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**Acronyms and Abbreviations**

%	percent
AAP	Aquaculture Advisory Panel
ACL	Annual Catch Limit
ALOHA	A Long-term Oligotrophic Habitat Assessment
APA	Administrative Procedure Act
APHIS	Animal and Plant Health Inspection Service
ASCMP	American Samoa Coastal Management Program
BOM	Blue Ocean Mariculture
CAAP	Concentrated Aquatic Animal Production
CEQ	Council on Environmental Quality
CII	Cates International, Inc.
CFR	Code of Federal Regulation
cm/s	centimeters per second
Council	Western Pacific Fishery Management Council
CNMI	Commonwealth of North Marianas Islands
CPUE	catch per unit effort
CPF	ciguatera fish poisoning
CPI	Consumer Price Index
CRE	Coral Reef Ecosystem
CREES	Northern Marianas College Aquaculture Development Center
CREMUS	coral reef ecosystem management unit species
CTX	ciguatoxin
CZMA	Coastal Zone Management Act
DAO	Department Administrative Order
DNLR	State of Hawaii Department of Land and Natural Resources
DO	dissolved oxygen
DOC	Department of Commerce
DoD	Department of Defense
DPS	Distinct Population Segment
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EFP	exempted fishing permit
EIS	Environmental Impact Statement
ELO	epitheliocystis-like organisms
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAD	Fish Aggregating Device

FAO	Food and Agriculture Organization of the United Nations
FDA	U.S. Food and Drug Administration
FEP	Fishery Ecosystem Plan
FM	fecal matter
FR	Federal Register
ft	feet
GDP	gross domestic production
GEO	genetically engineered organism
GM	genetically modified
GMO	Genetically Modified Organisms
HOARP	Hawaii Open Ocean Aquaculture Research Project
HOT	Hawaii Ocean Time Series
IRFA	initial regulatory flexibility analysis
ITCZ	Intertropical Convergence Zone
IWC	International Whaling Commission
kg	kilogram
km	kilometer
km <sup>2</sup>	square kilometers
kt	knot
lb	pound
m	meters
m/s	meters per second
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
MHI	Main Hawaiian Islands
mi	mile
mi <sup>2</sup>	square miles
mm	millimeter
MMPA	Marine Mammal Protection Act
MMT	million metric tons
MNM	Marine National Monument
MPA	marine protected area
mph	miles per hour
MT	million U.S tons
mt	metric tons
MUS	management unit species
NAAHP	National Aquatic animal Health Plan
NAA	National Aquaculture Act
NADP	National Aquaculture Development Plan
NAO	NOAA Administrative Order
NDSA	Naval Defense Seas Area
NEPA	National Environmental Policy Act

nm.....	nautical mile
NMAI .....	National Marine Aquaculture Initiative
NMFS .....	National Marine Fisheries Service
NMS .....	National Marine Sanctuary
NMSA .....	National Marine Sanctuaries Act
NOA .....	Notice of Availability
NOAA .....	National Oceanic and Atmospheric Administration
NOI.....	Notice of Intent
NPDES .....	National Pollutant Discharge Elimination System
NPTZ.....	North Pacific Transition Zone
NTU .....	Nephelometric Turbidity Units
NWHI .....	North Western Hawaiian Islands
NWR.....	National Wildlife Refuge
Ocean Commission .....	U.S Commission on Ocean Policy
OI .....	Oceanic Institute, Waimanalo, HI
OIE <sup>1</sup> .....	World Organization of Animal Health
OMB .....	Office of Management and Budget
ONMS .....	Office of National Marine Sanctuaries
PCBs.....	polychlorinated biphenyls
PEIS.....	Programmatic Environmental Impact Statement
PIR.....	Pacific Islands Region
PIRO.....	Pacific Islands Regional Office
ppb.....	parts per billion
PPGFA.....	Pago Pago Sport Fishing Association
ppt.....	parts per thousand
PRA .....	Paperwork Reduction Act
PRI.....	Pacific Remote Islands
PRIA .....	Pacific Remote Island Areas
PRINM .....	Pacific Remote Islands National Monument
PSZ.....	Protected Species Zone
RA .....	Regional Administrator
RFA .....	Regulatory Flexibility Act
RFFA .....	Reasonably Foreseeable Future Actions
RIR .....	regulatory impact review
ROD .....	Record of Decision
ROV .....	remote operating vehicle
SAFE .....	Stock Assessment and Fishery Evaluation
SCREFP.....	Special Coral Reef Ecosystem Fishing Permit
SEP .....	Socioeconomic Panel

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<sup>1</sup> *Office International des Epizooties*

SOM .....	sedimentary organic matter
SPF .....	specific pathogen free
SSC .....	Scientific and Statistical Committee
SSSA .....	Saipan Sports-fishing Association
TOC .....	Total organic carbon
tons .....	U.S. tons
U.S. ....	United States
U.S.C. ....	U.S. Code
USCG .....	U.S. Coast Guard
USD .....	U.S. dollars
USDA .....	U.S. Department of Agriculture
USACE .....	U.S. Army Corps of Engineers
USFWS .....	U.S. Fish and Wildlife Service
WF .....	waste feed
WPRFMC .....	Western Pacific Region Fishery Management Council

## 1 Introduction

Aquaculture is the breeding, rearing, and harvesting of fish, shellfish, and plants in all types of water environments including ponds, rivers, lakes, and the ocean. Aquaculture is used to produce food fish, sport fish, bait fish, ornamental fish, and to support restoration activities.

The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) Pacific Regional Office (PIRO) is proposing to establish a Federal Aquaculture Permit Program in the Pacific Islands Region (PIR) based on recommendations from the Western Pacific Fishery Management Council (Council). Under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), NOAA's NMFS and the Council have authority to manage aquaculture in the United States (U.S.) Exclusive Economic Zone (EEZ) of the PIR. The Council recommends management actions to the Secretary of the Department of Commerce who may approve, partially approve or disapprove the recommendations. Approved actions are implemented by the NMFS. The PIR consists of American Samoa, Guam, Hawaii, the Commonwealth of the Northern Mariana Islands, and the U.S. Pacific Remote Island Areas (PRIA).

There is a growing interest in offshore aquaculture in the PIR. There is currently no regulatory framework to manage commercial aquaculture production in the EEZ. NMFS and the Council manage fisheries through four archipelagic Fishery Ecosystem Plans (FEPs) and one pelagic FEP. The Council developed, and NMFS implemented, these FEPs. In recognition of the growing need and desire to develop aquaculture and the possibility of user conflicts and effects to the marine environment, the Council recommended amending these five FEPs to establish a federal management program for aquaculture fisheries in federal waters of the PIR under the Magnuson-Stevens Act. If approved, the PIR aquaculture management program would establish a marine aquaculture management program in the EEZ of the PIR. Features of this management program may include:

- Permitting requirements, eligibility, duration and transferability;
- Application requirements and review process;
- Operational requirements and restrictions;
- Allowable marine aquaculture systems;
- Species types and quantities allowed for aquaculture;
- Marine aquaculture siting requirements and conditions;
- Program capacity;
- Restricted access zones for facilities;
- Framework procedures for evaluating and modifying aquaculture management measures; and
- Recordkeeping and reporting requirements.

The features of the proposed aquaculture management program would ensure the aquaculture program is consistent with the Council's policy to encourage environmentally responsible marine aquaculture. These features are intended to ensure that all offshore aquaculture activities permitted in the PIR are consistent with the Magnuson-Stevens Act National Standards (Magnuson-Stevens Fishery Conservation and Management Act) and do not compromise Council objectives for wild fisheries. Without such a

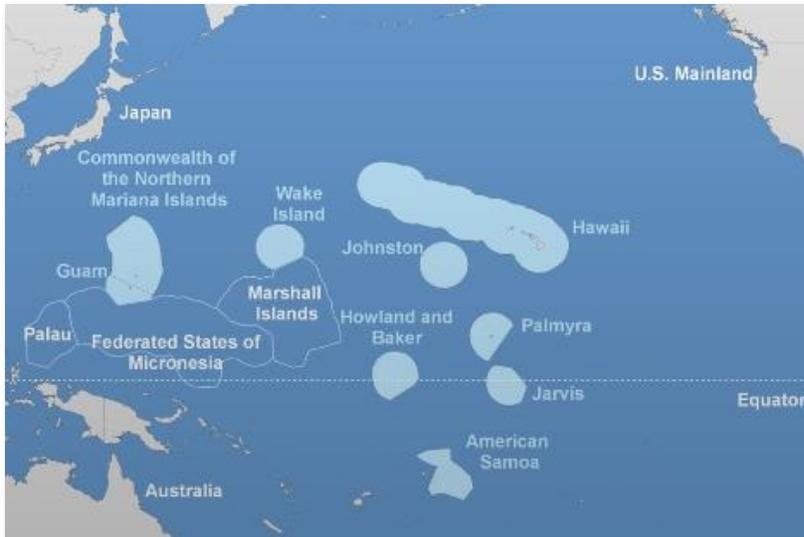
management program, future aquaculture operations for most federally managed species may develop in an ad hoc manner without federal control of when, where, or how facilities could operate.

### 1.1 Purpose and Need for the Proposed Action

The purpose of the proposed action is to establish a federal management program for aquaculture fisheries in the EEZ of the PIR that would 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 PIR. The aquaculture management program is needed to support long-term sustainable aquaculture in federal waters of the PIR. This action was also initiated to provide a comprehensive framework for regulating such activities to protect pelagic wild fish and fisheries by controlling where, how, and how much aquaculture is developed. Supplementing the harvest of domestic fisheries with cultured product would help the U.S. meet consumers' growing demand for seafood and may reduce the dependence on seafood imports.

### 1.2 Action Area

Under the Magnuson-Stevens Act, the U.S. has exclusive fishery management authority over all fishery resources found within its EEZ. For purposes of the Magnuson-Stevens Act, the inner boundary of the U.S. EEZ extends from the seaward boundary of each coastal state to a distance of 200 nautical miles (nm) (185 kilometers [km]) from the baseline from which the breadth of the territorial sea is measured. The proposed action area includes the EEZ surrounding the State of Hawaii, Territory of American Samoa, Territory of Guam, Commonwealth of the Northern Mariana Islands, and U.S. PRIAs (Figure 1-1).



*Figure 1-1. Western Pacific Region Action Area*

### 1.3 Overview of Aquaculture Globally and in the U.S.

Seafood continues to be one of the most traded food resources in the world. It is an important source of food, nutrition, income, and livelihood for hundreds of millions of people worldwide. In 2014, the world per capita fish supply reached a record high of 44 pounds (lbs.) (20 kilograms [kg]) (Food and Agriculture Organization of the United Nations [FAO] 2016), primarily due to growth of the aquaculture industry, which now supplies half the fish for human consumption (Figure 1-2). A milestone was reached in 2014 when the aquaculture sector's contribution to the supply of fish for human consumption overtook that of wild-caught fish for the first time (FAO 2016). This significant growth in fish consumption has enhanced people's diets around the world through diversified and nutritious food. In 2013, fish accounted for about 17 percent of the global population's intake of animal protein and 6.7 percent of all protein consumed (FAO 2016). Figure 1-3 provides additional statistics on aquaculture production as of 2015.

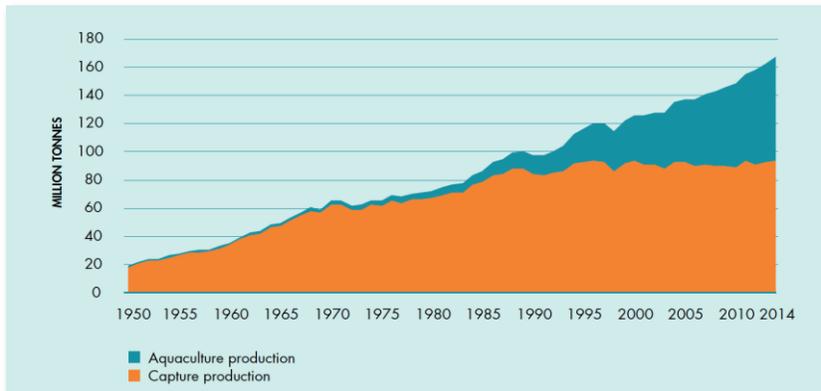
Worldwide marine capture fisheries have plateaued at around 88 million U.S. tons (MT) (80 million metric tons [MMT]) since around 1990, while the increasing global population and an overall increased worldwide demand for seafood will cause an estimated increase in demand to 205 MT (186 MMT) across the globe and domestically by 2030 (FAO 2013, FAO 2016). As of 2013, about 31.4 percent (%) of marine fishery stocks were considered overexploited while 58.1% of stocks were fully exploited. Underfished stocks decreased almost continuously from 1974 to 2013, but the fully fished stocks decreased from 1974 to 1989, and then increased to 58.1% in 2013 (FAO 2016). Correspondingly, the percentage of stocks fished at biologically unsustainable levels increased from 10 % in 1974 to 26 percent in 1989. After 1990, the number of stocks fished at unsustainable levels continued to increase, albeit more slowly. The ten most-productive species worldwide accounted for about 27% of the world's marine capture fisheries production in 2013. However, most of these stocks are considered fully fished with no potential for increases in production (FAO 2013, 2016).

The capacity of wild stocks to sustain increasing levels of harvest needed to meet increasing demands is limited (NOAA 1998). Improved management practices of wild fisheries may increase production slightly, but significant increases in aquaculture production would be needed to meet future seafood demand. Total capture production in marine waters was 90 MT (81.5 MMT) in 2014, a slight increase on the previous two years (AO 2016). In 2014, 44.1% (81.3 MT, 73.8 MMT) of all human-consumed fish was supplied by aquaculture production with an estimated value of \$160.2 billion U.S. dollars (USD). Of this total, 54.9 MT (49.8 MMT) were finfish (\$99.2 billion), 17.7 MT (16.1 MMT) were mollusks (\$19 billion), 7.6 MT (6.9 MMT) were crustaceans (\$36.2 billion), and 8 MT (7.3 MMT) were other aquatic organisms (\$3.7 billion) (FAO 2016).

NMFS is committed to increasing domestic aquaculture production to: 1) better serve increasing demands; 2) relieve pressure on wild fish stocks; 3) reduce trade imbalance; and 4) increase technological competence in aquaculture production.

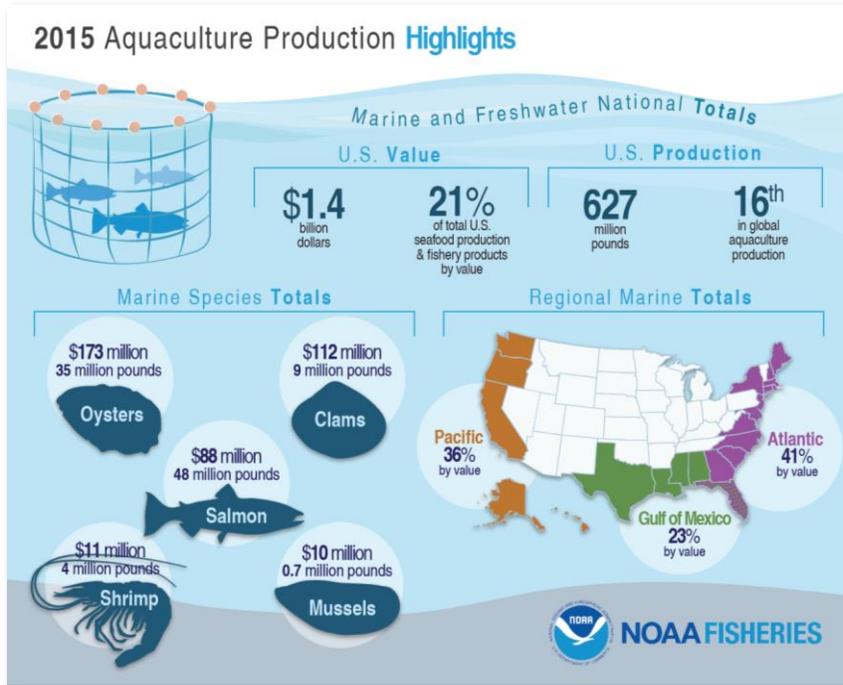
The U.S. imports almost 90% of its seafood, about half of which is from aquaculture. U.S. per capita seafood consumption is comprised of a combination of domestic and imported products. From 2000 until 2016, consumption of seafood has ranged from 14.4 to 16.6 lbs. (6.5 to 7.5 kg) per capita (edible meat) in 2004 and 2012, respectively (NMFS 2017a). This results in a large and growing annual seafood trade deficit of more than \$11 billion annually (NMFS 2017b). With the resident population increasing during

the same period from 281 million to 322 million, domestic distributors increasingly turned to imported product to help meet satisfy domestic demand for seafood, often at a lower price. In 2016, the U.S. exported about 2.9 billion lbs. (1.3 billion kg) of edible fishery products valued at \$5.4 billion and imported approximately 5.8 billion lbs. (2.6 billion kg) valued at \$19.5 billion, resulting in a seafood trade deficit of \$14.1 billion. This represented a 1.6% increase in volume and 3.7% increase in value for imports and 6.8% decrease in volume and 3.3% decrease in value from exports relative to 2015. Because the value of exports was less than the value of imports in 2016, there was a seafood trade deficit of \$4.1 billion. These figures demonstrate that U.S. consumers demanded more seafood than was domestically produced. Consequently, imports were required to satisfy consumer demand. In 2015, U.S. aquaculture produced 284,568 U.S. tons (tons) (258,000 metric tons) valued at \$1.4 billion, a small fraction of the amount of fishery products imported.



Source: (FOA 2016)

**Figure 1-2. World Capture Fisheries and Aquaculture Products Used for Human Consumption**



Source: (NOAA 2015).

**Figure 1-3. United States Aquaculture Production (2015)**

Aquaculture has been an important source of job creation, revenue, and economic growth for many countries. A successful aquaculture industry requires significant resources to support new facilities and market development. For example, Norway’s salmon industry invested \$55 million U.S. dollars (USD) over 8 years to become established. Norway’s industry now has an annual value ten times the initial investment. Similarly, the U.S. catfish industry invested about \$42 million for initial development, and is now worth more than six times that amount annually (Rimmer 2000). Currently, global aquaculture production is dominated by Asia (89%), while China alone accounts for 62%. The U.S. ranks 17th in global aquaculture production behind (in order) China, Indonesia, India, Vietnam, Philippines, Bangladesh, the Republic of Korea, Norway, Chile, Egypt, Japan, Myanmar, Thailand, Brazil, Malaysia, and the Democratic People’s Republic of Korea (FAO 2016).

With a 4.4 million square mile (mi<sup>2</sup>) (11 million square kilometers [km<sup>2</sup>]) EEZ and growing population, the U.S has the potential to lower the U.S. seafood deficit and create an environmentally sound and sustainable aquaculture industry. Currently, in the U.S. the largest single sector of aquaculture is molluscan shellfish (*i.e.*, oysters, clams, and mussels), which accounts for two thirds of the total

aquaculture production. The other third includes marine and freshwater finfish and seaweed aquaculture. Combined, U.S. marine and freshwater aquaculture in 2015 was worth \$1 billion, a small fraction of the global aquaculture value of \$158 billion (NMFS 2016a). Marine aquaculture accounts for \$394 million, with oysters and clams accounting for 72% of the U.S. value. The available resources, technology, and capital in the U.S. ensure that there are plenty of opportunities for growth and development for the aquaculture industry.

Section 3.1.1 provides a detailed description of the aquaculture industry in the PIR, which includes groundbreaking research and technology in cage design and operations, environmental monitoring, and hatchery science.

### **1.3.1 U.S. Legislative Background and Policies Related to Aquaculture**

The National Aquaculture Act (NAA) of 1980 established a national aquaculture policy declaring:

*Aquaculture has the potential for augmenting existing commercial and recreational fisheries and for producing other renewable resources, thereby assisting the U.S. in meeting its future food needs and contributing to the solution of world resource problems. It is, therefore, in the national interest, and it is the national policy, to encourage the development of aquaculture in the United States.*

The NAA required the Secretaries of Commerce, Interior, and Agriculture to prepare a National Aquaculture Development Plan (NADP) within 18 months of enactment. The NADP was to identify potential species for commercial aquaculture development, and to discuss public and private actions and research necessary to carry out the objectives of the Act. The NAA provided an important statement of policy; however, it did not address continuing federal, state, and local barriers to domestic aquaculture.

In 1985, the NAA was reauthorized and two major amendments were enacted:

- First, the U.S. Department of Agriculture (USDA) was designated as the lead federal agency with respect to the coordination and dissemination of national aquaculture information.
- Second, two new studies were commissioned to be reported to Congress.

The Secretary of Commerce was required to study and report to Congress whether existing capture fisheries could be adversely affected by competition from commercial aquaculture enterprises. The Secretary of the Interior was required to study and report to Congress the extent and impacts of the introduction of exotic species into U.S. waters as a result of aquaculture activities. Aquaculture policies supporting the aims of the NAA were adopted by NOAA in 1998 and 1999, respectively.

In 2004, the U.S. Commission on Ocean Policy (Ocean Commission), made recommendations for the advancement of marine aquaculture as part of its comprehensive review of national ocean policy.

In response to the recommendations of the Ocean Commission, offshore aquaculture legislation was transmitted to Congress in the U.S. Ocean Action Plan. The result was the National Offshore Aquaculture Act of 2005. The Senate Commerce Committee, Subcommittee on National Ocean Policy held two hearings in 2006, but due largely to environmental concerns regarding aquaculture, the Congressional session ended before Congress acted on the bill. In 2007, the Administration's bill was revised and reintroduced in both the House and the Senate as the National Offshore Aquaculture Act of 2007. The stated purpose of the 2007 bill was to provide the necessary authority to the Secretary of Commerce for

the establishment and implementation of a regulatory system for offshore aquaculture in the U.S. EEZ, and for other purposes. For a second time, however, the Congressional session ended before Congress acted on the bill.

In 2007, in the absence of a re-authorized NAA, NOAA completed and adopted a 10-Year Plan for Marine Aquaculture as an agency-wide policy document (NOAA 2007). The plan was prepared at the request of the agency's Marine Fisheries Advisory Committee, which advises the Secretary of Commerce on all living marine resource matters that are the responsibility of the U.S. Department of Commerce (DOC). The Secretary of Commerce also hosted a National Marine Aquaculture Summit in 2007. At the summit, national seafood and aquaculture business leaders, policy experts, government officials, non-governmental organizations, and researchers discussed the opportunities and challenges for marine aquaculture in the U.S. Summit participants also made recommendations as to how the U.S. could accelerate the integration of environmentally, economically, and socially responsible domestic aquaculture into domestic seafood production. Summit participants agreed on the need for national offshore legislation to provide regulatory certainty for those considering investing in federal waters.

In 2011, NOAA published the Aquaculture Policy,<sup>2</sup> which further highlighted several national and regional goals related to offshore aquaculture, including the following:

1. Encourage and foster sustainable aquaculture development that provides domestic jobs, products, and services and that is in harmony with healthy, productive, and resilient marine ecosystems, compatible with other uses of the marine environment, and consistent with the National Policy for the Stewardship of the Ocean, our Coasts, and the Great Lakes (National Ocean Policy<sup>3</sup>).
2. Ensure agency aquaculture decisions protect wild species and healthy, productive, and resilient coastal and ocean ecosystems, including the protecting of sensitive marine areas.
3. Advance scientific knowledge concerning sustainable aquaculture in cooperation with academic and federal partners.
4. Make timely and unbiased aquaculture management decisions based upon the best scientific information available.
5. Support aquaculture innovation and investments that benefit the Nation's coastal ecosystems, communities, seafood consumers, industry, and economy.
6. Advance public understanding of sustainable aquaculture practices; the associated environmental, social, and economic challenges and benefits; and the services NOAA has to offer in support of sustainable aquaculture.
7. Work with our federal partners, through the Joint Subcommittee on Aquaculture<sup>4</sup> and other avenues, to provide the depth of resources and expertise needed to address the challenges facing expansion of aquaculture in the U.S.

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<sup>2</sup> The full NOAA Aquaculture Policy Statement may be viewed at:  
[http://www.nmfs.noaa.gov/aquaculture/policy/24\\_aquaculture\\_policies.html](http://www.nmfs.noaa.gov/aquaculture/policy/24_aquaculture_policies.html).

<sup>3</sup> The National Ocean Policy specifies former President Barack Obama's overarching goals, objectives, and priorities that provide a broader ocean policy context for NOAA's aquaculture activities. Other Administration policies – such as those in support of job creation, economic development, innovation, food security, etc. – provide additional context for NOAA's aquaculture activities.

<sup>4</sup> The Joint Subcommittee on Aquaculture of the Federal Coordinating Council on Science, Engineering, and Technology was created in the National Aquaculture Act of 1980. The purpose of the coordinating group is to increase the overall effectiveness and productivity of federal aquaculture research, transfer, and assistance programs.

8. Work internationally to learn from aquaculture best practices around the world and encourage the adoption of science-based sustainable practices and systems.
9. Integrate federal, regional, state, local, and tribal priorities along with commercial priorities into marine aquaculture siting and management and ensure aquaculture development is considered within other existing and potential marine uses to reduce potential conflicts.

On May 26, 2016, NMFS published a Marine Aquaculture Strategic Plan<sup>5</sup>. The plan provides guidance on efforts within NMFS to support development of sustainable marine aquaculture from 2016-2020. The plan features four main goals: regulatory efficiency; science tools for sustainable management; technology development and transfer; and an informed public. Crosscutting strategies of the plan include strengthening partnerships, improving external communications, building infrastructure to support marine aquaculture, and sound program management. It also establishes a target of expanding sustainable U.S. marine aquaculture production by at least 50% by the year 2020. The alternatives presented in this Programmatic Environmental Impact Statement (PEIS) are intended to align with this new Marine Aquaculture Strategic Plan, as described in detail in Chapter 2 (Alternatives).

### **1.3.2 Western Pacific Fishery Management Council Meetings and Actions Related to Aquaculture Management**

The Council developed five FEPs for each U.S. western Pacific island area that were approved by NMFS in 2009. The process for developing aquaculture management in the PIR was initiated in 2008 at the 146th Council meeting when the Council recommended establishing aquaculture requirements in the five FEPs. Council staff presented draft measures at the 147th Council meeting. The recommendations, in addition to “No Action”, included establishing:

1. Permitting requirements;
2. Prohibited areas and spatial planning;
3. Limiting aquaculture activities, possibly, through a limited entry program; and
4. Possibly prohibiting aquaculture in federal waters.

At the 147<sup>th</sup> meeting, the Council also recommended that aquaculture operations follow a Council-established review process and limit the number of aquaculture operations. Table 1-1 provides an overview and chronology of Council recommendations for aquaculture management in the PIR. The Council submits these actions to NMFS, who implements fishery management changes through rulemaking.

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<sup>5</sup> The NMFS Marine Aquaculture Strategic Plan can be found at:  
[http://www.nmfs.noaa.gov/aquaculture/docs/aquaculture\\_docs/noaa\\_fisheries\\_marine\\_aquaculture\\_strategic\\_plan\\_fy\\_2016-2020.pdf](http://www.nmfs.noaa.gov/aquaculture/docs/aquaculture_docs/noaa_fisheries_marine_aquaculture_strategic_plan_fy_2016-2020.pdf)

**Table 1-1. Chronology of Western Pacific Regional Fishery Management Council Recommendations Related to Aquaculture Management in the Pacific Islands Region**

Council Meeting Number	Date	Summary of Recommendations
147 <sup>th</sup>	2008	Establish aquaculture requirements in the five FEPs.
148 <sup>th</sup>	2010	Establish permitting and reporting including criteria for a limited entry program and environmental monitoring for production wastes.
151 <sup>st</sup>	2011	Identify user capacity, user conflicts, feed analysis, institutional capacity, etc. before limited entry is considered. Limited entry may be warranted in the future and should be reviewed through a permitting process.  Environmental monitoring, inspection, and reporting requirements should be consistent with those already in place by the State of Hawaii or other regional/national organizations.

Recommendations for environmental permitting, reporting, recordkeeping, and siting conditions are consistent with the Council’s policy to encourage environmentally responsible marine aquaculture.

Council objectives for wild fisheries include, but are not limited to:

1. Stabilize or sustain wild stocks over the long-term;
2. Rebuild overfished stocks;
3. Conserve and protect fish habitat;
4. Minimize impacts on protected species, consistent with the requirements of the Endangered Species Act (ESA) of 1973 and Marine Mammal Protection Act (MMPA) of 1972, as amended; and
5. Minimize user conflicts.

The Council included these conditions to help ensure that the operations of all offshore aquaculture facilities permitted in the PIR would be consistent with the Magnuson-Stevens Act National Standards and would not compromise the long-term sustainability or viability of wild fisheries or their contributions to the local, regional, and national economies. In addition, it is recognized that any alternatives considered in the draft PEIS are based on the combined input from the public, research institutions, fishermen, non-governmental organizations, affected state and federal agencies, and the Council. NMFS would work with the Council to develop specific FEP amendments to manage aquaculture fisheries in the PIR. Once the Council recommends and NMFS approves the FEP amendments with specific features of an aquaculture management program, the implementing regulations would contain the program requirements for participating in an aquaculture fishery in the PIR. Permitting aquaculture activities would be a federal action that requires National Environmental Policy Act (NEPA) legal compliance review.

**1.4 Applicable Federal Laws and Statutes**

The following federal statutes and Executive Orders (EOs) form the legal foundation for fishery management actions in the EEZ. The Magnuson-Stevens Act provides direct statutory direction for fisheries management, while others, such as the NEPA and the Administrative Procedure Act (APA), are more general and impact all federal actions, including aquaculture management. This section briefly describes the requirements under each applicable statute or EO. Given the importance of Magnuson-Stevens Act, NEPA, and NOAA Administrative Order (NAO) 216-6A to this specific action and the PEIS

process, they are discussed first. The remainder of the section presents key statutes and EOs in alphabetical order. In addition, laws and regulations of the State of Hawaii or the territories within the Action Area appropriate to NMFS actions are identified and addressed in this PEIS. To the extent practicable, this document would be used as the basis for any required consultation and coordination.

#### **1.4.1 Magnuson-Stevens Fishery Conservation and Management Act**

NOAA NMFS' proposal to regulate marine aquaculture production and harvest in the U.S. EEZ waters of the Pacific Islands is authorized under the Magnuson-Stevens Act. NOAA's Aquaculture Policy defines marine aquaculture as the propagation and rearing of aquatic animals in controlled or selected aquatic environments for any commercial, recreational, or public purpose. Offshore aquaculture refers to marine aquaculture operations located in the exposed open ocean environments. Aquaculture management is governed by regulations established under the Magnuson-Stevens Act. Establishing an aquaculture program for reviewing and permitting aquaculture projects is consistent with NOAA's policy to encourage environmentally responsible marine fisheries without threatening the long-term sustainability and viability of wild fisheries and their contributions to the local, regional, and national economies.

The preparation, review, approval, and implementation of fishery management actions (including aquaculture) and the implementing rules and regulations under the Magnuson-Stevens Act require the Council and NMFS, acting on behalf of the Secretary of Commerce (Secretary) to comply with the Magnuson-Stevens Act and a variety of other applicable laws and Executive Orders. The primary goal of federal fishery management, as described in National Standard 1 of the Magnuson-Stevens Act, is to conserve and manage U.S. fisheries to "...prevent overfishing while achieving, on a continuing basis, the optimum yield<sup>6</sup> from each fishery for the United States fishing industry." The optimum yield of a fishery is limited by the fishery's biological potential. However, establishing an aquaculture fishery would increase total yield beyond that which can be produced solely from wild stocks. Increasing the seafood production potential of fisheries through aquaculture would increase their contributions to national, regional, and local economies, and their capacity to meet the Nation's nutritional needs.

Landings or possession of fish in the EEZ from the commercial marine aquaculture production of any species managed under an FEP constitutes "fishing" as defined in the Magnuson-Stevens Act [Sec. 3(16)]. Fishing includes all activities and operations related to the taking, catching, or harvesting of fish. As a result, NMFS currently may require an exempted fishing permit (EFP), as provided at 50 Code of Federal Regulations (CFR) §600.745, to conduct aquaculture in the EEZ, or a Special Coral Reef Ecosystem Fishing Permit (SCREFP), as described in 50 CFR §665.13<sup>7</sup> and subsequent archipelagic regulations for American Samoa (50 CFR §665.124), Hawaii (50 CFR §665.224), the Marianas (50 CFR §665.424), and the PRIA (50 CFR §665.624).

An EFP provides exemption from regulations for activities that would otherwise be prohibited. These activities could include limited gear testing, public display, data collection, exploration, health and safety, environmental cleanup, and/or hazard removal purposes. An EFP is not intended for the large-scale production of fish, nor are they intended to be used for commercial production of fish. They are of limited duration, typically issued for no longer than 1 year, which is generally considered too short of a period for

<sup>6</sup> Optimum yield is defined as the amount of fish that provides the greatest net benefits to the Nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems.

<sup>7</sup> 50 CFR 665.13 refers to these as CRE special permits.

a lending institution to finance construction of most aquaculture facilities. While permit renewal is allowed under 50 CFR §600.745 (presumably in 1-year increments), uncertainty as to whether or not the permit would be renewed would add to the uncertainty and hence deter potential business ventures. For these reasons, it is generally considered that a viable commercial aquaculture industry could not be developed under an EFP. Similarly, a SCREFP, which is issued for the harvest of coral reef ecosystem management unit species (CREMUS) using gear not specifically allowed under 50 CFR part 665 (as is the case for aquaculture cages and similar gear), is not designed to manage the growth in the industry. A SCREFP may include terms and conditions to control, monitor, and mitigate any potential environmental effects, but this permitting process occurs on a case-by-case basis. SCREFPs are issued in accordance with the criteria and procedures established in the following sections of the CFR:

American Samoa	50 CFR §665.124
Hawaii	50 CFR §665.224
Guam and CNMI (Commonwealth of North Marianas Islands)	50 CFR §665.424
PRIA	50 CFR §665.624

Potentially harvested coral reef taxa means coral reef associated species, families, or subfamilies, as defined in 50 CFR §665.121, 50 CFR §665.221, 50 CFR §665.421, and 50 CFR §665.621, for which little or no information is available beyond general taxonomic and distribution descriptions. These species have either not been caught in the past or have been harvested annually in amounts less than 1,000 lb. (454.54 kg).

#### 1.4.2 National Environmental Policy Act and Intent of the Programmatic Environmental Impact Statement

NEPA establishes the nationwide policy, goals, and legal authority for federal agencies regarding the environment (40 CFR 1500.1[a]). It requires federal agencies to study the environmental consequences of their actions and to use an interdisciplinary framework for environmental decision-making.

The provisions of NEPA require that an EIS have the following elements:

1. Statement of Purpose and Need for the Proposed Action
2. Description of Alternatives Evaluated in the EIS, including the Proposed Action, the No Action Alternative, and Alternatives Evaluated but Eliminated from Further Consideration
3. Description of the Affected Environment
4. Analysis of Environmental Consequences of Alternatives Carried Forward in the EIS
5. The Relationship Between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity
6. Any Irreversible and Irrecoverable Commitments of Resources Which Would be Involved in the Proposed Action Should it be Implemented

NEPA also requires federal agencies to make environmental information available to the public and to public officials, and to consider their comments, before making decisions that could affect the environment. Documents prepared by federal agencies in compliance with NEPA must be streamlined in that they focus on the issues truly significant to the action in question and present alternatives in a way

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I don't see any mention in this section re: a coordinated NEPA document process with the EPA and Corps. All 3 agencies are working on this document together, correct?

that allows potential environmental consequences to be clearly distinguished, along with “advice and information useful in restoring, maintaining, and enhancing the quality of the environment” (43 Federal Register [FR] 55990, November 28, 1978, and 40 CFR 1502.1, 1502.2, and 1502.14).

In compliance with NEPA and Council on Environmental Quality (CEQ) regulations and agency guidance, the PEIS discloses the potential direct, indirect, and cumulative impacts on the human environment of the proposed management of aquaculture in federal waters of Hawaii and territorial waters of the PIR EEZ (see Chapter 4). The PEIS is also a means to share and solicit public comments on this information, and provide the basis for agency decision-making on the structure of the management program and provide part of the basis for approving a limited number of future aquaculture proposals.

While an EIS assesses the impacts from a specific, defined project, a PEIS assesses the impacts of a program or category of projects that are not yet proposed. A PEIS cannot assess specifics of a project, but provides an analysis of the types of activities that would or are likely to occur under a program. In addition, completing a PEIS for an aquaculture management program provides a comprehensive framework for regulating such activities and creates a structure to efficiently “tier” future, site-specific aquaculture projects in the PIR by providing the Council and NMFS the information required to review and authorize offshore aquaculture operations. Future projects would be evaluated to determine if the proposed action falls within the scope of the alternatives presented in Chapter 2 and have been sufficiently evaluated (Chapter 4) in this PEIS. If a proposed action is significantly different from the actions described in the alternatives (Chapter 2) or insufficient information about potential environmental consequences was not provided for review, additional NEPA analysis would be required (*i.e.*, “tiered” from the PEIS). Proposals that do not fall within the scope of the PEIS would require a NEPA analysis specific to the project. Chapter 5 provides a roadmap for how NMFS would evaluate and permit future aquaculture proposals to determine if they are within the scope of this PEIS and do not require additional analysis, whether they can be “tiered” with supplemental analysis, or if they require a separate, new NEPA analysis. Section 2.3.2 also provides information on permitting future aquaculture projects under Alternatives 2 and 3 based on the information presented in this PEIS.

#### **1.4.3 National Oceanic and Atmospheric Administration Administrative Order 216-6A**

NAO 216-6A establishes NOAA’s policy and procedures for compliance with NEPA including the CEQ regulations in Parts 1500-1508 of Title 40 of the CFRs (40 CFR 1500-1508); the DOC Administrative Order (DAO) 216-6, Implementing the NEPA; (EO) 12114, Environmental Effects Abroad of Major Federal Actions; EO 11988 and 13690, Floodplain Management; EO 11990 Protection of Wetlands; and EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. NOAA 216-6A’s companion manual (January 13, 2017) provides additional, specific guidance on agency compliance with policies pursuant to NEPA and related authorities. The APA complements CEQ’s NEPA regulations. NMFS published early notices of intent to prepare a PEIS, scoping meeting notices. We published a notice of availability of the draft PEIS, and solicited public comments. When the PEIS is finalized, we would publish a notice of availability of the final PEIS and would notify the public in the FR and on our website, of NMFS’ final decisions.

#### 1.4.4 Administrative Procedure Act

Federal agencies to give the public prior notice of rule-making and an opportunity to comment on proposed rules in accordance with the APA (5 U.S. Code [U.S.C.] 551, et seq.). Notice of proposed rule-making must be published in the FR, unless persons subject to the rule have actual notice of the rule. Proposed rules published in the FR must include reference to the legal authority under which the rule is proposed and explain the nature of the proposed action, its intended effect, and any relevant regulatory history that provides the public with a well-informed basis for understanding and commenting on the proposed action.

#### 1.4.5 Animal Health Act

The Secretary of Agriculture has the authority under the Animal Health Act of 2002 (7 U.S.C. 8301 et seq.) to administer and promulgate animal health regulations for the prevention, control, and management of infectious diseases for all animals, except humans. The focus of the Act as it applies to aquaculture is the management of diseases in cultured animals. The scope also includes diseases management in wildlife that have the potential to impact cultured/farmed animals.

#### 1.4.6 Clean Water Act

Water quality and pollution research, and grants for sewage treatment facilities are authorized under the Clean Water Act. The Clean Water Act also sets pollution discharge and water quality standards, addresses oil and hazardous substances liability, and establishes permit programs for water quality, including point source pollutant discharges, ocean pollution discharges, and dredging or filling of wetlands or waters of the U.S. Under Section 318 of the Clean Water Act, the U.S. Environmental Protection Agency (EPA) asserts its jurisdiction to require point source pollution discharge permits for marine aquaculture operations in the open ocean. CWA Section 402 and its implementing regulations at Title 40 CFR parts 122-124 authorize EPA to issue permits for pollutant discharges under the National Pollutant Discharge Elimination System (NPDES) Program. Water quality and effluent standards and criteria for the NPDES are described in 40 CFR, Parts 125, 129, 133, 136, 400-471, and 503. The EPA also published a final rule on August 23, 2004 (69 FR 162) establishing Clean Water Act effluent limitation guidelines for concentrated aquatic animal production facilities, including facilities that produce aquatic animals in net pens or submerged cage systems.

#### 1.4.7 Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) (16 U.S.C. 1451, et seq.) is designed to encourage and assist states in developing coastal management programs, coordinate federal and state activities, and safeguard regional and national interests in the coastal zone. Section 307(c) (16 U.S.C. 1456(c)) of the CZMA requires that any federal activity affecting the land or water uses or natural resources of a state's coastal zone be consistent with the state's approved coastal management program to the maximum extent practicable. A proposed aquaculture management action that requires an FEP amendment or implementing regulations must be assessed to determine whether it is consistent with all state and territorial coastal zone management programs where the activity may occur. NMFS must provide the State of Hawaii, CNMI, Guam, and American Samoa coastal zone management agencies a consistency determination for review before final NMFS action.

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Suggest having USDA/APHIS folks review this piece. I have contacts if you need them

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Suggest having EPA folks in your region review/edit this piece

#### **1.4.8 Coral Reef Protection**

EO 13089 on Coral Reef Protection requires federal agencies whose actions may affect U.S. CREs to identify those actions, utilize their programs and authorities to protect and enhance the conditions of such ecosystems; and, to the extent permitted by law, ensure that actions that they authorize, fund or carry out do not degrade the condition of that ecosystem.

#### **1.4.9 Data Quality Act**

The Data Quality Act (Public Law 106-554), effective October 1, 2002, requires the government to set standards for the quality of scientific information and statistics used and disseminated by federal agencies. The Act directs the Office of Management and Budget (OMB) to issue guidelines that “provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies.” These guidelines direct federal agencies to create and disseminate agency-specific standards to: 1) ensure information quality and develop a pre-dissemination review process; 2) establish administrative mechanisms allowing affected persons to seek and obtain correction of information; and 3) report periodically to OMB on the number and nature of complaints received. NMFS would complete a pre-dissemination review of the draft PEIS before releasing the draft for public review.

#### **1.4.10 Endangered Species Act**

The Endangered Species Act (ESA) (16 U.S.C. 1531 et seq.) of 1973 (as reauthorized in 1988) provides protection for fish and wildlife species that are listed as threatened or endangered. The ESA establishes procedures for the formal listing of a species, development of recovery plans, and designation of critical habitats. The ESA also outlines procedures for federal agencies to follow when taking actions that may jeopardize the continued existence of a species or that may adversely modify its critical habitat. NMFS and U.S. Fish and Wildlife Service (USFWS) are responsible for implementing the ESA. With some exceptions, the USFWS oversees freshwater fish, birds, terrestrial mammals, and plants, and NMFS oversees anadromous and marine fish, marine mammals, and sea grasses.

Compliance with ESA provisions is not subject to modification based on economic hardship. Section 4(f) of the ESA directs NMFS to develop and implement recovery plans for threatened and endangered species, unless such a plan would not promote conservation of the species. Sections 2(c)(1) and 7(a)(1) of the ESA require federal agencies to conserve endangered and threatened species; however, conservation is broadly defined. Section 7(a)(2) of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize or result in the destruction or adverse modification of the critical habitat of endangered or threatened species or prevent the recovery of the listed species.

NMFS must conduct a formal Section 7 Consultation that results in a Biological Opinion if a proposed action “is likely to adversely affect” endangered or threatened species or their critical habitat. If the Biological Opinion concludes that the proposed aquaculture program “is likely to jeopardize the continued existence of” threatened or endangered species, then reasonable and prudent alternatives must be developed to minimize or mitigate the effect of the action. In Chapter 4 this PEIS analyzes the potential effects of the alternatives on ESA-listed species and designated critical habitat. If the proposed

action may affect listed species or designated critical habitat, NMFS would complete a Section 7 consultation before the action is implemented.

#### 1.4.11 Environmental Justice

EO 12898 requires federal agencies to conduct programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In this PEIS, NMFS evaluates the potential for each action alternative to result in disproportionately high and adverse environmental and health effects on members of low-income and minority groups. NMFS also evaluates the potential for the action alternatives to have a significant effect on subsistence gathering activities in each Island area.

Specifically, with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish or wildlife for subsistence. Impacts of aquaculture and commercial fishing on subsistence fishing are a concern in fisheries management. The potential effects of the proposed aquaculture management program on environmental justice are analyzed in Chapter 4 of this PEIS.

#### 1.4.12 Exotic Organisms

To the extent permitted by law, EO 11987 requires federal agencies to:

1. Restrict the introduction of exotic species into the natural ecosystems on lands and waters owned or leased by the U.S.;
2. Encourage states, local governments, and private citizens to prevent the introduction of exotic species into natural ecosystems of the U.S.;
3. Restrict the importation and introduction of exotic species into any natural U.S. ecosystems as a result of activities they undertake, fund, or authorize; and
4. Restrict the use of federal funds, programs, or authorities to export native species for introduction into ecosystems outside the U.S. where they do not occur naturally.

The Secretaries of Agriculture and Interior are authorized to allow the importation of exotics and the export of native species if natural ecosystems would not be adversely affected. The PEIS analyzes the potential for the proposed aquaculture management program to result in the introduction or spread of harmful invasive nonnative species and the effects on the environment (Chapter 4).

#### 1.4.13 Fish and Wildlife Coordination Act

Under the authority of the Fish and Wildlife Coordination Act (16 U.S.C. 661), the USFWS may review activities that are authorized, permitted or funded by the federal government and make recommendations to the responsible agencies regarding the interests of fish, wildlife and their habitats. The agency also has regulatory responsibilities under the ESA, the Migratory Bird Treaty Act (MBTA) and the MMPA. The U.S. Fish and Wildlife Service is a member of the Council and provides advisory input on management recommendations. Because of its expertise with seabirds and other marine wildlife and its interests in managing certain Marine Protected Areas in the Pacific Islands, NMFS would provide a copy of the draft PEIS to the USFWS for review during the public review stage.

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Suggest having Joel Bader w/USFWS review this piece

#### 1.4.14 Marine Mammal Protection Act

Under the authority of the MMPA of 1972 (16 U.S.C. 1361, et seq.), as amended, NMFS and USFWS may review activities that are authorized, permitted or funded by the federal government (including NMFS) and make recommendations to the responsible agencies regarding the interests of marine mammals and their habitats. The MMPA establishes a federal responsibility to conserve marine mammals. Congress declared that marine mammals are resources of great international significance and that they should be protected and their development promoted to the greatest extent feasible, commensurate with sound resource management policies.

The MMPA's primary management objective is to maintain the health and stability of the marine ecosystem, with a goal of obtaining an optimum sustainable population of marine mammals within the carrying capacity of the habitat. The MMPA is intended to work in concert with the provisions of the ESA. The Secretary of Commerce is required to give full consideration to all factors regarding regulations applicable to the "take"<sup>8</sup> of marine mammals. Such factors include the conservation, development, and utilization of fishery resources, and the economic and technological feasibility of implementing the regulations. Some marine mammals are protected by take reduction plans that may include regulations to manage activities to reduce the potential for take of the protected species (i.e., false killer whales fishing restrictions under 50 CFR part 229 and 665). If a fishery project (including aquaculture) affects a marine mammal population, then the potential impacts of the fishery must be analyzed and the federal agency authorizing the action may be requested to consider changes to the management action to mitigate adverse impacts. Chapter 4 of the PEIS includes an analysis of the impacts of the alternatives on marine mammals and their habitat.

#### 1.4.15 Marine Protected Areas

EO 13158 was signed on May 26, 2000, and published on May 31, 2000 (65 FR 34909). This EO directs the Departments of Commerce and the Interior to jointly develop a national system of marine protected areas (MPAs). The purpose of the system is to strengthen the management, protection, and conservation of existing protected areas and establish new or expanded MPAs. The MPA system is to be scientifically based, representing diverse U.S. marine ecosystems and the Nation's natural and cultural resources. Establishing such a system is intended to reduce the likelihood that MPAs are harmed by federally approved or funded activities.

#### 1.4.16 National Historic Preservation Act

The goal of the National Historic Preservation Act (NHPA) (16 U.S.C. 470 et seq.) is to empower Federal agencies to act as responsible stewards of U.S. cultural resources when agency actions affect historic properties. Section 106 of the NHPA requires Federal agencies to take into account the effects of their undertakings on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register. In carrying out their responsibilities under Section 106, NHPA requires that Federal agencies consult with Indian tribes and Native Hawaiian Organizations that attach traditional religious and cultural significance to eligible or listed historic properties that may be affected by the

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I have a NHPA contact who can review this piece

<sup>8</sup> The MMPA defines "take" broadly to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal."

agency's actions. The intent of the consultation is to identify historic properties potentially affected by the undertaking and to seek ways to avoid, minimize, or mitigate any adverse effects on those properties.

Cultural resources that occur in the Action Area (i.e., deep, open ocean) are generally deeply submerged and therefore protected from the effect of all types of activity. The probability of encountering submerged resources and the probability of causing adverse effect on those resources are extremely low regardless of the action alternative being considered. An evaluation of potential effects of the proposed action on cultural resources is included in Section 4.8.3.11.

#### **1.4.17 National Marine Sanctuaries Act**

Under the National Marine Sanctuaries Act (NMSA) (16 U.S.C. 1431 et seq.), the Secretary of Commerce is directed to designate and manage areas of the marine environment with nationally significant aesthetic, ecological, historical, or recreational values as national marine sanctuaries. Regulations implementing the NMSA (15 CFR 922) serve to safeguard resources within sanctuary boundaries and include prohibitions or limitations on some activities, such as discharge and disturbance of the seabed. These regulations also provide the National Marine Sanctuary Program with authority to issue permits to allow certain activities beneficial to sanctuaries that would otherwise be prohibited. The PEIS includes in Chapter 4 an analysis of alternatives for the siting of aquaculture activities and consideration of marine sanctuaries.

#### **1.4.18 National Aquaculture Act**

Please see Section 1.3.1.

#### **1.4.19 Navigation and Navigable Waters**

The U.S. Coast Guard (USCG) is responsible for the regulation and enforcement of various activities in the navigable waters of the U.S. The USCG requires structures to be marked with lights and signals to ensure compliance with private aids to navigation (33 CFR 66.01). Title 33 CFR 64 also requires the marking of structures, sunken vessels, and other obstructions for the protection of maritime navigation. The PIR aquaculture program would include coordination with the USCG to ensure any aquaculture facility is compliant with USCG regulations for private aids to navigation.

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Coast Guard review?

#### **1.4.20 Paperwork Reduction Act**

The Paperwork Reduction Act (PRA) of 1995 (44 U.S.C. 3501 et seq.) regulates the collection of public information by federal agencies to ensure that the public is not overburdened with information requests, that the federal government's information collection procedures are efficient, and that federal agencies adhere to appropriate rules governing the confidentiality of such information. The PRA requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public. The PIR aquaculture program would likely include the collection of information regarding the operation of and production from facilities. The OMB approval for collection of this information would be part of the rulemaking process for implementing the aquaculture program.

#### **1.4.21 Regulatory Impact Review**

EO 12866, signed by the President on September 30, 1993, and published October 4, 1993 (58 FR 51735), replaced EOs 12291 and 12498. Its main purpose is to enhance planning and coordination with respect to new and existing regulations, and to make the regulatory process more accessible and open to the public. In addition, EO 12866 requires agencies to take a deliberative, analytical approach to

rulemaking, including assessment of costs and benefits of the intended regulations. It requires NMFS: 1) to prepare a regulatory impact review (RIR) for all regulatory actions; 2) to prepare a unified regulatory agenda twice a year to inform the public of the agency's expected regulatory actions; and 3) to conduct a periodic review of existing regulations. The purpose of an RIR is to assess the potential economic impacts of a proposed regulatory action. The RIR is frequently combined with a NEPA assessment and an initial regulatory flexibility analysis (IRFA) (see below) to satisfy the analytical requirements of NEPA, Regulatory Flexibility Act (RFA), and EO 12866. Economic analyses consistent with the RFA and a RIR under EO 12866 for NMFS to consider in its decision-making for the aquaculture management program would be prepared as part of the NEPA review. The intent of this PEIS is to evaluate, in compliance with NEPA (42 U.S.C. 4321 *et seq.*) and the NAO 216-6A, the potential direct, indirect, and cumulative impacts on the human environment of marine aquaculture in PIR, including economic analyses consistent with the RFA and EO 12866.

#### **1.4.22 Regulatory Flexibility Act**

The RFA (5 U.S.C. 601, *et seq.*) requires federal agencies to assess the impacts of their proposed regulations on small entities and to seek ways to minimize economic effects on small entities that would be disproportionately adverse. This action would potentially directly affect entities operating within the following business categories: Finfish Farming and Fish Hatcheries (NAICS 112511), Shellfish Farming and Shellfish Hatcheries (NAICS 112512), and Other Aquaculture (NAICS 112519). All of these industries have an SBA size standard of \$0.75 million in annual receipts.

#### **1.4.23 Rivers and Harbors Act**

The U.S. Army Corps of Engineers (USACE) is responsible for issuance of Section 10 permits for offshore aquaculture facilities. Section 10 of the Rivers and Harbors Act (33 U.S.C. 403) prohibits the creation of structures not authorized by Congress that obstruct navigable waters of the U.S. USACE permitting process (33 CFR 322) is designed to assess the environmental effects of a structure and any operations associated with the structure, including effects on navigable waters of the U.S. NMFS may provide comments to the USACE regarding impacts to marine resources of proposed activities and can recommend methods for avoiding such impacts. NMFS has coordinated analysis<sup>9</sup> of aquaculture facilities with the USACE for the Kampachi Farms net pen off Hawaii Island and recognizes USACE's important role in the federal permitting of aquaculture facilities.

### **1.5 Other Agencies' Requirements Related to Aquaculture Permitting**

NMFS is the only Federal agency with authority to regulate culture and harvest of marine organisms in waters of the U.S. EEZ. Other agencies may have a role in regulating the production and sale of seafood in culture facilities or deployment and operation of aquaculture facilities in waters of the U.S. EEZ. In addition to NMFS and the Council, several other Federal, State, and Territorial agencies may play a role in approving permits that would be required before gear could be deployed or reviewing proposed aquaculture activities in Federal waters.

#### **1.5.1 U. S. Department of the Army, Army Corps of Engineers**

All construction activities in U.S. navigable waters, including installing aquaculture facilities, require a Department of the Army Permit (DA permit) issued by the USACE. Section 10 of the Rivers and Harbor

<sup>9</sup> (<https://www.regulations.gov/docket?D=NOAA-NMFS-2015-0137>)

Commented [JB7]:  
Corps review?

Act of 1899 (33 U.S.C. Chapter 403) requires a permit for any construction in U.S. navigable waters (e.g. moorings, breakwaters). Additionally, if the applicant intends to discharge fill or other materials into the water as part of their aquaculture project, they must get permission to do so from the USACE under Section 404 of the Clean Water Act (33 U.S.C. Chapter 1344) as part of their DA permit before beginning construction activities. The DA permit covers the requirements of both statutes.

### **1.5.2 U. S. Environmental Protection Agency**

Under the Clean Water Act, the EPA has authority to issue National Pollutant Discharge Elimination System (NPDES) permits for aquaculture activities in Federal waters. Facilities that produce at least 100,000 pounds per year of fish, mollusks, or crustaceans and directly discharge wastewater must apply for a NPDES permit and are subject to the Concentrated Aquatic Animal Production facility effluent limitation guidelines at 40 CFR Part 451. Facilities producing less than 100,000 pounds per year may still require NPDES permits for discharging wastewater under certain conditions.

### **1.5.3 United States Coast Guard**

Aquaculture facilities in Federal waters may present a navigational hazard therefore, the applicant must apply to the USCG for a Private Aids to Navigation Permit (33 CFR part 66). The USCG would provide the applicant with lighting, radar, and other visual signal requirements for their aquaculture operation. The applicant must comply with the USCG's recommendations. The USCG also enforces fisheries regulations under the Magnuson-Stevens Act.

### **1.5.4 United States Fish and Wildlife Service**

When considering aquaculture permit applications, NMFS consults with the USFWS if a proposed project may adversely affect any ESA-listed species that USFWS manages under Section 7 of ESA (16 U.S.C. Chapter 1536). In addition, the USFWS may require a special purposes permit under the MBTA (16 U.S.C. Chapters 703-712) if there is any potential for the aquaculture activity to take any species listed under the MBTA.

### **1.5.5 United State Food and Drug Administration**

The U.S. Food and Drug Administration (FDA) performs two functions related to aquaculture under the authority of the Food, Drug and Cosmetic Act of 1938, as amended (21 U.S.C. Chapter 9). First, the FDA ensures that all food products sold in the United States are safe for human consumption. In order to process and sell seafood, NOAA or the FDA must certify processing facilities as "Approved Establishments." This condition only applies to aquaculture producers processing and selling harvested organisms for human consumption directly to the public. Aquaculture producers that sell their catches to a processor do not need Approved Establishment certification. A seafood processor must demonstrate their facilities comply with FDA food safety standards and guidelines during inspections.

The FDA also approves all drugs (e.g. antibiotics) and feed additives fed to cultured and harvested animals, including fish. The FDA must approve all animal feeds before aquaculture producers may feed them to their animals.

### **1.5.6 NOAA Seafood Inspection Program**

Through a Memorandum of Understanding (2009), the FDA delegated authority to the Department of Commerce to certify seafood processors as Approved Establishments. Seafood processors may request

inspection services from the NOAA Seafood Inspection Program to get Approved Establishment certification.

#### **1.5.7 State and Territorial Management Agencies Reviews**

The Coastal Zone Management Act (16 U.S.C. Chapters 1451-1465) requires NMFS to consult with States and Territories to ensure that NMFS-approved activities are consistent with their coastal zone management plans. Additionally, NMFS must also consult with local governments under Section 106 of the NHPA (16 U.S.C. Chapter 470) to ensure that the proposed action would not damage or diminish any property of historic value.

Before beginning operations, the applicant must also obtain additional permits before beginning aquaculture operations. These additional permits from other Federal agencies would be required regardless of the NMFS aquaculture permitting program.

#### **1.5.8 Management of Territorial Waters**

There are several applicable laws related to management of nearshore and offshore waters around American Samoa, CNMI, Guam, PRIA and the Mariana Trench National Monument. Many of the laws summarized here relate to conveyance of submerged lands, deeds of session and management of certain military zones within the Project Area.

##### **1.5.8.1 America Samoa Deeds of Cession**

The matai (chiefs) of Tutuila formally ceded the islands of Tutuila and Aunu'u to the U.S. on April 17, 1900. American Samoa was under the jurisdiction of the U.S. Navy Department until 1951, when administration was transferred to the Department of the Interior (The Columbia Electronic Encyclopedia, 2005 as cited in NOAA 2009). American Samoa is “unincorporated” because not all provisions of the U.S. Constitution apply to the territory. Instead, Congress gave plenary authority over the territory to the President of the U.S. who then delegated this authority to the Department of the Interior (DOI). The Secretary of the Interior, in turn, allowed American Samoans to draft their own constitution by which the government now functions (U.S. Department of Labor, 2007a as cited in NOAA 2009).

##### **1.5.8.2 Conveyances of Submerged Lands, Leased Lands and Military Zones**

There has been a series of legislation enacted related to conveyance of submerged lands including Public Law 93-435 in 1974 to convey submerged lands to American Samoa and Guam. On January 6, 1986, CNMI was created under the lease agreement made pursuant to the covenant to establish a political union with the U.S. Regulations allow non-commercial fishing by permit and customary exchange in non-commercial fisheries in the Islands Unit. In 2013, Public Law 113-34 amended Public Law 93-435 to convey submerged lands to CNMI while Proclamation 9077 in 2014 retained the following nearshore submerged lands under federal government jurisdiction:

- The submerged lands adjacent to the islands of Farallon de Pajaros (Uracas), Maug, and Asuncion permanently covered by tidal waters up to the mean low water line and extending three geographical miles seaward from the mean high tide line; and
- The submerged lands adjacent to the islands of Tinian and FDM permanently or periodically covered by tidal waters up to the line of mean high tide and extending seaward to a line 3 geographical miles

(mi) (4.8 km) distant from those areas of the coastline that are adjacent to the leased lands described in the lease.

The leased lands on Tinian as described in Proclamation 9077 are the Leaseback Area and Exclusive Military Use Area. The submerged lands under federal jurisdiction are those areas permanently or periodically covered by tidal waters up to the line of mean high tide and extending seaward to a line 3 geographical miles distant from those areas of the coastline that are adjacent to the Leaseback Area and Exclusive Military Use Area. A 12 nm (22 km) danger zone around Farallon de Medinilla also prohibits access while in use by the military.

#### **1.5.8.3 Mariana Trench Marine National Monument**

Proclamation 8335 created the Mariana Trench Marine National Monument in 2009. Regulations for the Mariana Trench National Marine Monument (78 FR 32996, June 3, 2013) prohibit commercial fishing in the Islands Unit (the three northern most islands of Farallon de Pajaros, Maug, and Asuncion). Additionally, Farallon de Medinilla nearshore waters within 3 nm (5.5 km) are restricted from public access at all-time due to safety reasons based on military activities. Regulations allow non-commercial fishing by permit and customary exchange in non-commercial fisheries in the Islands Unit. A 12 nm danger zone around FDM also prohibits access while in use by the military

#### **1.5.8.4 Management Subareas**

##### **1.5.8.4.1 CNMI FEP Management Subarea**

The CNMI management subarea includes all federal waters of the U.S. EEZ from 3 to 200 nm (5.5 to 370 km) around the CNMI, except for the three northern most islands of Uracus, Maug, and Asuncion, and the island of Farallon de Medinilla, where federal jurisdiction extends to the shoreline. At Tinian, federal waters also extend to the shoreline around certain lands leased by the U.S. government\*.

*\*As provided for under the Lease Agreement Made Pursuant to the Covenant to Establish a Commonwealth of the Northern Mariana Islands in Political Union with the United States of America, dated January 6, 1983, as amended.*

##### **1.5.8.4.2 PRIA FEP Management Areas**

The PRIA fishery management area is the EEZ seaward of Palmyra Atoll, Kingman Reef, Jarvis Island, Baker Island, Howland Island, Johnston Atoll, and Wake Island, Pacific Remote Island Areas with the inner boundary a line coterminous with the seaward boundaries of the above atolls, reefs and islands PRIA and the outer boundary a line drawn in such a manner that each point on it is 200 nm (370 km) from the baseline from which the territorial sea is measured, or is coterminous with adjacent international maritime boundaries.

The following U.S. EEZ waters are no-take MPAs: Landward of the 50-fathom (0.09 km) curve at Jarvis, Howland, and Baker Islands, and Kingman Reef; as depicted on National Ocean Survey Chart Numbers 83116 and 83153. In addition, all fishing for coral reef MUS is prohibited within 12 nm (22 km) of the islands in the Pacific Remote Islands National Monument, subject to U.S. Fish and Wildlife Service authority to allow noncommercial fishing in consultation with NMFS and the Council. All commercial fishing is prohibited within the PRINM.

#### **1.5.8.4.3 Other Applicable Management Subareas**

The Guam management subarea includes all federal waters of the U.S. EEZ from 3 to 200 nm (5.5-370 km) around Guam. The American Samoa management area encompasses the inner boundary of the U.S. EEZ extending from the seaward boundary of American Samoa Territorial waters to a distance of 200 nm. The Pelagics FEP management area is based on the range of the highly migratory species under the Plan's jurisdiction,

## 2 Alternatives

This chapter describes three programmatic alternatives for offshore marine aquaculture management in the PIR. The alternatives are composed of a number of management tools that intend to serve as options for an overarching framework for managing aquaculture in offshore marine waters in the PIR. NMFS developed these programmatic alternatives, in part, based on the values and objectives expressed through scoping and public comments received during the scoping period August 23 through October 31, 2016, as described in Section 2.1. Appendix A provides the Scoping Report. The alternatives attempt to capture those values and objectives while remaining consistent with the Magnuson-Stevens Act and other applicable federal law (see Section 1.4). Analysis of the effects of the proposed alternatives is presented in Chapter 4, Environmental Consequences.

Alternative 1 (Status Quo) represents the No Action Alternative, as required under 40 CFR 1502.14. The Status Quo or No Action Alternative provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives. In this case, Alternative 1 would mean that no aquaculture management program would be established. Aquaculture of CREMUS would continue to be managed under Special CRE Fishing Permits, as described in detail in Section 2.1.1 .

Alternatives 2 and 3 would amend the five Western Pacific FEPs and regulations to include a comprehensive aquaculture management program and would establish application requirements, operational requirements, and restrictions for aquaculture activities. Alternative 3 would be an enhanced version of Alternative 2 (*e.g.*, require additional monitoring, establish additional operational restrictions) as summarized in Table 2-2 and described in detail in Sections 2.3.3 and 2.3.4. Alternatives 2 and 3 aim to establish an efficient and effective aquaculture management program while still allowing NMFS and the Council some flexibility to respond to new information and new environmental issues. By providing a range of management tools and evaluating their potential effects for each alternative (see Chapter 4), the alternatives take into account the dynamic nature of aquaculture fisheries and provide enough flexibility in each alternative management regime to allow decision-makers to base decisions on the best available science.

Both Alternatives 2 and 3 propose requirements and restrictions for the following management tools:

- Permit Requirements, Eligibility and Transferability
- Application Requirements, Operational Requirements and Restrictions
- Permit Duration
- Allowable Marine Aquaculture Systems
- Siting Requirements and Restrictions
- Allowable Species
- Record-keeping and Reporting Requirements
- Framework Procedures
- Program Capacity

In compliance with CEQ guidance, alternatives were “rigorously explored and objectively evaluated” against the stated purpose and need (Chapter 1) and criteria including, but not limited to, practicability, feasibility, and potential to cause significant harm to the environment. Alternatives that did not meet these

criteria were eliminated from detailed analysis in this PEIS, as described in detail in Section 2.3. Chapter 4 examines the effects of each alternative relative to each other within the physical, biological, ecological, economic, social, and administrative environments of the PIR.

Considering alternatives help to ensure that ultimate decisions concerning the proposed Project are well founded and consistent with other national policy goals and objectives described in Chapter 1. The alternatives were developed based on the purpose and need for the proposed Project, as discussed in Section 1.1. The impacts of the alternatives presented in this section were evaluated based on information summarized in Chapter 3, Affected Environment, and according to the methods described in Chapter 4. The findings in these chapters provide the basis for assessment of the relative merits of the alternatives and, ultimately, for NMFS' supporting justification and determination of the Preferred Alternative (see Section 2.6 for more information on the preferred alternative). Section 2.4 describes a list of alternatives that were screened during the scoping process and eliminated as not reasonable.

## **2.1 Public Participation in Alternatives Development**

The preliminary alternatives were initial concepts developed by the PEIS project team prior to scoping. They were to serve as the basis to begin a discussion, and collect comments and insight about potential effects of the proposed alternatives as well as ideas for different alternatives. Preliminary alternatives were based on public comments and discussions during Council meetings as well as public scoping for this PEIS. The exact structure and components of alternatives were developed after completing the scoping process. The following sections provide a summary of Council meetings during which aquaculture management was discussed and/or public comments on aquaculture were received, and an overview of the public scoping period for this PEIS.

### **2.1.1 Western Pacific Regional Fishery Management Council Public Meetings**

As discussed in Section 1.3.2, on October 20-23, 2009, at its 146th meeting in Honolulu, Hawaii, the Council staff presented council members with options for management of offshore aquaculture. Following public comments accepted at the meeting, the Council adopted its Aquaculture Policy, and recommended that Council staff develop an amendment to its recently approved FEPs establishing management measures for offshore aquaculture.

Council staff presented the Council's aquaculture management recommendations during the following public meetings. All Council meetings were open to the public, and the public was provided an opportunity to comment:

- Hawaii Community Fishing and Fishery Workshop Series
  - Kona, Hawaii, January 16, 2010
  - Kaunakakai, Molokai, January 23, 2010
  - Kahului, Maui, February 6, 2010
  - Honolulu, Hawaii, February 13, 2010
  - Lihue, Kauai, February 20, 2010
  - Hilo, Hawaii, May 8, 2010
- Marianas Community Meetings
  - Rota, March 11, 2010

- Tinian, March 12, 2010
- Saipan, March 13, 2010
- Marianas FEP Plan Team Meeting, Saipan, Commonwealth of the Northern Mariana Islands, March 15, 2010
- Marianas FEP Regional Ecosystem Advisory Committee Meeting, Saipan, Commonwealth of the Northern Mariana Islands, March 16, 2010
- Marianas FEP Advisory Panel Meeting, Hagatna, Guam, March 20, 2010
- American Samoa FEP Advisory Panel Meeting, Pago Pago, American Samoa, April 19, 2010
- American Samoa FEP Plan Team Meeting, Pago Pago, American Samoa, April 20, 2010
- American Samoa FEP Regional Ecosystem Advisory Committee Meeting, Utulei, American Samoa, April 21, 2010
- Hawaii FEP Advisory Panel Meeting, Honolulu, Hawaii, April 12, 2010
- Hawaii FEP Plan Team Meeting, Honolulu, Hawaii, April 14-15, 2010
- Hawaii FEP Regional Ecosystem Advisory Committee Meeting, Honolulu, Hawaii, May 6, 2010
- Hawaii Community Workshops, Hilo, Hawaii, May 8, 2010

#### **2.1.2 PEIS Public Scoping Period and Comments**

On August 23, 2016 (81 FR 57567) and again on September 30, 2016 (81 FR 67312), NMFS, in coordination with the Council, published a Notice of Intent (NOI) in the FR announcing its intent to prepare a PEIS to analyze the potential environmental impacts of a proposed PIR aquaculture management program and alternatives. As part of developing a PEIS, federal agencies must involve environmental agencies, applicants, and the public to the extent practicable (40 CFR Sec. 1501.4[b]). Following guidance for public review of an EIS in NAO 216-6A and NEPA, publication of the NOI began the official public scoping process pursuant to NEPA.

The NOI presented information on the proposed action and preliminary alternatives to inform the public of the agency's initial thoughts for an aquaculture program. The scoping comment period ended on October 31, 2016. During the scoping process, NMFS held public scoping meetings in six locations throughout the proposed Project Area. Table 2-1 shows the dates and locations of the public scoping meetings.

**Table 2-1. Dates and Locations of the Public Scoping Meetings**

Location	Date
NOAA Fisheries Conference Room Pago Pago, American Samoa 96799	Thursday September 8, 2016
University of Hawaii at Hilo Hilo, Hawai'i 96720	Tuesday September 13, 2016
West Hawaii Civic Center Kailua-Kona, Hawai'i 96740	Wednesday September 14, 2016
NOAA Fisheries Honolulu Service Center Pier 38, Honolulu, O'ahu 96817	Thursday October 13, 2016
Northern Marianas College Saipan, Commonwealth of the Northern Mariana Islands 96950	Tuesday October 18, 2016
Hilton Guam Resort and Spa Tumon Bay, Guam 96913	Thursday October 20, 2016

NMFS received 38 distinct comment letters through the public scoping process. NMFS also received 28,209 copies of a form letter submitted by a non-governmental organization. Comments were received both in supporting and opposing to an aquaculture management program in federal waters of the PIR. In general, seven summarized comments specifically opposed the action (development of an aquaculture management plan) as well as and the existing ocean aquaculture businesses operating in the Pacific. Rationale, when provided, included concerns for native species of fish, the history of environmental harm from some salmon aquaculture operations in cold-water marine environments, and availability of other options to raise fish, including recirculating farms and open system aquaculture, that which some commenters perceive to be less environmentally risky. OtherSome commenters noted that aquaculture can meet the supply gap in fish consumption demand, would reduce impacts of wild harvest, and that when properly management-managed, can ensure that aquaculture is compatible with recreational fishing, military activities, and other ocean uses. Two commenters noted that NMFS should lead the way in supporting offshore aquaculture, and that the PEIS is a way to analyze aquaculture methods and management.

Substantive comments received during the scoping process have been addressed or incorporated into this PEIS and the alternatives evaluated. The complete Scoping Summary Report is included in Appendix A and is available on the proposed Project website: ([http://www.fpir.noaa.gov/SFD/SFD\\_aq\\_pacific\\_islands\\_peis.html](http://www.fpir.noaa.gov/SFD/SFD_aq_pacific_islands_peis.html)); it includes additional information about the scoping comments received.

**2.2 Next Steps in the NEPA Process**

NMFS published a Notice of Availability (NOA) in the FR, which began the 60-day review period, the times and locations of public meetings for the Draft PEIS, and the deadlines for submitting comments on the Draft PEIS. The PIR Aquaculture Project website also provides this information ([http://www.fpir.noaa.gov/SFD/SFD\\_aq\\_pacific\\_islands\\_peis.html](http://www.fpir.noaa.gov/SFD/SFD_aq_pacific_islands_peis.html)). Those who are on the mailing list have received notification of the availability of the Draft PEIS.

**2.2.1 Issuing the Final PEIS**

NMFS would analyze and respond to substantive comments received in response to the Draft PEIS. These comments and responses would be assimilated and published in a Comment Analysis Report. NMFS may

**Commented [JB8]:**  
... "which is counted as 1 distinct comment." ??  
Would your GC allow you to state this here?

**Commented [DN9]:** Note to self – PIRO-wide website is getting updated need to make sure correct addresses get inserted throughout document.

make changes in the PEIS reflecting comments received. NMFS and the Council would select a Preferred Alternative and present this to the public in the Final PEIS. NMFS would publish the document, making it available for public review, and EPA would provide public notice of the document's availability in the FR. This step in the process also includes a 30-day comment period, during which the public may submit final comments on the Final PEIS to be considered by NMFS prior to publishing the Record of Decision (ROD). For updates on the PEIS schedule and anticipated publication dates, please visit: [http://www.fpir.noaa.gov/SFD/SFD\\_aq.html](http://www.fpir.noaa.gov/SFD/SFD_aq.html).

### **2.3 Alternatives**

The alternatives evaluated in this PEIS must achieve the objectives of the proposed action as stated in the purpose and need (Section 1.1), without violating federal environmental statutes and regulations described in Section 1.4. Thus, comparing the alternatives to the stated purpose and need, as well as technical and economic practicality and feasibility, serves as a means to filter alternatives that may be carried forward for detailed analysis. Any alternative that fails to meet the agency's purpose and need or federal environmental statutes and regulations, need not be carried forward for further consideration in the PEIS. Evaluation of the No Action Alternative is required in a PEIS (40 CFR 1502.14). These alternatives represent a reasonable range of options in accordance with the purpose and need described in Chapter 1 and fulfill the NEPA requirements for analyzing the No Action Alternative.

#### **2.3.1 Alternative 1 No Action**

Section 1502.14 of NEPA requires federal agencies to explore all reasonable alternatives, including the alternative of No Action. The No Action Alternative provides a benchmark, enabling decision makers to compare the magnitude of environmental effects of the action alternatives. In this case, the No Action Alternative would mean an aquaculture management program would not be developed. Under Alternative 1, NMFS would continue to require an EFP, as provided at 50 CFR 600.745, to conduct aquaculture in the EEZ, or a SCREFP, as described in 50 CFR §665.13 and subsequent archipelagic regulations for American Samoa, Hawaii, the Marianas, and the PRIA.

Alternative 1 describes the current conditions, the status quo, where NMFS only issues permits for the aquaculture of CREMUS. As described in Section 1.4.1, a SCREFP may include terms and conditions to control, monitor, and mitigate any potential environmental effects. Sections of the CFR that apply to SCREFPs are also provided in Section 1.4.1.

These special permits pursuant to the above regulations authorize fishing for a potentially harvested coral reef taxa using gear that is not specifically authorized. Potentially harvested coral reef taxa means coral reef associated species, families, or subfamilies, as defined in 50 CFR §665.121, 50 CFR §665.221, 50 CFR §665.421, and 50 CFR §665.621, for which little or no information is available beyond general taxonomic and distribution descriptions. These species have either not been caught in the past or have been harvested annually in amounts less than 1,000 lbs. (454.54 kg).

Under the status quo, a comprehensive aquaculture management program would not be implemented for the Pacific Islands Region. FEPs would not be amended to include an aquaculture management program and regulations would not be changed. No aquaculture permit would be required.

### 2.3.2 Permitting Requirements Common to Alternatives 2 and 3

As described in Section 1.4, NOAA-NMFS, EPA and USACE all have permitting responsibilities for offshore aquaculture operations. Section 1.4.1 provides information on the existing permitting process under Alternative 1, Status Quo. For Alternatives 2 and 3, the permitting requirements and basic processes described in this section would be the same.

Permits are frequently required in fisheries to identify participants, limit entry, and restrict fishing activities. Regulations found at 50 CFR §665 summarize various fishery licensing and registration requirements for the Western Pacific. These regulations provide the basis for specifying standards and criteria for approving, modifying, or denying fisheries permits under the Magnuson-Stevens Act. In addition to requiring a permit, regulations include permit application requirements and conditions. Both Alternatives 2 and 3 would require a permit application and specify conditions for operating an aquaculture facility as described in an Operations Plan to be developed by NMFS (see Chapter 5).

The implementation of an aquaculture-specific permit would place NMFS as the lead agency in the management of aquaculture in federally managed waters of the PIR. Permits would be required for conducting offshore marine aquaculture in federal waters of the PIR. Any U.S. citizen or resident alien is eligible to apply. Permits would authorize the deployment of approved gear, operation of the approved site and facility, and sale of allowable aquaculture species. This regulatory requirement is intended to aid law enforcement and ensure that landings are reported and accounted for when determining compliance with the Magnuson-Stevens Act. Persons issued an aquaculture permit would be authorized to possess and transport cultured species to and from the offshore facility. Any vessel, aircraft, or vehicle authorized for use in aquaculture operations would be required to have a copy of the PIR Aquaculture Permit on board. Requiring an aquaculture permit onboard would assist law enforcement in determining compliance with aquaculture regulations.

Each federal permit would specify a suite of requirements that must be incorporated into the construction or deployment phase of an offshore aquaculture project, as well as day-to-day operation and maintenance activities. Some permit requirements would apply to all aquaculture operations authorized to operate in the PIR, while others may be specifically tailored to an individual operation. Note that each federal agency that issues a permit is required to consult with other regulatory agencies and may solicit public input regarding the potential impacts of each proposed project. These inputs may be reflected in the permit requirements.

For ESA-listed species, in addition to the requirements under the MMPA (see Section 1.4.14), criteria must be considered when determining whether or not to issue a permit for aquaculture. Specifically, aquaculture operations must not adversely affect any endangered species.

In addition to NMFS, other agencies potentially involved in the aquaculture application review include but may not be limited to:

**Commented [JB10]:**  
I have never seen our agency referred to as NOAA NMFS these types of documents.  
It's either NOAA Fisheries, or, NMFS.

- EPA
- USACE
- USCG;
- USFWS;
- USDA APHIS; and
- State Agencies

Under both Alternatives 2 and 3, the process for obtaining permits and authorizations to establish an offshore aquaculture operation in federal waters would have five basic steps described below.

1. Pre-Application Screening and Review Process. Prospective applicants would provide information outlined in the Pre-Application Checklist to the NMFS Regional Aquaculture Coordinator (coordinator). The coordinator would forward this information to federal permitting and authorizing agencies for review. At the request of the applicant, the coordinator could also schedule a pre-application meeting with NMFS and other federal agencies, during which time agencies and the applicant discuss any concerns on the proposed project and share guidance regarding application processes. See also Section 5.3.1 for additional detail.
2. Application Process. A completed aquaculture permit application form and all associated required supporting documents ~~requirements~~ must be completed and submitted to the NMFS Regional Administrator (RA) for the PIR prior to when the applicant desires the permit to become effective. The NMFS RA would review permit applications and make a preliminary determination whether the application contains all of the required information (i.e., is “complete”) and warrants further consideration. If the RA deems an application complete, notification of receipt of the application would be published in the FR with a brief description of the proposal. Under Alternative 2 only, at this stage, applications may be categorized for permitting review based on the anticipated level of impact to the marine and human environment. For example, based on the conclusions presented in Chapter 4 on the potential effects of aquaculture, if sufficient information is provided in an application demonstrating that a proposed project is likely to result in negligible or few minor impacts to the environment and protected species (i.e., ESA-listed species), an Expedited Permit Process could be used. Under the Expedited process, NMFS permits would be issued within 15 days of receipt of the application and applicants would be required to have all other agency-required permits in place. Alternatively, if a proposed project requires additional information from the applicant and more detailed agency review, the permitting process would proceed following the Standard Permit Process which ~~can take up to~~ could take approximately 180 days.

Based on permitting requirements of the other federal permitting and authorizing agencies, prospective applicants would submit other required information or agency-specific permit applications to those agencies at the same time in tandem (or sooner depending on other agency permit timelines) ~~that an application is submitted to~~ with the NMFS application process. This would ensure that all necessary permits and authorizations are in place when the NMFS permit becomes effective.

3. Permit Issuance and Operational Phase. Once required permits and authorizations have been issued, permittees must comply with all permit and authorization terms and conditions, including all monitoring, reporting and recordkeeping requirements. All required permits must be issued before operations may commence (i.e., before structures or animals may be placed in the water).

**Commented [JB11]:**  
Assuming aquatic animal health plan requirement is in here?

**Commented [JB12]:**  
You want a completed application, right? And supporting documents? I think “requirements” by itself is not accurate in this context.

**Commented [JB13]:**  
WHAT????  
This is not possible for the scale of aquaculture we are talking about in this document

Even with the Vellella Epsilon Pilot project (2 cages, single point mooring, 40k fish grown = <\$150k annual production) we would never be able to meet that with consultation responsibilities and no NEPA.

**Commented [JB14]:**  
How do you know how long the permit process will take? Have you sat down with the other federal permitting agencies (EPA, Corps) and discussed processes and timelines? This is dangerous territory here... suggest getting solid input from your GC on this as folks will hold you to any timelines you put in this document.

**Commented [JB15]:**  
Don't count on it...

Suggest deleting this sentence and just say “NMFS will work closely with other federal agencies during the federal permitting process and coordinate issuance of all required federal permits to the extent possible.”

**Commented [JB16]:**  
This conflicts with the last sentence of #2 above. Suggest keeping this sentence and deleting last sentence of #2.

4. Stakeholder Review Process. Under Alternatives 2 or 3, for projects undergoing the Standard Permit Process review described in Step 2, once the notice of receipt of the permit application is published in the Federal Register, the public would be allowed ~~a 15-day~~ up to 45 days to comment ~~to 45-day comment period~~ during which time comments could be submitted to NMFS for review. During this time, the RA would also consult with the Council concerning the application. Applicants would be notified by the RA in advance of any Council meeting at which time the application could be considered. If the Council meeting agenda includes discussion of the aquaculture proposal, the applicant would be offered the opportunity to appear in support of the application through public testimony. As described in more detail in Section 5.3.1, the Council may also seek guidance from either an Aquaculture Advisory Panel (AAP) or Scientific and Statistical Committee (SSC) on the proposed project and provide recommendations to NMFS.
5. Determination on Permit Issuance. As soon as practicable after the ~~15 to 45 day~~ public comment period, the RA would make a decision whether or not to issue the aquaculture permit. ~~If the RA decided not to issue the aquaculture permit, the applicant would be notified of the reasons for the denial.~~ The RA may also consider revisions to the application made by the applicant in response to public comment before making a final decision. Once the decision on whether to issue the aquaculture permit is made, the RA would notify the applicant in advance via letter, then publish a notice in the FR announcing the decision. If the decision is to not to issue the aquaculture permit, the reasons for the denial will be included in the letter to the applicant. Note that NMFS would not issue an aquaculture permit until the Agency confirms that all necessary permits and authorizations from other agencies (described in Step 2) have been issued.

**Commented [JB17]:**

This is how the Gulf AQ final rule reads and it is much more straightforward. If the public sees 15 days you will get negative comments, even if that isn't the norm for comment period duration.

**Commented [JB18]:**

No need to add public comment duration here

**Commented [JB19]:**

Again, this is inconsistent with those sentences I've commented on in #2 and #3 above. Suggest deleting this last sentence entirely from this paragraph.

Note that we are finding out through the V. Epsilon aquaculture pilot project process that

**Commented [JB20]:**

Revised this paragraph as some things were out of order and others could be simplified

### 2.3.3 Alternative 2

Under Alternative 2, the FEPs and regulations would be amended to include a comprehensive aquaculture management program and would establish application requirements, operational requirements, and restrictions for aquaculture activities based on the characteristics of the proposed activity. Alternative 2 represents a less restrictive approach to permitting aquaculture by providing some level of flexibility for both permittees and decision-makers when compared to Alternative 3 (see Section 2.3.5). This alternative seeks to provide sound conservation of the living marine resources; provide socially and economically viable fisheries and fishing communities, minimize human-caused threats to protected species; and maintain a healthy marine resource habitat. Chapter 5 summarizes the process by which broad standards and criteria that would be developed to approve, modify, or deny PIR Aquaculture Permits.

#### 2.3.3.1 Permitting

In addition to the permitting requirements described in Section 2.3.3.1, Alternative 2 would also establish bounds on the duration of aquaculture permits. Such criteria and standards are identified for approving, modifying, or denying allowable aquaculture systems. In addition, under Alternative 2, NMFS would have the option of processing an application based on the anticipated level of impact by evaluating the application against the conclusions presented in Chapter 4 of this PEIS. If a proposed aquaculture project is expected to result in negligible or few minor impacts to the marine and human environment, NMFS may issue a permit to the applicant within 15 days. This assumes sufficient information is provided by the applicant during the pre-application screening process to determine the potential for impacts would be low. For applications that have been deemed complete and appropriate for consideration by ~~may require~~

**Commented [JB21]:**

Dave – can you touch on this point during your regional update session at the OAQ retreat session next week? This doesn't seem feasible to me in the context of a commercial aquaculture permitting program.

**Commented [JB22]:**

Not possible. Especially since no Baseline Environmental Survey will be available so early in the process – EFH and ESA staff will need the BES to determine their level of consultation.

~~additional review and consideration by~~ NMFS, the Council and other stakeholders, the Standard Permit Process for review would be used and ~~may take up to~~ could take approximately 180 days as described in Section 2.3.3.1. Alternative 2 is the only alternative that includes an option for an Expedited Permit Process.

### 2.3.3.1.1 Application Requirements and Operational Requirements

Alternative 2 would establish application and operational requirements including restrictions for permitted aquaculture facilities. Applications would require submission of a comprehensive Aquaculture Operations Plan (AOP). The ~~Operations Plan~~AOP would include:

- ~~P~~ermittee contact information,
- ~~the~~ latitude and longitude coordinates for the proposed site location (e.g., center coordinates),
- ~~S~~pecific information on the proposed aquaculture system and equipment,
- ~~a~~dDetailed description of the aquaculture systems and equipment to be employed, ~~an~~ emergency disaster plan, and
- ~~s~~Standard operating procedures for gear stowage.

Applications would include documentation of an assurance bond, an emergency disaster plan, ~~a~~ contingency plan for escapement of cultured fish, an aquatic animal health plan, copy of a contractual arrangement with an accredited veterinarian, and a commitment that the following assurances will be made:

- ~~e~~Certification that broodstock would be harvested from waters of the area,
- ~~d~~ocumentation that broodstock would be marked or tagged at the hatchery, ~~a~~e
- Certification that no ~~genetically modified engineered~~ or transgenic species would be used for culture,
- ~~and~~ Certification that cultured animals would be from broodstock that are free from pathogens of concern (defined as any OIE-listed pathogens or emerging pathogens) ~~see~~ prior to stocking.

The process by which these application and operational requirements would be established under this aquaculture program is described in more detail in Chapter 5.

Applicants must also conduct a baseline environmental survey and provide a description of expected environmental effects on the facility based on the proposed activities. A proposed monitoring plan must be included and be in accordance with NMFS guidelines and procedures before proceeding with the proposed activity (please see Chapter 5 for additional detail on how guidelines and procedures would be developed under this program).

Applicants intending to use any veterinary drugs, biologics, and/or pesticides must do so in compliance with regulations of other federal agencies and specify their intent in the application. The U.S. Food and Drug Administration (FDA), EPA, and USDA regulate drugs, pesticides, and biologics. Permittees would be required to comply with the existing regulations of these agencies (Food, Drug and Cosmetic Act, 21 U.S.C. 321; Clean Water Act, 40 CFR 122; 9 CFR 101-124; 21 CFR 500-599; and 40 CFR 150-189). FDA drugs approved for use in aquaculture can be found at:

<https://www.fda.gov/animalveterinary/developmentapprovalprocess/aquaculture/default.htm>.

**Commented [JB23]:**

**Dave** – this section is need of major revision/reorganization. I've added comments here to help it make sense. I know I've made some of the same comments before on certain areas that are not accurate but still see the same language as before.

**Commented [JB24]:**

Why not use this acronym to simplify?

**Commented [JB25]:**

Delete – this is included in the Application information list in the next paragraph.

**Commented [JB26]:**

GENETICALLY ENGINEERED!!!

I know I've mentioned that many times before and it needs to be corrected in any document presented to the public going forward

**Commented [JB27]:**

Talk to Janet about this. It may make more sense to require that juveniles stocked be certified free of pathogens of concern since such testing is often lethal. Broodstock is much too valuable to continue to be sacrificed!

**Commented [JB28]:**

Isn't this what the NEPA document is for? What exactly would you want from applicants and is this really feasible/necessary. Seems like it may be a time sink for applicants without any truly useful information.

**Commented [JB29]:**

What kind of monitoring plan? I assume for protected species? We are doing this for the V. Epsilon project and working with the applicant and USFWS (to include migratory birds).

This should NOT be meant to be for water quality and benthos monitoring as that is under the EPA's purview and these aspects will be outlined in the final NPDES permit for each AQ facility.

**Commented [JB30]:**

Have Janet review this section to ensure citations are correct.

A locating device must be installed and maintained on each allowable aquaculture system used for grow-out. Additionally, the ~~Operations Plan AOP~~ must include a ~~process for monitoring and reporting on broodstock health, information on anticipated annual production rate of cultured species (e.g., number and weight), escape of cultured species into surrounding habitat, occurrence and treatment of disease outbreaks in broodstock and cultured species, and number, weight and value of all sales.~~

**Commented [JB31]:**  
Remove – this should be in the Aquatic Animal Health Plan

**Commented [JB32]:**  
This belongs in the application information above so I've moved it there.

**Commented [JB33]:**  
I've commented on this before. It makes no sense to ask for value of sales prior to sale. Why is this still included?

### 2.3.3.1.2 Permit Duration

Under Alternative 2, an aquaculture permit would be issued for: a) 10 years; b) 15 years; or c) 20 years, ~~all with a 5 year renewal period following initial issuance. - Permits issued for 10, 15, or 20 years must be renewed every five years.~~ Permits could be revoked if permit conditions were not met.

### 2.3.3.2 Application Siting Requirements and Restrictions

Proper siting of an aquaculture facility is critical to both an operation's success and the protection of the surrounding physical, biological, and ecological environments.

~~Aquaculture would be prohibited in any area where commercial fishing is prohibited. NMFS may will~~ also evaluate the location of a site relative to important commercial and recreational fishing grounds (*i.e.*, the proximity of a proposed site to fishing grounds) to evaluate the potential for interactions between fishing gear and aquaculture facilities.

**Commented [JB34]:**  
Dave – could there conceivably be any area where commercial fishing is prohibited that aquaculture should be considered? How about National Marine Sanctuaries in your region? Is commercial fishing prohibited in those areas? If so, why would we want aquaculture to be prohibited, especially when one of Neil Sims' projects was permitted in a humpback whale sanctuary? In the GoM, each Sanctuary has the authority to determine if they want aquaculture (and which kind of AQ) in their sanctuary.

**Commented [JB35]:**  
NMFS "will" do this. This is a non-negotiable if we ever want comm/rec fishermen to be open to AQ.

Under Alternative 2, NMFS would have the authority to consider prohibiting aquaculture near or within areas designated as HAPC, and other areas including artificial reef areas, special management areas (*i.e.*, Bottomfish Restricted Areas or BRFAs), Naval training ranges or transit areas, tidal buoys, legal fish aggregating devices (FADs), marine sensitive areas (*i.e.*, Penguin Banks), or commercial shipping lanes. A description of existing designated HAPCs is included in Section 3.2.2.4 Potential effects on HAPC is included as an aspect of the Ecosystem Function in Section 4.8.9.

To prevent impacts to the biological and physical environments, other siting restriction criteria would be considered by NMFS ~~to evaluate proposals~~ on an individual project basis. Such criteria may include depth of site, current speeds, bottom type, whether the site may become a wildlife attractant, frequency of harmful algal blooms, or proximity to marine mammal migratory pathways or special use areas. The process used to develop siting criteria is described in Chapter 5 of this PEIS.

Spacing between aquaculture facilities would be determined on a project-specific basis according to the ~~Operations Plan AOP~~ and facility details. ~~The farther apart facilities are sited, the lower the likelihood of water from one facility contaminating water at another facility. Permitted sites should be a minimum of two times larger than the area encompassed by the allowable aquaculture systems to allow for fallowing and rotation of grow-out systems, if necessary. The farther apart facilities are sited, the lower the likelihood of water from one facility contaminating water at another facility.~~ Requiring a site to be twice as large as the area encompassed by allowable aquaculture systems would allow permittees to rotate systems, as needed. This is analogous to terrestrial farming and crop rotation practices, and could help diminish the build-up of wastes and organic matter below cages, net pens, and other allowable systems, thereby benefiting the physical environment. ~~Aquaculture facilities would be required to mark the boundaries of the facility per U.S. Coast Guard regulations and be responsible for maintaining those markers.~~

**Commented [JB36]:**  
This is not why this provision was added to the Gulf AQ rule. It was added to reduce potential spread of pathogens. REMOVE this sentence as it indicates that AQ facilities are polluting the environment, which we know is not true when they are properly sited and monitored.

**Commented [JB37]:**  
Again, this is one of those Gulf AQ rule things that may not be necessary

**Commented [JB38]:**  
It has been shown that fallowing is unnecessary if a facility is sited correctly and with proper monitoring. This sentence makes it sound like rotation of net pens will be expected – when in actuality, pens may never be moved if it's not needed. Suggest striking this sentence as the third sentence in this paragraph already states that sites would be 2x larger for fallowing purposes, if necessary. (or, you may want to drop this requirement altogether?)

### 2.3.3.3 Allowable Marine Aquaculture Systems

An offshore aquaculture facility means an installation or structure, including any allowable aquaculture systems (e.g., cages, net pens), and includes ~~including~~ moorings), equipment, and associated infrastructure used to hold, propagate, and rear allowable aquaculture species in the PIR EEZ under authority of a PIR Aquaculture Permit. Alternative 2 proposes no specific prohibitions for allowable marine aquaculture systems. Applicants would be required to submit detailed information on the proposed system in their application which that would allow NMFS to conduct project-specific reviews. In addition, applicants must submit documentation sufficient to evaluate the structural integrity of the system, especially in regard to the proposed system's ability to withstand physical stresses associated with the open ocean and storm events. NMFS may deny use of a proposed system or specify conditions for its use if it poses significant potential risks to essential fish habitat, endangered or threatened species, marine mammals, wild fish and invertebrate stocks, public health, or safety.

**Commented [JB39]:**  
We are really talking about structural integrity here and that info should include, but not be limited to storm events.

Also mention here that NMFS will provide specific guidance on this requirement at a later date.

**Commented [JB40]:**  
Of course there are potential risks – but you don't want to deny based on "potential risks". This should be revised to "significant risks" and "significant risks" should be defined as it is in the Gulf AQ rule for this same purpose.

**Commented [JB41]:**  
Where is the Table/Appendix with the list of these species? If already included, please reference, if not then please add.

**Commented [JB42]:**  
There are many fish that are not managed by the Council that are native species. What about them? If you don't include non-managed species, then what is the avenue for permitting those non-managed native species for aquaculture?

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

**Commented [JB43]:**  
If the Council only wants to allow culture of species they manage, then you will have to describe in the PEIS and the final rule how one would go about culturing non-managed, native species.

**Commented [JB44]:**  
Also – aren't all Council managed species native species anyway? Not sure why this sentence on non-natives is even needed.

### 2.3.3.4 Allowable Species

Alternative 2 would only permit species listed in the respective Archipelagic FEP for culture. For pelagic MUS, only species listed in the Pelagic FEP that naturally occur within the region of the proposed aquaculture facility could be cultured. The intent of this alternative is to allow the culture of species already managed by the Council ~~and those regulated by NMFS~~. Therefore, permits would not be issued to culture any non-native species. Stock enhancement or the intentional release of cultured fish into the wild would not be authorized by a PIR Aquaculture Permit.

### 2.3.3.5 Recordkeeping and Reporting Requirements

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

Record keeping and monitoring must be consistent with the ~~Operation Plan~~ AOP requirements and ~~as be~~ appropriate to the level of operation (i.e., as described for Level I or II projects). Records must be kept for the following categories:

- Number and pounds of harvested cultured species;
- Reports of all escapes, including a description of how the escape occurred (e.g., gear failure) and the response taken by the permittee, including any recaptures and system repairs;
- Interactions with protected species;
- Human Health and Safety issues; and
- Gear conflict issues.

In addition, NMFS would require currently valid copies of all other applicable state and federal permits. These requirements would alert NMFS of potential problems occurring at a facility and provide them with a basis for modifying, suspending, or revoking a permit in accordance with subpart D of 15 CFR 904<sup>10</sup>.

<sup>10</sup> 71 FR 12443, March 10, 2006.

A permittee shall provide the NMFS RA with the following information if entanglements or interactions with marine mammals, protected species:

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 NMFS RA with an annual report on or before January 31 each year indicating no entanglement or interaction occurred.

### 2.3.3.6 Framework Procedures

This action would establish framework regulations similar to those existing in 50 CFR 665.18, which includes considering requesting input from an existing Council advisory body such as the Archipelagic Plan Team or SSC, or an AAP to provide periodic reports to the Council, and periodic review of the aquaculture management program by the Council for recommending modifications to and new management measures for the program. Additional details on the responsibilities of the Plan Team, SSC or a new AAP and how they may advise the Council and NMFS is provided in Chapter 5.

Measures that could be adjusted through framework procedures include: a) adjustments to harvest limits; b) permit application requirements; c) aquaculture operational requirements and restrictions; d) requirements for allowable aquaculture systems used for growing cultured organisms; e) siting requirements; ~~and~~ f) recordkeeping and reporting requirements, and g) native species not managed by the Council that can be added to the allowable list of species for culture.

The Plan Team, SSC or AAP would meet at least annually to review data concerning: annual aquaculture harvest; escapes of cultured species; interactions with marine mammals, protected species and migratory birds; gear conflicts; and gear failure. This advisory body would prepare a written report with recommendations to the Council on the aquaculture program and associated permitting process.

The NMFS RA would review the Council's recommendations for consistency with the goals and objectives of the Aquaculture FEP, national standards, the Magnuson-Stevens Act, and other applicable laws. If the RA concurs with the recommendations, regulations could be drafted and implemented through notice in the FR. 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 FR include:

- Permit application requirements;
- Aquaculture operational requirements and restrictions, including monitoring requirements;
- Allowable aquaculture system requirements;
- Siting requirements for aquaculture facilities; and
- Recordkeeping and reporting requirements.

**Commented [JB45]:**

Has PRD staff at PIRO provided input on this section? Seems to be verbatim from the Gulf AQ rule requirement.

**Commented [JB46]:**

Can this be added as a framework measure? This would make it much easier to get around similar issues with culture of Council managed species only that we see in the Gulf of Mexico.

**Commented [JB47]:**

Protected migratory bird species would automatically be included in this list

Under the Alternative 2 Standard Permit Process, opportunities for public comment and input would be available before any proposed changes to regulatory measures were approved. For example, NMFS would have ~~a 15 to up to a~~ 45-day public comment period for permit applications submitted for aquaculture under the program that undergo the approximately 180-day Standard Permit Process. In addition, public comments would also be encouraged through the Council process as described in more detail in Section 2.1 and Chapter 5.

Under the Alternative 2 Expedited Permit Process, a proposed aquaculture project that is expected to result in negligible or few minor impacts based on the analysis presented in Chapter 4 of this PEIS, would undergo an expedited review and may receive a permit within 15 days. Under this option, no public comment period would occur.

#### **2.3.3.7 Program Capacity**

Under Alternative 2 there would be no limit to the number of aquaculture permits approved.

#### **2.3.4 Alternative 3**

Alternative 3 incorporates several key differences when compared to Alternative 2:

- No option for the Expedited Permit Process, only the Standard Permit Process would be used (see Section 2.3.2)
- Separate siting and operating permits
- Creation of Aquaculture Advisory Panel
- Shorter permit duration
- Limit any entity to no more than 25% of harvest capacity

Alternative 3, while still meeting the requirements of the Magnuson-Stevens Act, MMPA, ESA, and other federal laws, would result in a more precautionary management approach when faced with uncertainty as compared to Alternatives 1 or 2. As with Alternative 2, Alternative 3 would amend the FEPs and regulations to include a comprehensive aquaculture management program and establish application requirements, operational requirements, and restrictions for aquaculture activities based on the expected level of operation of the proposed activity. Like Alternative 2, this alternative seeks to provide sound conservation of the living marine resources; provide socially and economically viable fisheries and fishing communities, minimize human-caused threats to protected species; and maintain a healthy marine resource habitat. Alternative 3 recognizes the need to balance many competing uses of marine resources and different social and economic goals for fishery management. Under Alternative 3, additional permitting application, reporting and monitoring requirements would be required. Additionally, an AAP would be established to provide recommendations bi-annually to NMFS and the Council for aquaculture program management as described in more detail below. The process for developing standards and criteria that would be used to approve, modify, or deny PIR Aquaculture Permits are described in more detail in Chapter 5.

##### **2.3.4.1 Permitting**

The duration of aquaculture permits would be shorter than under Alternative 2 as described below. These criteria and standards would provide the basis for NMFS to approve, modify, or deny allowable aquaculture systems.

Permit review would follow the Standard Permit Process and may take up to 180 days as described in Section 2.3.2. The following subsections provide specific details on permitting requirements (including application requirements) and duration under Alternative 3.

#### **2.3.4.1.1 Permit Requirements, Eligibility and Transferability**

Alternative 3 would require separate siting and operating permits for conducting offshore marine aquaculture, unlike Alternative 2, which would be one combined Aquaculture permit. A siting permit would authorize use of a site for conducting aquaculture; however, it would not authorize deployment or operation of a facility. An operating permit would authorize the activities specified in the proposed Operations Plan. Both permits would be required by the same entity or partnering entities in order to develop and operate an aquaculture facility in the PIR. Dealer permits would be required to receive cultured organisms and are non-transferable.

Eligibility for permits would be the same as under Alternative 2 and limited to U.S. citizens and permanent resident aliens. Permits would be non-transferable under Alternative 3.

#### **2.3.4.1.2 Application Requirements, Operational Requirements and Restrictions**

Under Alternative 3, NMFS would not permit any one entity to produce more than 25 percent of the annual production cap. Minimum start-up requirements would be implemented. At least 25 percent of aquaculture systems approved for use at a specific aquaculture facility at the time of permit issuance must be placed in the water at the site within two years of issuance of the permit, and allowable species for aquaculture must be placed in the aquaculture system(s) within three years of issuance. Failure to comply with these requirements would 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). Prior to permit expiration at two years, the project would be reviewed to determine if all required authorizations from other agencies have been obtained. If additional time is necessary to obtain other required permits or authorizations (federal or state), a permit extension may be granted by NMFS.

The proposed Siting Plan would include a baseline environmental survey and results of modeling of potential impacts based on baseline data. The requirement to conduct a baseline environmental survey and modeling would ensure that facilities are not sited in sensitive areas that are vulnerable to impact and damage. If a permit is issued, assessment data would also provide managers and scientists with a baseline to assess impacts of an aquaculture facility once operations begin. The process by which NMFS and the Council determine what would be required in a baseline survey is described in more detail in Chapter 5.

The Aquaculture Operations Plan AOP would have the same requirements specified under Alternative 2 in accordance with NMFS guidance and procedures. In addition, effluent limitations and monitoring requirements would be specified in any applicable NPDES permit issued by EPA (see Section 1.4.6). These requirements are intended to protect water quality, and may include water column and benthic monitoring. EPA regulations at 40 CFR 451 also include feed monitoring and best management practices. These requirements would be implemented through the NPDES permit.

Each Aquaculture Operations Plan would include strategies to minimize the accumulation of uneaten food beneath the net pens/cages through the use of active feed monitoring and management practices. Best management practices included in the operations plans may include devices such as video cameras, digital scanning sonar, and upweller systems; monitoring of sediment quality beneath the pens; monitoring of

**Commented [JB48]:**  
In other places this is simply referred to as the Operations Plan. Needs to be consistent throughout the document. Suggest defining as AOP and sticking with that.

benthic community quality beneath the pens; capture of waste feeds and feces; or other good husbandry practices approved by the permitted authority. Permittees would also have to abide by monitoring and reporting requirements specified by the USACE and EPA in Section 10 and NPDES permits.

The application for an operations permit would be submitted after the siting permit such that any refined or new information about specific gear to be used or the environmental baseline could be incorporated. This could allow for a more accurate description of the proposed operations and marine environment within the project area. Minimum landings would be required to keep aquaculture operations permits valid.

#### 2.3.4.1.3 Permit Duration

An aquaculture permit would only be effective for 5 years and may be renewed in 5-year increments.

#### 2.3.4.2 Allowable Marine Aquaculture Systems

Only cages and net pens of specific construction and ranges of sizes would be authorized for use for aquaculture in waters of the U.S. EEZ in the PIR. Floating or submerged net-pens or cages are the most commonly used offshore aquaculture systems. Therefore, Alternative 3 limits the allowable aquaculture systems to only these types to minimize the uncertainty associated with the potential effects of new systems. This alternative would not allow the use of future aquaculture system designs which do not meet the definition of a cage or net pen. Any new technology, in other words future designs that are not cages or net pens, would require that the Council amend the FEPs to allow these new aquaculture systems.

#### 2.3.4.3 Siting Requirements and Restrictions

General siting restrictions would be the same as Alternative 2, with Alternative 3 having the following additional constraints.

Establish a limited number of marine aquaculture zones throughout the PIR within which individual sites would be permitted. Aquaculture zones would be established based on the likelihood of economic viability, suitability of the site, and interest in aquaculture in the area. Aquaculture operations would be prohibited except in established aquaculture zones; however, these zones would not be exclusively for aquaculture.

NMFS would establish specific criteria for siting requirements within these zones including: 1) depth of the site; 2) current speeds and benthic sediments; 3) frequency of harmful algal blooms or hypoxia at the proposed site; 4) marine mammal migratory pathways; and 5) location of the proposed site relative to special use areas such as Marine Protected Areas (MPAs) or military training areas. The Council has authority to create zones that exclude fishing or fishing vessels (*i.e.*, zones where fishing with certain gear is prohibited). Restricting access around aquaculture facilities would afford some protection to an operation's equipment and the product being cultured.

#### 2.3.4.4 Allowable Species

Allowable species would be the same as under Alternative 2, but may include limitations on the species that would be authorized under the proposed Aquaculture Management Program. This may be restricted to only those species that have been previously cultured or that are likely to be successfully cultured. The process by which these restrictions would be determined is described in more detail in Chapter 5.

#### Commented [JB49]:

I flagged this as an issue before. It's really hard to get behind this without knowing what is meant by "minimum landings". Also, there should be contingencies if there is a loss of fish for some reason and there is no ability to land fish for a period of time.

#### Commented [JB50]:

Who makes the determination of those species that are "likely to be successfully cultured"? Seems like a judgement call...

#### 2.3.4.5 Record-keeping and Reporting Requirements

Record keeping and reporting requirements would be the same as Alternative 2, with Alternative 3 having additional requirements:

Require 24-hour electronic monitoring at aquaculture facility for the purposes of record keeping and reporting. This includes a required electronic reporting process to allow NMFS to collect and monitor all data and information submitted by permit holders.

Establish record-keeping and reporting requirements that address pathogens and disease of concern, broodstock harvest, water quality monitoring, aquaculture harvest and sales, and any other appropriate records necessary for evaluating and assessing the environmental impacts of aquaculture.

NMFS must be notified by phone or electronic web-based form within 24 hours of:

- A. Major Escapes;
- B. Pathogen of concern outbreak; or
- C. Entanglement(s) or other interaction(s) with protected species including marine mammals, sea turtles or migratory birds.

To aid enforcement, other recordkeeping and reporting requirements include notifying NMFS:

- On 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.
  - A. 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.
  - B. 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.
  - C. 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, PIR Aquaculture Permit number of the aquaculture facility from which the fish were harvested, and name and address of purchaser. 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 3 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.

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.

**Commented [JB51]:**

What does this mean? 24 hour monitoring seems excessive—and likely impossible for certain aspects???

The Gulf AQ FMP has 24 hour reporting requirements for major escapes (a specifically defined term), entanglements/interactions with protected species and OIE-reportable disease events. There is an electronic reporting system being created to assist with these reporting requirements.

#### 2.3.4.6 Framework Procedures

As with Alternative 2, Alternative 3 would establish framework procedures like those existing in 50 CFR 665.18, which includes periodic reports to the Council, and periodic review of the aquaculture management program by the Council for recommending modifications to and new management measures for the program. Under Alternative 3, an AAP would be established to develop framework procedures for modifying management measures for offshore marine aquaculture in the PIR EEZ. The Council would appoint an AAP to meet at least bi-annually to review data concerning: annual aquaculture harvest; escapes of cultured species; interactions with marine mammals, protected species and migratory birds; gear conflicts; and gear failure. This group shall be comprised of Council staff, NOAA fisheries biologists and social scientists, SSC members, and other state and private entities. The AAP would prepare a written report with recommendations to the Council on the aquaculture program and associated permitting process. Please also see Chapter 5 for additional detail on framework procedures and coordination with the Council and AAP.

The NMFS RA would review the Council's recommendations for consistency with the goals and objectives of the Aquaculture FEP, national standards, the Magnuson-Stevens Act, and other applicable laws. If the RA concurs with the recommendations, regulations could be drafted and implemented through notice in the FR. 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 FR include:

- Permit application requirements;
- Aquaculture operational requirements and restrictions, including monitoring requirements;
- Allowable aquaculture system requirements;
- Siting requirements for aquaculture facilities; and
- Recordkeeping and reporting requirements.

If the AAP determines aquaculture is adversely affecting wild stocks, stock complexes, marine mammals, protected resources, migratory birds, essential and critical habitat, fishing communities, or other resources managed by the Council or NMFS, they may recommend additional limits for permitting aquaculture projects. Any decrease in the number of permits would include the scientific basis for the recommendation. There would be opportunities for public comment and input under Alternative 3 before any proposed changes to regulatory measures were approved (see Section 2.3.2).

Under Alternative 3, the AAP would have broader authority. The responsibilities of the AAP would include recommending changes to: the number of permits allowed, application and operating requirements, recordkeeping and reporting requirements, siting requirements, and allowable aquaculture system requirements. The main responsibilities of the AAP would include: 1) reviewing annual planned aquaculture production levels; 2) evaluating the condition and status of wild stocks and other marine resources, and whether or not their status has been adversely affected by offshore aquaculture; and 3) assessing economic and social considerations of aquaculture in the PIR EEZ.

#### **2.3.4.7 Program Capacity**

Alternative 3 would be limited entry program based on capacity. Theoretically, in the PIR there is some maximum capacity for producing cultured fish that does not adversely affect wild stocks or the marine environment (*e.g.*, water quality, habitat). By limiting the number of permits, NMFS can apply a precautionary approach until more is known about the impacts of aquaculture in the PIR. As with other fisheries, the number of permits may be modified based on new information developed as aquaculture proceeds. Capacity criteria would include establishing a limit on participation, timing of fish harvest, amount of fish allowed for culture on an annual basis (*i.e.*, production cap), cultured species, location, or density of the activity (*i.e.*, how many facilities within an area).

#### **2.3.5 Comparison of Alternatives**

Table 2-2 presents a comparison of each of the alternatives as organized by the key characteristics including permit requirements and duration, application and operational requirements, allowable aquaculture systems, program capacity, etc.

**Table 2-2. Comparison of Proposed Alternatives**

Component	Alternative 1. Status Quo/ No Action	Alternative 2. Open Program	Alternative 3. Limited Program
<b>General Description of Aquaculture Management Program</b>	A comprehensive aquaculture management program would not be implemented for the Pacific Islands Region. FEPs would not be amended to include an aquaculture management program and regulations would not be changed. No aquaculture permit would be required, except for the culture and harvest of coral reef ecosystem management unit species (CREMUS) which require a Special Coral Reef Ecosystem Fishing Permit (SCREFP).	The FEPs and regulations would be amended to include a comprehensive aquaculture management program and would establish application requirements, operational requirements, and restrictions for aquaculture activities.	The FEPs and regulations would be amended to include an enhanced comprehensive aquaculture management program and would establish application requirements, operational requirements, and restrictions for aquaculture activities.
<b>Special Coral Reef Ecosystem Fishing Permit</b>	<p>A short-term Special Coral reef ecosystem fishing permit (SCREFP) (50 CFR §665.13) is required to harvest a coral reef ecosystem management unit species from waters of the U.S. EEZ in the western Pacific region using gear that is not specifically authorized in regulations. Gear used to culture and harvest coral reef ecosystem management unit species (CREMUS) such as marine pens, cages, and other gear is not authorized in regulations. This permitting process occurs on a case-by-case basis. SCREFP are issued in accordance with the criteria and procedures established in the following sections of the CFR [American Samoa at 50 CFR §665.124; Hawaii at 50 CFR §665.224; Guam and CNMI (Marianas) at 50 CFR §665.424; and the PRIA at 50 CFR §665.624.</p> <p>Under the No-action Alternative, the SCREFP is the only Federal aquaculture permit that would be required and would apply only to CREMUS.</p> <p>The SCREFP would not apply if a party sought to culture (non-CREMUS) marine organisms.</p>	<p>The Special Coral Reef Ecosystem Fishing Permit regulations for the Pacific Islands Region would continue to apply. Given that there would be a Federal Aquaculture Program permit, the Council and NMFS may not recommend the use of a SCREFP in favor of the Federal Aquaculture permit.</p> <p>The rest of this column relates only to the proposed federal aquaculture permit.</p>	<p>The Special Coral Reef Ecosystem Fishing Permit regulations for the Pacific Islands Region would continue to apply. Given that there would be a Federal Aquaculture Program permit, the Council and NMFS may not recommend the use of a SCREFP in favor of the Federal Aquaculture permit.</p> <p>The rest of this column relates only to the proposed federal aquaculture permit.</p>

Component	Alternative 1. Status Quo/ No Action	Alternative 2. Open Program	Alternative 3. Limited Program
<p><b>Permit Requirements, Eligibility and Transferability</b></p>	<p>A SCREFP may include terms and conditions to control, monitor, and mitigate any potential environmental effects. This permitting process occurs on a case-by-case basis. The SCREFP permit may include terms and conditions. At present, there are no eligibility restrictions.</p> <p>NMFS may include other permit requirements as described below.</p> <p>NMFS is required to ensure compliance with all applicable laws prior to issuing a SCREFP.</p>	<p>Require an aquaculture permit for conducting offshore marine aquaculture in Federal waters of the Pacific Islands Region. Any U.S. citizen, national or resident alien is eligible to apply. The permit would authorize: deployment and operation of an offshore aquaculture facility and sale of allowable aquaculture species. Persons issued an aquaculture permit would also be authorized to possess or transport cultured species to and from an offshore aquaculture facility. Any vessel, aircraft, or vehicle authorized for use in aquaculture operations would be required to have a copy of the PIR Aquaculture Permit on board. Permit is transferrable to qualified applicant.</p>	<p>Require separate siting and operating permits for conducting offshore marine aquaculture. Eligibility for permits is limited to U.S. citizens, nationals and permanent resident aliens. Permits would be non-transferable. Dealer permits would be required to receive cultured organisms and are non-transferable.</p>
<p><b>Application Requirements, Operational Requirements and Restrictions</b></p>	<p>SCREFP: Application requirements are in the regulations and in the FEPs. SCREFP: NMFS may include special permit conditions on a permit-by-permit basis.</p> <p>Non-CREMUS aquaculture: NMFS would not have an aquaculture permit program and therefore, NMFS would not have the authority to impose operational requirements and restrictions for projects culturing non coral reef ecosystem management unit species in Federal waters.</p>	<p>Application requirements include submission of an application, providing general contact information, descriptions of allowable aquaculture systems and equipment, providing site location coordinates, documentation of an assurance bond, an emergency disaster plan, a contractual arrangement with an accredited veterinarian, certification that broodstock were harvested from waters of the area, and certification that no genetically engineered or transgenic species would be used or possessed at the aquaculture facility.</p> <p>Application must include an Aquaculture Operations Plan (proposal) with specific information on the proposed activity and expected effects based on the aquaculture activity proposed. Operational requirements would include: a use it or lose it provision, documentation that broodstock are marked or tagged at the hatchery, certification that cultured animals are OIE-listed pathogen free prior to stocking in offshore systems, gear stowage requirements, and various monitoring requirements.</p> <p>Applicants intending to use any drugs, biologics, and/or pesticides must do so in compliance with regulations of other federal agencies and specify their intent in the application. A locating device must be installed and maintained on each allowable aquaculture</p>	<p>Two permit system requiring a siting permit prior to receiving an operations permit. Siting Permit: Siting Plan proposal would require a baseline environmental survey and modeling of potential impacts based on baseline data, site monitoring and operating plan in accordance with NMFS guidance and procedures consistent with Alt. 2. Operations Permit: Application for Operations Permit would occur after the Siting Permit such that any refined or new information about specific gear to be used or the baseline environmental survey could be incorporated. No one entity could be permitted for more than 25% of the annual production cap (if any limit is specified by NMFS). Minimum start-up requirement: At least 25 percent of aquaculture systems approved for use at a specific aquaculture facility at the time of permit issuance must be placed in the water at the site within 2 years of issuance of the permit (siting permit), and allowable species for aquaculture must be placed in the aquaculture system(s) within 3 years of issuance (operations permit). Failure to comply with these requirements would be grounds for revocation of the permit. A permittee may request a 1-year extension to the above time schedules in the</p>

Component	Alternative 1. Status Quo/ No Action	Alternative 2. Open Program	Alternative 3. Limited Program
		<p>system used for grow-out.</p> <p>Applications may be reviewed and processed using an Expedited Permit Process (15 days) or a Standard Permit Process (up to 180 days) based on the anticipated level of impact to the environment (see Section 2.3.2).</p>	<p>event of a catastrophe (e.g., hurricane)."</p> <p>Applications would be reviewed and processed using the Standard Permit Process which may take up to 180 days.</p>
<b>Permit Duration</b>	<p>SCREFF: A SCREFF would include limits on the duration of the permit. In general, permits are envisioned to be short-term, with opportunities for renewal.</p> <p>Non-CREMUS aquaculture: NMFS would have no authority to impose management measures (including limits on the duration of aquaculture) for proposed aquaculture projects for non-coral reef ecosystem management unit species in Federal waters.</p>	<p>An aquaculture permit(s) is effective for: a) 10 years, b) 15 years, or c) 20 years (and may be renewed in 5-year increments). Permit duration would depend on request of applicant and nature of operation, species, previous experience, other corresponding permit durations (i.e. mooring), potential environmental effects.</p>	<p>An aquaculture permit would only be effective for 5 years and may be renewed in 5-year increments.</p>
<b>Allowable Marine Aquaculture Systems</b>	<p>SCREFF: There are currently no limits to the types of gear (aquaculture systems) that an applicant could propose to use to culture and harvest CREMUS. Applications for a SCREFF would need to undergo compliance reviews.</p> <p>Non-CREMUS aquaculture: There would be no restrictions on allowable aquaculture systems in Federal waters. However, proposed aquaculture facilities [if there is a federal nexus, such as permitting by the U.S. Army Corps of Engineers] would still require review and permitting by other Federal agencies and would need to coordinate with NMFS for Essential Fish Habitat provisions, the Endangered Species Act, the Marine Mammal Protection Act, or other relevant statutes.</p>	<p>No specific prohibitions. Applicants required to submit detailed information on the proposed system, including engineering analysis, that would allow NMFS to conduct project specific reviews. Applicants must submit documentation sufficient to evaluate a system's ability to withstand physical stresses associated with storm events. NMFS may deny use of a proposed system or specify conditions for its use if it poses risks to essential fish habitat, endangered or threatened species, marine mammals, wild fish and invertebrate stocks, or public health or safety.</p>	<p>Only cages and net pens of specific construction and ranges of sizes would be authorized for use for aquaculture in waters of the U.S. EEZ in the Pacific Islands Region.</p>

Component	Alternative 1. Status Quo/ No Action	Alternative 2. Open Program	Alternative 3. Limited Program
<b>Siting Requirements and Restrictions</b>	Non-CREMUS aquaculture would have no authority to impose management measures including restrictions on the siting of aquaculture facilities in the EEZ.	<p>Prohibit aquaculture in any area where all commercial fishing is prohibited.</p> <p>Consider prohibiting aquaculture near or within Council areas designated as HAPC, and other areas including artificial reef areas, special management areas (i.e., Bottomfish Restricted Areas or BRFAs), Naval training ranges or transit areas, tidal buoys, legal FADs, Penguin Banks, or commercial shipping lanes.</p> <p>NMFS would consider other siting restriction criteria on an individual project basis. Such criteria may include: 1) depth of site; 2) current speeds; 3) bottom type; 4) whether the site may become a wildlife attractant; 5) frequency of harmful algal blooms (HABS) or hypoxia; 6) marine mammal migratory pathways; or 7) special use areas.</p> <p>Aquaculture facilities would be spaced on a project-specific basis according to the operations plan and facility detail. Permitted sites should be twice as large as the area encompassed by the allowable aquaculture systems to allow for fallowing and rotation of grow-out systems.</p> <p>Applicants must conduct monitoring at the site in accordance with NMFS guidelines and procedures.</p>	<p>General siting restrictions would be the same as Alt. 2.</p> <p>Alt. 3 would have additional constraints as follows:</p> <p>Establish a limited number of marine aquaculture zones throughout the PIR based on the likelihood of economic viability, suitability of the site, and interest in aquaculture in the area, within which individual sites would be permitted. Aquaculture prohibited except in established aquaculture zones. These zones would not be exclusive for aquaculture.</p> <p>NMFS would establish specific criteria for siting requirements within these zones including: 1) depth of the site, 2) current speeds and benthic sediments, 3) potential for HABS or hypoxia at the proposed site, 4) marine mammal migratory pathways, and 5) location of the proposed site relative to special use areas.</p>
<b>Allowable Species</b>	<p>SCREFP: NMFS has discretion on whether or not to authorize culture of specific CREMUS. The decision would be made on a case-by-case basis, and in accordance with applicable law.</p> <p>Non-CREMUS aquaculture: NMFS would have no authority to impose management measures (including restrictions on species allowed to be cultured in Federal waters.</p>	Only species listed either in the fishery or as an ecosystem component in the applicable archipelagic FEP could be cultured. For pelagic Management Unit Species (MUSs), only species listed in the Pelagic FEP that naturally occur within the region of the proposed aquaculture facility could be cultured. Culture of non-native species would be prohibited	<p>Same as Alt. 2.</p> <p>May include limitations on the species that would be authorized under the proposed Aquaculture Management Program. May restrict to only those species that have been previously cultured or that are likely to be successfully, sustainably cultured. Culture of non-native species would be prohibited.</p>

Component	Alternative 1. Status Quo/ No Action	Alternative 2. Open Program	Alternative 3. Limited Program
<b>Record-keeping and Reporting Requirements</b>	<p>SCREFP: NMFS has discretion on whether or not to require specific record-keeping and reporting. The decision would be made on a case-by-case basis, and in accordance with applicable law.</p> <p>Non-CREMUS aquaculture: NMFS would have no authority to impose management measures including record-keeping and reporting requirements for aquaculture facilities unless such provisions are a result of coordination with a federal action agency in the course of other coordination such as Essential Fish Habitat provisions, the Endangered Species Act section 7 consultations, and/or the Marine Mammal Protection Act.</p>	<p>Recordkeeping and monitoring consistent with the operation plan requirements and as appropriate to the level of operation (i.e., as described for Level I or II projects).</p> <p>Records must be kept of: production; escapes; recapture; interactions with protected species; safety issues; gear conflict issues; and gear failure.</p> <p>NMFS would require currently valid copies of aquaculture permit available for inspection at the offshore aquaculture grow-out facility and on any vessels or aircraft used during operations.</p>	<p>Same as Alt. 2.</p> <p>Require 24-hour electronic monitoring at aquaculture facility for the purposes of record keeping and reporting. Video data would be provided to a 3rd party. Metadata would be provided to NMFS unless requested (i.e., in the event of escape or protected species interaction).</p> <p>Establish record-keeping and reporting requirements that also address pathogens and disease, broodstock harvest, water quality monitoring, aquaculture harvest and sales, and any other appropriate records necessary for evaluating and assessing the potential environmental impacts.</p> <p>Include a required electronic reporting process to allow NMFS to collect and monitor all data and information submitted by permittees.</p>
<b>Framework Procedures</b>	N/A	<p>Establish framework regulations similar to those existing in 50 CFR 665.18, which includes considering establishment of an advisory body (i.e., AAP), periodic reports to the Council, and periodic review of the aquaculture management program by the Council for recommending modifications to and new management measures for the program. Input from the AAP or Council would occur under a Standard Permit Process.</p> <p>Measures that could be adjusted through framework procedures include: 1) adjustments to harvest limits; 2) permit application requirements; 3) aquaculture operational requirements and restrictions; 4) requirements for allowable aquaculture systems used for growing cultured organisms; 5) allowable species; 6) siting requirements; and 7) recordkeeping and reporting requirements.</p>	<p>Same as Alt. 2</p> <p>Establish an AAP to develop recommendations for modifying management measures for offshore marine aquaculture in the PIR EEZ. The Council would appoint an AAP to meet at least bi-annually to evaluate the aquaculture management program.</p> <p>The Aquaculture Program and associated management measures would be reviewed periodically based on the Council's request. The AAP may provide recommendations to the Council for their consideration including potential modifications to existing management measures and additional new management measures.</p>

Component	Alternative 1. Status Quo/ No Action	Alternative 2. Open Program	Alternative 3. Limited Program
<b>Program Capacity</b>	<p>SCREFP: NMFS has set no limit to the number of permits that may be issued.</p> <p>Non-CREMUS: no limits</p>	No limit to the number of aquaculture permits.	<p>Limited entry program based on capacity. Capacity criteria would include establishing a limit on participation, timing of fish harvest, amount of fish allowed for culture on an annual basis (i.e., production cap), cultured species, location, or density of the activity (i.e., how many facilities within an area).</p>

## **2.4 Alternatives Considered and Rejected**

Following NMFS's NEPA guidance NAO 2016-6A, as well as other laws and statutes, key reasons for eliminating alternatives generally include the following: 1) does not meet the purpose and need of the proposed Project; 2) is not "reasonable" or "practicable"; or 3) does not include features that would reduce environmental impacts when compared to the proposed Project. In addition, alternatives that are remote or speculative need not be considered in an PEIS just for the purpose of comparison (Steinemann 2001).

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

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

### **2.4.2 Prohibit Aquaculture Operations in PIR EEZ Waters**

Prohibiting aquaculture operations in the PIR offshore EEZ would not meet the purpose and need of the proposed action to:

*Establish a federal management program for aquaculture fisheries in the EEZ of the PIR that would maximize benefits to the Nation by establishing a regional permitting process to manage the development of an environmentally sound and economically sustainable aquaculture industry.*

Prohibiting aquaculture would not supplement the harvest of domestic fisheries with cultured product nor would it help the U.S. meet consumers' growing demand for seafood and reduce the Nation's dependence on seafood imports. For these reasons, this alternative was eliminated as a potential alternative.

## **2.5 Environmentally Preferable Alternative**

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

## **2.6 Identifying a Preferred Alternative**

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