impact Statement [EIS]). The decision to promulgate regulations implementing the Aquaculture FMP was based on analyses in the FMP, associated Final Programmatic Environmental Impact Statement (FPEIS), and Supplemental FPEIS (SFPEIS), prepared in accordance with NEPA.

The actions in the Aquaculture FMP/FPEIS establish a regionally based framework for permitting and regulating aquaculture activity in federal waters of the Gulf of Mexico (Gulf) under the authority of the Magnuson-Stevens Act. The Council developed and submitted the Aquaculture FMP for agency review under procedures of the Magnuson-Stevens Act. The measures in the Aquaculture FMP:

- Establish an aquaculture permitting process.
- Establish operational conditions and restrictions for permit issuance and use.
- Establish permit duration of 10 years and 5-year renewal periods.
- Allow the culture of native, non-genetically modified and non-transgenic species managed by the Council. Shrimp and corals are not allowed to be cultured under the Aquaculture FMP.
- Provide guidelines for approval of grow-out systems allowed for culture.
- Establish criteria for siting marine aquaculture facilities.
- Create a restricted access zone for each aquaculture facility.
- Establish numerous recordkeeping, reporting and operational requirements designed to minimize or mitigate potential environmental impacts.
- Establish biological reference points and status determination criteria.
- Specify framework procedures for modifying biological reference points and management measures.

### *Scoping Process and Public Involvement*

The purpose of the Aquaculture FMP is to maximize benefits to the Nation by establishing a regional permitting process to manage the development of an environmentally sound and economically sustainable aquaculture industry in federal waters of the Gulf. The Council initiated this action to provide a programmatic approach to evaluating the impacts of aquaculture proposals in the Gulf and a comprehensive framework for regulating such activities.

On September 2, 2004 (69 FR 53682), NMFS published a Notice of Intent (NOI) in the *Federal Register* to prepare a draft Programmatic Environmental Impact Statement (DPEIS) and to announce scoping meetings regarding the actions proposed in the Aquaculture FMP. A scoping document was presented at a series of scoping hearings conducted from February 17 through March 1, 2004, in Mobile, Alabama; Biloxi, Mississippi; Larose, Louisiana; Galveston, Texas; Madeira Beach, Florida; and Key West, Florida. Details of the hearings are presented in Appendix H of the FPEIS. These scoping hearings were conducted for the Generic Amendment for Management of Offshore Marine Aquaculture that was subsequently renamed the Aquaculture FMP. The range of actions and alternatives considered in the DPEIS for the Aquaculture FMP were based on information derived from these scoping meetings.

A public hearing draft of the Aquaculture FMP was reviewed and approved by the Council at its January 2008 meeting, and public hearings (number of hearings) were conducted in Florida (5), Alabama (3), Mississippi (2), Louisiana (2), and Texas (2) from July 9, 2007, through October 27, 2008 (See Section 14.0 in the FPEIS).

The NOA for the DPEIS was published in the *Federal Register* on September 12, 2008, with a 45-day comment period which was announced in the *Federal Register* on September 12, 2008 (73 FR 53001), and through a Fishery Bulletin sent by NMFS to stakeholders that same day. The comment period ended on October 27, 2008. NMFS received comments from 13 organizations or city governments, and the Chairman of the House of Representative's Committee on Natural Resources. Additionally, NMFS received 19 form letters and one petition with 5,773 signatures, as well as two additional comments from the general public. These comments were evaluated and used to improve the FPEIS. A summary of the comments received on the DPEIS and responses to those comments can be found in Appendix J of the final Aquaculture FMP/FPEIS. Over 3,000 comments generated from an email campaign and two letters from organizations were submitted outside of the comment period were in general opposition of the Aquaculture FMP but did not raise any issues that were not addressed elsewhere.

NMFS published a NOA for the FPEIS analyzing impacts on the human environment for the Aquaculture FMP in the *Federal Register* on June 26, 2009 (74 FR 30569). NMFS received over 1,000 comments on the NOA for the FPEIS. Approximately 975 of these comments were form letters. NMFS also received comments from environmental non-governmental organizations, industry groups, state and federal agencies as well as a letter signed by 37 members of Congress and another letter signed by a single member of Congress.

On September 3, 2009, the Aquaculture FMP entered into effect by operation of law. On the same day, Dr. Jane Lubchenco, NOAA Administrator, issued a press release announcing that NOAA would begin development of a new national aquaculture policy, which would provide context for the Aquaculture FMP. NOAA solicited public comments and conducted a series of seven public 'listening sessions' during April and May 2010, before releasing a draft of the policy in February 2011 for a 60-day public comment period. On June 9, 2011, NOAA released the final NOAA Marine Aquaculture Policy and announced its intention to move forward with implementing the Aquaculture FMP.

In January 2013, NMFS published a NOI (78 FR 5403) to prepare a draft SFPEIS in order to consider new circumstances and information arising from the Deepwater Horizon Macondo 252 blowout. NMFS received two comment letters on the NOI. The draft SFPEIS was made available for public comment on February 18, 2014 (79 FR 9199). On February 28, 2014, a second *Federal Register* notice was published announcing an extension of the comment period (79 FR 11428). NMFS received 15 distinct comments on the draft SFPEIS which were evaluated and used to improve the final SFPEIS. A summary of the comments received on the draft SFPEIS and responses to those comments can be found in Appendix C of the final SFPEIS. The NOA for the final SFPEIS published in the *Federal Register* on July 2, 2015 (80 FR 38199). NMFS received three comment letters on the final SFPEIS from environmental non-governmental organizations and federal agencies. NMFS reviewed these comments and determined that no changes to the final SFPEIS was necessary. One comment letter raised issues related to topics that NMFS has addressed in a Supplemental Information Report (SIR).

On February 8, 2013, the Council reviewed language NMFS added to the proposed implementing regulations and deemed these changes necessary and appropriate for implementing the Aquaculture FMP. These changes included addition of aquaculture gear types into section 50 CFR 600.725, definitions of key terms, and additional details pertaining to Aquaculture FMP requirements.

The proposed rule published in the *Federal Register* on August 28, 2014 (79 FR 51424). The public comment period ended on October 27, 2014. NMFS reopened the comment period on November 13, 2014 (79 FR 67411), for 15 days, with the comment period ending on November 28, 2014. NMFS received 98 comment letters. Comments were received from 15 industry groups, 9 non-governmental organizations, 6 state or federal agencies and 50 members of the general public. Comments also consisted of more than 100 journal articles, over 650 form letters and a petition with 1,875 signatures.

During the public comment period for the proposed rule, NMFS also requested comments on the draft SIR, which was prepared in order to evaluate the need for additional supplemental NEPA analysis specific to the passage of time. NMFS received several comments in support of as well as in opposition of the draft SIR. None of the comments opposing the draft SIR's conclusion identified any new circumstances, information or impacts that are uncertain or that differ from those described in the FMP/FPEIS and SFPEIS. NMFS determined that no new or additional supplemental NEPA analysis is necessary, and finalized the SIR on July 6, 2015.

Throughout the FPEIS and SFPEIS, as documented in this ROD, the Council and NMFS have analyzed the various alternatives, associated environmental impacts, and the extent to which the impacts could be mitigated, in relation to the objectives of the proposed action. As summarized below, NMFS and the Council have considered public and agency comments received during the various PEIS and SFPEIS review periods. Consequently, NMFS concludes that all practical means to avoid, minimize, or compensate for environmental harm from the proposed action have been adopted, and the public has had adequate opportunity for involvement, input, and comment during the deliberative phases of developing the Aquaculture FMP on which the final rule is based.

#### *Current Regulations Pertaining to Offshore Aquaculture*

Prior to the Aquaculture FMP, the only avenue for commercial-scale finfish aquaculture in federal waters of the exclusive economic zone (EEZ) was under an exempted fishing permit (EFP), as provided at 50 CFR 600.745. However, an EFP is intended to authorize the targeting or incidental harvest of species managed under an FMP or fishery regulations that would otherwise be prohibited. Specifically, an EFP authorizes activities for limited testing, public display, data collection, exploration, health and safety, environmental cleanup, and/or hazard removal purposes. NMFS also has authority under the Fish and Wildlife Coordination Act, the essential fish habitat (EFH) provisions of the Magnuson-Stevens Act, the Endangered Species Act (ESA), and the Marine Mammal Protection Act to comment and provide conservation recommendations on projects permitted, licensed, or funded by other federal agencies. In the case of aquaculture, this may include permits required from the U.S. Army Corps of Engineers (ACOE), Environmental Protection Agency (EPA), or other federal agencies.

### *Gulf of Mexico Fishery Management Council's Aquaculture Policy*

In November 2003, the Council adopted an open ocean aquaculture policy for the Gulf EEZ. The policy consists of a variety of guidelines intended to encourage environmentally responsible aquaculture. The Council provided recommendations for six key areas: 1) Allowable species, 2) habitat protection, 3) research, 4) location and design, 5) water quality, and 6) health management and disease control. These key areas were considered during the development of the Aquaculture FMP and the recommendations in the Council's policy are consistent with the proposed actions and preferred alternatives.

### *Federal Regulatory Management of Aquaculture in the Gulf of Mexico*

The history of federal regulatory management of aquaculture in the Gulf EEZ is brief. In 1994 and 1995, the Gulf and South Atlantic Fishery Management Councils developed, and NMFS implemented, a regulatory regime for the culture of live rock in the Gulf of Mexico and South Atlantic EEZs. Wild live rock is coral-reef rubble that has been populated by attached organisms including anemones, sponges, tubeworms, sea squirts, bryozoans, algae, etc., as well as by mobile organisms. Because "wild" live rock is habitat and harvest of live rock reached levels exceeding 500,000 pounds annually in the early 1990s, NMFS phased out harvest of wild live rock and required persons in the industry to shift to aquaculture of live rock. Aquaculture of live rock consists of placing substrate, such as calcareous rock geologically or otherwise distinguishable from naturally occurring substrate, on permitted bottom sites for several years until attached organisms populate it. Live rock site selection is regulated by certain criteria, as are the operations, including notifying enforcement agents when harvesting or substrate placement are to occur. The state or ACOE requires permits for a site. NMFS requires an aquaculture permit and landings reports. As of June 2015, there were 14 annual live rock permits in the southeast. The Aquaculture FMP does not modify existing regulations pertaining to live rock aquaculture.

### *Offshore Aquaculture Facilities Currently Permitted in the U.S. EEZ*

As of June 2015, there were two permitted offshore aquaculture farms in the Greater Atlantic Region U.S. EEZ. Both are suspended long line mussel farms, one 8.5 miles east of Rockport Massachusetts, the other 6.5 miles south of Cape Cod, Massachusetts. Neither is operational at this time, however, both are planning to deploy gear sometime in 2015. There is also one project currently planned in federal waters off Hawaii for kampachi (*Seriola rivoliana*).

In summer 2014, one offshore mussel farm was permitted in federal waters approximately 7 miles offshore San Pedro, California. To date, this operation has not begun in-water construction as they must submit a complete monitoring plan beginning work. In addition, Rose Canyon Fishery, an offshore finfish project, has proposed a site in federal waters approximately 6 miles offshore San Diego, California.

### *Controversy*

Development of a regulatory framework for aquaculture has been controversial. Controversy has stemmed from several factors including:

- Whether the Magnuson-Stevens Act provides authority to regulate aquaculture;
- Concerns about potential impacts to the environment (e.g., water quality, habitat degradation, etc.) and wild fish stocks (e.g., genetic impacts, competition, entanglement, etc.);
- Potentially competing interests of fishermen, fishing communities, and aquaculture operations;
- Concerns about the exclusive use of public resources for private profit; and
- Concerns about multiple federal agencies having authority to regulate various aspects of offshore marine aquaculture.

There has been controversy regarding the Council's authority to regulate aquaculture under the Magnuson-Stevens Act as well as concerns that the Aquaculture FMP is counter to the development of national legislation. It has been NOAA's long-standing interpretation that the Magnuson-Stevens Act provides authority to regulate aquaculture, and thus, that fishery management councils have the authority to prepare a FMP covering all aspects of aquaculture in the EEZ. In developing the Aquaculture FMP, the Council considered national legislation that was introduced (but not enacted) in 2007 (2007 National Offshore Aquaculture Bill) and designed many of the provisions included in the Aquaculture FMP to be consistent with that legislation.

Another source of controversy regarding the Aquaculture FMP involves potential environmental impacts. As a result of these concerns, the Council selected preferred alternatives that: 1) only allow culture of those species native to the Gulf and managed by the Council (except shrimp and corals) and require that broodstock be collected from the same population or subpopulation where the facility will be located; 2) prohibit culture of genetically modified or transgenic species; 3) prohibit aquaculture operations in all marine protected areas and marine reserves, habitat areas of particular concern (HAPCs), special management zones (SMZs), permitted artificial reef areas, and coral reef areas designated by the Council at 50 CFR 622, and further minimize siting impacts on a case-by-case basis through the permit review and approval process; 4) require permit applicants to conduct a baseline environmental assessment of the proposed site prior to permit review and conduct routine monitoring of a site according to NMFS protocols and procedures; 5) require regular monitoring at the site and report to NMFS within 24 hours of discovery: major escapement; entanglements or interactions with marine mammals, endangered species and migratory birds; and findings or suspected findings of World Organization of Animal Health (OIE) or National Aquatic Animal Health Plan (NAAHP) reportable pathogens; 6) require permittees maintain and make available feed invoices and daily records of cultured animals introduced or removed from allowable growing systems; 7) require certification from an aquatic animal health expert that fish being stocked are free of reportable pathogens; and, 8) require compliance with reporting and monitoring requirements as well as with all applicable federal regulations for using drugs, pesticides, and biologics.

There were concerns regarding competing interests, which generated controversy in regard to the Aquaculture FMP. NMFS will minimize user conflicts through a case-by-case review of each permit application. NMFS will announce the intent to issue a Gulf Aquaculture Permit (GAP)

via a notice in the *Federal Register*, giving the public an opportunity to comment on proposed applications, including proposed sites. NMFS will consider public comments when making final determinations about whether to issue individual GAPs. NMFS may deny use of a proposed aquaculture site based on a determination that the site will result in user conflicts with commercial or recreational fishermen, or other marine resource users.

Use of public resources for private profit was an issue raised by some members of the public. The Magnuson-Stevens Act provides the Council with authority to create zones that exclude fishing or the operation of fishing vessels. Section 303(b)(1) of the Magnuson-Stevens Act states that any FMP prepared by the Council may “designate zones where, and periods when, fishing shall be limited, or shall not be permitted, or shall be permitted only by specified types of fishing vessels or with specified types and quantities of fishing gear”. Examples are zones where fishing with certain gear is prohibited and marine reserves where fishing and possession of fish is prohibited. Restricting access around aquaculture facilities will afford some protection to an operation’s equipment and the product being cultured as well as increase safety by reducing encounters between vessels and aquaculture equipment (National Standard 10). While limiting usage near these sites could be seen as a user conflict by denying the public from accessing these areas, this measure will likely reduce user conflicts by not allowing competing uses in the same area. The most prudent way to overcome this issue is for an aquaculture facility to request, and for NMFS to approve, a large enough area to afford protection from potential user conflict problems (e.g. a vessel accidentally cutting a mooring line while passing the facility), while at the same time maximizing other user groups’ access to the open ocean.

There were also concerns regarding multiple federal agencies having authority to regulate various aspects of offshore marine aquaculture. During the development of the Aquaculture FMP, NMFS and the Council consulted with various state and federal agencies, including regional EPA staff and district ACOE staff. The DPEIS and draft SFPEIS were sent to numerous state and federal agencies for public comment. NMFS also continues to work with other federal agencies as part of the Interagency Working Group on Aquaculture’s Regulatory Task Force on a coordinated permitting process.

## **Decision and Reasons for the Decision**

### *Decision*

Following a review of the Aquaculture FMP and supporting analyses for compliance with the Magnuson-Stevens Act and other applicable law, including NEPA, the Coastal Zone Management Act (CZMA), and Information Quality Act (IQA), NMFS is promulgating a final rule to implement all proposed actions contained in the Aquaculture FMP. The rationale for this decision is supported by the FPEIS and the SFPEIS, and is summarized below. The actions in the Aquaculture FMP are those that achieve the purpose and need for action in a way that best addresses Magnuson-Stevens Act mandates and the multiple objectives outlined in the Aquaculture FMP. Additional alternatives considered by the Council and NMFS in developing the rule and the Aquaculture FMP, but eliminated from detailed study, are described in Appendix D of the FPEIS.

## *Rationale for Decision*<sup>1</sup>

### **Action 1. Aquaculture Permit Requirements, Eligibility, and Transferability**

#### **Preferred Alternative 2:**

Require a NMFS GAP to authorize a person to:

- Deploy or operate an offshore aquaculture facility in the Gulf EEZ; and,
- Sell, only at the first point of sale, or attempt to sell an allowable aquaculture species cultured at an offshore aquaculture facility in the Gulf EEZ.

Persons issued a GAP for the activities authorized above will also be authorized to:

- Harvest or designate hatchery personnel or other entities to harvest and retain onboard a vessel wild live broodstock of an allowable aquaculture species native to the Gulf for offshore aquaculture, regardless of where broodstock were harvested or possessed in U.S. waters of the Gulf.
- Possess or transport fish or invertebrates in or from the Gulf EEZ to be cultured at an aquaculture facility (e.g., broodstock, fingerlings) or possess or transport fish or invertebrates from an aquaculture facility for landing ashore and sale.

Require a Gulf aquaculture dealer permit to receive cultured organisms from the Gulf EEZ.

However, an owner or operator of an aquaculture facility with a GAP may purchase juvenile fish from a hatchery located in the Gulf EEZ without obtaining a dealer permit. Requirements for obtaining a dealer permit are specified in 50 CFR 622.4(a)(4)(iii) and 50 CFR 622.4(b).

Landing of allowable aquaculture species cultured in the Gulf EEZ is prohibited at non-U.S. ports, unless first landed at a U.S. port.

In addition, require any vessel, aircraft, or vehicle authorized for use in aquaculture operations have a copy of the GAP onboard. Each copied permit must include an original signature of the GAP holder.

Eligibility for a GAP is limited to U.S. citizens or permanent resident aliens.

A GAP is:

- (a) transferable only if the geographic location of the aquaculture site remains unchanged.

The transferor and transferee must complete the application for permit transfer, have their signatures notarized, and mail the signed application to the NMFS Regional Administrator (RA) at least 30 days prior to the date on which the transferee desires to have the transfer effective. Approval of the transfer by the NMFS RA is contingent on all applicable permit requirements being completed, and, if necessary, updated.

(Preferred)

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<sup>1</sup> The actions and alternatives discussed below are stated as specified in the Aquaculture FMP. The proposed rule implementing the FMP included provisions that used language identical to that used in the Aquaculture FMP. After considering public comments on the proposed rule, further internal review, and consultation with the Council, NMFS is modifying some of this language in the final rule. These changes are consistent with the requirements specified in the FMP and are fully explained in the preamble of the final rule.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 2** requires a NMFS permit which will authorize all activities associated with operating an aquaculture facility in the Gulf EEZ. The permit will authorize the deployment and operation of an offshore aquaculture facility and the sale of cultured species. Persons issued a GAP will also be authorized to harvest or designate hatchery personnel or other entities to harvest and retain onboard a vessel wild live broodstock, and to possess or transport fish or invertebrates in or from the Gulf EEZ to be cultured at an aquaculture facility (e.g., broodstock, fingerlings) or possess or transport fish or invertebrates from an aquaculture facility for landing ashore and sale.

**Preferred Alternative 2** will also prohibit the landing of allowable aquaculture species cultured in the Gulf EEZ at non-U.S. ports, unless first landed at a U.S. port. In addition, any vessel, aircraft, or vehicle authorized for use in aquaculture operations will be required to have a copy of the GAP with an original signature of the permit holder onboard. A separate dealer permit will be required to receive cultured organisms from the Gulf EEZ.

Under **Preferred Alternative 2**, applicants will be required to satisfy application and operational requirements described in Action 2 before receiving a permit. Additionally, NMFS will ensure appropriate species and reliable grow-out systems were used for aquaculture (Actions 4 and 5), and evaluate if an aquaculture operation is sited in an appropriate location that will minimize or prevent environmental impacts (Action 6). If a proposed site is denied for use, NMFS will provide a determination and the basis for it, in writing to the applicant. Upon issuance of an aquaculture permit, operations will be required to maintain records and submit reports (Action 8). An aquaculture permit will remain valid for the period of time indicated on the permit unless it is revoked, suspended, or modified pursuant to subpart D of 15 CFR part 904 for non-compliance with applicable aquaculture regulatory requirements.

**Preferred Alternative 2** will limit eligibility for permits to only U.S. citizens or permanent resident aliens. Additionally, under **Preferred Alternative 2(a)** permits will only be transferable (to U.S. citizens or permanent resident aliens) if the geographic location of the aquaculture facility remains unchanged. Approval of the transfer by the NMFS RA is contingent on all applicable permit requirements being completed and updated.

**Preferred Alternative 2** was chosen because it allows for the development of an offshore aquaculture industry in the Gulf EEZ and does not require NMFS to issue separate siting and operating permits, which would have conflicted with ACOE's authority to issue siting permits. **Preferred Alternative 2(a)** was also chosen because it facilitates continuity of offshore aquaculture operations and the development of a viable future aquaculture industry, except if major modifications to the permit are made (e.g., geographic location of site changes).

Rejected alternatives to the proposed action.

**Alternative 1:** No Action, an EFP for conducting aquaculture would be required.

**Alternative 2(b):** A GAP permit is non-transferable.

**Alternative 3:** Require separate NMFS siting and operating permits for conducting offshore marine aquaculture in the Gulf EEZ. A siting permit would authorize use of a site for conducting aquaculture. An operating permit would authorize the activities specified in Preferred Alternative 2.

Other alternatives considered by the Council included maintaining the requirement for an EFP (**Alternative 1**) or requiring separate NMFS operational and siting permits (**Alternative 3**). The Council also considered prohibiting the transfer of permits (**Alternative 2(b)**).

**Alternative 1** would have maintained the status quo requirement to authorize offshore aquaculture activities through an EFP, which effectively prohibits the development and implementation of commercial offshore aquaculture operations in the Gulf. Therefore, Alternative 1 would not have resulted in added impacts to the physical, biological, and ecological environments. Therefore, **Alternative 1** is the **environmentally preferred alternative**. However, the purpose and need for this FMP is to create a permitting process to foster the development of an environmentally sound and economically sustainable aquaculture industry. Therefore, the Council did not select **Alternative 1** as the preferred alternative.

**Alternative 2(b)** would have prohibited the transfer of permits. A transferable permit would have generated a direct economic benefit to owners of the permit because the permit would have become a marketable asset for the duration of the permit. Also, it is theorized that transferable permits encourage economically efficient producers to acquire existing and inefficient operations, which would have increased aquaculture production in the Gulf EEZ. Thus, **Alternative 2(b)** was rejected in lieu of **Preferred Alternative 2(a)**, which will allow transfer of the aquaculture permit as long as the geographic location of the aquaculture operation remains unchanged.

**Alternative 3** would have created a permitting system with a siting permit specifying the duration, size, and location of an offshore aquaculture facility. This alternative would have also created a separate operating permit that would have authorized the same activities that will be authorized under **Preferred Alternative 2**. The two-tier permit process in **Alternative 3** presents no additional safeguards to the physical, biological, and ecological environment. Rather, it would have resulted in additional administrative costs and partial duplication of existing siting requirements required by the ACOE. Action 6 is intended to minimize the impacts of a facility on the physical, biological, and ecological environment by applying a number of criteria and conditions, which dictate where a facility may operate. The siting criteria selected under Action 6 are expected to accomplish what would otherwise be achieved by the dual permitting process analyzed in **Alternative 3**. Further, the ACOE will require a permit for siting aquaculture facilities in the EEZ under the authority of the Rivers and Harbors Act. Having a siting permit in addition to the required ACOE permit was determined to be unnecessarily duplicative. Because potential applicants would have been subjected to redundant applications and permits **Alternative 3** was not chosen.

## **Action 2. Application Requirements, Operational Requirements, and Restrictions**

**Preferred Alternative 3:** Establish the following application requirements, operational requirements, and restrictions:

### **(a) Application Requirements**

1. A completed application and all required supporting documents for a GAP must be submitted by an applicant (in the case of a corporation, an officer or shareholder; in the case of a partnership, a general partner) on a form available from the NMFS RA at least 180 days prior to the date the applicant desires the permit to be effective.
2. An applicant must provide all information indicated on the application form, including, but not limited to:
  - i Applicant's name, address, and telephone number.
  - ii Business name, address, telephone number, and date the business was formed.
  - iii Description of the exact location (i.e., GPS coordinates) and dimensions of the proposed aquaculture facility and proposed site, including a map of the site to scale.
  - iv A list of allowable aquaculture species to be cultured; estimated start up production level by species; and the estimated maximum total annual poundage of each species to be harvested from the aquaculture facility.
  - v Name and address or specific location of each hatchery that would provide juvenile organisms for grow-out at the proposed aquaculture facility located within the Gulf EEZ and a copy of any relevant, valid state or federal aquaculture permits issued to the hatchery.
  - vi Prior to issuance of a GAP, a copy of all currently valid federal permits (e.g., ACOE Section 10 Permit and EPA National Pollutant Discharge Elimination System (NPDES) permit applicable to the proposed aquaculture site, facilities, or operations.
  - vii A description of the allowable aquaculture systems to be used, including, but not limited to the size and dimensions of allowable aquaculture systems, a description of the mooring system(s) used to secure the allowable aquaculture system(s), and documentation of the allowable aquaculture system's ability to withstand physical stress, such as hurricanes, wave energy, etc.
  - viii A description of the equipment and methods necessary for feeding, transporting, maintaining, and removing cultured species from allowable aquaculture systems.
  - ix A copy of the valid United States Coast Guard (USCG) certificate of documentation or, if not documented, a copy of the valid state registration certificate for each vessel involved in the aquaculture operation; and documentation or identification numbers for any aircraft or vehicles involved.
  - x Documentation certifying the applicant has posted an assurance bond sufficient to cover the costs of removal of all components of the aquaculture facility, including cultured organisms remaining in allowable aquaculture systems, from the Gulf EEZ. The assurance bond would not be required to cover the costs of removing an oil and gas platform. The NMFS RA will provide applicants a form and associated guidance for complying with the assurance bond requirement.
  - xi Certification by the applicant that all broodstock used to provide juveniles to the aquaculture facility were originally harvested from U.S. waters of the Gulf, and were from the same population or subpopulation of fish or invertebrates (based on best available science) where the aquaculture facility is located, or progeny of such wild

broodstock, and that each individual broodstock was marked or tagged at the hatchery to allow for identification of those individuals used in spawning.

- xii Certification by the applicant that no genetically modified organisms (GMO) or transgenic organisms are used or possessed in the aquaculture facility. A GMO is an organism that has been transformed by the insertion of one or more transgenes (an isolated gene sequence often, but not always, derived from a different species than that of the recipient). A transgenic animal is an animal whose genome contains a nucleotide sequence that has been intentionally modified in vitro, and the progeny of such an animal. NMFS may sample cultured organisms to determine genetic lineage and will order the removal of all cultured organisms upon a determination that GMOs or transgenic organisms were used or possessed at an aquaculture facility.
- xiii Certification by the applicant that a contractual arrangement with an identified aquatic animal health expert to provide services to the aquaculture facility has been obtained. An aquatic animal health expert is defined as a licensed doctor of veterinary medicine or is certified by the American Fisheries Society, Fish Health Section, as a "Fish Pathologist" or "Fish Health Inspector". A copy of the license or certification must also be provided to NMFS.
- xiv A copy of an emergency disaster plan developed for and to be used by operator of the aquaculture facility, that includes, but is not limited to, procedures for preparing allowable aquaculture systems, offshore aquaculture equipment, and cultured organisms in the event of a disaster (e.g., hurricane, tsunami, harmful algal bloom, chemical or oil spill, etc).
- xv Information sufficient to document eligibility as a U.S. citizen or permanent resident alien. This information includes, but is not limited to, corporate structure and shareholder information.
- xvi Any other information concerning the aquaculture facility or its operations or equipment, as specified on the application form.
- xvii Any other information that may be necessary for the issuance or administration of the GAP, as specified on the application form.

**(b) Operational Requirements and Restrictions**

1. At least 25 percent of allowable aquaculture systems approved for use at an aquaculture facility at the time of permit issuance must be placed in the water at the permitted aquaculture site within 2 years of issuance of the aquaculture permit, and allowable species for aquaculture must be placed in the permitted aquaculture system(s) within 3 years of issuance of the permit. Failure to comply with these requirements will be grounds for revocation of the permit. A permittee may request a one-year extension to the above time schedules in the event of a catastrophe (e.g., hurricane). Requests must be made in writing and sent to the RA. The NMFS RA will approve or deny the request after determining if catastrophic conditions exist and whether or not the permittee was affected by the catastrophic conditions. The NMFS RA shall provide the determination and the basis for it, in writing to the permittee.
2. The permittee must obtain and submit to NMFS a signed certification from the owner(s) of the hatchery from which fingerlings or other juveniles are obtained indicating broodstock have been individually marked or tagged (e.g., via a Passive Integrated Transponder, coded wire, dart, or internal anchor tag) to allow for identification of those individuals used in spawning. The permittee must also obtain and submit to NMFS signed certification from the owner(s) of the hatchery indicating that fin clips, or other

- genetic materials, were collected and submitted for each individual brood animal in accordance with procedures specified by NMFS. These certifications must be provided by the permittee each time broodstock are acquired by the hatchery or used for spawning.
3. Prior to stocking cultured animals in an allowable aquaculture system in the Gulf EEZ, the permittee must provide NMFS a copy of a health certificate (suggested form is U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Agency (APHIS) VS 17-141, OMB 0579-0278) signed by an aquatic animal health expert (as defined in (a)(2)(xiv)) certifying cultured animals were inspected and determined to be free of OIE reportable pathogens or additional pathogens identified as reportable pathogens in the NAAHP as implemented by the U.S. Department of Agriculture (USDA), Commerce, and Interior.
  4. Permittee must maintain a minimum of one properly functioning electronic locating device (e.g., GPS device, pinger with radio signal) on each allowable aquaculture system, i.e., net pen or cage, placed in the water at the aquaculture facility.
  5. The permittee must conduct feed monitoring and management practices in compliance with EPA regulations at 40 CFR 451.21.
  6. Permittee must comply with all applicable monitoring and reporting requirements specified in their valid ACOE Section 10 permit and valid EPA NPDES permit.
  7. A permittee must inspect allowable aquaculture systems, including mooring and anchor lines, for entanglements or interactions with marine mammals, protected species, and migratory birds. If entanglements or interactions are observed, they must be reported as specified in Action 8, Preferred Alternative 2(c)(2).
  8. Use of drugs, pesticides, and biologics must comply with all applicable FDA, EPA, and USDA regulations (e.g., Food, Drug and Cosmetic Act, 21 USC 321; Clean Water Act, 40 CFR 122; 9 CFR 101-124; 21 CFR 500-599; and 40 CFR 150-189).
  9. Cultured finfish must be maintained whole with heads and fins intact until landed on shore. Until landed on shore, spiny lobster must be maintained whole with the tail intact.
  10. Except for authorized broodstock associated with a hatchery located in the Gulf EEZ, possession of wild fish or invertebrates at or within the boundaries of an aquaculture facility's restricted access zone is prohibited (Action 7 and Alternative 2(n) in Action 8).
  11. Possession and transport of any wild fish or invertebrates aboard an aquaculture operation's transport or service vessels, vehicles, or aircraft is prohibited, except when harvesting broodstock as authorized by NFMS.
  12. A permittee must provide NMFS employees and authorized officers access to the aquaculture facility to conduct inspections or sampling necessary to determine compliance with the applicable regulations (e.g., sample cultured organisms to determine genetic lineage) relating to aquaculture in the Gulf EEZ. NMFS shall conduct at least annual inspections of each permitted aquaculture facility
  13. A permittee may only obtain juveniles for grow-out at an aquaculture facility from a hatchery located in the U.S.
  14. Species cultured at an aquaculture facility in the Gulf EEZ can only be landed ashore between 6 a.m. and 6 p.m., local time.
  15. Any vessel transporting cultured organisms to or from an aquaculture facility must stow fishing gear as follows:
    - i A longline may be left on the drum if all gangions and hooks are disconnected and stowed below deck. Hooks cannot be baited. All buoys must be disconnected from the gear; however, buoys may remain on deck.

- ii A trawl net may remain on deck, but trawl doors must be disconnected from the trawl gear and must be secured.
- iii A gillnet must be left on the drum. Any additional gillnets not attached to the drum must be stowed below deck.
- iv A rod and reel must be removed from the rod holder and stowed securely on or below deck. Terminal gear (i.e., hook, leader, sinker, flasher, or bait) must be disconnected and stowed separately from the rod and reel. Sinkers must be disconnected from the down rigger and stowed separately.
- v All other fishing gear must be stored below deck or in an area where it is not normally used or readily available for fishing.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 3** will require the owner of an aquaculture firm to submit an application for a GAP at least 180 days prior to the date the applicant desires the permit to be effective.

**Preferred Alternative 3** will also require applicants to submit information to NMFS when applying for a permit, including: contact information, description of the exact location of the proposed facility and site, a list of species to be cultured, estimated start up production level by species, estimated maximum total annual poundage of each species to be harvested, hatchery information, copies of other required federal permits, a description of proposed aquaculture systems and equipment, documentation for vessels and aircraft, an assurance bond to cover the costs of removal of all components of the facility, certification that broodstock used to provide juveniles are from the U.S. waters of the Gulf and from the same population where the aquaculture facility is located, certification that no GMOs or transgenic animals are used or possessed at the aquaculture facility, certification that a contractual arrangement with an aquatic animal health expert has been established, an emergency disaster plan, and other information necessary for issuance and administration of a permit.

Additionally, **Preferred Alternative 3** will specify a use it or lose it provision for permits; require documentation from hatcheries that broodstock are marked or tagged; require a health certificate of inspection prior to stocking of cultured animals in offshore aquaculture systems, require that locating devices be maintained on allowable aquaculture systems; require permittees to monitor feed usage; require permittees to report interactions/entanglements with protected resources and migratory birds; require permittees to comply with monitoring, drug, pesticide, and biologic regulations from other federal agencies; require that cultured finfish be maintained with head and fins intact and spiny lobster be landed whole; prohibit possession of wild fish, except when harvesting broodstock; and allow NMFS employees or authorized officers access to facilities. All of these conditions will have to be met in order to issue a GAP or operate an aquaculture facility in the Gulf EEZ.

**Preferred Alternative 3** was chosen because it will result in the greatest benefits to the biological and physical environments by providing necessary safeguards for authorizing, monitoring, and enforcing marine aquaculture. These safeguards will assist the Council, NMFS, and other federal agencies in preventing, or minimizing to the extent practicable, impacts on water quality, benthic habitat, and wild fish stocks. Since **Preferred Alternative 3** sets forth specific application and operational requirements intended to prevent or minimize impacts on the

physical, biological, and ecological environments, this is the **environmentally preferred alternative**.

Rejected alternatives to the proposed action.

**Alternative 1:** Do not specify application requirements, operational requirements, or restrictions for aquaculture in the Gulf EEZ.

**Alternative 2:** Status quo. Require the EFP application and issuance requirements as specified at 50 CFR 600.745(b).

**Alternative 1** does not specify any application or operational requirements and would therefore have had the most potential for causing negative effects on the physical, biological, and ecological environment. **Alternative 2** maintains the use of the requirements and conditions specified for an EFP. However, these requirements may vary from permit to permit because the NMFS RA can set terms and conditions for the permit and there is a general lack of specificity provided in the EFP regulations. For these reasons, **Alternative 2** may not afford adequate protection to the physical, biological, and ecological environments.

**Action 3. Permit Duration**

**Preferred Alternative 2(b):** Aquaculture permits are effective for 10 years and may be renewed in 5 year increments.

A GAP remains valid for the period indicated on the permit unless it is revoked, suspended, or modified pursuant to subpart D of 15 CFR part 904 for non-compliance with applicable aquaculture regulatory requirements or the aquaculture facility is sold and the permit has not been transferred.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

Under **Preferred Alternative 2(b)**, a permit will remain valid for 10 years and will be subject for renewal in 5-year increments unless it is revoked, suspended, or modified pursuant to subpart D of 15 CFR part 904 for non-compliance with applicable aquaculture regulatory requirements or the aquaculture facility is sold and the permit is not transferred. An initial permit duration of ten years with 5 year renewal periods was chosen in order to strike the best balance between providing adequate time to establish operations and funding, while not granting excessively long permit duration that would make it difficult for NMFS to address any unexpected problems related to user conflicts or other issues.

Rejected alternatives to the proposed action.

**Alternative 1:** No Action, EFPs are effective for no longer than one year unless otherwise specified in the EFP or a superseding notice or regulation (50 CFR 600.745(b)(4)).

**Alternative 2:** Aquaculture permits are effective for:

- a) 5 years
- c) 20 years
- d) Indefinitely.

**Alternative 1** would have provided the shortest permit duration time period (1 year unless specified otherwise) of any of the alternatives, and would have allowed NMFS to deny issuing a new permit after this relatively short period, if an operation was causing negative environmental impacts to the physical and biological environments. Thus, **Alternative 1** is the **environmentally preferred alternative**. **Alternatives 2(a) and 2(c)** would have allowed non-renewable permits to remain valid for 5 or 20 years, respectively, and **Alternative 2(d)** would have allowed such permits to remain valid indefinitely.

Shorter permit durations (less than ten years) would make it difficult to obtain financing for aquaculture operations and undesirable for investors to commit money to such operations. Offshore aquaculture entrepreneurs will, in many instances, need to finance their operations. Lenders will provide financing only if there is sufficient certainty that the aquaculture operation can pay principal and interest on any loans. Obtaining capital has been a problem for offshore aquaculture entrepreneurs. Longer permit durations (more than ten years) are expected to reduce cost risks associated with short-term output fluctuations and/or market fluctuations, which would increase the likelihood of entrepreneurs obtaining financing. However, shorter permit durations would be more beneficial to the physical and biological environments because it would give NMFS more frequent opportunities to evaluate the operation and impacts of a particular facility and adjust permit conditions as necessary.

All of the alternatives may displace Gulf fishermen from certain fishing areas, which may result in economic and social costs to fishermen, their families, and communities. While **Alternative 2(d)** may displace fishermen from particular areas indefinitely, **Alternatives 2(a) and 2(c)** would have limited displacement for 5 and 20 years, respectively, and do not provide for a renewal option. **Preferred Alternative 2(b)** will allow the permit to be renewed, which will explicitly allow the development of long-term commercial offshore aquaculture operations and the economic and social benefits that may be derived from those operations. **Alternative 2(d)** would have also allowed the long-term development of an offshore aquaculture industry, but a permit of this duration would have given the permit holder exclusive use of a particular site for an indefinite amount of time. While this alternative would be expected to be the most attractive and economically beneficial to aquaculture businesses, the opposite would be true for existing and alternative future users of the sites.

#### **Action 4. Species Allowed for Aquaculture and included in the Aquaculture Fishery Management Unit (FMU).**

**Preferred Alternative 4:** Allow the aquaculture of all species native to the Gulf that are managed by the Council and included in a Council FMP management unit, except those species in the shrimp and coral FMP management units, and include these species in the Aquaculture FMU. The FMP also states that Council will send a letter to NMFS requesting development of concurrent rulemaking to allow aquaculture of highly migratory species (HMS).

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 4** will allow the aquaculture of all Council managed species, except corals and shrimp. Only species native to the Gulf will be allowed for culture. By allowing the culture of only native species the potential for negative impacts on the biological, physical, and ecological environments will be eliminated or significantly reduced in the event that escapement occurs.

**Preferred Alternative 4** will allow for culture of species, which are overfished or undergoing overfishing. As such, culture of those species will increase OY for those stocks and may reduce fishing mortality consistent with National Standard 1, if demand for wild caught fish is reduced.

**Preferred Alternative 4** was chosen because it will allow for the largest number of native Gulf species that can be cultured in offshore aquaculture and may yield the largest economic and social benefits. Among the non-status quo alternatives, **Preferred Alternative 4** may cause the largest economic and social costs to fishermen, their families, and communities by putting them in direct competition with offshore aquaculture operations. However, foreign imports represent a significant amount of the current U.S. seafood, therefore, it is not expected that domestically cultured species will have a significant economic impact on traditional fishing businesses or communities over the short term. Conversely, aquaculture operations could provide additional means of employment, thereby benefitting local communities.

Rejected alternatives to the proposed action.

**Alternative 1:** No Action, do not specify species allowed for aquaculture and do not develop an Aquaculture FMU.

**Alternative 2:** Allow the aquaculture of all finfish species native to the Gulf in the reef fish, red drum, and coastal migratory pelagics FMPs and include these species in the Aquaculture FMU.

**Alternative 3:** Allow the aquaculture of all species native to the Gulf that are managed by the Council and included in a FMP management unit, except goliath grouper, Nassau grouper, and those species in the shrimp and coral FMUs, and include these species in the Aquaculture FMU.

**Alternative 1**, the no action alternative, would not have specified which species would be allowed for aquaculture and would not have established an Aquaculture FMU. If **Alternative 1** were chosen, a permit applicant could request permission to culture any species, whether it was native to the Gulf or not, managed by the Council, vertebrate or invertebrate, or already protected from fishing in the Gulf EEZ. NMFS would then determine whether culture of a particular species was acceptable, rather than the Council making that determination through the Aquaculture FMP.

**Alternatives 2 and 3** would have limited culture to species managed by the Council that are native to the Gulf and would have included allowable species in the FMU for the Aquaculture FMP. **Alternative 2** would have limited culture to only federally managed finfish, while **Alternative 3** would have allowed culture of Council managed finfish and invertebrates, but

would have prohibited the culture of shrimp, corals, and goliath grouper, and Nassau grouper. Because **Alternative 3** is the most restrictive, it is the **environmentally preferred alternative**.

### **Action 5. Allowable Marine Aquaculture Systems**

**Preferred Alternative 3:** The NMFS RA will evaluate each proposed aquaculture system on a case-by-case basis and approve or deny use of the proposed system for offshore marine aquaculture in the Gulf EEZ. To assist the RA in evaluating the structural integrity of a proposed aquaculture system, an applicant would be required to submit to the RA documentation (e.g., engineering analyses, computer and physical oceanographic model results) sufficient to evaluate the ability of the aquaculture system(s) (including moorings) to withstand physical stresses associated with major storm events, e.g. hurricanes, storm surge. The NMFS RA will also evaluate the proposed aquaculture system and its operations based on potential risks to EFH, endangered or threatened marine species, marine mammals, wild fish or invertebrate stocks, public health, or safety. The RA may deny use of a proposed aquaculture system or specify conditions for using an aquaculture system based on a determination of such significant risks. The RA's evaluation will be based on information provided by the applicant as well as consultations with NMFS and NOAA offices/programs. If the RA denies use of a proposed aquaculture system or specifies conditions for its use, the RA shall provide the determination and the basis for it, in writing to the applicant.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 3** will provide NMFS the authority to evaluate each proposed aquaculture system on a case-by-case basis. NMFS will evaluate the proposed aquaculture system based on potential risks to EFH, endangered or threatened marine species, marine mammals, wild fish stocks, public health, or safety. Permit applicants will also be required to submit documentation, such as computer model results, sufficient to evaluate the ability of the aquaculture system to withstand physical stresses associated with major storm events. This information is considered necessary for NMFS to make a meaningful evaluation of the proposed system. NMFS could approve or deny a proposed system, or specify conditions for its use. **Preferred Alternative** was chosen because it will provide for the most rigorous review of proposed aquaculture systems by NMFS and will therefore provide the greatest benefits to the physical and biological environments. As a result, **Preferred Alternative 3** is the **environmentally preferred alternative**.

#### Rejected alternatives to the proposed action.

**Alternative 1:** No Action, do not specify allowable systems for offshore marine aquaculture in the Gulf EEZ.

**Alternative 2:** Allow only cages and net pens for offshore marine aquaculture in the Gulf EEZ.

**Alternative 1** would not have specified allowable systems for marine aquaculture in the Gulf EEZ. Presumably, permittees could use any type of system regardless of whether it was capable

of withstanding the physical stresses of the marine environment. No standards or requirements would have been specified for NMFS to approve or disapprove a proposed system.

**Alternative 2** would have allowed any type of cage or net pen proposed by an applicant, regardless of structural integrity. NMFS would not have had the authority to limit use of such systems, unless the system was not a cage or net pen. As a result, the risk of harm to habitat and marine resources could be increased if these systems are more easily damaged by storms and other weather events. Additionally, no standards or requirements would have been specified for NMFS to approve or disapprove systems proposed under **Alternative 2**.

## **Action 6. Marine Aquaculture Siting Requirements and Conditions**

**Preferred Alternative 3:** Establish the following criteria for siting marine aquaculture facilities:

- (a) Prohibit marine aquaculture in Gulf EEZ marine protected areas and marine reserves, HAPCs, SMZs, and permitted artificial reef areas as specified in 50 CFR 622, and coral reef areas as defined in 50 CFR 622.2.
- (b) No offshore aquaculture facility may be sited within 1.6 nautical miles (3 km) of another offshore aquaculture facility.
- (c) To allow fallowing and rotation of allowable aquaculture systems within a site permitted by the ACOE and approved by NMFS, the permitted site must be at least twice as large as the combined area encompassed by the allowable aquaculture systems (e.g., cages and net pens).
- (d) Applicants for a GAP must conduct and submit a baseline environmental assessment of the proposed aquaculture site to NMFS with their application packet. Data, results, and analyses from the baseline environmental assessment must be provided to NMFS for consideration during review of a permit application. The baseline environmental assessment must be conducted, and analyses, data, and results must be summarized, based on guidance and procedures specified by NMFS. If a permit is approved, applicants must also monitor the site in accordance with NMFS guidance and procedures. Baseline environmental assessment and monitoring guidance and procedures will be developed in consultation with the ACOE, EPA, and other federal agencies having authority to regulate offshore aquaculture. Guidance will include, but will not be limited to, procedures and methods for: 1) conducting diver and video surveys, 2) measuring hydrographic conditions, 3) collecting and analyzing benthic sediments and infauna, and 4) measuring water quality characteristics. The guidance and procedures will be available from the RA and on the NMFS aquaculture website.
- (e) The NMFS RA will evaluate siting criteria in addition to those preferred criteria selected by the Council in Alternative 3(a-d) on a case-by-case basis. Criteria considered by the RA during case-by-case review would include, but would not be limited to, depth of the site, current speeds, substrate type, the frequency of harmful algal blooms (HABs) or hypoxia at the proposed site, marine mammal migratory pathways, and the location of the site relative to commercial and recreational fishing grounds and important natural fishery habitats (e.g., seagrasses). The RA may deny use of a proposed aquaculture site based on a determination that such a site poses significant risks to EFH, endangered species, or threatened marine species, will result in user conflicts with commercial or recreational fishermen or other marine resource users, the depth of the site is not sufficient for the allowable aquaculture system(s), substrate and currents at the site will inhibit the dispersal of wastes and effluents, the site poses significant risks of mortality to the cultured species due to low dissolved

oxygen or HABs, or other grounds inconsistent with FMP objectives or applicable federal laws. The information used by NMFS for siting a facility with regard to proximity to commercial and recreational fishing grounds would include, but is not limited to, electronic logbooks from the shrimp industry, logbook reported fishing locations, siting information from previously proposed or permitted aquaculture facilities, and other data that would provide information regarding how the site would interact with other fisheries. Such a determination by the RA shall be based on consultations with NMFS offices and programs and siting and other information submitted by the permit applicant. If a proposed site is denied, the RA shall provide the determination and the basis for it, in writing to the permit applicant.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 3** will establish specific criteria for siting, but will not establish predefined zones. Based on the criteria specified in **Preferred Alternative 3**, approximately 28,719 nm<sup>2</sup> will be suitable for offshore aquaculture in the Gulf. This area will represent approximately 13.7 percent of the entire Gulf EEZ. In order to protect unique areas that are more sensitive to adverse environmental effects, aquaculture will be prohibited in marine protected areas and marine reserves, HAPCs, SMZs, permitted artificial reef areas, and coral reef areas. Operations will also be required to be sited at least 1.6 nm from each other and the permitted site will need to be twice as large as the area encompassed by allowable aquaculture systems to allow fallowing and rotation of cages, net pens, and other allowable systems. Additionally, permit applicants will be required to conduct a baseline environmental assessment and subsequent environmental monitoring at the proposed site in accordance with NMFS guidance and procedures. NMFS will coordinate the development of guidance and procedures with the EPA, ACOE, and other federal agencies with regulatory authority over marine aquaculture. A baseline environmental assessment is necessary for NMFS to ensure siting will not unacceptably affect EFH, important benthic habitat, and marine resources. Follow-up environmental monitoring will allow NMFS and other federal agencies to assess changes at the site resulting from aquaculture operation. NMFS will also be provided authority to conduct case-by-case reviews of specific sites.

**Preferred Alternative 3** was chosen because it includes the most thorough review of a proposed site and is therefore the **environmentally preferred alternative**.

#### Rejected alternatives to the proposed action.

**Alternative 1:** No Action, do not designate areas in the Gulf EEZ where aquaculture would be allowed. The ACOE would permit sites for aquaculture. NMFS and the Council would continue to review and comment on ACOE siting permits.

**Alternative 2:** Establish marine aquaculture zones within which individual sites would be permitted. Marine aquaculture facilities may only be sited in the zones specified (Figure 4.6.1). Coordinates for these areas are specified in Table 4.6.1 of the Aquaculture FMP.

**Alternative 1** would not have provided NMFS with authority to regulate siting of aquaculture facilities. Rather, **Alternative 1** would have only allowed NMFS to comment on ACOE Section

10 siting permits to ensure proper siting of facilities. This alternative would have relegated NMFS' role to only commenting on permits under the authority of other federal agencies, potentially providing the least protection to the physical and biological environments. The ACOE could potentially approve a site despite NMFS' objection; however, the ACOE would have had to consider any comments and conservation measures provided by NMFS. Because criteria for approving a site likely will differ between these two agencies, there is potential for a site to be approved that results in adverse effects to the physical and biological environments, such as habitat degradation and diminished water quality.

**Alternative 2** would have established 13 zones for conducting marine aquaculture which encompass 10,392 nm<sup>2</sup> of the Gulf, or approximately 5 percent of the entire Gulf EEZ (209,226 nm<sup>2</sup>). These zones are based on Geographic Information System maps developed by the Gulf States Marine Fisheries Commission, which identify suitable areas for aquaculture. The zones represent approximately 36 percent of the total area considered to be suitable for conducting offshore marine aquaculture in the Gulf EEZ. However, establishing broad zones may not include sufficient detail to prevent or minimize localized, small-scale impacts associated with a particular site, and under this alternative, additional authority would likely be needed to be provided to NMFS to evaluate specific sites within each of the predefined zones.

#### **Action 7. Establish Restricted Access Zones for Marine Aquaculture Facilities**

**Preferred Alternative 2:** Create a restricted access zone for each aquaculture facility. The boundaries of an aquaculture facility's restricted access zone shall correspond with the coordinates on the approved ACOE Section 10 permit. No recreational and no commercial fishing other than offshore aquaculture may occur in the restricted access zone. No fishing vessels may operate in or transit through the restricted access zone unless the vessel has on board a signed copy (i.e., a permit with an original signature and not a copy of the signature) of the facilities' aquaculture permit onboard. The permittee must mark the restricted access zone with a floating device such as a buoy at each corner of the zone. Each floating device must clearly display the aquaculture facility's permit number and the words "RESTRICTED ACCESS" in block letters at least 6 inches in height and in a color that contrasts with the color of the floating device.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 2** will establish a restricted access zone that corresponds to the coordinates on the ACOE siting permit, which should be an area at least twice as large as the total area encompassed by the allowable aquaculture systems (e.g., cages and net pens) as required in the siting criteria (Action 6). The restricted access zone will need to be marked with a floating device such as a buoy at each corner of the zone. Additionally, **Preferred Alternative 2** will require that a buoy or other floating device display the facility's permit number and the words "RESTRICTED ACCESS" in block letters at least 6 inches in height, in contrasting color to the float so that boaters and fishers are aware of the restricted access zone. These marking requirements are consistent with USCG marking requirements and are believed to provide adequate visibility. **Preferred Alternative 2** was chosen because of the large area encompassed

by the restricted access zone (at least twice the size of the area necessary for aquaculture systems). Therefore **Preferred Alternative 2** is the **environmentally preferred alternative**.

#### Rejected alternatives to the proposed action.

**Alternative 1:** No Action, Do not establish restricted access zones around marine aquaculture facilities.

**Alternative 3:** Prohibit recreational and commercial fishing and the operation or transit of federally permitted fishing vessels within:

- (a) 100 feet (30 meters) of allowable marine aquaculture systems.
- (b) 500 feet (152 meters) of allowable marine aquacultures systems.
- (c) 1,640 feet (500 meters) of allowable marine aquaculture systems.

**Alternative 1** would not have restricted access around a marine aquaculture facility, thereby allowing fishing vessels to fish close to allowable aquaculture systems and transit in or through permitted aquaculture sites. This could result in encounters between vessels and aquaculture equipment, which may result in negative environmental consequences (e.g., escapement of cultured fish) or safety issues. **Alternative 3** considers buffer zones between fishing vessels and aquaculture systems of at least 100 feet (**Alternative 3a**), 500 feet (**Alternative 3b**) or 1,640 feet (**Alternative 3c**). These buffer zones are expected to be smaller than the zones established under **Preferred Alternative 2**, which will be based on ACOE siting coordinates. **Preferred Alternative 2** will require offshore aquaculture operations to mark their boundaries and maintain these markers. The absence of mandatory zone markings for **Alternatives 1** and **3** may reduce some of the protection afforded by buffer zones, especially if visual detection of a facility is severely impaired by existing weather conditions.

#### **Action 8. Recordkeeping and Reporting**

**Preferred Alternative 2:** Establish the following reporting and recordkeeping requirements for aquaculture permittees:

- (a) On a continuing basis, provide NMFS currently valid copies of all state and federal permits (e.g., ACOE Section 10 permit, EPA NPDES permit) required for conducting offshore aquaculture. Maintain and make available upon request monitoring reports required by each of these permits for the most recent three years.
- (b) Notify NMFS via phone or an electronic web-based form within 24 hours of discovery of any of the following events:
  - 1. Major escapement. 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. A permittee shall provide NMFS with the following information if major escapement

occurs or is suspected of having occurred: GAP number, contact person name and phone number, specific location of escapement, cause(s) for escapement and the number, type of species, size, and percent of cultured organisms that escaped, and actions being taken to address the escapement. If no major escapement occurs during a given year, then the permittee shall provide the NMFS RA with an annual report via an electronic web-based form on or before January 31 each year indicating no major escapement occurred.

2. Entanglements or interactions with marine mammals, endangered species, and migratory birds. A permittee shall provide the NMFS RA with the following information if entanglements or interactions with marine mammals, endangered species, or migratory birds occur: 1) Date, time, and location of entanglement or interaction, 2) species entangled or involved in interactions and number of individuals affected; 3) number of mortalities and acute injuries observed, 4) cause of entanglement or interaction, and 5) actions being taken to prevent future entanglements or interactions. If no entanglement or interaction occurs during a given year, then the permittee shall provide the RA with an annual report via an electronic web-based form on or before January 31 each year indicating no entanglement or interaction occurred.
- (c) Report via phone or an electronic web-based form all findings or suspected findings of any OIE-reportable pathogen episodes or additional pathogens that are subsequently identified as reportable pathogens in the NAAHP as implemented by the USDA, or U.S. Departments of Commerce or Interior that are known to infect the cultured species within 24 hours of diagnosis to NMFS. Information reported must include: OIE-reportable pathogen, percent of cultured organisms infected, findings of the aquatic animal health expert, plans for submission of specimens for confirmatory testing (as required by the USDA), testing results (when available), and actions being taken to address the reportable pathogen episode. NMFS, in cooperation with USDA's Animal and Plant Health Inspection Agency (APHIS), may order the removal of all cultured organisms from an allowable aquaculture system upon confirmation by an USDA/APHIS-approved reference laboratory that an OIE-reportable pathogen exists and USDA/APHIS and NMFS find that the event poses a significant risk to the health of wild or farmed aquatic organisms (Note: the Animal Health Protection Act of 2002 provides the Secretary of Agriculture authority to carry out operations and measures to detect, control, or eradicate any pest or disease of livestock, including animals at a slaughterhouse, stockyard, or other point of concentration. NMFS would coordinate with the USDA in ordering the removal of cultured organisms). If no finding or suspected finding of an OIE suspected pathogen episode occurs during a given year, then the permittee shall provide the NMFS RA with an annual report via an electronic web-based form on or before January 31 each year indicating no finding or suspected finding of an OIE suspected pathogen episode.
- (d) Notify NMFS within 30 days of any changes in hatcheries used for providing fingerlings or other juvenile organisms and provide updated names and addresses/locations for the applicable hatcheries.
- (e) Keep original purchase invoices or copies of purchase invoices for feed on file for three years from the date of purchase and make available to NMFS or authorized officers during inspection or upon request.
- (f) Submit sale records electronically using a web-based form and maintain and make available to NMFS personnel or authorized officers during inspection(s) or upon request, sale records

for the most recent three years. Sale records must include the species and quantity of cultured organisms sold in pounds whole weight, the estimated average weight of cultured organisms sold to the nearest tenth of a pound, the date of sale, and the names of companies or individuals to whom fish were sold.

- (g) Notify NMFS via phone or electronically using a Web-based form of the intended time, date, species and number of fingerlings or other juvenile organisms that will be transported from a hatchery, other than a hatchery that is integrated within the aquaculture facility, to an aquaculture facility at least 72 hours prior to transport.
- (h) Notify NMFS via phone or electronically using a web-based form of the intended time, date and estimated amount in pounds whole weight by species of fish to be harvested from the aquaculture facility at least 72 hours prior to harvest.
- (i) Notify NMFS via phone or electronically using a web-based form of the intended time, date, and port of landing for any vessel landing cultured organisms harvested from an aquaculture facility at least 72 hours prior to landing.
- (j) Any cultured organisms harvested from an offshore aquaculture facility and being transported for landing ashore or sale must be accompanied by the applicable bill of lading through the first point of sale. The bill of lading must include species name, quantity in numbers or pounds, GAP number of the aquaculture facility from which the fish were harvested, and name and address of purchaser.
- (k) Maintain and make available to NMFS personnel or authorized officers upon request a written or electronic daily record of the number of cultured animals introduced into and number or pounds and average weight of fish removed from each allowable aquaculture system, including mortalities, for the most recent three years.
- (l) Permittee must provide NMFS current information (i.e. updates if changed since application) regarding names, addresses, and phone numbers of captains, pilots, aircraft owners, and vessel owners, along with documentation or identification numbers for project vessels and aircraft.
- (m) Permit applicants must provide NMFS copies of valid state and federal aquaculture permits for each hatchery they obtain fingerlings from.
- (n) At least 30 days prior to each time a permittee or their designee intends to harvest broodstock from the EEZ or state waters, that would be used to produce juvenile fish for an aquaculture facility in the Gulf EEZ, submit a request electronically via a web-based form to the NMFS RA, including the following information: the number of animals, species, and size, the methods, gear, and vessels (including USCG documentation or state registration) to be used for capturing, holding, and transporting broodstock, the date and specific location of intended harvest, and the location to which broodstock will be delivered. Allowable methods or gear used for broodstock capture include those identified for each respective fishery in 50 CFR 600.725, except red drum, which may be harvested only with handline or rod and reel. The NMFS RA may deny or modify a request for broodstock collection if allowable methods or gear are not proposed for use, the number of fish harvested for broodstock is more than necessary for purposes of spawning and rearing activities, or other grounds inconsistent with FMP objectives or other federal laws. If a broodstock collection request is denied or modified, the RA shall provide the determination and the basis for it, in writing to the permittee. If a broodstock collection request is approved, the permittee shall submit a report to the RA including the number and species of broodstock collected, their size (length and weight), and the geographic location where the broodstock were captured. The report must

be submitted on a Web-based form to the NMFS RA no later than 15 days after the date of harvest.

- (o) During catastrophic conditions only, the RA may authorize use of paper-based components for basic required functions as a backup to what would normally be reported electronically. The RA will determine when catastrophic conditions exist, the duration of the catastrophic conditions, and which participants or geographic areas are deemed affected by the catastrophic conditions. The RA will provide timely notice to affected participants via publication of notification in the *Federal Register* and other appropriate means and will authorize the affected participants' use of paper-based components for the duration of the catastrophic conditions. NMFS will provide each aquaculture permit holder the necessary paper forms, sequentially coded, and instructions for submission of the forms to the RA. The paper forms will also be available upon request from the RA. The program functions available to participants or geographic areas deemed affected by catastrophic conditions may be limited under the paper-based system. Assistance in complying with the requirements of the paper-based system will be available via Customer Service Monday through Friday between 8 a.m. and 4:30 p.m. eastern time.
- (p) Any other appropriate recordkeeping and reporting requirements necessary for evaluating and assessing the environmental impacts of an aquaculture operation.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP

**Preferred Alternative 2** will require aquaculture facilities to meet multiple recordkeeping and reporting requirements. The intent of these requirements is to minimize or prevent impacts to wild stocks, habitat, and other biological resources.

**Preferred Alternative 2** establishes recordkeeping and reporting requirements for permittees that are intended to assist law enforcement in determining compliance with applicable regulations. For example, feed invoices will assist NMFS and the EPA in the event that water quality problems arise as a result of the type of feed being used. Harvest and sale records will be used to ensure that production does not exceed the maximum annual production level allowed by Action 9. Harvest and sale records and daily records of the number of cultured animals introduced into and removed from (including mortalities) each allowable aquaculture system may also be used for auditing purposes.

**Preferred Alternative 2** requires permittees to submit copies of valid state and federal aquaculture permits to NMFS on a continuing basis to determine if a permittee possesses other necessary permits for operation. Permittees will also be required to maintain and make available monitoring reports required by other federal agencies for a period of three years which will alert NMFS if monitoring requirements of other agencies identify impacts to the physical or biological environment. NMFS will work cooperatively with the ACOE, the EPA, and other federal agencies to correct or mitigate any problems caused by the operation, or if necessary, revoke the permit.

**Preferred Alternative 2** requires permittees to report major escapement events or entanglements and interactions with marine mammals, endangered species, or migratory birds within 24 hours of discovery to NMFS, which will allow NMFS and other agencies to more quickly and efficiently respond to these events.

**Preferred Alternative 2** requires cultured organisms to be inspected and certified as free of OIE reportable pathogens prior to stocking in offshore aquaculture systems. Stocking pathogen-free organisms will be in the best interest of the operation, in order to maintain healthy product, and not spread pathogens to wild stock. If OIE reportable pathogens are determined to exist, NMFS, in cooperation with the Secretary of Agriculture, may order the removal of all cultured organisms from an allowable aquaculture system if the OIE-reportable pathogens pose a significant threat to the health of other cultured organisms or wild aquatic organisms (7 U.S.C. 8301 et seq.).

**Preferred Alternative 2** specifies notification requirements for permittees. Permittees will be required to notify NMFS 72 hours in advance of transport, harvest, or landing of cultured organisms which will allow enforcement and NMFS staff to be present at a facility or landing location when these events occur to determine compliance with regulations. Permittees will also be required to notify NMFS within 30 days of changes in hatcheries to help ensure compliance with operational restrictions contained (Action 2: e.g., marking and tagging requirements for hatchery fish, no genetically modified organisms or transgenic animals). These alternatives will all benefit the biological environment by improving enforcement and ensuring wild species are not harvested or landed and reported as cultured products.

**Preferred Alternative 2** allows NMFS to better enforce aquaculture regulations by ensuring records are kept up to date and requiring current contact information for hatcheries used to provide fingerlings, captains, pilots, aircraft owners, and vessel owners used to support aquaculture activities and operations, along with documentation or identification numbers for project vessels and aircraft.

**Preferred Alternative 2** specifies requirements for harvesting broodstock. Permittees must submit a broodstock harvest request to NMFS at least 30 days prior to the expected date of harvest. If broodstock harvest is approved, then the permittee will be required to report to NMFS once broodstock have been harvested. NMFS will be able to monitor and, if necessary, limit the amount of fish harvested for broodstock to avoid negative impacts on wild stocks. Additionally, restrictions on allowable gear and methods used for broodstock harvest will help minimize detrimental effects on the physical environment.

**Preferred Alternative 2** will provide for modifications to recordkeeping and reporting requirements by the NMFS RA in the event of a catastrophic event (e.g., hurricane). The RA will determine when catastrophic conditions exist and which permittees or geographic areas are affected by these conditions. The RA will then provide timely notice to those affected by the catastrophic conditions and may modify or suspend time schedules and reporting methods for the duration of the catastrophic conditions. If records and reports cannot be submitted electronically, then the RA will provide necessary paper-based forms for submission of records and reports. This provision is intended to ensure NMFS continues to receive reports and records in the event of a catastrophe.

**Preferred Alternative 2** also will allow other appropriate recordkeeping and reporting requirements to be established that are necessary for evaluating and assessing the environmental impacts of an aquaculture operation.

**Preferred Alternative 2** was chosen because it will institute the most stringent recordkeeping and reporting requirements. Therefore, **Preferred Alternative 2** is the **environmentally preferred alternative**.

Rejected alternatives to the proposed action.

**Alternative 1:** No Action, the Regional Administrator has authority to specify recordkeeping and reporting requirements in an EFP (50 CFR 600.745).

**Alternative 1** would not have provided a standardized set of requirements for monitoring environmental impacts. Rather, **Alternative 1** would have allowed the RA to specify recordkeeping and reporting requirements as specified in EFP regulations. If the RA does not specify an adequate range of recordkeeping and reporting requirements under the EFP, then environmental impacts to the physical and biological environments could occur over the short and long term resulting in increased potential for habitat degradation, escapement, and disease outbreaks.

**Action 9. Biological Reference Points and Status Determination Criteria**

**Preferred Alternative 2:** Establish the following new biological reference points and status determination criteria for aquaculture in the Gulf EEZ as follows:

The proxy for MSY is (e) 64 mp ww.

The proxy for OY is the total yield harvested by all permitted aquaculture operations annually, but not to exceed (d) 64 mp ww; Equal to MSY.

No individual, corporation, or other entity can be permitted to produce more than (c) 20 percent of the maximum level of OY.

Production of juvenile fish by a hatchery in the Gulf EEZ will not be counted toward OY or the 20-percent production restriction because those fish would be accounted for subsequently via reported harvest at the aquaculture facility where grow-out occurs.

If planned aquaculture production exceeds the preferred OY specified in Preferred Alternative 2 than the Council would initiate review of the OY proxy and aquaculture program, and NMFS would publish a control date, after which entry into the aquaculture industry may be limited or restricted.

Overfished (i.e., minimum stock size threshold [MSST]) and overfishing (i.e., maximum fishing mortality threshold [MFMT]) definitions contained in the various FMPs to manage wild stocks will be used as proxies for assessing the status of those wild stocks potentially affected by excessive production in aquaculture operations.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 2** specifies status criteria and biological reference points and establishes conservative levels of production until more is known about the impacts of aquaculture in the Gulf. The Council's **Preferred Alternative 2** will limit both the quantity of cultured fish and shellfish that can be produced by the offshore aquaculture operations. For these reasons, **Preferred Alternative 2** is the **environmentally preferred alternative**. In regard to specific MSY and OY proxies, MSY proxy (b) and OY proxy (b) would be the **environmentally preferred** options as this would result in the lowest amount of fish being cultured in (and removed from) the Gulf EEZ on an annual basis. Capping production levels at 20 percent for a single business, individual or entity would be the **environmentally preferred** option as it would result in fewer operations being created in the Gulf EEZ.

**Preferred Alternative 2** will establish biological reference points and status determination criteria for aquaculture in the Gulf. MSY will be 64 mp ww (**Preferred 2(e)** for MSY), which represents the average landings of all marine species in the Gulf, except menhaden and shrimp, between 2000-2006. Setting MSY equal to a specific annual poundage allows the Council to take a more precautionary approach until more is known about the impacts of aquaculture in the Gulf. The MSY specification, as with other fisheries, may be modified based on new information developed as this component of the fishery proceeds.

The Council's **Preferred 2(d)** for OY sets OY at 64 mp ww. Since there is no need to leave cultured animals in offshore aquaculture grow-out systems to support future generations, OY can be set equal to MSY. Accordingly, there are currently no social, economic, or ecological factors supporting a reduction from MSY. The lower OY is set, the greater the benefit to the biological and physical environments. By establishing a precautionary OY level, the Council can assess the impacts of aquaculture as the industry grows to determine if the specified OY level is adequately protecting wild stocks and habitat. If impacts are not observed, or are considered to be minimized to the extent practicable and are not resulting in significant negative impacts, than the Council could consider increasing OY/MSY in the future.

**Preferred Alternative 2** will also establish a production cap for individuals, corporations, or other entities issued a GAP. This provision is necessary to ensure entities do not obtain an excessive share of the allowable yield (National Standard 4: 50 CFR 600.325[a][3]). The level selected by the Council for capping production must ensure against possible anti-competitive effects resulting from a small number of entities accounting for most or all of the aquaculture production. The Council's preferred **2(c)** will cap production by individuals, corporations, or other entities at 20 percent of OY (i.e., 20 percent of 64 mp; Council preferred). Capping production at 20 percent (versus 5 or 10 percent) offers the greatest social and economic benefit to aquaculture facility owners and those who benefit from their production because it will allow aquaculture producers to increase their scale of production, produce larger quantities, and potentially experience greater economies of scale than the other two alternatives. Lower cap values will produce lower benefits of this nature.

**Preferred Alternative 2** was chosen because it aims to reduce the risk and magnitude of adverse economic and social impacts to fishermen, their families, and fishing communities, which could be caused by direct competition and the competitive advantages of offshore aquaculture operations. Further, the MSY and OY proxies **Preferred (e)** and **Preferred (d)**, respectively,

were chosen to provide an opportunity for the aquaculture industry in the Gulf EEZ to develop, while still taking a precautionary approach in regard to production until more is known about the number and size of operations, potential environmental impacts resulting from aquaculture, economic sustainability of aquaculture, and the production capacity of various marine aquaculture systems. The 20 percent production cap for a single business, individual or entity (**Preferred (c)**) was also chosen to ensure against possible anti-competitive effects resulting from a small number of entities accounting for most or all of the aquaculture production.

Rejected alternatives to the proposed action.

**Alternative 1:** No Action. Do not establish biological reference points (MSY, OY) or status determination criteria (MFMT, MSST) specific to aquaculture in the Gulf EEZ.

**Alternative 2:** Establish the following new biological reference points and status determination criteria for aquaculture in the Gulf of Mexico EEZ:

**The proxy for MSY is:**

- (a) the total yield harvested by all aquaculture operations in a given year within the management regime established in this FMP.**
- (b) 16 million pounds whole weight (mp ww).**
- (c) 32 mp ww.**
- (d) 36 mp ww.**
- (f) 190 mp ww.**

**The proxy for OY is the total yield harvested by all permitted aquaculture operations annually, but not to exceed:**

- (a) 16 mp ww.**
- (b) 32 mp ww.**
- (c) 36 mp ww.**
- (e) 190 mp ww.**

**No individual, corporation, or other entity can be permitted to produce more than:**

- (a) 5 percent of the maximum level of OY.**
- (b) 10 percent of the maximum level of OY.**

**Alternative 1** would not have established biological reference points or status determination criteria for aquaculture in the Gulf. Under this alternative, biological reference points and status criteria be specified for wild species managed by the Council, but similar criteria and reference points would not be established for aquaculture. This alternative would not have satisfied Magnuson-Stevens Act legal requirements and would have required the Council to specify reference points and criteria in a subsequent amendment to the Aquaculture FMP.

**Preferred Alternative 2**, unlike **Alternative 1**, establishes status criteria and reference points. MSY option 2(a) is similar to **Alternative 1** in that it sets MSY at the level aquaculture operations are capable of producing on an annual basis. MSY option 2(e) is considerably more precautionary than **Alternative 1** and sets MSY equal to 64 mp (**Preferred Alternative**).

For **Preferred Alternative 2**, the proxies for MSY are based on either the productivity of wild stocks (2(c) or 2(e) **Preferred**) or expected production capacity (2(a), 2(b), and 2(d)). Basing MSY on the harvest of wild stocks can be useful when assessing both environmental and socioeconomic risks to domestic fisheries. These MSY estimates are considered short-term proxies, i.e., over 10 years or until MSY/OY estimates are reviewed by the Council, until more is known about the number and size of operations, potential environmental impacts resulting from aquaculture, economic sustainability of aquaculture, and the production capacity of various marine aquaculture systems.

The OY proxies are likely substantially less than the yield that can be achieved by aquaculture operations over the long-term. The 2(a), 2(b), and **Preferred 2(d)** proxies are based on an estimated 5-20 operations starting business in the Gulf over the next ten years and are considered reasonable estimates for future demand of aquaculture permits. The OY proxies also assume the operations will use 6 to 12 cages approximately 3,000 to 6,000 m<sup>3</sup> in size and that the production capacity of each cage is 22 to 44 pounds per m<sup>3</sup>. The OY proxies specified for 2(c) and 2(e) represent average commercial harvest levels of marine species from the Gulf during 2000-2006. The OY 2(c) proxy represents wild stock landings of all Council managed species proposed for culture in the Aquaculture FMP, whereas 2(e) represents the average landings of all marine species in the Gulf, except menhaden and shrimp, during 2000-2006 (if menhaden and shrimp are included, landings would total 1.53 billion pounds).

The Council also considered setting OY equal to or greater than MSY, but the preferred alternative sets OY equal to MSY because, unlike wild stock management, there is no need to leave cultured animals in offshore aquaculture grow-out systems to support future generations. The lower OY is set, the greater the benefit to the biological and physical environments. By establishing a precautionary OY level, the Council can assess the impacts of aquaculture as the industry grows to determine if the specified OY level is adequately protecting wild stocks and habitat. If impacts are not observed, or are considered to be minimized to the extent practicable and are not resulting in significant negative impacts, than the Council could consider increasing OY/MSY in the future. **Preferred Alternative 2** establishes a definition for OY. Optimum yield would either remain undefined for aquaculture in the Gulf EEZ (**Alternative 1**) or be set at 16, 32, 36, **64 (Preferred)**, or 190 mp whole weight. Guidance in 50 CFR 600.310 states OY should be based on MSY, or on MSY as it may be reduced by social, economic, and biological factors.

No individual, corporation, or other entity will be issued a permit authorizing the production of more than 20 percent of the maximum OY (**Preferred (c)**). The Council also considered capping planned production for a single operation at 5 percent of OY (**a**) or 10 percent of OY (**b**). The 20-percent individual, corporation, or other entity production cap of **Preferred (c)** offers the greatest social and economic benefit to aquaculture facility owners and those who benefit from their production because it would allow aquaculture producers to increase their scale of production, produce larger quantities, and potentially experience greater economies of scale than the other two alternatives. Lower cap values, i.e., 5 and 10 percent (**(a)** and **(b)**), would produce lower benefits of this nature. The higher the cap, however, the lower the number of potential operators, the lower the competition, increased risk of economic and social harm from anti-competitive behavior, and the greater the potential for spread of aquaculture activities, and associated costs and benefits, across the Gulf. In reviewing permit applications, NMFS will

determine if planned production amounts are consistent with the permit application. This provision is necessary to ensure entities do not obtain an excessive share of the allowable yield (National Standard 4: 50 CFR 600.325(a)(3)). The level selected by the Council for capping production must ensure against possible anti-competitive effects resulting from a small number of entities accounting for most or all of the aquaculture production.

## **Action 10. Framework Procedures**

**Preferred Alternative 3:** Specify the following framework procedures for modifying biological reference points (MSY, OY), and management measures for offshore marine aquaculture in the Gulf of Mexico EEZ.

- A. The Council will appoint an Aquaculture Advisory Panel (AP) to meet at least bi-annually to evaluate the aquaculture management program proposed in this FMP (and as amended by subsequent Council actions). The group shall be composed of Council staff, NMFS biologists and social scientists, Scientific and Statistical Committee (SSC) members, Socioeconomic Panel (SEP) members, and other state, university, or private scientists with expertise related to aquaculture. The AP will address and review the following:
1. Annual planned aquaculture production levels relative to MSY and OY.
  2. Whether or not the condition and status of wild stocks, marine mammals, protected resources, EFH, and other resources managed by the Council and NMFS are adversely affected by aquaculture through:
    - a. OIE reportable pathogens;
    - b. organic and benthic loading and changes in water quality;
    - c. entanglements and interactions;
    - d. escapement of cultured fish;
    - e. other factors.
  3. Economic and social considerations of aquaculture in the EEZ as they relate to Gulf fishing communities.
  4. Management measures for regulating aquaculture, including:
    - a. permit application requirements (Action 2);
    - b. aquaculture operational requirements and restrictions, including monitoring (Action 2);
    - c. allowable aquaculture system requirements (Action 5);
    - d. siting requirements (Action 6); and,
    - e. recordkeeping and reporting requirements (Action 8).
- B. The AP will prepare a written report with its recommendations for submission to the Council. The report will provide the scientific basis for their recommendations, and may include, but is not limited to:
- a. a summary of annual aquaculture landings and planned production;
  - b. a summary of whether or not Council and NMFS managed resources have been adversely affected by aquaculture;
  - c. recommended changes to permit application requirements, operational requirements and restrictions, allowable aquaculture system requirements, siting requirements, and recordkeeping and reporting requirements; and
  - d. a summary of ongoing research activities related to aquaculture in the Gulf EEZ, including important findings and results; and,

- e. recommendations for revising MSY or OY.
- C. If the AP determines aquaculture is adversely affecting wild stocks, stock complexes, marine mammals, protected resources, essential and critical habitat, fishing communities, or other resources managed by the Council or NMFS, they may recommend MSY and OY be reduced. Any decrease in MSY or OY shall include the scientific basis for the recommendation.
- D. If the AP determines aquaculture is not adversely affecting wild stocks, stock complexes, marine mammals, protected resources, essential and critical habitat, fishing communities, or other resources managed by the Council or NMFS, they may recommend to the Council that MSY and OY be increased. Any increase in MSY or OY shall include the scientific basis for the recommendation.
- E. If the AP determines changes to permit application requirements, operational requirements and restrictions, allowable aquaculture system requirements, siting requirements, and recordkeeping and reporting requirements are warranted, they shall provide the Council with recommended changes, including rationale for such changes.
- F. The Council will review and consider the AP's recommendations and hold a public hearing to obtain comments on the AP's report. After public input, the Council will determine if changes to aquaculture management measures or MSY/OY are warranted. If changes are warranted, then the Council will develop a regulatory amendment. The Council may convene the SEP or SSC to provide additional advice prior to taking final action on the regulatory amendment. The Council will provide an opportunity for public input when taking final action.
- G. If changes are needed to MSY, OY, or management measures listed above, the Council will submit to the RA a regulatory amendment, accompanied by the AP's report and any relevant public comments.
- H. The RA will review the Council's regulatory amendment for consistency with the goals and objectives of the Aquaculture FMP, National Standards, the Magnuson-Stevens Act, and other applicable law. If the RA concurs with the recommendations, regulations will be drafted and implemented through regulatory amendment in the *Federal Register*. If the RA rejects the recommendations, the RA shall notify the Council in writing of the reasons for rejection and existing regulations would remain in effect. Regulatory changes that may be established or modified by the RA through regulatory amendment in the *Federal Register* include:
  - a. Adjustments to MSY;
  - b. Adjustments to OY;
  - c. permit application requirements;
  - d. aquaculture operational requirements and restrictions, including monitoring requirements;
  - e. allowable aquaculture system requirements;
  - f. siting requirements for aquaculture facilities; and,
  - g. recordkeeping and reporting requirements.

NMFS is promulgating a final rule to implement this action as specified in the Aquaculture FMP.

**Preferred Alternative 3** will establish an organizational framework for the Council and NMFS to effectively manage the aquaculture fishery. **Preferred Alternative 3** will provide the Council with broad authority to make regulatory changes. **Preferred Alternative 3** will establish the most flexible regulatory process that could adapt to ongoing changes in the offshore aquaculture industry, which could both support the developing industry and reduce negative externalities and associated economic and social costs caused by the industry. **Preferred Alternative 3** was

chosen as it is expected to provide the best balance between timely review of the aquaculture program, timely implementation of regulatory measures, and public opportunities for proposed regulatory changes. For these reasons, **Preferred Alternative 3** is the **environmentally preferred alternative**.

Rejected alternatives to the proposed action.

**Alternative 1:** No action (status quo), do not specify framework procedures for modifying aquaculture management measures or biological reference points.

**Alternative 2:** Specify the following framework procedures for modifying biological reference points (MSY, OY) for offshore marine aquaculture in the Gulf EEZ.

- A. The Council will appoint an Aquaculture AP to meet at least bi-annually to evaluate the aquaculture management program proposed in this FMP (and as amended by subsequent Council actions). The group shall be composed of Council staff, NMFS biologists and social scientists, SSC members, SEP members, and other state, university, or private scientists with expertise related to aquaculture. The AP will address and review the following:
1. Annual planned aquaculture production levels relative to MSY and OY.
  2. Whether or not the condition and status of wild stocks, marine mammals, protected resources, EFH, and other resources managed by the Council and NMFS are adversely affected by aquaculture through:
    - a. OIE reportable pathogens;
    - b. organic and benthic loading and changes in water quality;
    - c. entanglements and interactions;
    - d. escapement of cultured fish;
    - e. other factors.
  3. Economic and social considerations of aquaculture in the EEZ as they relate to Gulf fishing communities.
- B. The AP will prepare a written report with its recommendations for submission to the Council. The report will provide the scientific basis for their recommendations, and may include, but is not limited to:
- a. a summary of annual aquaculture landings and planned production;
  - b. a summary of whether or not Council and NMFS managed resources have been adversely affected by aquaculture;
  - c. a summary of ongoing research activities related to aquaculture in the Gulf EEZ, including important findings and results; and,
  - d. recommendations for revising MSY or OY.
- C. If the AP determines aquaculture is adversely affecting wild stocks, stock complexes, marine mammals, protected resources, essential and critical habitat, fishing communities, or other resources managed by the Council or NMFS, they may recommend MSY and OY be reduced. Any decrease in MSY or OY shall include the scientific basis for the recommendation.
- D. If the AP determines aquaculture is not adversely affecting wild stocks, stock complexes, marine mammals, protected resources, essential and critical habitat, fishing communities, or other resources managed by the Council and NMFS, they may recommend to the Council that MSY and OY be increased. Any increase in MSY or OY shall include the scientific basis for the recommendation.

- E. The Council will review and consider the AP's recommendations and hold a public hearing to obtain comments on the AP's report. The Council may convene the SEP or SSC to provide additional advice prior to taking final action. After public input, the Council will make findings on the need for changes.
- F. If changes are needed to MSY or OY, the Council will advise the RA in writing of their recommendations, accompanied by the AP's report, relevant background material, and public comments.
- G. The RA will review the Council's recommendations for consistency with the goals and objectives of the Aquaculture FMP, national standards, the Magnuson-Stevens Act, and other applicable laws. If the RA concurs with the recommendations, regulations will be drafted and implemented through notice in the *Federal Register*. If the RA rejects the recommendations, the RA shall notify the Council in writing of the reasons for rejection and existing regulations would remain in effect. Regulatory changes that may be established or modified by the RA by notice in the *Federal Register* include:
  - a. adjustments to MSY; and,
  - b. adjustments to OY.

**Alternative 1** would not have specified framework procedures for aquaculture. Should the Council need to modify aquaculture regulations, **Alternative 1** would have required that a plan amendment be developed which would have taken more time than development of a *Federal Register* notice or regulatory amendment. This could slow the implementation of various management measures in the event that negative impacts are occurring on the physical, biological, social, or economic environments.

**Alternative 2** would have established an organizational framework for the Council and NMFS to effectively manage the aquaculture fishery; however, it provides only limited authority for the Council and NMFS to make regulatory changes. **Alternative 2** is similar to **Preferred Alternative 3** in that it relies on an Aquaculture AP that meets at least bi-annually to provide recommendations to the Council. However, under **Alternative 2**, the authority of the AP would have been much more limited. Changes in the offshore aquaculture industry, such as technological change, that may necessitate other regulatory changes, such as reporting and/or operational requirements, would not have been possible under **Alternative 2**.

### **Mitigation, Monitoring and Enforcement**

CEQ regulations implementing NEPA direct agencies to identify in the ROD whether all practical means to avoid or minimize environmental harm from the proposed actions have been adopted, and if not, why they were not (40 CFR Part 1505.2(a)(b)(c)). Mitigation measures are the practical means to avoid, minimize, and reduce impacts, and compensate for unavoidable impacts. Additionally, the regulations require a monitoring and enforcement program be adopted and summarized where applicable for any mitigation.

In relation to the purpose and need for action, NMFS has thoroughly analyzed in the FPEIS, and described in this ROD, a range of reasonable alternatives and their associated environmental impacts. The actions and preferred alternatives in this FMP include various measures to mitigate

or prevent impacts to wild Gulf resources resulting from the permitting and implementation of marine aquaculture operations in the Gulf EEZ. Such measures include:

- Action 2: Requiring aquaculture permit holders to obtain an assurance bond for removal of structures if an operation terminates; contract with an aquatic animal health expert; prohibition on use of genetically modified organisms and transgenic animals; obtain documentation from the hatchery certifying broodstock are marked or tagged; submit emergency disaster plans; certify that broodstock harvested only from U.S. waters of the Gulf; submit broodstock fin clips, or other genetic material for future testing.
- Action 4: Use of only native Gulf species for aquaculture.
- Action 5: Evaluate proposed aquaculture system on a case-by-case basis to ensure reliable offshore growing system technology is used to provide environmental safeguards.
- Action 6: Prohibit siting facilities in marine reserves, artificial reef zones, coral reef areas, marine protected areas, SMZs and HAPCs as defined in 50 CFR 622.2; review proposed sites on a case-by-case basis; space facilities at minimum 3 km from one another; and require a baseline environmental assessment of the proposed site.
- Action 8: Require the following recordkeeping and reporting requirements:
  - Provide current valid copies of state and federal permits.
  - Require regular inspections of aquaculture systems for entanglements or interactions with marine mammals, protected species, and migratory birds and notify NMFS within 24 hours of discovering a major escapement, pathogen outbreak, or entanglement(s) or interaction(s) with marine mammals, endangered species, and migratory birds.
  - Notify NMFS within 30 days of any changes regarding hatcheries used for providing fingerlings or juveniles.
  - Maintain harvest and sale records and feed invoices.
  - Obtain prior approval for harvesting broodstock.
  - Submit an annual standardized report describing recordkeeping and reporting requirements.

Other recordkeeping and reporting requirements include notifying NMFS: when fingerlings or juveniles will be transported from a hatchery to an aquaculture facility; the estimated amount in pounds (whole weight) of species of fish to be harvested; the port of landing for any vessel with cultured organisms harvested from an aquaculture facility; as well as the applicable bill of lading through the first point of sale. Additionally, permittees will be required to first land cultured fish at a U.S. port to ensure landings are reported and accounted for when determining compliance with MSY/OY levels, abide by various gear stowage requirements, keep a copy of their aquaculture permit on any vessel, aircraft or vehicle authorized for use in aquaculture operations, and adhere to restricted landing times. The intent of these requirements is to aid enforcement.

If, at any time, permit conditions or recordkeeping and reporting requirements are not being met, NMFS could initiate an on-site inspection to determine the operations impact and, if needed, revoke the operation's permit prior to its expiration. Permittees must provide NMFS personnel and authorized officers (as defined in 50 CFR 600.10) access to their aquaculture facilities and records to conduct inspections and determine compliance with applicable regulations. A GAP or aquaculture dealer permit may be revoked, suspended, or modified, and such permit applications may be denied, in accordance with the procedures governing enforcement-related permit sanctions and denials found at subpart D of 15 CFR part 904. NMFS will work cooperatively

with the ACOE, the EPA, and other federal agencies to correct or mitigate any problems caused by the operation, or if necessary, revoke the permit.

### **Findings Required by Other Laws and Regulations**

This ROD reflects NMFS' decision to promulgating final regulations implementing the actions as identified and analyzed in the integrated final Aquaculture FMP/FPEIS and SFPEIS. NMFS has determined the proposed actions are in compliance with applicable law. These determinations are documented in other NMFS documents, including an initial regulatory flexibility analysis under the Regulatory Flexibility Act and determinations regarding the CZMA, EFH, ESA, and the IQA.

The proposed actions are intended to facility the development of offshore aquaculture and streamline the regulatory process for authorizing offshore aquaculture proposals by providing the Council and NMFS the information required to review, authorize, and monitor offshore aquaculture operations. The primary goal of the proposed aquaculture permitting program is to increase the maximum sustainable yield and optimum yield of federal fisheries in the Gulf by supplementing the harvest of wild caught species with cultured product. The proposed actions are expected to directly or indirectly benefit the overall health of the biological, physical, and human environment.

### **Implementation**

Actions proposed, analyzed in the Aquaculture FMP will be implemented by promulgation of a final rule in the *Federal Register*.

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