Office of National Marine Sanctuaries
National Oceanic and Atmospheric Administration

Papahānaumokuākea National Marine Sanctuary

Final Environmental Impact Statement: Volume I




U.S. Department of Commerce
Gina Raimondo, Secretary

National Oceanic and Atmospheric Administration
Richard W. Spinrad, Ph.D., Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator

National Ocean Service
Nicole LeBoeuf, Assistant Administrator

Office of National Marine Sanctuaries
John Armor, Director

Cover photos: NOAA diver investigates whaling shipwreck; native fish swim on a coral reef; Hawaiian voyaging canoe sails in Papahānaumokuākea; Hawaiian monk seal and ulua swim over the seafloor. Photos: NOAA

About This Document

The National Oceanic and Atmospheric Administration (NOAA) is proposing to designate the Papahānaumokuākea National Marine Sanctuary to recognize the national significance of the area's biological, cultural, and historical resources and to continue to manage this special place as part of the National Marine Sanctuary System. This final environmental impact statement (EIS) provides detailed information and analysis of a range of reasonable alternatives for the designation of marine portions of Papahānaumokuākea Marine National Monument and the Monument Expansion Area (collectively called the Monument) as a national marine sanctuary. The State of Hawai'i (State) and NOAA prepared this final EIS in accordance with the Hawai'i Environmental Policy Act (HEPA, Chapter 343 HRS, HAR Chapter 11-200.1); the National Environmental Policy Act (NEPA, 42 U.S.C. 4321 *et seq*.); and the National Marine Sanctuaries Act (NMSA, 16 U.S.C. 1431 *et seq*.), which requires preparation of an environmental impact statement for all sanctuary designations. The EIS is accompanied by a sanctuary management plan that describes the proposed goals, objectives, strategies, and actions for managing the sanctuary.

NOAA is the lead agency for this proposed action. NOAA's Office of National Marine Sanctuaries (ONMS) is the implementing office for this proposed action. Cooperating agencies include U.S. Fish and Wildlife Service, the State of Hawai'i, the Department of the Navy, and the Office of Hawaiian Affairs.

For further information contact Eric Roberts, Papahānaumokuākea Marine National Monument Superintendent, at Eric.Roberts@noaa.gov or 808-294-7470; NOAA/Daniel K. Inouye Regional Center, 1845 Wasp Blvd, Building 176, Honolulu, HI 96818.

A note on terminology: The term Papahānaumokuākea, when used alone, refers to the place, also historically known as the Northwestern Hawaiian Islands, including the land and all waters to 200 nmi from shore. Papahānaumokuākea Marine National Monument or PMNM refers to the area designated as a monument via Presidential Proclamations 8031 and 8112, extending 50 nmi from all islands and emergent lands of the Northwestern Hawaiian Islands. The Papahānaumokuākea Marine National Monument Expansion Area or MEA refers to waters from 50 to 200 nmi designated as a monument in 2016 by Presidential Proclamation 9478. PMNM and the MEA are referred to collectively as the "Monument." When describing the action alternatives, the term "Outer Sanctuary Zone" is used to describe the area of the sanctuary that is coextensive with the MEA. A glossary of Hawaiian terms and place names is found after Chapter 6.

Most of the islets, atolls, and reefs have both Hawaiian and English names. Names used in this document are (from Southeast to Northwest): Nihoa, Mokumanamana (Necker), Lalo (French Frigate Shoals), ʻŌnūnui and ʻŌnuiki (Gardner Pinnacles), Kamokuokamohoali'i (Maro Reef), Kamole (Laysan Island), Kapou (Lisianski Island), Manawai (Pearl and Hermes Atoll), Kuaihelani (Midway Atoll), and Hōlanikū (Kure Atoll). Other banks, shoals, and seamounts within Papahānaumokuākea may also have Hawaiian and English names.

Recommended Citation

National Oceanic and Atmospheric Administration, Office of National Marine Sanctuaries. 2024. Papahānaumokuākea National Marine Sanctuary Final Environmental Impact Statement: Volume I. Silver Spring, MD.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of National Marine Sanctuaries
1305 East-West Highway
Silver Spring, Maryland 20910

Dear Reviewer:

In accordance with the National Environmental Policy Act (NEPA), we enclose for your review the National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries final environmental impact statement (EIS) to designate marine portions of Papahānaumokuākea Marine National Monument and the Monument Expansion Area as Papahānaumokuākea National Marine Sanctuary.

NOAA prepared this document to assess the environmental impacts of designating a national marine sanctuary under the National Marine Sanctuaries Act (NMSA). The NMSA requires that an EIS be prepared for designation of a national marine sanctuary regardless of the significance of the impacts of the proposed action. The management plan contains the nonregulatory management actions for the proposed sanctuary. NOAA will publish a final rulemaking to establish the boundaries, regulations, and terms of designation for the sanctuary. Under the NMSA, after the publication of the final rule the designation becomes effective after 45 days of Congressional session. During this time, Congress and the Governor of Hawai'i will review NOAA's designation documents. NOAA will also develop the Record of Decision and publish the notice of effective date of the designation in the Federal Register after the review period is complete. Although NOAA is not required to respond to comments received as a result of issuance of the final EIS, any comments received will be reviewed and considered for their impact on issuance of a Record of Decision. Please send comments to the Sanctuary Official identified below by January 13, 2025. NOAA will make the Record of Decision publicly available following final agency action.

Sanctuary official: Eric Roberts, Superintendent
Papahānaumokuākea Marine National Monument
1845 Wasp Blvd., Bldg 176, Honolulu, HI 96818

Sincerely,

John Armor
Director

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Acknowledgements

This document was prepared by NOAA's Office of National Marine Sanctuaries, with assistance from the State of Hawai'i Department of Land and Natural Resources. A full list of preparers is in Appendix J.

Terms, Abbreviations, and Acronyms

BMP	Best Management Practice
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CIA	Cultural Impact Assessment
Co-trustees	Term used in this document to refer to the State of Hawai'i, the U.S. Department of Commerce, the U.S. Department of the Interior, and the Office of Hawaiian Affairs
CWG	Papahānaumokuākea Native Hawaiian Cultural Working Group
CZMA	Coastal Zone Management
DLNR	Hawai'i Department of Land and Natural Resources
EEZ	Exclusive Economic Zone
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ERP	State of Hawai'i Environmental Review Program
ESA	Endangered Species Act
HAR	Hawaii Administrative Rules
HEPA	Hawaii Environmental Policy Act
HRS	Hawaii Revised Statutes
IMO	International Maritime Organization
MEA	Papahānaumokuākea Marine National Monument Expansion Area
MMB	Monument Management Board
Monument	Term used in this document to refer to the PMNM and MEA collectively
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NCCOS	National Centers for Coastal and Ocean Sciences
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
nmi	nautical miles
NMSA	National Marine Sanctuary Act
NOAA	National Oceanic and Atmospheric Administration
NWHI	Northwestern Hawaiian Islands

NWR	National Wildlife Refuge
NWRSAA	National Wildlife Refuge System Administration Act
OHA	Office of Hawaiian Affairs
OLE	Office of Law Enforcement
ONMS	Office of National Marine Sanctuaries
PMNM	Papahānaumokuākea Marine National Monument (Original Area)
PSSA	Particularly Sensitive Sea Area
RAC	Reserve Advisory Council
Reserve	Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve
SHPD	State of Hawai‘i Historic Preservation Division
SMCA	Sunken Military Craft Act
State	State of Hawai‘i
USFWS	U.S. Fish and Wildlife Service
USCG	U.S. Coast Guard
VMS	Vessel Monitoring System
WPRFMC	Western Pacific Regional Fishery Management Council

Executive Summary

Introduction

The National Oceanic and Atmospheric Administration (NOAA) proposes to designate marine areas of the Papahānaumokuākea Marine National Monument and Monument Expansion Area (collectively the "Monument") as a national marine sanctuary. The purpose of this action is to provide comprehensive and coordinated conservation and management of the marine areas of Papahānaumokuākea to protect nationally significant biological, cultural, and historical resources. This final EIS analyzes the impacts on the human environment of the proposed action and a range of alternatives for sanctuary designation, including proposed regulations for managing the new sanctuary.

Project Location and Characteristics

The area of the proposed sanctuary includes the marine environment surrounding the Northwestern Hawaiian Islands from the shoreline of the islands and atolls seaward to 200 nmi.

Papahānaumokuākea is a place of special national significance that provides large-scale ecosystem services for the region and the world. The marine habitat includes several interconnected ecosystems, including coral islands surrounded by shallow reef, deeper reef habitat characterized by seamounts, banks, and shoals scattered across the area of the sanctuary, mesophotic reefs with extensive algal beds, pelagic waters connected to the greater North Pacific Ocean, and deep-water habitats and abyssal plains 5,000 meters below sea level. These connected ecosystems provide essential habitats for rare species such as the threatened green sea turtle and the endangered Hawaiian monk seal, as well as habitat for more than 14 million seabirds that forage in the pelagic waters to nourish the chicks they are raising on the tiny islets. Papahānaumokuākea is home to 20 cetacean species, protected by the Marine Mammal Protection Act, with some listed as endangered under the Endangered Species Act. At least a quarter of the nearly 7,000 known marine species found in the region are found nowhere else on Earth.

The area of the sanctuary is also a place of historical and cultural significance. The area of the proposed sanctuary includes the location of the Battle of Midway, a turning point in World War II for the allies in the Pacific Theater. Research indicates that 60–80 sunken military vessels and hundreds of sunken aircraft are scattered across the seafloor. In addition to Navy steamers and aircraft, there are whaling ships, ancient Japanese sailing ships known as junks, motorized East Asian style fishing vessels known as Hawaiian fishing sampans, Pacific colliers, and other vessels from the 19th and 20th centuries.

Papahānaumokuākea is also a sacred place to Kānaka ʻŌiwi, who regard the islands and wildlife as kūpuna, or ancestors. The region holds deep cosmological and traditional significance to the people of Hawaiʻi and the Native Hawaiian culture, and contains a host of intact and significant archaeological sites found on the islands of Nihoa and Mokumanamana, both of which are on the National Register of Historic Places and Hawaiʻi Register of Historic Places. Papahānaumokuākea is as much a spiritual space as it is a physical geographical area, rooted deep in Native Hawaiian creation and settlement stories.

Purpose and Need for Sanctuary

NOAA's proposed action is to designate marine areas of the Monument as a national marine sanctuary. The purpose of this proposed action is to provide comprehensive and coordinated management of the marine areas of Papahānaumokuākea to protect nationally significant biological, cultural, and historical resources through a sanctuary designation. The area proposed for national marine sanctuary designation is a globally significant, interconnected set of marine ecosystems. Threats from climate change, marine debris, invasive species, human use and shipping traffic have and will continue to adversely impact these fragile resources. Through the proposed national marine sanctuary designation, NOAA aims to address these threats and discrepancies in management across the Monument by:

- developing objectives and actions that ensure lasting protections consistent with the existing Monument proclamations;
- safeguarding natural and cultural values of the marine environment;
- applying additional regulatory and non-regulatory tools to augment and strengthen existing protections for Papahānaumokuākea ecosystems, wildlife, and cultural and maritime heritage resources;
- authorizing NOAA to exercise enforcement authorities, including the assessment of civil penalties for violations of sanctuary regulations or violations of permits and to enforce provisions of the NMSA;
- imposing liability for the destruction, loss of, or injury to sanctuary resources and providing natural resource damage assessment to authorities for destruction, loss of, or injury to any sanctuary resource; and
- requiring interagency consultation for any federal agency action that is likely to destroy, cause the loss of, or injure any sanctuary resource

By designating this area as a national marine sanctuary, NOAA would implement regulations to complement and supplement existing authorities under the Antiquities Act; National Wildlife Refuge System Administration Act; Presidential proclamations 8031, 8112, and 9478; Executive Order 13178; 50 CFR 404; as well as other existing federal and State statutes designed to protect marine resources. Through sanctuary designation, NOAA would add to and not diminish protections under existing authorities.

Through sanctuary designation, the National Marine Sanctuaries Act would provide additional regulatory and non-regulatory tools for management and protection of Monument resources. For more than 20 years, NOAA has developed robust and effective programs for conservation science; the weaving of Kānaka ʻŌiwi (Native Hawaiian) heritage, knowledge, values, and practices into co-management; maritime heritage; and education, providing services and expertise that a sanctuary could leverage to support resource protection across the Monument.

Public Involvement and Interagency Coordination

Sanctuary designation and environmental review includes public involvement, as well as coordination and consultations with other federal, State, and local agencies.

On November 19, 2021, NOAA, in cooperation with the State of Hawai‘i and USFWS, published a Notice of Intent in the Federal Register (86 FR 64904) to conduct scoping and to prepare an EIS for the proposed sanctuary designation. The State's EIS Preparation Notice was developed based upon the federal NOI, as the State and federal scoping processes, including comment-gathering, were combined. The public comment period took place over the course of 74 days from November 19, 2021–January 31, 2022. Comments were accepted during virtual public scoping meetings, through the Federal eRulemaking Portal, and by traditional mail. During the public comment period, 73 individuals and organizations provided written comments and nine people provided oral comments.

On March 1, 2024, NOAA published a Notice of Proposed Rulemaking (89 FR 15272) to release the draft rule, draft environmental impact statement, and draft management plan; and to request public comments on the proposed sanctuary designation documents. On March 8, 2024, the State of Hawai‘i Environmental Review Program also informed the public about the availability of the draft EIS through an announcement in its bulletin, The Environmental Notice, per HRS Chapter 343- 3(c). The public comment period took place over the course of 68 days from March 1–May 7, 2024. Comments were accepted during two virtual and nine in-person public meetings on O‘ahu, Kaua‘i, Hawai‘i Island, Maui, and Moloka‘i; through the Federal eRulemaking Portal; and by traditional mail. An estimated 237 people attended the 11 public meetings and 61 individuals provided oral comments. During the public comment period, more than 13,900 written comments were received from individuals, organizations and agencies, the overwhelming majority in support of sanctuary designation. In preparing the final EIS, final management plan, and final rule, NOAA and the State of Hawai‘i considered comments received on the draft EIS, identified substantive comments, and provided responses commensurate with the comment. A summary of these comments and the corresponding responses from NOAA are provided in Appendix K. In response to these substantive comments, NOAA clarified information and made changes to this final EIS, and the draft sanctuary management plan, as described further below (see Section 1.5 for a summary list of changes). The final rule is consistent with these changes.

NOAA also considered information received through cooperating agency review, coordination with the Monument Management Board, and coordination with the Reserve Advisory Council. NOAA also consulted with the Western Pacific Regional Fishery Management Council as required under NMSA. In fulfilling its responsibilities under Section 106 of the National Historic Preservation Act, NOAA consulted with the Hawai‘i State Historic Preservation Division. NOAA further initiated an effort to identify consulting parties to participate in the Section 106 process through distribution of over 500 letters to individuals, organizations, and families. Through this process NOAA identified 31 consulting parties.

Proposed Action and Alternatives

NOAA developed a reasonable range of alternatives as required by NEPA, 42 U.S.C. 4332(2)(C). The proposed action is to designate the marine portions of the Monument as a national marine sanctuary with terms of designation, regulations, and a sanctuary management plan. Action alternatives only differ by proposed boundaries, with Alternative 1 (Agency-Preferred Alternative) the largest and most comprehensive, and Alternatives 2 and 3 consider smaller

boundaries. As NOAA aims to provide coordinated conservation and management across the area, consistent with existing Monument management, the terms of designation, regulations, and sanctuary management plan are consistent across all action alternatives.

Proposed Boundaries

Alternative 1 is coextensive with the marine portions of the Monument. The boundary includes the marine environment surrounding the Northwestern Hawaiian Islands from the shoreline of the islands and atolls seaward to 200 nmi, including all State waters and waters of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, Midway Atoll and Hawaiian Islands National Wildlife Refuges, the Battle of Midway National Memorial, and the State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge.

Alternative 2 includes the marine environment from the shoreline of the islands and atolls seaward to 50 nmi. This alternative includes all State waters and waters of the Reserve, Midway Atoll and Hawaiian Islands National Wildlife Refuges, the Battle of Midway National Memorial, and State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge. This alternative does not include the MEA. The area encompassed in Alternative 2 is approximately 139,782 square miles (105,552 square nmi). Alternative 2 does not include the MEA. The MEA encompasses 442,781 square miles of marine waters.

Alternative 3 has the same boundaries as Alternative 1, but excludes waters within the Midway Atoll and Hawaiian Islands National Wildlife Refuges and the Battle of Midway National Memorial. These excluded waters include portions of the State marine refuge and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve that overlap with national wildlife refuge waters. The area encompassed in Alternative 3 is approximately 581,263 square miles (438,923 square nmi).

NOAA has identified Alternative 1 as the Agency-Preferred Alternative. Alternative 1 also represents the area under consideration described by NOAA in the Notice of Intent (86 FR 64904[Nov. 19, 2021]), as well as the boundary reflected in the proposed rule (89 FR 15272[March 1,2024]). See Chapter 5 for a comparison of all alternatives, as well as details explaining the basis for identifying the Agency-Preferred Alternative.

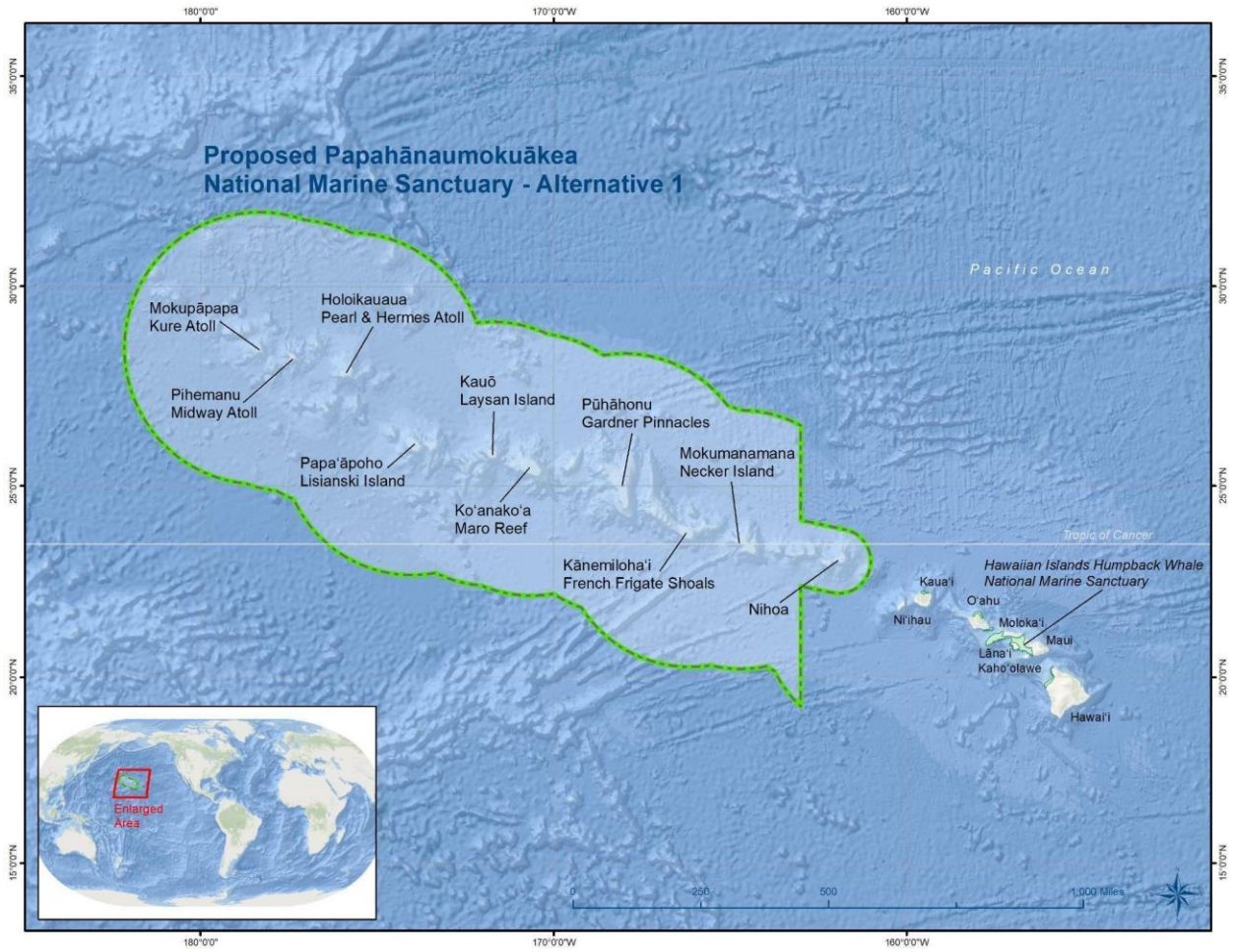

Figure E.1. Alternative 1 sanctuary boundary (marine areas only). Image: NOAA

Proposed Regulations

The purpose and need for the proposed sanctuary designation (Chapter 2) and NOAA's Preferred Alternative provide the framework for the development of the proposed sanctuary regulations. Presidential proclamations 8031, 8112, and 9478 served as benchmarks for drafting regulations for the proposed sanctuary. The proposed sanctuary would only add to and not diminish the management measures and protections provided by the presidential proclamations. In the proposed sanctuary regulations, NOAA has adopted the management measures from the presidential proclamations, and in a few places, added on to those measures to provide consistency in regulations and management across the proposed sanctuary. Minor changes in regulations for each area of the Monument (PMNM and MEA) are provided for in the proposed sanctuary regulations to remove discrepancies and gaps in prohibitions, regulated activities, and permitting across the two zones.

NOAA is proposing the following regulations under all alternatives to manage and protect the resources in the proposed sanctuary.

Cooperative Management

Through sanctuary designation, NOAA would supplement and complement existing management of the Monument. Existing authorities, including management authorities of all Monument co-trustees would remain in effect under all alternatives. Pursuant to the NMSA, states may choose to have a role in co-managing a sanctuary if all or part of the sanctuary is within the territorial limits of any state. As the sanctuary includes State waters, NOAA will co-manage the sanctuary with the State of Hawai‘i. NOAA will manage the sanctuary in partnership with the USFWS and OHA consistent with the management of the Monument.

Access

Access to the sanctuary would be prohibited and thus unlawful except under the following circumstances:

- for emergency response actions, law enforcement activities, and activities and exercises of the Armed Forces;
- pursuant to a sanctuary permit;
- when conducting non-commercial fishing activities in the Outer Sanctuary Zone authorized under the Magnuson-Stevens Fishery Conservation and Management Act provided that certain conditions are met;
- when conducting scientific exploration or research activities by or for the Secretary of Commerce or the Secretary of the Interior when the activity occurs within the Outer Sanctuary Zone); and
- when passing through the sanctuary without interruption.

A vessel may pass without interruption through the sanctuary without requiring a permit as long as the vessel does not stop or engage in prohibited activities within the sanctuary. NOAA would implement regulations for the ship reporting system (CORAL SHIPREP) adopted by the IMO, which would require entrance and exit notifications for vessels that pass without interruption through the sanctuary areas contained within a reporting area. The ship reporting requirements would apply to vessels of the United States; all other ships 300 gross tonnage or greater that are entering or departing a United States port or place; and all other ships of any size entering or departing a United States port or place and experiencing an emergency while transiting through the reporting area.

Prohibited or Otherwise Regulated Activities

NOAA is proposing prohibited or otherwise regulated activities as well as exemptions to the prohibited activities under 15 CFR part 922 subpart W.

The following activities would be prohibited within the proposed sanctuary, subject to specified exemptions:

1. Exploring for, developing, or producing oil, gas, or minerals, or any energy development activities.
2. Using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of a sanctuary resource.

3. Introducing or otherwise releasing an introduced species from within or into the sanctuary.
4. Deserting a vessel.
5. Anchoring on or having a vessel anchored on any living or dead coral with an anchor, anchor chain, or anchor rope
6. Commercial fishing, or possessing commercial fishing gear except when stowed and not available for immediate use.
7. Failing to comply with the vessel monitoring system requirements in violation of § 922.246.
8. Failing to comply with ship reporting requirements in violation of § 922.243.
9. Non-commercial fishing, or possessing non-commercial fishing gear except when stowed and not available for immediate use.
10. Drilling into, dredging, or otherwise altering the submerged lands; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands.
11. Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving sanctuary resource.
12. Attracting any living sanctuary resource.
13. Touching coral, living or dead.
14. Swimming, snorkeling, or closed or open circuit SCUBA diving.
15. Discharging or depositing any material or other matter, or discharging or depositing any material or other matter outside of the sanctuary that subsequently enters the sanctuary and injures any resources of the sanctuary, except for
    a. Fish, fish parts, or chumming materials (bait) used in or resulting from lawful fishing activity within the sanctuary, provided that such discharge or deposit is during the conduct of lawful fishing activity within the sanctuary;
    b. Discharge incidental to vessel operations such as approved marine sanitation device effluent, cooling water, and engine exhaust, consistent with federal statute or regulation; and
    c. Within Special Preservation Areas or the Midway Atoll Special Management Area, discharging or depositing material or other matter is limited to vessel engine cooling water, weather deck runoff, and vessel engine exhaust, consistent with federal statute or regulation.
16. Anchoring a vessel.

Prohibitions 1–8 could never be allowed via permit, while prohibitions 9–16 could be regulated via a permit. Obtaining a permit to conduct activities relating to Prohibition 10 within the Outer Sanctuary Zone would be further restricted to scientific instruments only, consistent with Presidential Proclamation 9478.

Exemptions

The proposed prohibitions would not apply to:

- Activities necessary to respond to emergencies that threaten life, property, or the environment.
- Activities necessary for law enforcement purposes.

- Activities and exercises of the U.S. Armed Forces including those carried out by the U.S. Coast Guard (USCG).
- Scientific exploration or research activities by or for the Secretary of Commerce and/or the Secretary of the Interior in the Outer Sanctuary Zone.

NOAA will also exempt non-commercial fishing authorized under the MSA in the area of the sanctuary that overlaps with the MEA (i.e., the Outer Sanctuary Zone) from needing a sanctuary permit for prohibitions 9 through 12 and 14 in the final rule, provided that

- Fish harvested, either in whole or in part, are not intended to enter commerce and shall not enter commerce through sale, barter, or trade, and that the resource is managed sustainably;
- Fish harvested, either in whole or in part, are not intended to be sold and shall not be sold for any purposes, including, but not limited to, cost-recovery; and
- The exempted activities are only conducted as incidental to and necessary to lawful non-commercial fishing activity

Permitting

The proposed sanctuary's permitting system will complement the existing Monument permitting system, and was developed to allow for integration with the Monument permitting system, to ensure continued joint permitting administered by the MMB, which includes ONMS. The proposed permitting system would not supplant the joint permitting system for the Monument.

The final regulations would allow prohibited activities 9–16 to be permitted under certain conditions pursuant to 15 CFR part 922, Subpart D and the site-specific regulations proposed for this sanctuary, which are consistent with PMNM regulations and the Monument permit criteria. Sanctuary general permits may be issued if the proposed activities fall within one of three categories in the national regulations (15 CFR § 922.30(b)) relevant to this proposed sanctuary: (1) Research—activities that constitute scientific research or scientific monitoring of a national marine sanctuary resource or quality; (2) Education—activities that enhance public awareness, understanding, or appreciation of a national marine sanctuary or national marine sanctuary resource or quality; (3) Management—activities that assist in managing a national marine sanctuary. NOAA would add two additional categories specific to the sanctuary within 15 CFR 922.30 for which a sanctuary general permit could be issued: Native Hawaiian Practices—activities that allow for Native Hawaiian practices within the sanctuary, and Recreation—recreational activities within the sanctuary limited to the Midway Atoll Special Management Area. NOAA is proposing these two additional general permit categories to maintain the types of activities permitted under PMNM regulations, to allow for integration with the existing Monument permitting system.

Special Use Permits

Pursuant to Section 310 of the NMSA (16 U.S.C. § 1441), special use permits may be issued to authorize the conduct of specific activities in a national marine sanctuary under certain circumstances. NOAA is not proposing any new category of activity subject to a special use permit as part of this designation. In evaluating applications for special use permits, NOAA will

consider all applicable permitting requirements, including permitting procedures and criteria under the Monument's existing management framework.

Sustenance Fishing

The Secretary may authorize sustenance fishing outside of any Special Preservation Area as a term or condition of any sanctuary permit.

Vessel Monitoring System

To complement existing regulations and provide consistency across the sanctuary, an owner or operator of a vessel that has been issued a general permit or special use permit must have a working NOAA Office of Law Enforcement (OLE) type-approved Vessel Monitoring System (VMS) on board when operating within the Sanctuary.

Sunken Military Craft

Sunken military craft are administered by the respective Secretary concerned pursuant to the Sunken Military Craft Act (Pub. L. 108-375, Title XIV, sections 1401 to 1408; 10 U.S.C. 113 note). The Director will enter into a Memorandum of Agreement regarding collaboration with other Federal agencies charged with implementing the Sunken Military Craft Act that may address aspects of managing and protecting sunken military craft. The Director will request approval from the Secretary concerned for any terms and conditions of ONMS permits that may involve sunken military craft.

Terms of Designation

Section 304(a)(4) of the NMSA requires that the terms of designation for national marine sanctuaries include: (1) the geographic area included within the sanctuary; (2) the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or aesthetic value; and (3) the types of activities subject to regulation by NOAA to protect those characteristics. The full text of the terms of designation will be in the final rule. The proposed sanctuary terms of designation establish the authorities to regulate and prohibit activities to the extent necessary and reasonable to ensure the protection and management of the area's conservation, ecological, recreational, research, educational, historical, and aesthetic resources and qualities.

Sanctuary Management Plan

NOAA is proposing to implement the same draft sanctuary management plan under all alternatives. The NMSA requires preparation of a sanctuary management plan as part of the proposed action, included as Appendix A to the final EIS. The core elements and framework for the sanctuary management plan were designed in coordination with the Monument's co-trustees, in order to ensure concurrence of plans between the proposed sanctuary designation and the overarching monument designation. The core elements of this sanctuary management plan—vision, mission, principles, and goals—are the same as those that have been developed by the co-trustees for the future monument management plan update.

At the heart of the sanctuary management plan, there are five kūkulu (pillars of management):

1. Resource Protection and Conservation
2. Research and Monitoring
3. Governance and Operations
4. Partnerships and Constituent Engagement
5. Education, Interpretation, and Mentoring.

Each kūkulu includes a goal and five to 13 strategies. The strategies identified in the sanctuary management plan entail actions already being conducted by ONMS, many in coordination with Monument co-managers, as well as aspirational actions. Performance indicators and measures provided for each kūkulu provide an indication of types of actions that would typically occur, and that would be assessed in tracking management plan strategy implementation.

Summary of Impacts for the Preferred Alternative

NOAA evaluated the impacts of its alternatives on the existing laws and management, physical resources, biological resources, cultural and maritime heritage resources, human uses and socioeconomic resources. Because of the existing protections summarized in History of Management (Section 1.2.2) this proposed sanctuary designation primarily supplements existing management and resource protections and imparts few minor adverse impacts. Sanctuary designation would not remove the Monument designation or accompanying regulations. While the Monument is managed as a unit, several federal and State conservation areas exist and specific authorities apply. Note that these existing authorities would also remain in effect under all action alternatives, including Alternative 1.

Impacts to Laws and Management. Sanctuary designation would provide moderate beneficial impacts and negligible adverse impacts. Sanctuary designation would include the enactment of National Marine Sanctuary Program regulations (15 CFR part 922), allowing ONMS to supplement existing authorities through: 1) emergency regulations; 2) penalties; and 3) authorities to respond to and hold financially liable those responsible for destruction or loss of, or injury to sanctuary resources. Emergency regulations give ONMS the authority to implement immediate temporary regulations where necessary to prevent or minimize the loss or injury to a sanctuary resource. Civil penalty authority provides law enforcement with a new tool for violations of sanctuary regulations, potentially providing stronger incentives for compliance. Additionally, there would be new authorities to respond to and hold financially liable those responsible for destruction, loss of, or injury to any sanctuary resources through liability for response costs and damages resulting from such destruction, loss, or injury. Vessels wishing to conduct regulated activities within the area of the proposed sanctuary that overlaps with the MEA would be required to obtain a permit and adhere to all regulations and permit conditions, including installing VMS that remains on and working when in sanctuary waters.

Impacts to Physical Resources. Sanctuary designation would provide moderate benefits and no adverse impacts to physical resources (e.g., water quality, benthic habitat). Regulations promulgated for the area of the proposed sanctuary that overlaps with the MEA would provide additional protection through permitting requirements, as well as prohibitions related to seafloor disturbance and vessel discharge, both for permitted vessels and those conducting passage without interruption through the sanctuary.

Impacts to Biological Resources. Sanctuary designation would provide moderate beneficial impacts and negligible adverse impacts. Codified regulations in the area of the proposed sanctuary that overlaps with the MEA provides NOAA's Office of Law Enforcement the option to impose civil penalties. NOAA has not documented direct negative impacts to Monument resources based on the lack of penalty authorities. However, based on NOAA's extensive experience in enforcing federal statutes in the marine environment, NOAA concludes that NMSA regulations may better inform users and dissuade user violations by creating a stronger deterrent to permit and regulatory violations through the supplemental penalty authority specific to the proposed regulations, therefore deterring illegal fishing and other prohibited activities, and benefiting biological resources. These additional authorities also provide enhanced protection and response mechanisms, benefiting biological resources from accidental or intentional loss or damage to sanctuary resources, particularly due to ship groundings in the shallow coral reef ecosystem.

Impacts to Cultural and Maritime Heritage Resources. Sanctuary designation provides minor beneficial impacts on cultural resources and moderate beneficial impacts on maritime heritage resources. Cultural heritage is a primary focus of current management, and these efforts would be expanded to the area of the proposed sanctuary that overlaps with the MEA under sanctuary designation. Sanctuary designation provides new protections for maritime heritage resources, particularly in the Outer Sanctuary Zone. Permitting authority and new prohibitions, including disturbance of the seafloor and access regulations, would complement existing federal and State regulations for all underwater maritime resources throughout the sanctuary.

Impacts to Socioeconomic Resources. Sanctuary designation would have minor adverse impacts on socioeconomic resources and human uses, due to new regulations and permitting for the area of the sanctuary that overlaps with the MEA. For example, the establishment of new discharge regulations in the area of the proposed sanctuary that overlaps with the MEA may represent a burden to vessels operating within the sanctuary. Sanctuary designation also provides some minor beneficial impacts to socioeconomic resources and human uses. Sanctuary designation may provide alternative sources of funding to support education initiatives and programs in Hawai‘i (outside the waters of the proposed sanctuary), including from Friends Groups, the National Marine Sanctuary Foundation, and other non-profit organizations. Additional funding sources provide opportunities to strengthen the public's appreciation of the proposed sanctuary.

NOAA determined that implementing Alternative 1 would have direct, long-term, moderate beneficial impacts for laws and management, physical, biological, and maritime heritage resources, direct, long-term, minor beneficial impacts for cultural resources, and indirect, long-term, minor adverse impacts for socioeconomic resources and human uses for the largest proposed sanctuary area of the three alternatives.

NOAA has maintained Alternative 1 as the agency-preferred alternative based on its comparative merits. NOAA selected its final preferred alternative after considering input from the Monument Management Board, the State of Hawai‘i, cooperating agencies, other agencies consulted, and the public on the draft designation documents. Through the analysis in the final EIS, NOAA has determined that the final preferred alternative would provide numerous beneficial impacts, including increased protection and conservation of resources, and improved coordination of

conservation and management. NOAA has also considered the potential adverse impacts of the final preferred alternative and anticipates that there would be no significant adverse impacts to biological and physical resources, cultural and historic resources, or socioeconomic resources.

NOAA's identification of Alternative 1 as the final preferred alternative is based on the need for additional resource protection, scientific research, and public education in areas that would be excluded by selecting the boundaries of Alternatives 2 or 3. Alternative 1 includes the MEA, an area which would benefit from the establishment of a NOAA permitting process, and the promulgation of sanctuary regulations to protect resources. Alternative 1 also includes the waters of Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge, which are the areas of the sanctuary subject to the highest level of human activity.

Chapter 1: Introduction

The National Oceanic and Atmospheric Administration (NOAA) Office of National Marine Sanctuaries (ONMS) proposes to designate marine areas of Papahānaumokuākea Marine National Monument (PMNM) and the Monument Expansion Area (MEA) as a national marine sanctuary. When referring to these two areas together, as a combined entity, the term Monument is used in this document. This final environmental impact statement (EIS), prepared in coordination with the State of Hawai‘i (State), analyzes the environmental impacts of a range of alternatives associated with the proposed sanctuary designation in accordance with the National Environmental Policy Act (NEPA, 42 U.S.C. 4321 *et seq*.) and the Hawai‘i Environmental Policy Act (HEPA, Chapter 343 HRS, HAR Chapter 11-200.1). This document is also a resource assessment detailing present and future uses of the areas identified for potential designation and includes a sanctuary management plan (Appendix A) that describes goals and strategies for managing sanctuary resources.

1.1 National Marine Sanctuary System

The NOAA ONMS serves as the trustee for a network of underwater parks encompassing more than 621,000 square miles of marine and Great Lakes waters from Washington to the Florida Keys and from New England to American Samoa. The network currently includes a system of 16 national marine sanctuaries and two marine national monuments (Figure 1.1).

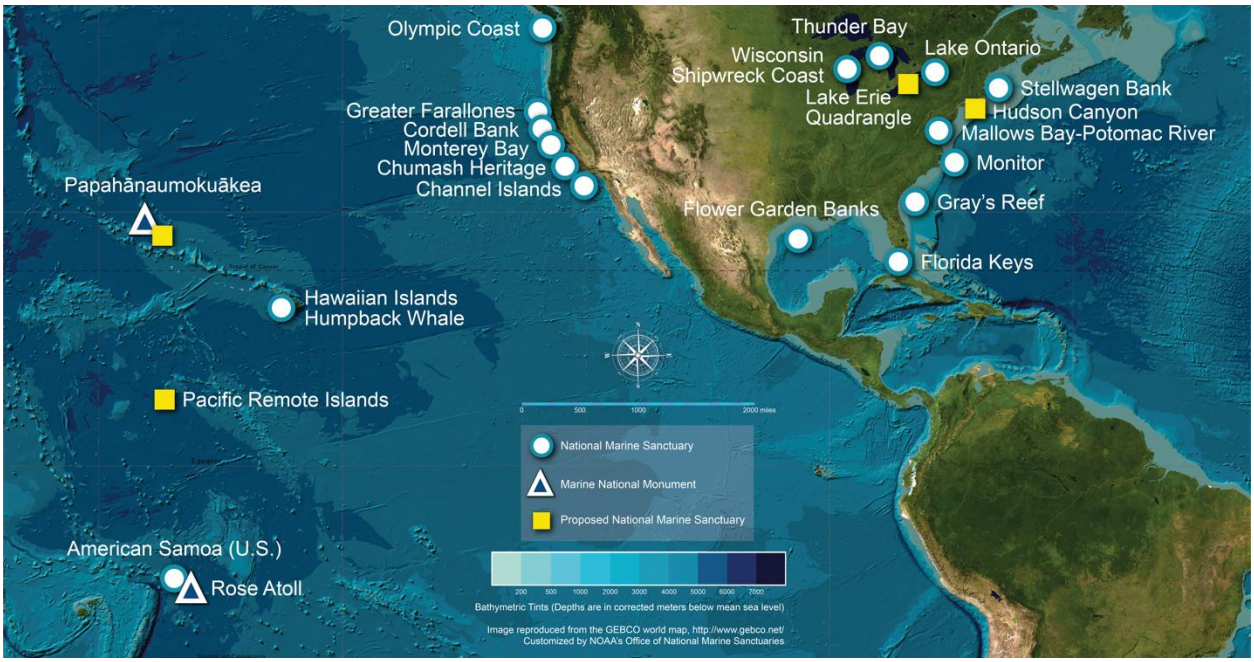

Figure 1.1. A map of the National Marine Sanctuary System. Image: NOAA

National marine sanctuaries are special areas set aside for long-term protection, conservation, and management, and are part of our nation’s legacy to future generations. They contain deep ocean habitats of resplendent marine life, kelp forests, coral reefs, whale migration corridors, deep-sea canyons, historically significant shipwrecks, and other important underwater

archaeological sites. Each sanctuary is a unique place worthy of special protection. Because they serve as natural classrooms, cherished recreational spots, and places for valuable commercial activities, national marine sanctuaries represent many things to many people.

ONMS works with diverse partners and stakeholders to promote responsible, sustainable ocean and Great Lakes uses that ensure the health of our most valued places. A healthy ocean and Great Lakes are also the basis for thriving recreation, tourism, and commercial activities that drive coastal economies.

1.1.1 National Marine Sanctuaries Act of 1972

The National Marine Sanctuaries Act (NMSA; 16 U.S.C. § 1431 *et seq*.) is the legislation governing the National Marine Sanctuary System. The NMSA authorizes the Secretary of Commerce to identify and designate as a national marine sanctuary any discrete area of the marine environment that is of special national, and in some cases international, significance, and to manage these areas as the National Marine Sanctuary System. Day-to-day management of national marine sanctuaries is delegated by the Secretary of Commerce to ONMS.

Congress first passed the NMSA into law in 1972. Since then, Congress amended and reauthorized the statute in 1980, 1984, 1988, 1992, 1996, and 2000. The purposes and policies of the NMSA are:

- To identify and designate as national marine sanctuaries areas of the marine environment which are of special national significance and to manage these areas as the National Marine Sanctuary System;
- To provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities;
- To maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations and ecological processes;
- To enhance public awareness, understanding, appreciation and wise and sustainable use of the marine environment, and the natural, historical, cultural, and archeological resources of the National Marine Sanctuary System;
- To support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas;
- To facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities;
- To develop and implement coordinated plans for the protection and management of these areas with appropriate federal agencies, State and local governments, Native American tribes and organizations[1], international organizations, and other public and private interests concerned with the continuing health and resilience of these marine areas;

[1] Terminology from the National Marine Sanctuaries Act

- To create models of, and incentives for, ways to conserve and manage these areas, including the application of innovative management techniques; and
- To cooperate with global programs encouraging conservation of marine resources.

1.1.2 Comprehensive Management of the National Marine Sanctuary System

The NMSA includes a finding by Congress that the National Marine Sanctuary System will "improve the conservation, understanding, management, and wise and sustainable use of marine resources" (16 U.S.C. § 1431(a)(4)(A)). The NMSA further recognizes that "while the need to control the effects of particular activities has led to enactment of resource-specific legislation, these laws cannot in all cases provide a coordinated and comprehensive approach to the conservation and management of special areas of the marine environment" (16 U.S.C. § 1431(a)(3)). Accordingly, ONMS promotes partnerships among resource management agencies, the scientific community, stakeholders, and the public-at-large to realize the coordination and program integration that the NMSA calls for in order to comprehensively manage national marine sanctuaries.

1.2 Background on the Process to Designate a National Marine Sanctuary Within Papahānaumokuākea

1.2.1 Significance of the Area and Rationale for Proposed Sanctuary Designation

The area that encompasses Papahānaumokuākea includes a globally significant marine ecosystem, as well as maritime, historic, and cultural resources. While human activity, including resource exploitation and habitat destruction, marked much of the 19th and 20th centuries, these islands, surrounding reefs, and oceanic habitat continue to be among the last of the planet's wild places.

Papahānaumokuākea is a place of unique environmental resources that provide large-scale ecosystem services for the region and the world. As one of Earth's few healthy, large-scale marine protected areas, it provides a window into the complex food web and overall dynamics of the sub-tropical Pacific Ocean. The marine habitat includes several interconnected ecosystems, including coral islands surrounded by shallow reef; deeper reef habitats characterized by seamounts, banks, and shoals scattered across Papahānaumokuākea; mesophotic reefs with extensive algal beds; pelagic waters connected to the greater North Pacific Ocean; and

National Marine Sanctuaries Act Designation Standards

The area is of special national significance for:

Its conservation, recreational, ecological, historical, scientific, cultural, archaeological, educational, or esthetic qualities

The communities of living resources it harbors

Its resource or human-use values

Existing state and federal authorities are inadequate or should be supplemented to ensure coordinated and comprehensive management

The area is of a size and nature that will permit comprehensive and coordinated management

deep-water habitats and abyssal plains 5,000 meters below sea level. These ecosystems are connected as essential habitats for rare species such as the threatened honu (Hawaiian green turtle) and the endangered ʻīlioholoikauaua (Hawaiian monk seal), as well as over 14 million seabirds that forage in the pelagic waters to nourish the chicks they are raising on the tiny islets. Papahānaumokuākea is home to 20 cetacean species, protected by the Marine Mammal Protection Act, with some listed as endangered under the Endangered Species Act (ESA). The importance of these waters to the humpback whale is only recently becoming understood. At least a quarter of the nearly 7,000 known marine species found in the region are found nowhere else on Earth.

The area of the proposed sanctuary also includes the location of the Battle of Midway, a turning point in World War II for the Allies in the Pacific Theater. While management and preservation of land-based historic properties at Kuaihelani (Midway Atoll) is well established, research indicates 60–80 sunken military vessels and hundreds of sunken aircraft are scattered across the seafloor. In addition to Navy steamers and aircraft, there are whaling ships, ancient Japanese sailing ships known as junks, motorized east Asian style fishing vessels known as Hawaiian fishing sampans, Pacific colliers, and other vessels from the 19th and 20th centuries. Of these, the locations of more than 30 vessel wreck sites have been confirmed by diving or bathymetric surveys, with only a handful of those identified (by vessel name) or otherwise evaluated. Nevertheless, the research that has been conducted has provided books, films, and websites with information that fascinates history and military enthusiasts and the general public alike.

Papahānaumokuākea is also a sacred place to Kānaka ʻŌiwi (Native Hawaiians), who regard the islands and wildlife as kūpuna, or ancestors. The region holds deep cosmological and traditional significance to living Native Hawaiian culture and contains a host of intact and significant archaeological sites found on the islands of Nihoa and Mokumanamana (Necker), both of which are on the National and State Register for Historic Places. Papahānaumokuākea is as much a spiritual space as a physical geography, rooted deep in Native Hawaiian creation and settlement stories. Since nature and culture are considered to be one and the same, the protection of one of the last nearly pristine, natural, marine ecosystems in the archipelago is akin to preserving the living culture of Hawaiʻi.

On July 30, 2010, Papahānaumokuākea was inscribed as a mixed (natural and cultural) World Heritage site by the United Nations Educational, Scientific, and Cultural Organization. It is the only mixed World Heritage site in the U.S., and the second World Heritage site in Hawaiʻi. With a specific aim to protect the natural and cultural heritage of the vast area, Papahānaumokuākea has become a globally recognized, best practice model for the governance and management of remote marine ecosystems, honoring the inextricable link between nature and culture. Importantly, Papahānaumokuākea has, in a sense, reunited the entire archipelago and renewed a sense of pride in the natural environment and understanding of ʻāina momona (healthy and productive communities of people and place based on reciprocal relationships).

1.2.2 History of Management of Papahānaumokuākea

Portions of the area now known as Papahānaumokuākea have been federally protected in some form since 1903, when President Theodore Roosevelt first placed Midway Atoll under control of the Navy in response to reports of large numbers of seabirds being slaughtered for feathers and eggs. Later in 1909, through Executive Order No. 1019, he designated the islets and reefs from Nihoa to Kure (excluding Midway Atoll) as the Hawaiian Islands Reservation to protect breeding habitat for native birds. In 1940, President Franklin D. Roosevelt issued Presidential Proclamation No. 2416, renaming the Reservation the Hawaiian Islands National Wildlife Refuge (NWR).

Domestic fishery management of the area began with the passage of the Magnuson-Stevens Fishery Conservation and Management Act of 1976. NOAA and the Western Pacific Regional Fishery Management Council (WPRFMC) developed four fishery management plans, with two of the plans (Crustaceans and Bottomfish) focused almost exclusively on resource management in the Northwestern Hawaiian Islands (NWHI). In 1991, in response to interactions with endangered ʻīlioholoikauaua (Hawaiian monk seals), NOAA and the WPRFMC created the Protected Species Zone, prohibiting commercial longline fishing within 50 nautical miles (nmi) of these islands.

In the 1980s and 1990s, Presidents Ronald Reagan and William Clinton transferred management of Midway Atoll and its Defensive Sea area from the Navy to the U.S. Fish and Wildlife Service (USFWS), and the State of Hawaiʻi designated Kure Atoll a State Wildlife Sanctuary (HAR 13-126).

On May 26, 2000, President Clinton issued Executive Order 13158, directing the establishment and management of a scientifically based, comprehensive national system of marine protected areas. At the same time, President Clinton also issued a memorandum to the Secretaries of Commerce and the Interior directing them to work cooperatively with the State of Hawaiʻi, in consultation with the WPRFMC, to develop recommendations for a new, coordinated management regime of the NWHI coral reef ecosystem, and called for public participation in the design of final recommendations. Thereafter, the 2000 amendments to the NMSA authorized designation of a NWHI Coral Reef Ecosystem Reserve (Reserve) to be managed by the Secretary of Commerce. In December 2000, President Clinton issued Executive Order 13178 that began the public process to establish the Reserve, and directed the Secretary of Commerce to initiate the process to designate the Reserve as a national marine sanctuary pursuant to sections 303 and 304 of the NMSA. Executive Order 13178 also established a Reserve Advisory Council (RAC) pursuant to Section 315 of the NMSA to provide advice and recommendations on the Reserve Operations Plan and designation and management of any sanctuary. In January 2001, President Clinton issued Executive Order 13196 finalizing the establishment of the Reserve.

Beginning in February 2002, NOAA began public scoping meetings on the potential for the Reserve to become a national marine sanctuary. In 2005, to complement existing management actions, the State of Hawaiʻi established the Northwestern Hawaiian Islands Marine Refuge, with waters extending three miles seaward of any coastline from Nihoa Island to Hōlanikū, excluding Kuaihelani (Midway Atoll).

In 2006, via Presidential Proclamations 8031 and 8112, President George W. Bush designated the land and waters of Papahānaumokuākea as a marine national monument under the authority of the Antiquities Act of 1906 (54 U.S.C. §§ 320301 et seq.), extending protection to include the national wildlife refuges, the Reserve and the nearshore State waters extending out 50 nmi around the NWHI. The Papahānaumokuākea Marine National Monument designation included the prohibition of commercial fishing, creation of access restrictions, and led to regulations that codified a permitting system with application criteria, prohibitions, and regulated activities (50 CFR Part 404). Presidential Proclamation 8031 also stated that the Secretary of Commerce, through NOAA, will have primary responsibility regarding management of the marine areas, in consultation with the Secretary of the Interior. Presidential Proclamation 8031 also stated that the Secretary of the Interior, through the USFWS, will have sole responsibility for management of the areas of the Monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce.

On December 8, 2006, the State of Hawai‘i, U.S. Department of Commerce, and U.S. Department of the Interior (collectively referred to as the co-trustees) signed a memorandum of agreement to carry out coordinated resource management for the long-term comprehensive conservation and protection of PMNM. The memorandum of agreement established functional relationships to effectively coordinate management actions in PMNM among co-trustees and included the Monument's Vision, Mission, and Guiding Principles. The co-managers, including NOAA's Office of National Marine Sanctuaries, developed a stringent permitting process in which permits must adhere to terms and conditions that satisfy Presidential Proclamations 8031 and 8112, 50 CFR part 404, and relevant federal and State agency mandates and policies.

In 2008, the International Maritime Organization (IMO) designated PMNM as a Particularly Sensitive Sea Area (PSSA). As part of the PSSA designation process, the IMO adopted U.S. proposals for associated protective measures consisting of (1) expanding and consolidating the six existing recommendatory Areas To Be Avoided (established in 1981) in the Monument into four larger areas and expanding the class of vessels to which they apply; and (2) establishing a reporting system for vessels transiting PMNM, as detailed in the existing PMNM regulations at 50 CFR 404.

On August 26, 2016, President Barack Obama issued Presidential Proclamation 9478, which established the MEA to include the waters and submerged lands seaward of PMNM and extending to the seaward limit of the United States Exclusive Economic Zone (EEZ) west of 163° West longitude. Presidential Proclamation 9478 also stated that the Secretary of Commerce, through NOAA, and in consultation with the Secretary of the Interior, shall have responsibility for management of activities and species within the MEA under Magnuson-Stevens Fishery Conservation and Management Act (MSA), ESA (for species regulated by NOAA), and any other applicable legal authorities. Presidential Proclamation 9478 also stated that the Secretary of the Interior, through the USFWS, and in consultation with the Secretary of Commerce, shall have responsibility for management of activities and species within the MEA under its applicable legal authorities, including the National Wildlife Refuge System Administration Act, the Refuge Recreation Act, and the ESA (for species regulated by USFWS), and Public Law 98-532 and Executive Order 6166 of June 10, 1933. The MEA covers 442,781 square miles. Combined, and

for brevity, PMNM and the MEA are "the Monument" in this document, but as described in Chapter 4, were established separately and contain variations in the findings made within and the requirements imposed by their establishing proclamations. In 2017, the memorandum of agreement between the State, U.S. Department of Commerce, and U.S. Department of the Interior was amended to include management direction for the MEA and the request of the governor of Hawai'i that the Office of Hawaiian Affairs (OHA) be added as a co-trustee, to support the protection of cultural and natural resources in a manner aligned with Native Hawaiian resource management best practices.

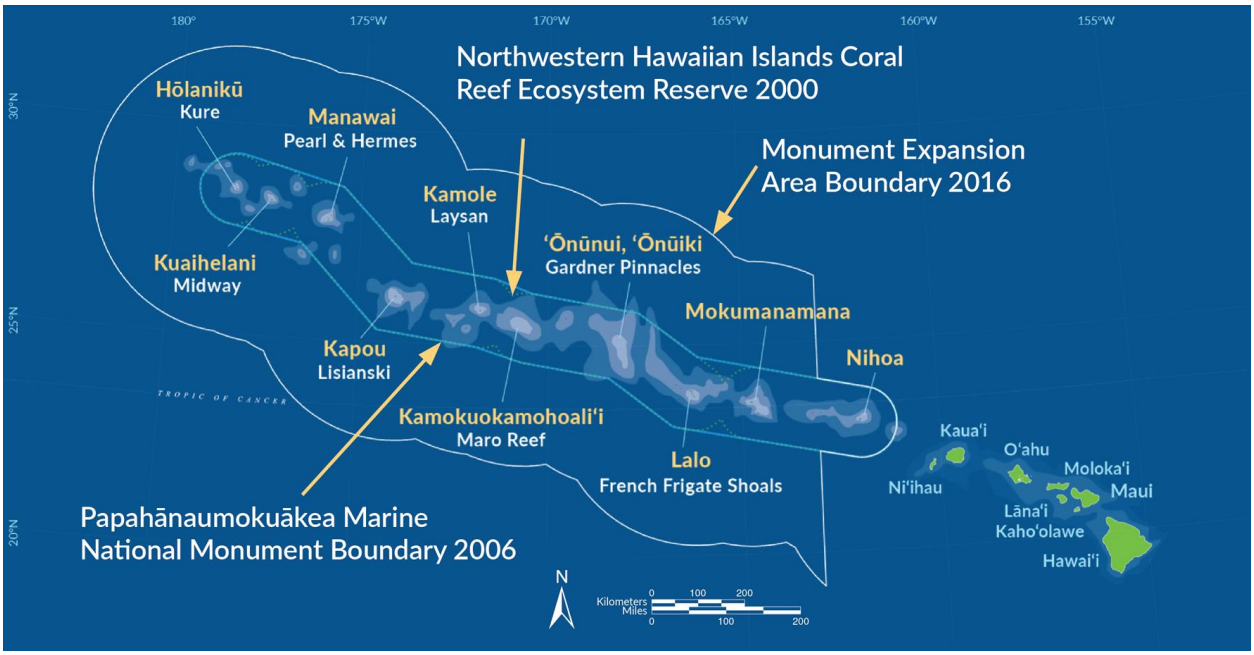

Figure 1.2. Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, Papahānaumokuākea Marine National Monument, and Monument Expansion Area. Image: NOAA

As one of the largest, most remote places on Earth, one of the Monument's goals is to bring the place to the people. This is achieved in multiple ways that include virtual visits (e.g., Google Street Views at Kuaihelani, Manawai (Pearl and Hermes Atoll), Kamole (Laysan Island), Kapou (Lisianski Island), and Lalo (French Frigate Shoals)), as well as a host of activities and exhibits at museums, aquariums, and learning centers throughout Hawai'i, including the Mokupāpapa Discovery Center in Hilo, Hawai'i and the Kaua'i Ocean Discovery facility in Līhu'e, Kaua'i, both centers managed by ONMS and the National Marine Sanctuary Foundation, the official nonprofit partner to the National Marine Sanctuary System. Monument materials and exhibits are also on display at the Waikīkī Aquarium and Bernice Pauahi Bishop Museum in Honolulu, Hawai'i. Monument co-managers continue to prioritize investments in educational strategies and partnerships to build the next generation of ecologically- and culturally-grounded managers and leaders.

1.2.3 Actions Leading to Proposed Sanctuary Designation

The numerous conservation and management measures described in the previous section emphasize the value and need for protection of this unique ecosystem, and highlight the deliberate actions for comprehensive protection of the area proposed for sanctuary designation.

Following Executive Order 13178's direction that "[t]he Secretary shall initiate the process to designate the Reserve as a national marine sanctuary pursuant to sections 303 and 304 of the National Marine Sanctuaries Act," on January 19, 2001, NOAA issued a notice of intent to designate the Reserve as a national marine sanctuary (66 FR 5509). NOAA engaged the Kānaka ʻŌiwi community, scientific community, educators, businesses, fishers, interagency partners, and other community members and stakeholders to seek input and gather information toward developing a unified plan for Reserve operations and the proposed sanctuary. Ten public scoping meetings were hosted in Hawaiʻi and Washington, D.C., with more than 13,000 comments received during the initial scoping period. Additional input was collected from the public, stakeholder groups, and interagency partners via workshops (Gittings et al., 2004), focus group discussions (Sustainable Resources Group, 2004), and RAC and associated subcommittee meetings. The Reserve Operations Plan was finalized with extensive consultation with partner agencies and the RAC (NOAA, 2004) and served as the foundation for the initial draft sanctuary management plan. In total, more than 100 meetings and close to 52,000 public comments guided development of a draft sanctuary management plan. In addition, the State of the Reserve Report (NOAA, 2006) provided a comprehensive summary of the previous five years of Reserve operations. The initial draft sanctuary management plan included several companion documents packaged into the draft sanctuary designation proposal, including a draft EIS and a proposed rule.

The sanctuary designation process was curtailed when the area was designated a Marine National Monument on June 15, 2006. Presidential Proclamation 8031 recognized the extensive public input, the relevancy of the public process and draft sanctuary documents, and directed the Secretary of Commerce, in consultation with the Secretary of the Interior and the State of Hawaiʻi, to modify, as appropriate, the draft sanctuary management plan in developing a plan to manage PMNM and to provide for public review of that plan. The Papahānaumokuākea Marine National Monument Management Plan (MMP, December 2008) and associated environmental assessment extensively reflect the draft sanctuary documents.

In 2016, Presidential Proclamation 9478 established the MEA to include the waters and submerged lands seaward of the PMNM and extending to the seaward limit of the United States Exclusive Economic Zone (EEZ) west of 163° West longitude. The proclamation described objects of historic and scientific interest including geological and biological resources that are part of a highly pristine deep sea and open ocean ecosystem with unique biodiversity and that constitute a sacred cultural, physical, and spiritual place for the Kānaka ʻŌiwi community. Presidential Proclamation 9478 directed the Secretary of Commerce to "consider initiating the process under the National Marine Sanctuaries Act (16 U.S.C. 1431 §§ et seq.) to designate the Monument Expansion Area and the Monument seaward of the Hawaiian Islands National Wildlife Refuge and Midway Atoll National Wildlife Refuge and Battle of Midway National Memorial as a National Marine Sanctuary to supplement and complement existing authorities."

The Joint Explanatory Statement accompanying the Consolidated Appropriations Act, 2021 directed NOAA to initiate the process under the NMSA to designate Papahānaumokuākea as a national marine sanctuary "to supplement and complement, rather than supplant, existing authorities."

1.2.4 Responsibility to the Native Hawaiian Community

The management of Papahānaumokuākea has been based on Native Hawaiian values and practices that incorporate observation and understanding of the natural world, indigenous principles and philosophies, cultural norms, community relationships, and unique epistemologies deeply imbedded in and formed by relationships of people with place.

U.S. Congress has acknowledged or recognized the Native Hawaiian community by establishing a special political and trust relationship through over 150 enactments (see 81 Fed. Reg. 71278 (October 14, 2016)). Through certain laws, including the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act, Congress directed federal agencies to work with the Native Hawaiian community through consultation with Native Hawaiian Organizations, as defined under these acts. To provide background information for the reader, this final EIS acknowledges the definition for the term Native Hawaiian, as it is commonly defined per existing federal law, as any individual who is a descendant of the aboriginal people who, prior to 1778, occupied and exercised sovereignty in the area that now constitutes the State of Hawai‘i (see e.g., 36 CFR 800.16, 43 CFR 50.4, 43 CFR 10.2).

In 2017, the Office of Hawaiian Affairs (OHA) was named as a co-trustee at the request of the Governor of Hawai‘i, with full support from NOAA and the other co-trustees. OHA is a constitutionally established body, set as a separate state entity independent of the Executive Branch of the State of Hawai‘i. OHA has the primary responsibility for representing the interests of the Native Hawaiian community in the Monument through the perpetuation of Hawaiian cultural resources, including the customary and traditional practices of Native Hawaiians.

1.3 Sanctuary Designation and Environmental Review Process

1.3.1 Overview

The NMSA authorizes the Secretary of Commerce to identify and designate as a national marine sanctuary any discrete area of the marine environment that is of special national significance. Section 304 of the NMSA, 16 U.S.C. § 1434, describes the sanctuary designation process, including required notices, the preparation of documents, and opportunities for public participation. The process includes the following:

- A notice in the *Federal Register* of the proposed designation, proposed regulations, and a summary of the draft sanctuary management plan;
- A resource assessment that describes present and potential uses of the area (see Chapter 4);
- A draft sanctuary management plan for the proposed national marine sanctuary, which is a document that outlines the proposed goals, objectives, and strategies for managing sanctuary resources for the next five years (see Appendix A);
- Maps depicting the boundaries of the proposed sanctuary (see sections 3.4, 3.5, and 3.6);

- An assessment of whether the proposed sanctuary meets the designation standards and factors for consideration, as described in sections 303(a) and 303(b)(1) of the NMSA (discussed in chapters 1 and 2).

In addition, Section 304(a)(2) of the NMSA requires NOAA to prepare an EIS pursuant to NEPA as part of the sanctuary designation process. NEPA requires that federal agencies include in their decision-making processes appropriate and careful consideration of all potential environmental effects of proposed actions and analyze them and their alternatives. The NEPA process is intended to encourage and facilitate public involvement in decisions that affect the quality of the human environment.

The State of Hawai‘i co-developed this final EIS and recommends the inclusion of all State waters and submerged ceded lands within Papahānaumokuākea. The term “ceded lands” refers to Hawaiian lands transferred to the United States at the time of annexation and includes benthic marine habitats underlying State waters. Requirements for the Hawai‘i environmental review process are codified in Hawai‘i Revised Statutes (HRS) Chapter 343, known as the Hawai‘i Environmental Policy Act (HEPA), and in corresponding Hawai‘i Administrative Rules (HAR) Chapter 11-200.1. Under HRS Section 343-5, the Proposed Action triggers environmental review as it involves the use of State lands (HRS Section 343-5(a)(1)), lands classified as in the Conservation District by the State Land Use Commission under HRS Chapter 205 (HRS Section 343-5(a)(2)), and lands classified as historic sites or districts (HRS Section 343-5(a)(4)). The purpose of the HEPA process is to ensure that environmental, economic, and technical concerns are given appropriate consideration in decision-making. HRS Section 343-5(f) allows for a single EIS for actions subject to both NEPA and HEPA.

As described above, several analyses are required to meet federal and State environmental review requirements. The four required documents are listed below:

1. Draft Environmental Impact Statement;
2. Cultural Impact Assessment (CIA);
3. Sanctuary Management Plan (Appendix A); and
4. Draft Regulations (Notice of Proposed Rulemaking)

1.3.2 Public Involvement and Scoping

Sanctuary designation and environmental review includes public involvement, as well as coordination and consultations with other federal, State, and local agencies, described below.

Scoping

On November 19, 2021, NOAA, in cooperation with the State of Hawai‘i and USFWS, published a Notice of Intent in the Federal Register (86 FR 64904) to conduct scoping and to prepare an EIS for the proposed sanctuary designation. The State’s EIS Preparation Notice was developed based upon the federal NOI, as the State and federal scoping processes, including comment-gathering, were combined. The public comment period took place over the course of 74 days from November 19, 2021–January 31, 2022, and included virtual public scoping meetings on the following dates where comments were solicited:

- Wednesday, December 8, 2021, 6 p.m. HST

- Saturday, December 11, 2021, 12 p.m. HST
- Tuesday, December 14, 2021, 6 p.m. HST
- Thursday, December 16, 2021, 3 p.m. HST

Comments were accepted 1) during the virtual public scoping meetings, 2) through the Federal eRulemaking Portal, and 3) by traditional mail through January 31, 2022. An estimated 165 people attended the four public scoping meetings. During the public comment period, 73 individuals and organizations provided written comments and nine people provided oral comments. Sixty-five of these 82 total comments mentioned support for resource protection, while 31 mentioned sanctuary regulations. Other comments noted Native Hawaiian values and practices (21), historic properties (20), fishery management (19), threats (15), sanctuary boundaries (13), economics (8), and enforcement (6). A summary Public Scoping Report, which documents oral and written comments, is included as Appendix F to this EIS.

Nohopapa Hawaiʻi, LLC created the document *E Hoʻi I Ke Au A Kanaloa* (2023) containing the CIA and legal analysis relating to Native Hawaiian rights and cultural resources. Nohopapa Hawaiʻi, LLC interviewed 25 people with connections to Papahānaumokuākea.

Reserve Advisory Council

The existing Reserve Advisory Council, which was formed in 2001, was created by Executive Order 13178 pursuant to the National Marine Sanctuaries Act. The RAC has served as a mechanism for public input and a venue for public comment to NOAA on Monument management activities. The RAC adheres to the policies and procedures of a Sanctuary Advisory Council.

Since publication of the Notice of Intent to conduct scoping and prepare an EIS for the proposed sanctuary designation, the RAC has forwarded several recommendation letters to ONMS. During the scoping period, the RAC provided recommendations to ONMS for the draft sanctuary management plan's framework and content; boundary options; fishing regulations for the MEA; and sanctuary regulations and permitting that provides for equal or greater protections compared to the Monument. The RAC also provided comments during the public review of the draft sanctuary proposal, including recommendations for socioeconomic analysis, boundary, and compliance with international treaties. These recommendations were drafted by a subcommittee and voted upon and approved by the RAC.

Public Review of Draft Designation Documents

On March 1, 2024, NOAA published a Notice of Proposed Rulemaking (89 FR 15272) to release the draft rule, draft environmental impact statement, and draft management plan; and to request public comments on the proposed sanctuary designation documents. On March 8, 2024, the State of Hawaiʻi Environmental Review Program also informed the public about the availability of the draft EIS through an announcement in its bulletin, *The Environmental Notice*, per HRS Chapter 343-3(c). The draft EIS is also available online through the State Environmental Review Program (ERP) website.

Per NEPA and HEPA, publication of the Notice of Availability of the draft EIS in federal and State bulletins, on March 1 and March 8, respectively, initiated the draft EIS public review

period. The State of Hawai‘i also widely distributed public notifications and information through a virtual informational meeting, flyers, web updates, and social media to solicit public participation. The public comment period took place over the course of 68 days from March 1–May 7, 2024. Public meetings were held to provide information to the public and to receive public input in the form of oral and written comments. Public meetings were held on the following dates:

- Saturday, April 6, 2024, 9 a.m. HST — Virtual
- Monday, April 8, 2024, 5 p.m. HST — Honolulu, O‘ahu
- Tuesday, April 9, 2024, 5 p.m. HST — Kāne‘ohe, O‘ahu
- Wednesday, April 10, 2024, 5 p.m. HST — Wai‘anae, O‘ahu
- Thursday, April 11, 2024, 5 p.m. HST — Waimea, Kaua‘i
- Friday, April 12, 2024, 5 p.m. HST — Virtual
- Saturday, April 13, 2024, 5 p.m. HST — Līhu‘e, Kaua‘i
- Monday, April 15, 2024, 5 p.m. HST — Hilo, Hawai‘i
- Tuesday, April 16, 2024, 5 p.m. HST — Kahalu‘u Kona, Hawai‘i
- Wednesday, April 17, 2024, 5 p.m. HST — Kahului, Maui
- Thursday, April 18, 2024, 5 p.m. HST — Kaunakakai, Moloka‘i

Comments were accepted 1) during two virtual and nine in-person public meetings on O‘ahu, Kaua‘i, Hawai‘i Island, Maui, and Moloka‘i; 2) through the Federal eRulemaking Portal; and 3) by traditional mail through May 7, 2024. The public meeting on April 12 was planned to be hosted in Hanalei, but was changed to virtual format due to hazardous weather and flooding conditions. NOAA notified the public through a media alert, notifications to local radio stations, and social media announcements. An estimated 237 people attended the 11 public meetings and 61 individuals provided oral comments. During the public comment period, more than 13,900 written comments were received from individuals, organizations and agencies, the overwhelming majority in support of sanctuary designation.

Major themes of comments included sanctuary access, permitting, prohibitions, enforcement, Native Hawaiian and Indigenous rights, cultural integration, fishing, co-management, resource protection, education and outreach, partnerships, and community participation. After the public comment period closed, the comments were carefully reviewed and cataloged by substantive issues contained in the comments. In preparing the final EIS, final management plan, and final rule, NOAA and the State of Hawai‘i considered comments received on the draft EIS, identified substantive comments, and provided responses commensurate with the comment. A summary of these comments and the corresponding responses from NOAA are provided in Appendix K. In response to these substantive comments, NOAA clarified information and made changes to this final EIS, and the draft sanctuary management plan, as described further below (see Section 1.5 for a summary list of changes). The final rule is consistent with these changes.

Like the draft EIS, a Notice of Availability for the final EIS will be published in the Federal Register and at the State of Hawai‘i Office of Planning and Sustainable Development‘s Environmental Review Program (ERP) website. The Governor of Hawai‘i, as the State’s accepting authority for this EIS, will conduct its HEPA acceptability determination within 30

days of publication of final EIS availability in the ERP Bulletin. The Governor's determination will be published in The Environmental Notice.

Under NEPA, there is no public review period for the final EIS. If NOAA moves forward with a final action, a 30-day mandatory waiting period will occur after issuance of the final EIS, and then NOAA will issue its Record of Decision (see 40 C.F.R. § 1506.11). In addition, a final rule that promulgates sanctuary regulations and terms of designation would be published in the Federal Register. Under Section 304(b) of the NMSA (16 U.S.C. 1434(b)), after the publication of the final rule the designation and regulations become effective after 45 days of continuous Congressional session. During this time, the governor of the State of Hawai'i will review NOAA's designation documents and certify if the designation or any of its terms regarding State waters is unacceptable, in which case the designation or any unacceptable term affecting State waters shall not take effect.

1.3.3 Relationship to Other Applicable Laws, Regulations, and Executive Orders

In addition to NEPA, NOAA must comply with several related statutes, regulations, and Executive Orders as part of this federal action, including the National Historic Preservation Act (NHPA); Coastal Zone Management Act (CZMA); ESA; Marine Mammal Protection Act (MMPA); Migratory Bird Treaty Act (MBTA); Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act (MSA); and Executive Order 12898 on addressing environmental justice in minority populations and low-income populations. Appendices C and E describe the requirements of the statutes, executive orders, and other regulations applicable to the proposed sanctuary designation and NOAA's compliance with these applicable laws and policies.

1.4 Scope of the Environmental Review

This final EIS analyzes the environmental impacts associated with the no action alternative, and all action alternatives under consideration for the proposed designation of Papahānaumokuākea National Marine Sanctuary. Specifically, this final EIS evaluates how implementing the proposed sanctuary boundaries, regulations, and a sanctuary management plan could affect the environment. The EIS also considers additional environmental protections for resources and any loss of opportunity to resource users created by sanctuary designation.

The action alternatives focus on implementing relatively minor changes to existing restrictions, regulations, and protections for the action area. These changes are designed to improve consistency of regulations across the area of the proposed sanctuary and to impart additional protections. Because of the existing management measures and protections enacted over the years, the proposed sanctuary designation primarily supplements existing protections and enacts only a few new restrictions and requirements on users. Sanctuary designation would not remove Monument designation or accompanying regulations. Rather, it would give NOAA the authority under the NMSA to supplement existing protections and management.

The geographic scope of the analysis includes areas of the marine environment within PMNM and the MEA, including the marine areas within Midway Atoll NWR and Hawaiian Islands

NWR, and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. The geographic scope for socio-economic impacts extends to the State of Hawai‘i. The timeframe for this analysis evaluates current conditions and conditions that are likely to be present for approximately five years.

Sanctuary activities that may occur at a later time, within the proposed sanctuary, including issuing permits for specific future activities, are outside the scope of this proposed action and are not described in this final EIS because the specific nature, timing, and location of these activities cannot be known at this time. In the event that the sanctuary is designated, through the permit process, NOAA would review these future management activities to ensure that those actions are addressed under NEPA and other applicable environmental laws.

The effects of fishing regulations in the area of the proposed sanctuary that overlaps with PMNM are not considered in the final EIS. Commercial fishing has been prohibited in the PMNM since June 15, 2011, in accordance with Presidential Proclamation 8031 and regulations at 50 CFR § 404.10(b)(3). Non-commercial fishing is regulated in the PMNM in accordance with Presidential Proclamation 8031 and regulations at 50 CFR § 404.11. These existing restrictions on fishing in the area of the proposed sanctuary that overlaps with PMNM would not be changed under any of the alternatives, including the No Action Alternative.

Commercial fishing is prohibited and non-commercial fishing may be regulated in the MEA in accordance with Presidential Proclamation 9478. NOAA consulted with the Western Pacific Regional Fishery Management Council (WPRFMC) as required by section 304(a)(5) of the NMSA, to provide the WPRFMC with the opportunity to recommend any draft fishing regulations it deemed necessary to implement the proposed sanctuary designation. To reflect the outcome of the NMSA 304(a)(5) process, NOAA is preparing a proposed rule for regulations governing fishing in the MEA under the authority of the MSA. NOAA will complete an environmental compliance analysis consistent with NEPA as part of that rulemaking process. Therefore, the analysis of environmental effects of commercial and noncommercial regulations in the MEA is outside the scope of this final EIS.

This final EIS also serves as a resource assessment under the NMSA (16 U.S.C. § 1434(a)(2)(B)), which includes (i) present and potential uses of the areas considered in the alternatives; (ii) commercial, governmental, or recreational resource uses in the areas that are subject to the primary jurisdiction of the Department of the Interior; and (iii) any past, present, or proposed future disposal or discharge of materials in the vicinity of the proposed sanctuary.

1.5 Revisions from the Draft EIS to the Final EIS

Public and agency comments on the draft EIS, draft management plan, and proposed rule were considered by NOAA and the State of Hawai‘i and no new significant adverse impacts were identified. The following minor changes have been incorporated into the draft designation materials. These do not constitute substantial changes relevant to environmental concerns. NOAA and the State of Hawai‘i consolidated public comments from the draft environmental impact statement, draft sanctuary management plan, and Notice of Proposed Rulemaking, and collectively responded to those comments in Appendix K.

EIS

- Additional information was added to the "About this Document" section and elsewhere to clarify who served as a cooperating agency for this action, and the role of the cooperating agencies for the development of the EIS. (Comment G.3)
- Information about the draft EIS public review process has been added to Section 1.3.2.
- More information about the public engagement process, including the number of public comment meetings, was added to Section 1.3.2. (Comment G.1)
- Clarifications regarding the role of the RAC and SAC have been made in Section 1.3.2. (Comment K.21)
- Additional information about the history of management and actions leading up to the proposed designation of a sanctuary in Papahānaumokuākea has been added to sections 1.2.2, 1.2.3, and 2.2.1.
- Recognition of the Native Hawaiian community and a definition for the term Native Hawaiian per existing federal law are provided in a new section, 1.2.4.
- Additional information was added to sections 3.2 and 3.3 to provide more details regarding the No Action Alternative and its analysis, including the description of the No Action Alternative, the existing management framework and authorities that govern the area of the proposed sanctuary, and the existing prohibited and regulated activities, exemptions, and permitting process. (Comments J.1, J.15, and J.23)
- Additional information has been added throughout the final EIS about how the proposed sanctuary has been specifically designed to be integrated and consistent with the existing co-management framework and to complement and supplement other State and federal authorities to manage the nationally significant resources of Papahānaumokuākea. (Comments E.1, E.2, E.3, E.5, and E.6)
    - Section 1.2.2 includes new text about the co-management framework.
    - Sections 2.2.1 and 2.2.2 include additional information about ways the sanctuary may complement and supplement other authorities.
    - Section 3.3.1 clarifies the proposed framework for management and permitting in partnership with USFWS and the other Monument managers (comments E.1, E.2, E.3, E.5, F.4, and F.6). This section also contains updated text describing how NOAA is developing an agreement with the USFWS to provide details on the supplemental authority under the NMSA to protect resources where the sanctuary overlaps with national wildlife refuges (comment E.6). NOAA also has made revisions to the description of the No Action Alternative (Section 3.2) to better articulate the existing roles of each Monument co-trustee, including their jurisdiction and authorities that guide their role in managing the Monument (comments J.24, J.25, and others).
    - In response to a comment regarding how Midway Atoll NWR operations may be affected by sanctuary designation, NOAA has provided additional clarity in Section 3.3 describing elements specific to all action alternatives regarding how NOAA would supplement and complement existing management, including management of Midway Atoll NWR. (Comment J.24)

    - Section 4.2.2 provides a minor clarification regarding management authorities of the Monument's co-managing agencies.
- Section 3.2 (No Action Alternative) has been revised to include more detail on the existing management framework and authorities that govern the area of the proposed sanctuary, as well as a description of the existing prohibited and regulated activities, exemptions, and permitting process. (Comments J.15 and J.16)
- Sections 3.2 (No Action Alternative) and 4.6.2 (Recreation) have been revised to acknowledge that the USFWS has the authority to charge fees for services including public visitation. (Comment B.7)
- Information on NOAA's intent to work in coordination with the Monument co-trustees to update the existing memorandum of agreement for Promoting Coordinated Management of Papahānaumokuākea Marine National Monument was added to Section 3.3.1. (Comment E.1)
- Section 3.3.1 (Exemptions) includes an updated description of the non-commercial fishing exemption in the area of the sanctuary that overlaps with the MEA/Outer Sanctuary Zone. (Comments D.5, D.15, and F.4)
- Section 3.3.1 (Permitting) includes an updated description of the proposed permitting process. (Comments B.3, B.13, and F.6)
- Addition to Section 3.3.1 (Regulations) clarifies that, consistent with the current interagency permitting regime in place for the Monument, there would be no appeals process for a sanctuary permit.
- Clarification was added to Section 3.7 regarding that Middle Bank is managed by both NOAA and the State of Hawai‘i. (Comment J.22)
- Clarifications regarding NOAA's consideration of a sanctuary boundary extending beyond the existing boundary of the Monument were added to Section 3.7.1 (Comment I.3). NOAA provided additional reasoning for its elimination of a boundary that included all of Middle Bank (Comment J.18), as well as acknowledgment that comments of support, as well as opposition, were received for this boundary alternative (comments J.20 and J.21).
- Clarifications have been added to sections 1.4 and 3.7.2 regarding how NOAA is preparing a separate proposed rule for regulations governing fishing in the MEA under the authority of the MSA. (Comment D.19)
- Information in Table 4.5, Seabirds of Papahānaumokuākea, and Table 4.6e. ESA and State-Listed Seabird Species within the Project Area were updated.
- The word "empower" was removed from sections 4.5.1 and 4.6.2, and replaced with language conforming to current standards regarding equity and justice.
- NOAA has revised Section 5.5.1 by removing the referenced portion of the impact analysis related to the potential need for two permits under Alternative 3. (Comment J.26)
- NOAA has revised Section 5.3.5 describing adverse impacts to socioeconomic resources and human uses. In the draft EIS, NOAA included a description of vessel hull inspections as a requirement for sanctuary permits. Vessel hull inspections are not included in the proposed regulations for the sanctuary; therefore, NOAA has removed the analysis of this impact. Vessel hull inspections are currently required as a permit condition (as

indicated under the No Action Alternative in Chapter 4), and would continue to occur under existing Monument management.

- Minor revisions have been made to Section 5.2.3 to include a description of existing management actions taken to address invasive species. (Comment J.10)
- Minor revisions have been made to Appendix C and elsewhere to better reflect the existence of Battle of Midway National Monument, and to clarify that the Battle of Midway occurred at both Midway Atoll and at sea. (Comment L.4)
- The word "conservation," when referring to the purpose of the proposed sanctuary, has been added to sections 1.1 and 2.1. (Comment L.2)
- Throughout the document minor revisions have been made to better reflect USFWS management authority over the Midway Atoll and Hawaiian Islands National Wildlife Refuges (sections 1.2, 2.2, 3.0. 3.1, 3.3, 3.4, 3.5, 4.2, 5.3).
- All instances of "OSZ" have been replaced with "Outer Sanctuary Zone." (Comment L.3)
- Appendix F has been revised to provide exact copies of scoping comments. (Comment G.2)
- More detailed information on the findings of the Cultural Impact Assessment *E Hoi I Ke Au A Kanaloa* relating to the sanctuary proposal was added in Section 5.1.4. (Comment C.7)

Sanctuary Regulations

The following revisions and clarifications were made to the sanctuary regulations in response to public comment, and are reflected in the EIS as follows:

- In Section 3.3.1, when describing cooperative management, additional information has been added about the current co-management framework and how the proposed sanctuary has been specifically designed to complement and supplement other State and federal resource protection laws, and to be integrated with existing management. (Comment E.2) NOAA has also clearly stated that the sanctuary will be managed in partnership with other State and federal agencies, including the Office of Hawaiian Affairs and USFWS. (Comment E.2)
- Changes have been made to Section 3.3.1 – *Exemptions*, to clarify that a non-commercial fishing permit authorized under the MSA is only exempt from a specific subset of prohibited or otherwise regulated activities that are conducted as incidental to and necessary to conduct lawful non-commercial fishing activity. NOAA has also clarified that the exemption from the sanctuary's permitting requirements is only applicable for non-commercial fishing provided that the fish harvested, either in whole or in part, are neither intended to enter commerce nor enter commerce through sale, barter, or trade and that the resource is managed sustainably, consistent with Presidential Proclamation 9478. Moreover, for the exemption to apply, the fish harvested, either in whole or in part, are not intended to be sold and shall not be sold for any purposes, including, but not limited to, cost-recovery. (Comments D.5, F.4)
- Changes have been made to Section 3.3.1 (Sunken Military Craft) and Appendix C to clarify that sunken military craft in the sanctuary will continue to be administered by the respective Secretary concerned pursuant to the Sunken Military Craft Act of 2004

(SMCA; Pub. L. 108-375, Title XIV, sections 1401 to 1408; 10 U.S.C. 113 note); and that NOAA will enter into a memorandum of agreement with the appropriate agencies regarding the implementation of our respective authorities.

Management Plan

The following changes were made to the final sanctuary management plan, as reflected in Appendix A.

- New text was added to several sections of the plan to better reflect how sanctuary designation may affect future co-management of the Monument. A new sub-section on Cooperative and Coordinated Management was added to Section 2: Purpose of the Sanctuary Plan. This describes how the sanctuary plan shares the vision, mission, management principles, and framework with the Monument, and how NOAA will manage the sanctuary in partnership with the Monument co-trustees. Revisions were also made to Section 1: Foundations, to include information about the 2017 co-trustee memorandum of agreement and to emphasize NOAA's intent to integrate the sanctuary management plan with Monument management. Similarly, text was added to the Acknowledgements section to better reflect NOAA's commitment to integrated, collaborative management. (Comments E.1, E.2, E. 5, and E.10)
- Minor modifications were made to the following kūkulu in Section 3:
    - Kūkulu 3, Governance and Operations: The order of strategies was modified, and a slight text revision was made to the goal.
    - Kūkulu 4, Partnerships and Constituent Engagement: In response to a public comment, text changes were made to Strategy 4.1 to clarify that the existing Reserve Advisory Council will be transitioned to serve as the Sanctuary Advisory Council. (Comment K.21)
- An abbreviations section was added in response to a public comment. (Comment L.1)
- Additional background information on the sanctuary management plan development process was added to the Acknowledgements section.
- Corrections were made in the management plan and EIS to reflect that the timeframe of the management plan is 5–7 years

1.6 Organization of This Final Environmental Impact Statement

This final EIS is organized as follows:

Chapter 1: Provides background on the National Marine Sanctuary System, the proposed sanctuary designation for Papahānaumokuākea, and the sanctuary designation and environmental review processes under NMSA, NEPA, and HEPA.

Chapter 2: Outlines the purpose and need for the proposed designation of a national marine sanctuary in Papahānaumokuākea.

Chapter 3: Describes the process to develop alternatives. Identifies the No Action Alternative, the three action alternatives, and the alternatives considered but eliminated from detailed

evaluation. For each alternative, Chapter 3 describes the proposed boundary, regulations, and final sanctuary management plan.

Chapter 4: Describes the existing conditions in the geographic scope of the action to provide a baseline for assessing environmental impacts including an overview of marine ecosystems, shipwrecks, the cultural landscape, and human uses within the proposed sanctuary.

Chapter 5: Provides an analysis of the potential environmental consequences of each alternative and compares the environmental consequences across alternatives. Direct, indirect, short-term, long-term, and cumulative impacts are evaluated.

Chapter 6: Describes the unavoidable adverse impacts, the relationship of short- and long-term productivity, and irreversible or irretrievable commitment of resources associated with the alternatives, per the requirements of NEPA.

Chapter 2:
Purpose and Need for Action

2.1 Purpose of the Proposed Action

NOAA's proposed action is to designate marine areas of the Monument as a national marine sanctuary. The purpose of this action is to provide comprehensive and coordinated conservation and management of the marine areas of Papahānaumokuākea to protect nationally significant biological, cultural, and historical resources. See Section 1.2.1, "Significance of the Area and Rationale for Proposed Sanctuary Designation," for more information on the national significance of the area proposed as a national marine sanctuary. Additionally, the purpose of the designation is to implement the provisions of Presidential Proclamation 9478 that directed NOAA to consider initiating the sanctuary designation process, and Executive Order 13178 and the Joint Explanatory Statement accompanying the Consolidated Appropriations Act, 2021, that directed NOAA to initiate the sanctuary designation process.

> Executive Order 13178 states *"The Secretary shall initiate the process to designate the Reserve as a national marine sanctuary pursuant to sections 303 and 304 of the National Marine Sanctuaries Act."*
>
> Presidential Proclamation 9478 states *"[T]he Secretary of Commerce should consider initiating the process under the National Marine Sanctuaries Act to designate the Monument Expansion area and the Monument seaward of the Hawaiian Islands National Wildlife Refuge and Midway Atoll National Wildlife Refuge and Battle of Midway National Memorial as a National Marine Sanctuary to supplement and complement existing authorities."*

The NMSA authorizes the Secretary of Commerce to designate national marine sanctuaries to meet the purposes and policies of the NMSA, including:

- "to provide authority for comprehensive and coordinated conservation and management of these marine areas, and activities affecting them, in a manner which complements existing regulatory authorities" (16 U.S.C. § 1431(b)(2));
- "to maintain the natural biological communities in the national marine sanctuaries, and to protect, and, where appropriate, restore and enhance natural habitats, populations, and ecological processes" (16 U.S.C. § 1431(b)(3));
- "to enhance public awareness, understanding, appreciation, and wise and sustainable use of the marine environment, and the … historical, cultural, and archaeological resources of the National Marine Sanctuary System" (16 U.S.C. § 1431(b)(4));
- "to support, promote, and coordinate scientific research on, and long-term monitoring of, the resources of these marine areas" (16 U.S.C. § (b)(5)); and
- "to facilitate to the extent compatible with the primary objective of resource protection, all public and private uses of the resources of these marine areas not prohibited pursuant to other authorities" (16 U.S.C. § 1431(b)(6)).

2.2 Need for the Proposed Action

The area proposed for national marine sanctuary designation is a globally significant, interconnected set of marine ecosystems, including coral islands; shallow, deep, and mesophotic reefs; seamounts; banks; and pelagic waters connected to the greater Pacific Ocean. This area supports rare and endangered wildlife, is the location of the historic Battle of Midway, and holds deep cosmological and traditional significance to the people of Hawai‘i and the Native Hawaiian culture. While its remote location protects the area from impacts from local human uses, threats from climate change, marine debris from across the Pacific, in conjunction with the threat of invasive species, combined with shipping traffic, have and will continue to adversely impact these fragile resources. Through the proposed national marine sanctuary designation, NOAA aims to address these threats and discrepancies in management across the Monument by:

- developing objectives and actions that ensure lasting protections consistent with the existing Monument proclamations;
- safeguarding natural and cultural values of the marine environment;
- applying additional regulatory and non-regulatory tools to augment and strengthen existing protections for Papahānaumokuākea ecosystems, wildlife, and cultural and maritime heritage resources;
- authorizing NOAA to exercise enforcement authorities, including the assessment of civil penalties for violations of sanctuary regulations or violations of permits and to enforce provisions of the NMSA;
- imposing liability for the destruction, loss of, or injury to sanctuary resources and providing natural resource damage assessment to authorities for destruction, loss of, or injury to any sanctuary resource; and
- requiring interagency consultation for any federal agency action that is likely to destroy, cause the loss of, or injure any sanctuary resource

2.2.1 Complement and Supplement Existing Regulatory Authorities

The Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, established by Executive Order 13178, is managed by the U.S. Department of Commerce under the National Marine Sanctuaries Act, through NOAA’s Office of National Marine Sanctuaries. As a result of the existing Reserve, and the existing Monument management framework, of which ONMS is a critical part, the proposed sanctuary has been specifically designed to complement and supplement other federal and State resource protection laws to manage the nationally significant resources of Papahānaumokuākea. See sections 1.2.2 and 1.2.3 for an overview of existing management of the area and actions leading to the proposed designation of a sanctuary.

Congress has declared that one purpose of the NMSA is to provide coordinated and comprehensive conservation and management of special areas of the marine environment that would complement other existing regulatory authorities (16 U.S.C. § 1431(b)(2)). By designating this area as a national marine sanctuary, NOAA would implement regulations to complement and supplement existing authorities under the Antiquities Act; National Wildlife Refuge System Administration Act; presidential proclamations 8031, 8112, and 9478; Executive Order 13178; 50 CFR 404; as well as other existing federal and State statutes designed to protect marine

resources. Through sanctuary designation, NOAA would add to and not diminish protections under existing authorities, such as the USFWS' sole management authority over refuges pursuant to the National Wildlife Refuge System Administration Act. See Section 3.3.1 for an overview of proposed sanctuary regulations and appendices C and E for a comprehensive list of existing federal and State authorities that the NMSA would complement and supplement. See Section 4.4 for further discussion of protected species and habitats and Section 4.5 for discussion of cultural and historic resources in the proposed sanctuary.

The directives in presidential proclamations 8031 and 8112 (codified in 50 CFR part 404) and those in Presidential Proclamation 9478 address similar resource management concerns but exhibit technical differences in structure and content. At present, there are no implementing regulations to authorize permitting or enforce the prohibitions in the MEA as outlined in Presidential Proclamation 9478. The lack of implementing regulations presents a lack of clarity in management, enforcement, and allowed activities in the MEA. Sanctuary designation provides the opportunity to develop a cohesive set of regulations that maintains and enhances existing resource protection by adopting management measures from the presidential proclamations and, in some places, adding to those measures to allow for consistency in the management of resources and values throughout the Monument and sanctuary.

Through sanctuary designation, the NMSA provides additional regulatory tools for management and protection of resources within Papahānaumokuākea. Sanctuary designation provides regulations for a permitting system under the NMSA to manage waters of both PMNM and the MEA, developed to be integrated with the Monument permitting system, and eliminating potential gaps in management. This provides clarity for permittees, managers, and enforcement personnel, including for permitted activities that occur across PMNM and the MEA. With sanctuary designation, the NMSA authorizes NOAA to assess civil penalties for violations of sanctuary regulations and permits, and to enforce other provisions of the NMSA. The NMSA allows NOAA to implement emergency regulations, where necessary, to prevent or minimize the destruction of, loss of, or injury to a sanctuary resource or quality, or minimize the imminent risk of such destruction, loss, or injury. Under Section 312 of the NMSA, NOAA can impose liability for destruction, loss of, or injury to sanctuary resources and provide natural resource damage assessment to authorities for destruction, loss of, or injury to any sanctuary resource.

Section 304(d) of the NMSA allows NOAA to further protect resources by requiring federal agencies to consider alternatives to proposed actions that are "likely to destroy, cause the loss of, or injure any sanctuary resource." These and other directives in the NMSA would supplement and help to ensure a stable and comprehensive framework deserving of this place of special national significance.

Sanctuary designation also provides additional non-regulatory tools to further manage and protect Monument resources. For more than 20 years, NOAA has developed robust and effective programs for conservation science; the weaving of Kānaka ʻŌiwi (Native Hawaiian) heritage, knowledge, values, and practices into co-management; maritime heritage; and education, providing services and expertise that a sanctuary could leverage to support resource protection across the Monument.

2.2.2 Approach to Management of the Proposed Sanctuary

Through the proposed sanctuary designation, NOAA is proposing to supplement and complement existing management of the area and would manage the sanctuary in partnership with Monument co-trustees. The sanctuary management plan (Appendix A), required by the NMSA and developed in consultation with the State, USFWS, and OHA, provides the framework, goals, and comprehensive suite of adaptive strategies required to address management needs in the areas of resource protection, research and monitoring, cultural heritage, and outreach and education. This collaborative approach was followed to explicitly "ensure concurrence of plans between the sanctuary and the overarching Monument" (Appendix A). The sanctuary management plan also reflects the strengths of the National Marine Sanctuary System which includes national programs for conservation science, maritime heritage, climate change, and education.

2.3 State of Hawai‘i Designation Responsibility

The State of Hawai‘i, who co-developed this final EIS, proposes that NOAA include all State waters and submerged lands within the Monument in the proposed national marine sanctuary. These waters and submerged lands run from zero to three nautical miles (nmi) around Nihoa, Mokumanamana, Lalo (French Frigate Shoals), Kamole (Laysan Island), Kamokuokamohoali‘i (Maro Reef), ‘Ōnūnui and ‘Ōnūiki (Gardner Pinnacles), Kapou (Lisianski Island), Manawai (Pearl and Hermes Atoll), and Hōlanikū (Kure Atoll). The State waters and submerged lands within Papahānaumokuākea serve significant ecological, cultural, and historic purposes. The State also recognizes the Kānaka ‘Ōiwi spiritual connection to Papahānaumokuākea and its significance in Kānaka ‘Ōiwi traditions and culture. The State of Hawai‘i would co-manage the proposed sanctuary, pursuant to the NMSA. This proposed sanctuary management structure would be incorporated into the larger co-management framework for the Monument.

2.3.1 State of Hawai‘i Constitutional Public Trust Duties

The State has constitutional public trust duties to protect these waters and submerged lands for the benefit of the public and Native Hawaiians. Article XI, Section 1 of the Constitution of the State of Hawai‘i stipulates a State duty to "conserve and protect Hawaii's natural beauty and all natural resources" for the benefit of the people and future generations. The State also has constitutional duties particular to Native Hawaiians.

2.3.2 Native Hawaiian Rights

Article XII, Section 7 of the Constitution of the State of Hawai‘i stipulates that the State must protect Native Hawaiian rights "customarily and traditionally exercised for subsistence, cultural and religious purposes." The Admission Act, Section 5 and Article XII, Section 4 of the Constitution of the State of Hawai‘i provide additional protection through a separate public land

trust with the State as trustee for the ceded lands granted to it during its admission to the U.S. as a state.[2] Native Hawaiians and the "general public" are beneficiaries of both trusts.[3]

HEPA requires analysis of impacts to cultural resources resulting in the State's CIA within the document titled *E Hoʻi I Ke Au A Kanaloa* (Nohopapa Hawaiʻi, 2023). To support the State's constitutional duties to protect Native Hawaiian traditional and customary practices, this document also contains a legal analysis.

The CIA presents a detailed genealogy of Papahānaumokuākea, its connection to Hawaiian history and the main Hawaiian Islands, and the cultural resources, practices, beliefs, and spirituality associated with this biocultural seascape that are fundamental to Kānaka ʻŌiwi. Following extensive outreach to identify individuals and groups interested in participating, Nohopapa Hawaiʻi, LLC interviewed 25 people with connections to Papahānaumokuākea. These interviewees identified their cultural practices and connection to Papahānaumokuākea, potential impacts to these practices and cultural resources, recommendations, and other considerations. The CIA outlines several Kānaka ʻŌiwi customs such as voyaging, kilo (indigenous observational science), feather gathering, and fishing. Based on analysis in the CIA, these traditions and customary practices would be afforded greater protection and would not be significantly impacted by sanctuary designation.

The legal analysis associated with the CIA provides a legal background and support for the State to meet its duty to "affirmatively protect" religious, traditional, and customary practices of Kānaka ʻŌiwi, as required under the Constitution of the State of Hawaiʻi. The legal analysis highlights the need for the State to conduct a three-step Ka Paʻakai Analysis:

> (1) the identity and scope of "valued cultural, historical, or natural resources" in the petition area, including the extent to which traditional and customary native Hawaiian rights are exercised in the petition area;
>
> (2) the extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed action; and
>
> (3) the feasible action, if any, to be taken … by the [State and/or its political subdivisions] to reasonably protect native Hawaiian rights if they are found to exist.[4]

[2] The public land trust has five trust purposes: the support of the public schools and other public educational institutions, the betterment of the conditions of native Hawaiians, the development of farm and home ownership on as widespread a basis as possible, for the making of public improvements, and for the provision of lands for public use. HI ADMISSION ACT § 5(f).

[3] The Admission Act refers to the definition of "native Hawaiian" as used in the Hawaiian Homes Commission Act (1920) which is applied to "any descendant of not less than one-half part of the blood of the races inhabiting the Hawaiian Islands previous to 1778" HI HHCA § 201. Article XII of the Constitution of the State of Hawaiʻi applies to descendants of native Hawaiians regardless of their blood quantum. Pub. Access Shoreline Hawaiʻi by Rothstein v. Hawaiʻi Cnty. Plan. Comm'n by Fujimoto, 79 Haw. 425, 449, 903 P.2d 1246, 1270 (1995). All Hawaiians fall under the classification of the general public. Off. of Hawaiian Affs. v. Hous. & Cmty. Dev. Corp. of Hawaiʻi, 121 Haw. 324, 334, 219 P.3d 1111, 1121 (2009), as amended (Nov. 24, 2009).

[4] Ka Paʻakai O Ka ʻAina v. Land Use Comm'n, 94 Hawaiʻi 47, 7 P.3d 1084 (2000).

The Ka Paʻakai Analysis is based on information provided in the legal analysis, CIA, EIS, and other supporting documents.

2.3.3 State Jurisdiction and the Hawaiian Islands National Wildlife Refuge Waters

State waters and submerged lands overlap with the Hawaiian Islands NWR. The original designation of the Hawaiian Islands NWR in 1909 describes its seaward boundary with a simple map, noting that it includes the "islets and reefs" of all Northwestern Hawaiian Islands except Midway (Executive Order 1019). Navigational maps could not be generated based on this description. Ongoing communication and collaboration between the State and USFWS, beginning soon after the admission of the State to the U.S., have not yet resulted in an agreed-upon seaward boundary. The State, USFWS, OHA, and NOAA have successfully co-managed the area without an official seaward boundary for the Hawaiian Islands NWR. The State proposes to continue this co-management structure for the proposed sanctuary.

Chapter 3: Alternatives

This chapter describes the alternatives NOAA has identified and the process used to develop them. NOAA developed its reasonable range of alternatives as required by NEPA. In accordance with NEPA, this section presents the no action alternative, a reasonable range of alternatives, and alternatives considered but eliminated from detailed study and the reasons for eliminating them. See 42 U.S.C. 4332(2)(C).

The proposed action is to designate the marine portions of the Monument as a national marine sanctuary with terms of designation, regulations, and a sanctuary management plan. Action alternatives only differ by proposed boundaries, with Alternative 1 (Proposed Action) the largest and most comprehensive, and Alternatives 2 and 3 consider smaller boundaries.

The boundary alternatives include the following:

- Alternative 1 is coextensive with the marine portions of the Monument. The boundary includes the marine environment surrounding the Northwestern Hawaiian Islands from the shoreline[5] of the islands and atolls seaward to 200 nmi, including all State waters and waters of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, Midway Atoll and Hawaiian Islands National Wildlife Refuges, the Battle of Midway National Memorial, and State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge. The area encompassed in Alternative 1 is approximately 582,570 square miles (439,910 square nmi).
- Alternative 2 includes the marine environment from the shoreline of the islands and atolls seaward to 50 nmi. This alternative includes all State waters and waters of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, Midway Atoll and Hawaiian Islands National Wildlife Refuges, the Battle of Midway National Memorial, and State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge. This alternative does not include the MEA. The area encompassed in Alternative 2 is approximately 139,782 square miles (105,552 square nmi).
- Alternative 3 has the same boundaries as Alternative 1, but excludes approximately 1,307.6 square miles of waters within the Midway Atoll and Hawaiian Islands National Wildlife Refuges and the Battle of Midway National Memorial. These excluded waters include portions of the State marine refuge and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve that overlap with Hawaiian Islands National Wildlife Refuge waters. The area encompassed in Alternative 3 is approximately 581,263 square miles (438,923 square nmi).

Under each action alternative, NOAA would designate a national marine sanctuary with terms of designation, regulations, and a management plan. As NOAA aims to provide coordinated conservation and management across the area, consistent with existing Monument

[5] The State defines shoreline as “the upper reaches of the wash of the waves, other than storm or seismic waves, at high tide during the season of the year in which the highest wash of the waves occur, usually evidenced by the edge of vegetation growth, or the upper limit of debris left by the wash of the waves” (HAR § 13-222).

management, the terms of designation, regulations, and sanctuary management plan are consistent across all alternatives. The alternatives differ only to the extent necessary to reflect the different boundaries. The analysis of impacts related to implementation of the sanctuary management plan is limited, and primarily focused on socioeconomic impacts, because the sanctuary management plan is an overarching administrative document that includes no specific implementation level projects or activities. The sanctuary management plan is available as Appendix A. Principally, the final EIS focuses on potential impacts to existing laws and management, physical resources, biological resources, cultural and maritime heritage resources, and human uses from the proposed designation.

NOAA has identified Alternative 1 as the Agency-Preferred Alternative. Alternative 1 also represents the area under consideration described by NOAA in the Notice of Intent (86 FR 64904 [Nov. 19, 2021]), as well as the boundary reflected in the proposed rule (89 FR 15272 [March 1,2024]). See Chapter 5 for a comparison of all alternatives, as well as details explaining the basis for identifying the Agency-Preferred Alternative.

3.1 Development of Alternatives

Developing alternatives required assessing a range of technically and economically feasible options that meet the purpose and need of the proposed action of designating a sanctuary. As noted previously, the Joint Explanatory Statement accompanying the Consolidated Appropriations Act, 2021 directed NOAA to initiate the process under the NMSA to designate Papahānaumokuākea as a national marine sanctuary "to supplement and complement, rather than supplant, existing authorities." In response to this instruction, NOAA's proposed action and the development of all reasonable alternatives were guided by two themes:

1. The protections described in presidential proclamations 8031, 8112, and 9478, provide the foundation for developing alternatives, and the proposed sanctuary would add to and not diminish those protections.
2. The organizational features related to co-management of the Monument would be maintained if a sanctuary is designated.

In developing alternatives, NOAA considered the following questions:

- Is the alternative consistent with the purposes and policies of the NMSA?
- Does the alternative meet the purpose and need of the proposed action?
- Does the alternative add to and not diminish existing protections?
- Does the alternative enhance, improve, or maintain public awareness and/or conservation of the natural, ecological, historical, scientific, cultural, archaeological, and/or educational resources, esthetic qualities, and/or resolve user conflicts in the area?

3.1.1 Development of Boundary Alternatives

A wide range of boundary alternatives were suggested and supported through public scoping comments from a variety of interested parties. The majority of boundary-related comments suggested that NOAA should include all waters of PMNM and the MEA in the proposed

sanctuary. Others suggested that the sanctuary include the marine environment within PMNM and exclude the MEA.

Others suggested an even smaller boundary, including the marine environment within PMNM but excluding the waters within Midway Atoll NWR. No public scoping comments supported excluding marine waters within the Hawaiian Islands NWR. However, USFWS, a cooperating agency for this action and a co-manager of the Monument, specifically requested that NOAA consider an alternative that excludes marine areas of the Hawaiian Islands National Wildlife Refuge and Midway Atoll National Wildlife Refuge from the proposed sanctuary, for the following reasons:

- Presidential Proclamation 8031 (2006) states that "The Secretary of the Interior, through the Fish and Wildlife Service (FWS), will have sole responsibility for management of the areas of the monument that overlay the Midway Atoll [NWR], the Battle of Midway National Memorial, and the Hawaiian Islands [NWR], in consultation with the Secretary of Commerce."
- Presidential Proclamation 9478 (2016) states "the Secretary of Commerce should consider initiating the process…to designate the Monument Expansion area and the Monument seaward of the Hawaiian Islands National Wildlife Refuge and Midway Atoll National Wildlife Refuge…as a National Marine Sanctuary to supplement and complement existing authorities."

Some scoping comments expressed support for a sanctuary boundary that extends beyond the footprint of the Monument to adjacent areas, including nearby seamounts and the entirety of Middle Bank. Other commenters did not want Middle Bank to be included in the sanctuary.

All of the proposed boundary alternatives have been included as action alternatives or as alternatives that were considered but subsequently eliminated from detailed study, with a brief discussion of the reason for elimination in Section 3.7.1 of the final EIS.

The rationale for the boundary alternatives carried forward (alternatives 1, 2, and 3) is described in sections 3.4–3.6. Table 3.1 briefly summarizes some main features of the three boundary action alternatives.

Table 3.1. Description of Alternative Boundaries

Alternative	Total Area	Overlay of Marine Environment	Features
Alternative 1	582,570 square miles	Reserve, PMNM, MEA, National Wildlife Refuges, National Memorial, State Marine Refuge	Largest sanctuary alternative.
Alternative 2	139,782 square miles	Reserve, PMNM, National Wildlife Refuges, National Memorial, State Marine Refuge	Smallest sanctuary alternative; excludes MEA.
Alternative 3	581,263 square miles	Part of Reserve, Part of PMNM, MEA, Part of State Marine Refuge	Similar to Alternative 1, but excludes the National Wildlife Refuges and National Memorial.

3.1.2 Development of Proposed Regulations

The NMSA authorizes NOAA to establish site-specific regulations for each national marine sanctuary. The purpose and need for the proposed sanctuary designation (Chapter 2) and NOAA's Preferred Alternative provide the framework for the development of the proposed sanctuary regulations. Scoping comments from numerous individuals, non-governmental organizations, and agencies stressed the need for consistency with existing Monument management and permitting, as well as augmentation of some Monument regulations and exemptions for certain activities. Presidential proclamations 8031, 8112, and 9478 served as benchmarks for drafting regulations for the proposed sanctuary. The proposed sanctuary would only add to and not diminish the management measures and protections provided by the presidential proclamations. Note, the PMNM regulations at 50 CFR Part 404 apply to the part of the Monument designated by presidential proclamations 8031 and 8112 (Original Area, 0–50 nmi). The text of the regulations found at 50 CFR Part 404 is essentially identical to the directives in Presidential Proclamation 8031. Therefore, the 50 CFR Part 404 regulations do not expand on the nature of the action that was taken through Presidential Proclamation 8031 and modified by Presidential Proclamation 8112.

In the proposed sanctuary regulations, NOAA has adopted the management measures from the presidential proclamations, and in a few places, added on to those measures to provide consistency in regulations and management across the proposed sanctuary. Minor changes in regulations for each area of the Monument (PMNM and MEA) are provided for in the proposed sanctuary regulations to remove discrepancies and gaps in prohibitions, regulated activities, and permitting across the two zones.

Per Section 304(a)(5) of the NMSA, NOAA provided the WPRFMC with the opportunity to recommend any draft fishing regulations it deemed necessary to implement the proposed sanctuary designation. NOAA initiated this consultation on November 19, 2021 (letter). NOAA accepted the majority of the WPRFMC's recommendation, as it was found to fulfill the purposes and policies of the NMSA and the goals and objectives of the proposed sanctuary designation. However, the WPRFMC's recommendation providing Native Hawaiian subsistence practices fishing permit applicants the ability to request limited cost recovery by selling their catch in the permit application process through a Statement of Need for cost recovery along with expected costs, failed to fulfill the purposes and policies of the NMSA and the goals and objectives of the proposed sanctuary designation (NOAA response letter, May 31, 2023). NOAA is preparing a separate proposed rule for regulations governing fishing in the MEA under the authority of the Magnuson–Stevens Fishery Conservation and Management Act (MSA) to reflect the outcome of the NMSA Section 304(a)(5) process. Appendix C provides further details of this consultation process.

3.1.3 Development of Sanctuary Management Plan

Sanctuary management plans are site-based planning and implementation documents used by all national marine sanctuaries. Sanctuary management plans fulfill many functions, including describing non-regulatory programs; outlining collaborations with partners; setting priorities for resource protection, research, and education programs; and guiding development of future

budgets, staffing needs, and management activities. They identify immediate, mid-range, and long-range opportunities, and outline future activities. The sanctuary management plan substantially adopts the core values and integrated approach to management developed by the Monument co-managers, weaving together knowledge systems from biocultural and co-management perspectives. The integration between the sanctuary management plan and Monument management is a priority identified in the sanctuary's vision, mission, and guiding principles, which are consistent with the vision, mission, and guiding principles of the Monument. The sanctuary management plan will chart the course for the proposed sanctuary over the next five to seven years. The sanctuary management plan is included as Appendix A to this final EIS. The sanctuary management plan was developed in consultation with the State, USFWS, and OHA. This collaborative approach was followed to explicitly ensure concurrence of plans between the proposed sanctuary and the Monument.

3.2 No Action Alternative

NOAA evaluated a No Action Alternative to serve as a baseline against which to compare the impacts of the action alternatives. 42 U.S.C. 4332(2)(C); 40 CFR § 1502.14(c). Under the No Action Alternative, NOAA would not designate a national marine sanctuary and existing Monument operations and management within the proposed sanctuary area would continue. The protection and management of biological, physical, historical, cultural, and other resources within the Monument would continue at the current management direction and level of management intensity under existing federal authorities and programs, and would not be strengthened by supplementary sanctuary regulations or management activities.

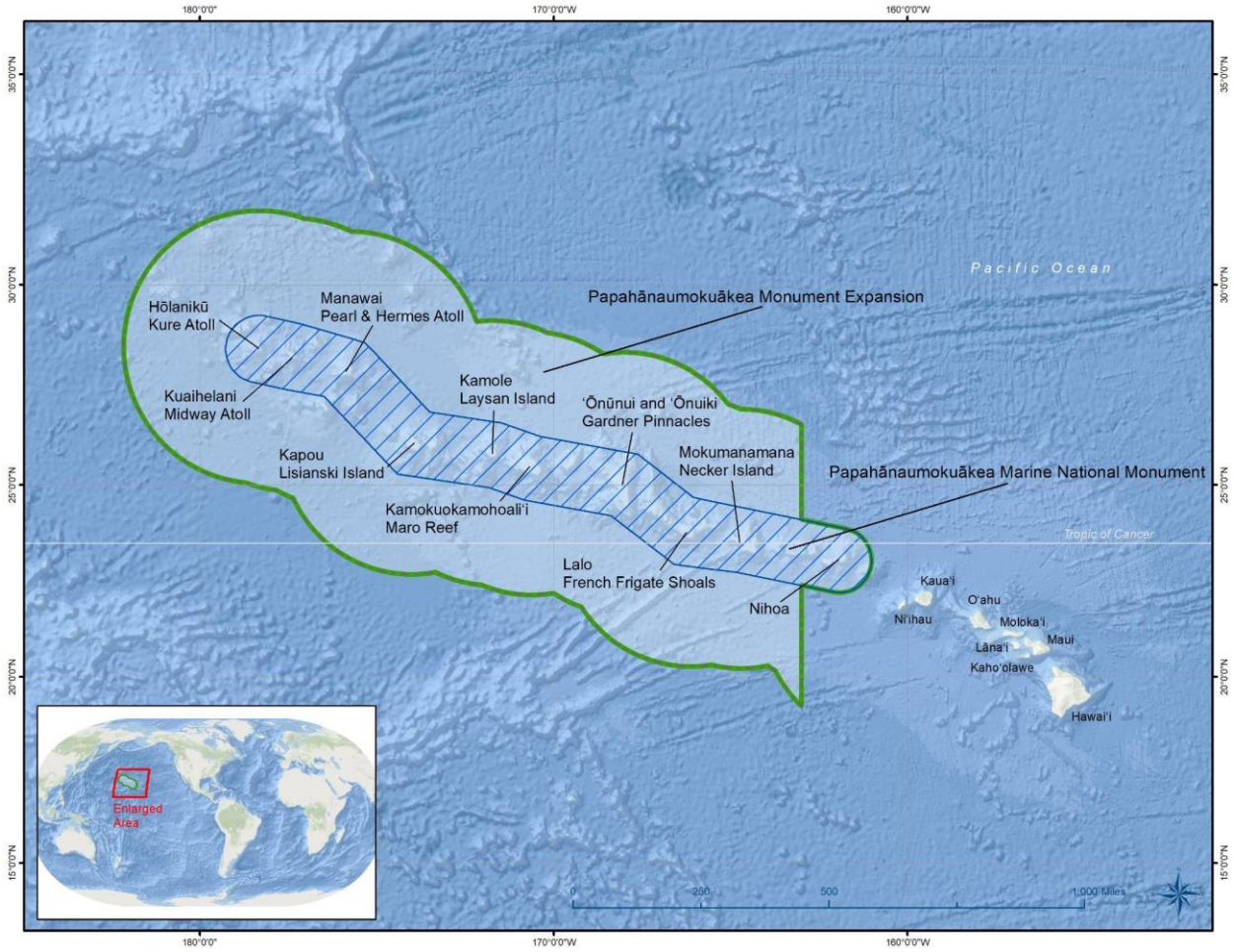

Figure 3.1. No Action Alternative showing existing monument boundaries. Image: NOAA

Under the No Action Alternative, resource management within Papahānaumokuākea would continue to be primarily guided by presidential proclamations 8031, 8112, and 9478, the joint regulations at 50 CFR § 404, Executive Order 13178, and other applicable authorities such as the MSA, the National Wildlife Refuge System Administration Act (NWRSAA), MMPA, ESA, MTBA and others that pertain to the conservation of natural, cultural, and historical resources in the area (Appendix E).

The Monument co-trustees (the State of Hawai‘i, DOI, DOC, and OHA) would continue to share joint responsibility for managing the Monument's emergent and submerged lands and waters. Co-management by the seven-member Monument Management Board (MMB) (Figure 3.2) which oversees day-to-day management consists of NOAA-ONMS, NOAA-Fisheries, USFWS Ecological Services, USFWS Refuges, DLNR-Division of Aquatic Resources, DLNR-Division of Forestry and Wildlife, and OHA. Prohibitions codified in 50 CFR part 404 based on Presidential Proclamation 8031 are subject to enforcement by law enforcement personnel.

While the Monument is managed as a unit, several federal and State conservation areas exist and specific authorities apply. Table 3.1 identifies these areas where specific authorities apply and individual agencies maintain jurisdictions and act as leads for Monument management

(Table 3.2). Note that these existing authorities would also remain in effect under all action alternatives.

Table 3.2. The areas subject to protection within Papahānaumokuākea and the existing authorities that would also remain in effect under all action alternatives.[6]

Areas subject to protection	Managing Agencies	Primary Authority	Established	Basic Boundary
Hawaiian Islands Bird Reservation (Executive Order 1019); Hawaiian Islands National Wildlife Refuge (Presidential Proclamation 2416)	USFWS	NWRSAA	1909/1940	All islets and reefs of the Northwestern Hawaiian Islands, approx 400 sq miles of marine waters, except Kuaihelani and Hōlanikū
U.S. Waters	NOAA Fisheries	MSA	1976	Waters from 3 nmi to 200 nmi
Midway Atoll National Wildlife Refuge	USFWS	NWRSAA	1988/1996	Kuaihelani and waters to 12 nmi
Kure Atoll Wildlife Sanctuary	DLNR Division of Forestry and Wildlife	HAR	1993	Green and Sand Islands
Northwestern Hawaiian Islands (NWHI) Coral Reef Ecosystem Reserve	NOAA ONMS	EO 13178, NMSA	2000	Approximately 3-50 nmi around all Northwestern Hawaiian Islands, except for Midway Atoll
State of Hawai‘i NWHI Marine Refuge	DLNR Division of Aquatic Resources	HAR	2005	Waters from shoreline of all islets to 3 nmi, except Kuaihelani
Particularly Sensitive Sea Area	IMO, NOAA, USFWS	IMO	2008	Waters of PMNM plus a 10 mile buffer
Papahānaumokuākea MNM	NOAA, USFWS, State of Hawaii, OHA	Antiquities Act, PP 8031, 50 CFR 404 et seq.	2006	All land in the NWHI and surrounding waters to 50 nmi
Papahānaumokuākea MNM Expansion Area	NOAA, USFWS	Antiquities Act, PP 9478	2016	All NWHI waters 50 - 200 nmi

Regulations promulgated for these management regimes remain in place, and where conflicting regulations exist, the more stringent (resource protective) regulation applies. A complete description of the current management regime can be found on the Monument's website.

[6] Some jurisdictional authorities overlap, but for simplicity's sake, overlaps are not listed here.

Figure 3.2. Papahānaumokuākea Marine National Monument management structure. Image: NOAA

A memorandum of agreement between the Monument's co-trustees outlines the co-trustees' responsibility to carry out the coordinated management for the long-term comprehensive conservation and protection of the Monument. Each co-trustee identifies a Senior Executive Board (SEB) member who is responsible for management of the Monument through the MMB. The Secretary of Commerce, through NOAA, has primary responsibility regarding the management of the marine areas of PMNM, in consultation with the Secretary of the Interior. The Secretary of the Interior, through the USFWS, has sole responsibility for management of the areas of PMNM that overlay the Midway Atoll NWR and Hawaiian Islands NWR, in consultation with the Secretary of Commerce. The Secretary of Commerce, through NOAA, and in consultation with the Secretary of the Interior, has responsibility for management of activities and species within the MEA under MSA, ESA (for species regulated by NOAA), and any other applicable legal authorities. The Secretary of the Interior, through the USFWS, and in consultation with the Secretary of Commerce has responsibility for management of activities and species within the MEA under applicable legal authorities, including the NWRSAA, the Refuge Recreation Act, and the ESA (for species regulated by FWS). The State of Hawai'i has primary responsibility for managing the State waters of the Monument. OHA has primary responsibility for representing the interests of the Kānaka 'Ōiwi community in the Monument through the perpetuation of Hawaiian cultural resources and practices. Note that these existing jurisdictions and responsibilities would also remain in effect under all action alternatives.

While the Monument is jointly administered, some areas are also guided by specific management documents and specific authorities may apply. For example, USFWS also has the authority to charge fees for services including public visitation (50 CFR Part 25 Subpart E). The USFWS has also created numerous management documents, in cooperation with the MMB, specifically for Midway Atoll, including the 2022 Midway Atoll Comprehensive Master Plan, the 2008 Midway Atoll Visitor Services Plan, and the Monument's 2008 Midway Atoll NWR Conceptual Site Plan. As another example, Monument permit applications that include proposed activities within the State's Northwestern Hawaiian Islands Marine Refuge are posted to the Board of Land and Natural Resources website for seven days prior to a scheduled Board of Land and Natural Resources public hearing as part of the overall Land Board submittal and permit review process.

3.2.1 Regulations

Under the No Action Alternative, the Monument's existing management and operations would remain in place. In managing the Monument, the co-trustees rely on the provisions outlined in Presidential Proclamations 8031 and 8112, which established PMNM, and Presidential Proclamation 9478, which created the MEA, the joint regulations at 50 CFR § 404 for PMNM, as well as other applicable authorities including MSA, NWRSAA, and others. There are currently no implementing regulations for the provisions of Presidential Proclamation 9478 for the MEA.

Access

Under regulations at 50 CFR § 404 for PMNM, access to PMNM is prohibited and thus unlawful except for emergency response actions, law enforcement activities, and activities and exercises of the U.S. Armed Forces; pursuant to a Monument permit; or when conducting passage without interruption. In addition, the owner or operator of a vessel that has been issued a permit for

accessing the Monument must ensure that such vessel has a NOAA Office of Law Enforcement type-approved, operating vessel monitoring unit (VMS) on board when voyaging within the Monument. Presidential Proclamation 9478 for the MEA does not explicitly address access, but it did provide a list of prohibited activities, and a list of regulated activities that may be permitted (see Table 3.3 below).

The International Maritime Organization designated PMNM as a PSSA in 2008, to protect marine resources of ecological or cultural significance from damage by ships while helping keep mariners safe. In PMNM, entry and exit reporting for vessels passing without interruption is mandatory for all U.S. registered vessels and some foreign vessels (50 CFR part 404) and is encouraged for exempted vessels. The ship reporting system exempts vessels entitled to sovereign immunity under international law from the reporting requirements.

Prohibited or Otherwise Regulated Activities

Table 3.3 includes activities that are prohibited or otherwise regulated specific to the Monument. Other regulations in addition to Monument regulations may also apply, where other federal and State conservation areas exist. Prohibited activities are not allowed, while regulated activities may be allowed via a permit.

Table 3.3. Activities prohibited or otherwise regulated in the Monument.

Activity	**PMNM (original area)**	**MEA**
Exploring for, developing, or producing oil, gas, or minerals within the monument	Prohibited	Prohibited (also prohibits any energy development activities)
Using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of a monument resource	Prohibited	Prohibited
Introducing or otherwise releasing an introduced species from within or into the monument	Prohibited	Prohibited
Anchoring on or having a vessel anchored on any living or dead coral with an anchor, anchor chain, or anchor rope	Prohibited	Prohibited
Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving Monument resource	Regulated	Prohibited (unless conducted pursuant to a regulated activity)
Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands	Regulated	Prohibited (except for scientific instruments, which may be regulated)

Activity	PMNM (original area)	MEA
Anchoring a vessel	Regulated	Not addressed (except for the specific prohibition on anchoring on living or dead coral)
Deserting a vessel aground, at anchor, or adrift	Regulated	Prohibited
Discharging or depositing any material or other matter into Special Preservation Areas (SPAs) or the Midway Atoll Special Management Area (SMA) except vessel engine cooling water, weather deck runoff, and vessel engine exhaust	Regulated	N/A – SPAs and Midway Atoll SMA do not fall within the MEA boundary
Discharging or depositing any material or other matter into the Monument, or discharging or depositing any material or other matter outside of the Monument that subsequently enters the Monument and injures any resources of the Monument, except fish parts (i.e., chumming material or bait) used in and during authorized fishing operations, or discharges incidental to vessel use such as deck wash, approved marine sanitation device effluent, cooling water, and engine exhaust	Regulated	Not addressed
Touching coral, living or dead	Regulated	Not addressed (except for the specific prohibition on anchoring on living or dead coral)
Possessing fishing gear except when stowed and not available for immediate use during passage without interruption	Regulated	Regulated (explicitly regulates commercial fishing gear)
Swimming, snorkeling, or closed or open circuit scuba diving	Regulated	Not addressed
Attracting any living monument resources	Regulated	Not addressed
Commercial fishing	Prohibited*	Prohibited
Non-commercial fishing	Regulated*	Regulated

*Commercial fishing has been prohibited in PMNM since June 15, 2011, in accordance with Monument regulations at 50 CFR § 404.10(b)(3), and within the MEA since August 25, 2016, in accordance with Presidential Proclamation 9478. Sustenance fishing, a form of non-commercial fishing, is regulated in PMNM in accordance with Monument regulations at 50 CFR § 404.11.

Five activities in Table 3.3 are not explicitly mentioned in Presidential Proclamation 9478. However, many of these activities are already effectively regulated via the Presidential Proclamation 9478 prohibition on “removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving monument resource.” Presidential Proclamation 9478

provided additional categories of activities that may be regulated. These are addressed further in the "Permitting" section below.

Exemptions

- Activities necessary to respond to emergencies that threaten life, property, or the environment.
- Activities necessary for law enforcement purposes.
- Activities and exercises of the U.S. Armed Forces including those carried out by the U.S. Coast Guard.
- Scientific exploration or research activities by or for the Secretary of Commerce and/or the Secretary of the Interior in the MEA.

Permitting

The coordinated management of natural, cultural, and maritime heritage resources is achieved through a unified Monument permitting process, including a unified Monument permit application, instructions, and template. Proclamation 8031 requires a permit for access to PMNM (0–50 nmi). State regulations (HAR sections 13-60.5 and 13-125; 50 CFR Part 25, 26, 38, and 404) require that activities in State waters are subject to additional permit requirements. All permitted activities are authorized under the issuance of a single Monument permit signed by designees of USFWS, NOAA, and the State of Hawai'i, with input from the Office of Hawaiian Affairs. Most of the co-trustee agency mandates and policies are met by this unified permit. The co-trustees issue Monument permits under the authority of the implementing regulations for the Monument, as described in 50 CFR 404.11 and consistent with all other applicable federal and State laws.

Subject to such terms and conditions as the secretaries deem appropriate, regulated activities may be permitted to occur within the Monument only if an applicant can demonstrate that their proposed activities are consistent with the goals of the Monument and meet all relevant findings criteria to support issuance of the permit. The joint Monument permit application template and review process were developed and implemented by the MMB in 2007.

The six types of activities regulated through the PMNM permitting process are research; education; conservation and management; Native Hawaiian practices; recreation; and special ocean use. The 50 CFR Part 404 regulations apply only to PMNM (to 50 nmi). Regulations for PMNM also provide that sustenance fishing may be allowed outside of any Special Preservation Area as a term or condition of a permit, including at Midway Atoll NWR.

Management in the MEA is governed by Presidential Proclamation 9478, which identifies certain regulated activities, including science and research, education, conservation and management, Native Hawaiian practices, and non-commercial fishing. Regulations to issue permits in the MEA have not yet been established. Until a formal permitting process is developed, activities in the MEA have been approved via a Letter of Authorization signed by USFWS. The use of Letters of Authorization is only temporary until a formal permitting process is implemented and should not be considered precedent setting. The co-trustees agreed to implement this process as an interim measure.

3.2.2 Management

The Monument Management Plan was written in 2008 by the Monument co-trustees to guide management decisions over a 15-year horizon. The Monument Management Plan incorporates content from, among others, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve Operations Plan; the USFWS Refuge Comprehensive Conservation Plans and Visitor Service Plan; and State of Hawai‘i plans. Monument management is also guided by a memorandum of agreement signed by the Monument co-trustees. The agreement establishes functional relationships to effectively coordinate management and terms and conditions under which the co-trustees will cooperate to manage Monument resources.

3.3 Elements Common to All Action Alternatives

3.3.1 Regulations

Under all action alternatives, proposed regulations include site-specific definitions, co-management, access provisions, prohibited or otherwise regulated activities, and permit procedures. In addition, applicable sections of the *National Marine Sanctuary Program Regulations* (15 CFR part 922) Subpart A—*Regulations of General Applicability* and Subpart D—*National Marine Sanctuary Permitting* would apply within the proposed sanctuary. Within Subpart D, Section 922.36 (NMSA Authorizations) and Section 922.37 (Appeals of Permitting Decisions) would not be applicable for the proposed action. Consistent with the current interagency permitting regime that has been in place for the Monument, there would be no appeals process for the sanctuary. Should a permit applicant want NOAA and the other agencies to reconsider a permitting decision, they would need to file a new permit application.

Definitions

The proposed sanctuary adopts common terms defined in the Regulations of General Applicability at 15 CFR § 922.11. In addition, NOAA proposes to include site-specific definitions within the proposed rule. To the extent that a term appears in 15 CFR § 922.11 and in the site-specific regulations, the site-specific definition governs. NOAA is proposing to adopt 20 site-specific definitions for the proposed sanctuary. The terms NOAA has defined for this site are:

- Bottomfish Species and Pelagic Species (adopted from regulations for Fisheries in the Western Pacific, 50 CFR § 665.201 and 50 CFR § 665.800).
- Ecological integrity, Midway Atoll Special Management Area, Native Hawaiian practices, Pono, Recreational activity, Special Preservation Area, Stowed and not available for immediate use, Sustenance fishing, and Vessel Monitoring System or VMS (adopted from Presidential Proclamation 8031).
- Commercial fishing and Non-commercial fishing (adopted from the Magnuson-Stevens Fishery Conservation and Management Act and, in part, Western Pacific Fisheries regulations, 50 CFR § 665.12).
- Particularly Sensitive Sea Area (PSSA) (adopted from IMO Resolution A.982(24), December 1, 2005).

- Areas To Be Avoided, categories of hazardous cargoes, and Office of Law Enforcement (adopted from Papahānaumokuākea Marine National Monument regulations, 50 CFR § 404.3).
- Outer Sanctuary Zone, to define the area of the sanctuary that would extend from approximately 50 nautical miles from all the islands and emergent lands of the Northwestern Hawaiian Islands to the extent of the seaward limit of the United States Exclusive Economic Zone west of 163° West Longitude. This area of the proposed sanctuary would correspond with the area designated as a marine national monument by Presidential Proclamation 9478, referred to as the "Papahānaumokuākea Marine National Monument Expansion Area" or MEA.
- Reporting area, to define the area of the proposed sanctuary that extends outward ten nautical miles from the Particularly Sensitive Sea Area (PSSA) boundary, as designated by the IMO, and excludes the Areas to be Avoided that fall within the PSSA boundary. NOAA is proposing to define the "reporting area" to clarify in which areas of the proposed sanctuary ship reporting requirements apply.
- Scientific instrument, a term used in Presidential Proclamation 9478, but not defined. The proposed rule defines scientific instruments to mean "a device, vehicle, or tool used for scientific purposes and is inclusive of structures, materials, or other matter incidental to proper use of such device, vehicle, or tool."

Cooperative Management

Through sanctuary designation, NOAA would supplement and complement existing management of the Monument. Existing authorities, including management authorities of all Monument co-trustees would remain in effect under all alternatives.

Pursuant to the NMSA, states may choose to have a role in cooperatively managing a sanctuary if all or part of the sanctuary is within the territorial limits of any state. As the sanctuary includes State waters, NOAA will co-manage the sanctuary with the State of Hawai‘i. NOAA and the State of Hawai‘i will develop additional agreements as necessary to provide details on the execution of sanctuary management, such as activities, programs, and permitting that can be updated to adapt to changing conditions or threats to the sanctuary resources.

Co-management of the proposed sanctuary with the State of Hawai‘i would not supplant the existing co-management structure of the Monument. NOAA will manage the sanctuary in partnership with the USFWS and OHA consistent with the management of the Monument. The existing co-management structure of the Monument is critical to the success of the sanctuary. Sanctuary regulations and permitting were developed to be seamlessly integrated into existing Monument management and permitting. NOAA will work in cooperation with the Monument co-trustees to update the memorandum of agreement for Promoting Coordinated Management of Papahānaumokuākea Marine National Monument that reflects the addition of the proposed sanctuary, and specifically addresses how the addition of a sanctuary will supplement and complement, and not supplant, existing Monument management. This is consistent with the existing Monument memorandum of agreement, which includes a provision that states that "In the event of the designation of the Monument or any portion of the Monument as a National

Marine Sanctuary under the National Marine Sanctuaries Act, nothing herein shall be construed as automatically terminating or otherwise amending this Agreement."

NOAA recognizes that the USFWS will retain its sole authority over the Midway Atoll and Hawaiian Island National Wildlife Refuges under the National Wildlife Refuge System Administration Act.

Any future proposed changes to sanctuary regulations or boundaries would be coordinated with the State and other Monument co-trustees and subject to public review as mandated by the NMSA and other federal statutes.

Access

Access to the sanctuary would be prohibited and thus unlawful except under the following circumstances:

- for emergency response actions, law enforcement activities, and activities and exercises of the Armed Forces;
- pursuant to a sanctuary permit;
- when conducting non-commercial fishing activities in the Outer Sanctuary Zone authorized under the Magnuson-Stevens Fishery Conservation and Management Act provided that certain conditions are met;
- when conducting scientific exploration or research activities by or for the Secretary of Commerce or the Secretary of the Interior when the activity occurs within the Outer Sanctuary Zone); and
- when passing through the sanctuary without interruption.

A vessel may pass without interruption through the sanctuary without requiring a permit as long as the vessel does not stop or engage in prohibited activities within the sanctuary. The access restrictions will be applied in accordance with generally recognized principles of international law and in accordance with treaties, conventions, and other agreements to which the United States is a party, consistent with sections 305(a) and 307(k) of the NMSA and the NMSA's Regulations of General Applicability at 15 CFR 922.1(b). No regulation shall apply to or be enforced against a person who is not a citizen, national, or resident alien of the United States unless in accordance with generally recognized principles of international law, or applicable treaties, conventions, and other agreements.

NOAA would implement regulations for the ship reporting system (CORAL SHIPREP) adopted by the IMO, which would require entrance and exit notifications for vessels that pass without interruption through the sanctuary areas contained within a reporting area, which would be defined as "the area of the proposed sanctuary that extends outward ten nautical miles from the PSSA boundary, as designated by the IMO, and excludes the Areas To Be Avoided that fall within the PSSA boundary."[7] The ship reporting requirements would apply to vessels of the United States; all other ships 300 gross tonnage or greater that are entering or departing a

[7] The boundary areas for Alternatives 2 and 3 exclude areas of the proposed reporting area. Therefore, the reporting area would be reduced in size under Alternatives 2 and 3, and only include areas that fall within each respective boundary alternative.

United States port or place; and all other ships of any size entering or departing a United States port or place and experiencing an emergency while transiting through the reporting area.

Prohibited or Otherwise Regulated Activities

NOAA is proposing prohibited or otherwise regulated activities as well as exemptions to the prohibited activities under 15 CFR part 922 subpart W.

The following activities would be prohibited within the proposed sanctuary, subject to specified exemptions:

1. Exploring for, developing, or producing oil, gas, or minerals, or any energy development activities.
2. Using or attempting to use poisons, electrical charges, or explosives in the collection or harvest of a sanctuary resource.
3. Introducing or otherwise releasing an introduced species from within or into the sanctuary.
4. Deserting a vessel.
5. Anchoring on or having a vessel anchored on any living or dead coral with an anchor, anchor chain, or anchor rope
6. Commercial fishing or possessing commercial fishing gear except when stowed and not available for immediate use.
7. Failing to comply with the vessel monitoring system requirementzs in violation of § 922.246.
8. Failing to comply with ship reporting requirements in violation of § 922.243.
9. Non-commercial fishing, or possessing non-commercial fishing gear except when stowed and not available for immediate use.
10. Drilling into, dredging, or otherwise altering the submerged lands; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands.
11. Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving sanctuary resource.
12. Attracting any living sanctuary resource.
13. Touching coral, living or dead.
14. Swimming, snorkeling, or closed or open circuit scuba diving.
15. Discharging or depositing any material or other matter, or discharging or depositing any material or other matter outside of the sanctuary that subsequently enters the sanctuary and injures any resources of the sanctuary, except for
    a. Fish, fish parts, or chumming materials (bait) used in or resulting from lawful fishing activity within the sanctuary, provided that such discharge or deposit is during the conduct of lawful fishing activity within the sanctuary;
    b. Discharge incidental to vessel operations such as approved marine sanitation device effluent, cooling water, and engine exhaust, consistent with federal statute or regulation; and
    c. Within Special Preservation Areas or the Midway Atoll Special Management Area, discharging or depositing material or other matter is limited to vessel

engine cooling water, weather deck runoff, and vessel engine exhaust, consistent with federal statute or regulation.

16. Anchoring a vessel.

Prohibitions 1–8 could never be allowed via permit, while prohibitions 9–16 could be regulated via a permit. Obtaining a permit to conduct activities relating to Prohibition 10 within the Outer Sanctuary Zone would be further restricted to scientific instruments only, consistent with Presidential Proclamation 9478.

Exemptions

The proposed prohibitions would not apply to:

- Activities necessary to respond to emergencies that threaten life, property, or the environment.
- Activities necessary for law enforcement purposes.
- Activities and exercises of the U.S. Armed Forces including those carried out by the U.S. Coast Guard (USCG).
- Scientific exploration or research activities by or for the Secretary of Commerce and/or the Secretary of the Interior in the Outer Sanctuary Zone.

NOAA will also exempt non-commercial fishing authorized under the MSA in the area of the sanctuary that overlaps with the MEA (i.e., the Outer Sanctuary Zone) from needing a sanctuary permit for prohibitions 9 through 12 and 14 in the final rule, provided that

- Fish harvested, either in whole or in part, are not intended to enter commerce and shall not enter commerce through sale, barter, or trade, and that the resource is managed sustainably;
- Fish harvested, either in whole or in part, are not intended to be sold and shall not be sold for any purposes, including, but not limited to, cost-recovery; and
- The exempted activities are only conducted as incidental to and necessary to lawful non-commercial fishing activity.

NMSA Regulations

Sanctuary designation imparts a specific set of new benefits afforded by the NMSA. *National Marine Sanctuary Program Regulations* (15 CFR part 922) Subpart A—Regulations of General Applicability includes sections relevant to the action. The NMSA allows ONMS to supplement existing authorities, in part with the following:

- **Emergency regulations (§ 922.7)**. Where necessary to prevent or minimize the destruction of, loss of, or injury to a Sanctuary resource or quality, or minimize the imminent risk of such destruction, loss, or injury, any and all such activities are subject to immediate temporary regulation, including prohibition.
- **Penalties (§ 922.8(a))** Each violation of the NMSA, any NMSA regulation, or any permit issued pursuant thereto, is subject to a civil penalty. Each day of a continuing violation constitutes a separate violation.

- **Response costs and damages (§ 922.9)** Under section 312 of the NMSA, any person who destroys, causes the loss of, or injures any Sanctuary resource is liable to the United States for response costs and damages resulting from such destruction, loss, or injury. Any vessel used to destroy, cause the loss of, or injure any sanctuary resource is liable in rem to the United States for response costs and damages resulting from such destruction, loss, or injury.

In addition, NMSA Section 304(d) requires interagency consultation for any federal agency action that is likely to destroy, cause the loss of, or injure any sanctuary resource. This requirement applies to all federal agencies, including agencies that are otherwise exempt from sanctuary prohibitions. If the federal agency action is likely to destroy, cause the loss of, or injure a sanctuary resource, the federal agency proposing the action shall provide the Secretary of Commerce with a written statement describing the action and its potential effects on sanctuary resources. If the Secretary of Commerce finds that the federal agency action is likely to destroy, cause the loss of, or injure a sanctuary resource, the secretary shall recommend reasonable and prudent alternatives.

Permitting

The Monument joint permitting system has been in place and permits have been issued by the co-trustees within PMNM since 2007, as described in Section 3.2.1. The Monument permitting process incorporates the presidential proclamations' directives, and follows USFWS, NOAA, and State regulations and procedures. The proposed sanctuary's permitting system will complement the existing Monument permitting system, and was developed to allow for integration with the Monument permitting system, to ensure continued joint permitting administered by the MMB, which includes ONMS. The proposed permitting system would not supplant the joint permitting system for the Monument. The proposed regulations and permit categories were designed to provide the same management function and permittee interface as the current Monument permit categories. Co-trustees may modify the existing or develop a new memorandum of agreement to add further clarification on joint permitting.

Sanctuary General Permits

The final regulations would allow prohibited activities 9–16 to be permitted under certain conditions pursuant to 15 CFR part 922, Subpart D and the site-specific regulations proposed for this sanctuary, which are consistent with PMNM regulations and the Monument permit criteria. Sanctuary general permits may be issued if the proposed activities fall within one of three categories in the national regulations (15 CFR § 922.30(b)) relevant to this proposed sanctuary: (1) Research—activities that constitute scientific research or scientific monitoring of a national marine sanctuary resource or quality; (2) Education—activities that enhance public awareness, understanding, or appreciation of a national marine sanctuary or national marine sanctuary resource or quality; (3) Management—activities that assist in managing a national marine sanctuary. NOAA will add two additional categories specific to the sanctuary within 15 CFR 922.30 for which a sanctuary general permit could be issued: Native Hawaiian Practices—activities that allow for Native Hawaiian practices within the sanctuary, and Recreation—recreational activities within the sanctuary limited to the Midway Atoll Special Management

Area.[8] NOAA is proposing these two additional general permit categories to maintain the types of activities permitted under PMNM regulations, to allow for integration with the existing Monument permitting system.

Per 15 CFR § 922.33, the ONMS Director must make findings prior to issuing a sanctuary general permit, based on nine review criteria, including if the proposed activity will be conducted in a manner compatible with the primary objective of protection of national marine sanctuary resources and qualities, and if it is necessary to conduct the proposed activity within the national marine sanctuary to achieve its stated purpose. These findings parallel nine of the 10 existing Monument permitting criteria. One general criteria and all permit-specific criteria for Native Hawaiian practices and recreation permits from 50 CFR § 404.11 would be added to to be consistent with the general findings criteria and permit-specific findings criteria for the Monument. This proposed rule would also amend 15 CFR § 922.37 "Appeals of permitting decisions," to reflect that the general appeals process for sanctuary permits will not apply to permit applications for the proposed sanctuary. This would be consistent with the existing permit system for the Monument, which does not include a process to appeal a permit decision. Under the existing Monument permitting system, should a permit applicant want the co-managers to reconsider a permitting decision, the applicant would need to file a new permit application.

Special Use Permits

Section 310 of the NMSA (16 U.S.C. § 1441) states that special use permits may be issued to authorize the conduct of specific activities in a national marine sanctuary under certain circumstances. This provision for special use permits applies to any national marine sanctuary. A permit issued under Section 310 of the NMSA: (1) shall authorize the conduct of an activity only if that activity is compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources; (2) shall not authorize the conduct of any activity for a period of more than five years unless otherwise renewed; (3) shall require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources; and (4) shall require the permittee to purchase and maintain comprehensive general liability insurance, or post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims. The NMSA also authorizes NOAA to assess and collect fees for the conduct of any activity under a Special use permit, including costs incurred, or expected to be incurred, in issuing the permit and the fair market value of the use of sanctuary resources. Implementing regulations at 15 CFR § 922.35 provide additional detail on assessment of fees for special use permits. Like with sanctuary general permits, NOAA can place conditions on special use permits specific to the activity being permitted. NOAA shall provide appropriate public notice before identifying any category of activity subject to a special use permit.

NOAA is not proposing any new category of activity subject to a special use permit as part of this designation. In evaluating applications for special use permits, NOAA will consider all applicable permitting requirements, including permitting procedures and criteria under the

[8] Recreation permits would not be added under Alternative 3, as Midway Atoll NWR (the only location these permits would be issued) would not be included in the sanctuary designation.

Monument's existing management framework. For example, certain activities may be subject to the requirements of special ocean use permits, as authorized by Presidential Proclamation 8031, and issued by the MMB in the PMNM via 40 CFR § 404.11. Special ocean use permit requirements were modeled after special use permits authorized by Section 310 of the NMSA, but also include a few additional requirements, such as for activities within the Midway Atoll Special Management Area. For special use permits in the national wildlife refuges, the director of the USFWS would also determine that the activity is compatible with the purposes for which the national wildlife refuges were designated.

Sustenance Fishing

The Secretary may authorize sustenance fishing[9] outside of any Special Preservation Area as a term or condition of any sanctuary permit. Sustenance fishing in the Midway Atoll Special Management Area would not be allowed unless the activity has been determined by the director of the USFWS or their designee to be compatible with the purposes for which the Midway Atoll National Wildlife Refuge was established. Sustenance fishing is allowed incidental to an activity permitted in the PMNM under Presidential Proclamation 8031, and in regulations at 50 CFR part 404. Sustenance fishing was not specifically identified in Presidential Proclamation 9478 governing the MEA, but is allowable. For consistency in management and permitting, NOAA proposes managing this activity as a term or condition of a general permit or special use permit for the proposed sanctuary.

Vessel Monitoring System

To complement existing regulations for PMNM, and provide consistency across the sanctuary, an owner or operator of a vessel that has been issued a general permit or special use permit must have a working NOAA Office of Law Enforcement (OLE) type-approved Vessel Monitoring System (VMS) on board when operating within the Sanctuary. OLE has approval authority over the type of VMS, installation of the VMS, and operation of the VMS unit. The owner or operator of a vessel must coordinate with OLE to install and activate an approved VMS prior to operating within the sanctuary. If the VMS is not operating properly within the sanctuary, the owner or operator must immediately contact OLE, and follow instructions from that office. A vessel owner or operator subject to the requirements for a VMS must allow OLE, USCG, and their authorized officers and designees access to the vessel's position data obtained from the VMS. NOAA may have access to, and use of, collected data for scientific, statistical, and management purposes, and to monitor implementation of the VMS requirements. The following activities regarding VMS are prohibited and thus unlawful for any person to conduct or cause to be conducted:

i. Operating any vessel within the sanctuary without an OLE-type approved VMS;
ii. Failing to install, activate, repair, or replace a VMS prior to entering the sanctuary.
iii. Failing to operate and maintain a VMS on board the vessel.
iv. Tampering with, damaging, destroying, altering, or in any way distorting, rendering useless, inoperative, ineffective, or inaccurate the VMS, or VMS signal.
v. Failing to contact OLE or follow OLE instructions when automatic position reporting has been interrupted.

[9] Sustenance fishing means fishing for bottomfish or pelagic species in which all catch is consumed within the Monument, and that is incidental to an activity permitted under this part (50 CFR § 404.3).

vi. Registering a VMS to more than one vessel permitted to operate within the sanctuary at the same time.
vii. Connecting or leaving connected additional equipment to a VMS unit without the prior approval of OLE.
viii. Making a false statement, oral or written, to an authorized officer regarding the installation, use, operation, or maintenance of a VMS unit or communication service provider.

Sunken Military Craft

Sunken military craft are administered by the respective Secretary concerned pursuant to the Sunken Military Craft Act (Pub. L. 108-375, Title XIV, sections 1401 to 1408; 10 U.S.C. 113 note). The Director will enter into a Memorandum of Agreement regarding collaboration with other Federal agencies charged with implementing the Sunken Military Craft Act that may address aspects of managing and protecting sunken military craft. The Director will request approval from the Secretary concerned for any terms and conditions of ONMS permits that may involve sunken military craft.

Terms of Designation

Section 304(a)(4) of the NMSA requires that the terms of designation for national marine sanctuaries include: (1) the geographic area included within the sanctuary; (2) the characteristics of the area that give it conservation, recreational, ecological, historical, research, educational, or aesthetic value; and (3) the types of activities subject to regulation by NOAA to protect those characteristics. The full text of the terms of designation will be in the final rule.

The proposed sanctuary terms of designation establish the authorities to regulate and prohibit activities to the extent necessary and reasonable to ensure the protection and management of the area's conservation, ecological, recreational, research, educational, historical, and aesthetic resources and qualities.

3.3.2 Sanctuary Management Plan and Program Support

Sanctuary Management Plan

The NMSA requires preparation of a sanctuary management plan as part of the proposed action, included as Appendix A to the final EIS. The core elements and framework for the sanctuary management plan were designed in coordination with the Monument's co-trustees, in order to ensure concurrence of plans between the proposed sanctuary designation and the overarching monument designation. The core elements of this sanctuary management plan—vision, mission, principles, and goals—are the same as those that have been developed by the co-trustees for the future monument management plan update. This approach ensures that when Monument management planning resumes, there is a foundation to build on that would not alter the Monument's co-management structure.

At the heart of the sanctuary management plan, there are five kūkulu (pillars of management):

1. Resource Protection and Conservation
2. Research and Monitoring

3. Governance and Operations
4. Partnerships and Constituent Engagement
5. Education, Interpretation, and Mentoring

Each kūkulu includes a goal and five to 13 strategies. The strategies identified in the sanctuary management plan entail actions already being conducted by ONMS, many in coordination with Monument co-managers, as well as aspirational actions. Performance indicators and measures provided for each kūkulu provide an indication of types of actions that would typically occur, and that would be assessed in tracking management plan strategy implementation.

Program Support

While co-trustee agencies provide staff and program support for the Monument, sanctuary designation would ensure access to ONMS resources, including national programs for conservation science, maritime heritage, climate change, and education. To augment this support, NMSA Section 311(b) authorizes non-profit organizations to solicit private donations on behalf of the sanctuary, and NMSA Section 311(f) allows ONMS to apply for, accept, and use grants from other federal agencies, states, local governments, regional agencies, interstate agencies, foundations, or other persons.

3.4 Action Alternative 1

This section describes the components of Alternative 1, the Agency-Preferred Alternative.

3.4.1 Sanctuary boundary

Alternative 1 is coextensive with the marine portions of the Monument. The boundary includes the marine environment surrounding the Northwestern Hawaiian Islands from the shoreline of the islands and atolls seaward to 200 nmi, including all State waters and waters of the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, Midway Atoll and Hawaiian Islands National Wildlife Refuges, the Battle of Midway National Memorial, and the State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge. The area encompassed in Alternative 1 is approximately 582,570 square miles (439,910 square nmi).

Alternative 1 includes all of the resources, habitats, and interconnected ecosystems described in Section 1.2.1 and in Chapter 4. Shallow-water coral reefs supporting sea turtles and monk seals, schools of apex predatory fish, and other species occur in the nearshore habitat. Deeper waters overlying algal beds and non-photosynthetic corals occur seaward of the shallow reefs, where pelagic fish migrate along the chain and monk seals and seabirds forage. Deep offshore waters of the MEA contain numerous offshore banks and seamounts, which support oases of life, as well as hundreds of military vessels and aircraft at the bottom of these deep waters.

Under Alternative 1, the sanctuary would overlay the pre-existing Midway Atoll and Hawaiian Islands National Wildlife Refuges, which are administered by the USFWS pursuant to the National Wildlife Refuge System Administration Act. The USFWS would retain sole management authority over the lands and waters within the boundaries of the refuges. Where the sanctuary overlays the refuges, NOAA may provide supplemental authority to strengthen protection of resources.

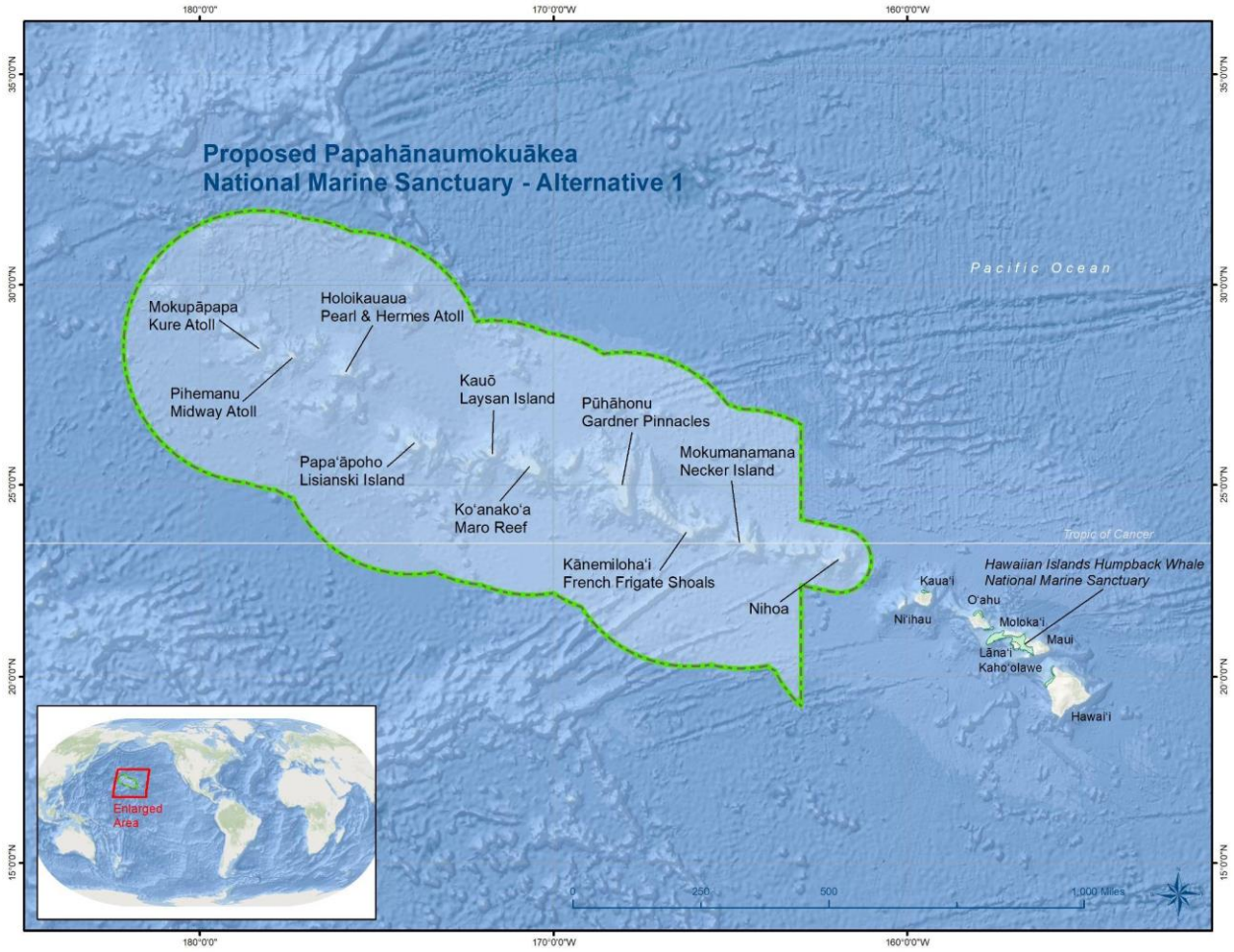

Figure 3.2. Alternative 1 sanctuary boundary (marine areas only). Image: NOAA

3.4.2 Regulations

The regulations under Alternative 1 would be the same as those described above under Section 3.3.1 “Actions Common to All Action Alternatives” for the area of the proposed sanctuary. Under Alternative 1, regulations promulgated under the NMSA would largely be consistent with existing regulations for the Monument. Minor changes have been presented in the proposed regulations to remove discrepancies and gaps in prohibitions, regulated activities, and permitting across the two zones (PMNM and MEA) of the proposed sanctuary. The following are the effective differences between Alternative 1 and the existing management framework under the No Action Alternative.

Access

While access restrictions for areas of the proposed sanctuary that overlap with the PMNM (shoreline of the islands and atolls to 50 nmi) are already in place under the No Action Alternative, the MEA (50–200 nmi) currently has no access restrictions. Under Alternative 1, access would be regulated for the entire sanctuary, including portions of the sanctuary that overlap with the MEA, referred to as the Outer Sanctuary Zone.

Cooperative Management

Under Alternative 1, all the elements of co-management described in section 3.3.1 would apply. In addition, the Director of the USFWS has agreed that Papahānaumokuākea National Marine Sanctuary will provide supplemental authorities where the sanctuary overlays the Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge. NOAA and USFWS are developing an agreement to memorialize this decision, and to provide details on the execution of sanctuary management where the national marine sanctuary overlaps with Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge, consistent with the spirit of cooperative management of the area and recognizing USFWS has sole authority in Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge pursuant to the National Wildlife Refuge System Administration Act.

Implementation of NOAA and USFWS authorities would not enlarge or diminish the jurisdiction of the State of Hawai‘i, including the State's responsibilities and requirements to manage Kure Atoll Wildlife Sanctuary and the State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge.

Prohibited or Otherwise Regulated Activities

Under the No Action Alternative, the sanctuary prohibitions are all effectively in place for PMNM through 50 CFR part 404 except for prohibitions 1 and 4 (detailed below). Minor changes are proposed to prohibitions 1 and 4 to remove discrepancies across the two zones (PMNM and MEA) of the proposed sanctuary. Under Alternative 1, the proposed sanctuary regulations would prohibit:

- (1) "Exploring for, developing, or producing oil, gas, or minerals, or any energy development activities."
    - Consistent with Presidential Proclamation 8031 for PMNM and Presidential Proclamation 9478 for the MEA, NOAA is proposing to prohibit exploring for, developing, or producing oil, gas, or minerals. The addition of the prohibition on "any energy development activities" would be new for PMNM, and was added to create consistency in the management framework across the proposed sanctuary.
- (4) "Deserting a vessel."
    - This is a regulated activity (allowed only with a permit) in PMNM pursuant to Presidential Proclamation 8031. Prohibiting this activity in the Original Area would align with the prohibition provided for the MEA in Presidential Proclamation 9478.

NOAA would also add prohibition (7) "failing to comply with the vessel monitoring system requirements in violation of § 922.246."; and (8) "failing to comply with ship reporting requirements in violation of § 922.243." The addition of these prohibitions is not substantive, but rather are technical additions to clarify for the public the full scope of activities listed that are prohibited or otherwise regulated within the proposed sanctuary.

Under Alternative 1, the final rule provides, in part, the first set of implementing regulations for many of the directives in Presidential Proclamation 9478. Therefore, promulgation of regulations in the area of the proposed sanctuary that overlaps with the MEA under the

proposed action is also an effective difference. Most of the prohibitions adopted in the proposed rule are identified in Presidential Proclamation 9478, however, prohibitions 7–9 and 12–16 would be new prohibitions for the MEA.

Exemptions

With the exception of the exemption for non-commercial fishing, the list of proposed exemptions under Alternative 1 is consistent with current management under the No Action Alternative. Non-commercial fishing authorized under the Magnuson-Stevens Fishery Conservation and Management Act in the Outer Sanctuary Zone would require a permit obtained through NOAA Fisheries and be subject to other exemption requirements as described in Section 3.3.1.

Permitting

Under Alternative 1, a person may conduct prohibited activities 9-16 if such activity is specifically authorized by, and conducted in accordance with the scope, purpose, terms, and conditions of a sanctuary general permit or special use permit. Under Alternative 1, the establishment of a permit process to allow some prohibited activities under certain conditions via a national marine sanctuary general permit in portions of the sanctuary that overlap with the MEA is an effective difference from No Action. In addition, ONMS would have the ability to collect fees for the conduct of specific activities in the area of the proposed sanctuary that overlaps with the MEA under a special use permit. However, the proposed permitting system was modeled after the existing Monument permitting system, and was developed to allow for integration with the Monument permitting system, to ensure continued joint permitting administered by the MMB, which includes ONMS. For permittees, there would be no effective difference in the permitting process between the status quo for permitting within PMNM and permitting once a sanctuary has been designated.

Sustenance Fishing

Under the No Action Alternative, regulations for the PMNM provide that sustenance fishing may be allowed outside of any Special Preservation Area as a term or condition of a permit, including at Midway Atoll NWR, therefore, there is no effective difference for the management or permittee allowance for sustenance fishing for the area of the sanctuary that overlaps with PMNM. Under Alternative 1, these regulations would extend to areas of the proposed sanctuary that overlap with the MEA, and is an effective difference from the No Action Alternative.

Vessel Monitoring System

Under Alternative 1, the VMS requirement for permittees operating within the areas of the proposed sanctuary that overlap with the MEA would be a new requirement, and is an effective difference from the No Action Alternative.

3.5 Action Alternative 2

3.5.1 Sanctuary Boundary

Alternative 2 includes the marine environment from the shoreline of the islands and atolls seaward to 50 nmi. This alternative includes all State waters and waters of the Reserve, Midway

Atoll and Hawaiian Islands National Wildlife Refuges, the Battle of Midway National Memorial, and State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge. This alternative does not include the MEA. The area encompassed in Alternative 2 is approximately 139,782 square miles (105,552 square nmi).

Alternative 2 does not include the MEA. The MEA encompasses 442,781 square miles of marine waters, which include numerous seamounts, known and undiscovered maritime heritage resources, and a vast unexplored abyss. Human uses and ecological threats described in Chapter 4 are substantially less in the deep and vast pelagic offshore waters of the MEA. Since 2016, eight Monument permits have been issued for activities within the MEA, with only one of these exclusively for activities within the MEA. The potential impact from threats to resources, such as storm surge, vessel groundings, and invasive species introductions are greatly reduced in these waters.

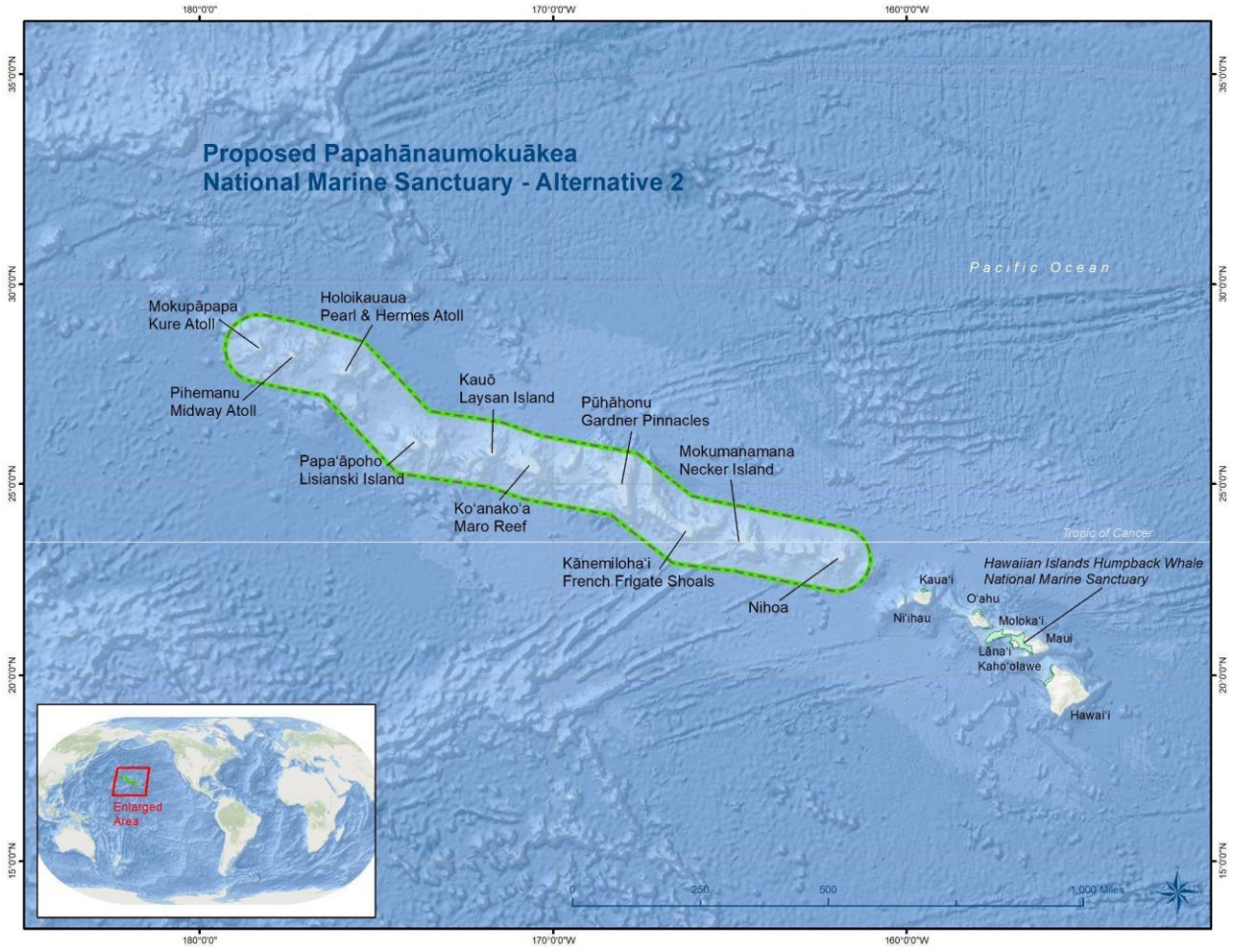

Figure 3.3. Alternative 2 sanctuary boundary (marine areas only). Image: NOAA

3.5.2 Regulations

The regulations under Alternative 2 would be the same as those described above under Section 3.3.1 “Actions Common to All Alternatives” for the area of the proposed sanctuary which extends from the shoreline of the islands and atolls to 50 nmi. Under Alternative 2, Presidential

Proclamation 9478 would continue to guide Monument management in the MEA. The following are the effective differences between Alternative 2 and the existing management framework under the No Action Alternative.

Cooperative Management

Under Alternative 2, all the elements of cooperative management described in Section 3.3.1 would apply. Alternative 2 would not diminish USFWS' authority to administer Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge under the National Wildlife Refuge System Administration Act. Where the sanctuary overlays Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge, NOAA will implement the NMSA to provide supplemental authority to protect resources. NOAA and the USFWS are developing an agreement to provide details on the execution of sanctuary management where the sanctuary overlaps with national wildlife refuges.

Implementation of NOAA and USFWS authorities would not enlarge or diminish the jurisdiction of the State of Hawai'i, including the State's responsibilities and requirements to manage Kure Atoll Wildlife Sanctuary and the State of Hawai'i Northwestern Hawaiian Islands Marine Refuge.

Prohibited or Otherwise Regulated Activities

Within PMNM, the proposed prohibitions are all effectively in place through 50 CFR part 404 except for prohibitions 1 and 4 (detailed below). Minor changes are proposed to prohibitions 1 and 4. Under Alternative 2, the proposed sanctuary regulations would prohibit:

- (1) "Exploring for, developing, or producing oil, gas, or minerals, or any energy development activities."
    - Consistent with Presidential Proclamation 8031 for PMNM and Presidential Proclamation 9478 for the MEA, NOAA is proposing to prohibit exploring for, developing, or producing oil, gas, or minerals. The addition of the prohibition on "any energy development activities" would be new for PMNM, and was added to create consistency in the management framework across the proposed sanctuary.
- (4) "Deserting a vessel."
    - This is a regulated activity (allowed only with a permit) in PMNM pursuant to Presidential Proclamation 8031. Prohibiting this activity in the Original Area would align with the prohibition provided for the MEA in Presidential Proclamation 9478.

Permitting

Under Alternative 2, a person may conduct prohibited activities 9–16 if such activity is specifically authorized by, and conducted in accordance with the scope, purpose, terms, and conditions of, a sanctuary general permit or special use permit. The ability for ONMS to collect fees for specific activities under a special use permit is an effective difference from the No Action Alternative.

3.6 Action Alternative 3

3.6.1 Sanctuary Boundary

Alternative 3 has the same boundaries as Alternative 1, but excludes waters within the Midway Atoll and Hawaiian Islands National Wildlife Refuges and the Battle of Midway National Memorial. These excluded waters include portions of the State marine refuge and the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve that overlap with national wildlife refuge waters. The area encompassed in Alternative 3 is approximately 581,263 square miles (438,923 square nmi). Alternative 3 is a single alternative, but will be analyzed in Chapter 5 in two parts. The exclusion of Midway Atoll NWR (from land to 12 nmi, totaling 907.4 square miles of marine waters) and the exclusion of Hawaiian Islands NWR (from land to a boundary which varies by islet, estimated to total 400.2 square miles of marine waters), are analyzed separately. For the Hawaiian Island NWR, 327 square miles are within State waters (shoreline to 3 nmi) and 73 square miles are in federal waters. NOAA used data from the USFWS National Realty Tracts database to generate these values. Figure 3.4 illustrates the boundaries of this alternative, although the seaward boundaries depicted are area estimates only, and are presented to provide the public with an indication of the total area difference between Alternatives 1 and 3.

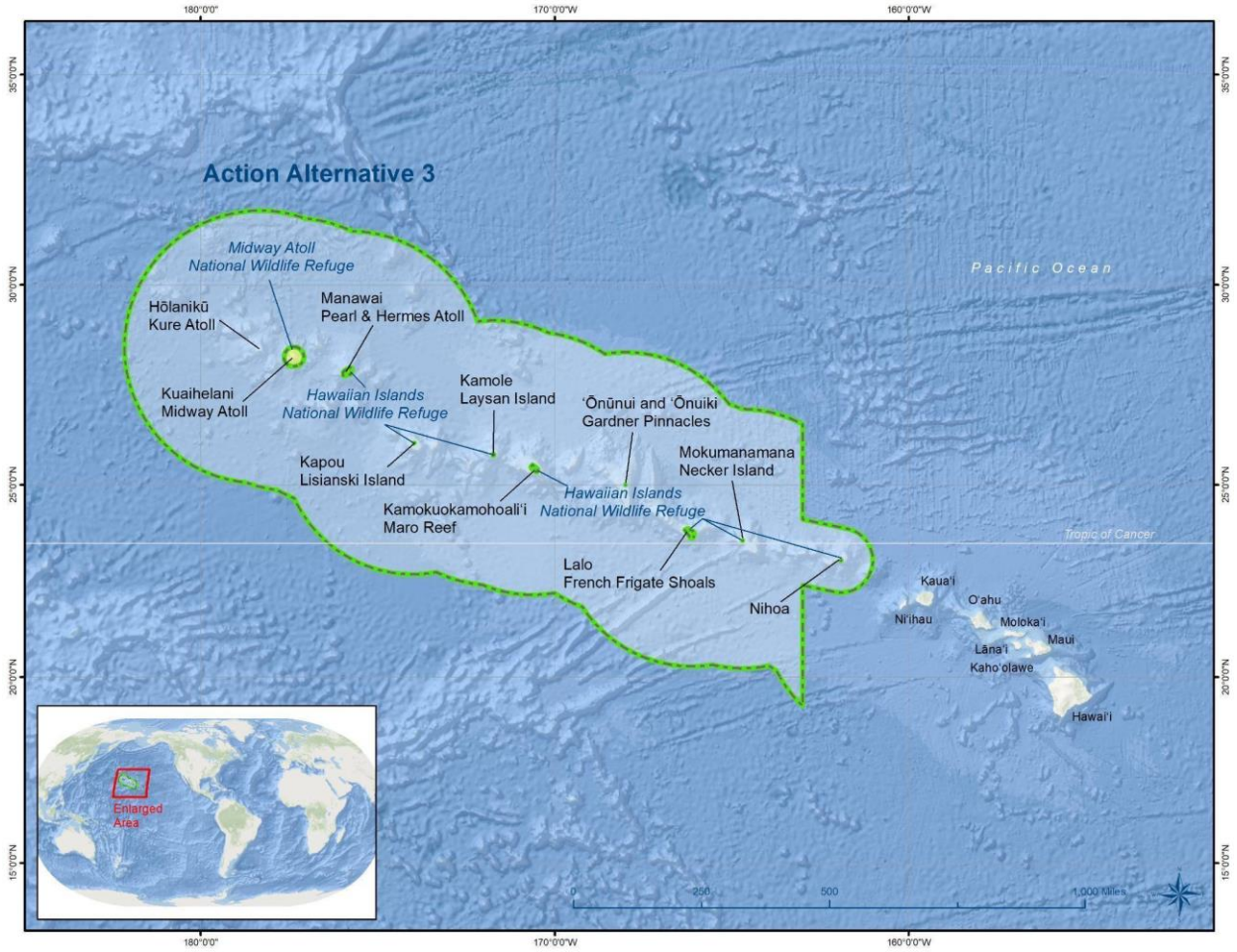

Figure 3.4. Alternative 3 sanctuary boundary (marine areas only). The map illustrates approximate seaward boundaries of the Midway Atoll and Hawaiian Islands National Wildlife Refuges. The State and USFWS have not established an agreed-upon seaward boundary for the Hawaiian Islands NWR. Image: NOAA; Source: USFWS National Realty Tracts database.

Alternative 3 does not include the waters of Midway Atoll NWR or the Hawaiian Islands NWR. Information on the areas excluded under Alternative 3 is detailed below. Under Alternative 3, supplemental authority under the NMSA would not be available to protect refuge marine resources.

Midway Atoll NWR. Midway Atoll NWR encompasses 907.4 square miles of the marine environment and is managed by the USFWS pursuant to its management authority under the National Wildlife Refuge System Administration Act, and other authorities. The established boundary of the Midway Atoll NWR extends 12 nmi from shore (69 FR 1756 [Jan. 12, 2004]); and the land and waters to 12 nmi around Kuaihelani are designated in the Monument as the Midway Atoll SMA (50 CFR part 404). Monument recreation permits are only issued at Midway Atoll SMA (50 CFR part 404), meaning recreational activities are prohibited in all other waters of the Monument.

With regards to human activity, Kuaihelani is unique within the Monument. Because Kuaihelani has experienced the highest levels of human activity in the Monument, human-caused impacts—

accidental, intentional, or unavoidable—including vessel groundings, water quality issues, invasive species introduction, and wildlife disturbance, have altered the ecosystem and continue to have a higher likelihood of occurring in and around the atoll. Currently, an average of 60 people are operating under permits within the Monument on any given day, with approximately 50 individuals necessary to manage the refuge, operate facilities, and conduct ongoing environmental remediation (NOAA ONMS, 2020). Most of the activity at Kuaihelani is land-based and is only indirectly related to this action. Kuaihelani is the only location within the Monument with a working runway, accepting between 22 and 41 flights each year. Kuaihelani experiences an above-average level of vessel traffic for Papahānaumokuākea, including resupply barges from Honolulu, providing critical logistical support for activities that occur across the northwestern portion of the Monument (PMNM, 2017).

Hawaiian Islands NWR. The Hawaiian Islands NWR is managed by the USFWS pursuant to its management authority under the National Wildlife Refuge System Administration Act, and other authorities. As discussed in Section 2.3.3, ongoing communication and collaboration between the State and USFWS have not yet resulted in an agreed-upon seaward boundary for the Hawaiian Islands NWR. Co-management of the Hawaiian Islands NWR between the State and USFWS continues. By excluding the Hawaiian Islands NWR from the proposed sanctuary in Alternative 3, ONMS estimates the area excluded consists of 400.2 square miles of marine waters distributed across Nihoa, Mokumanamana, Lalo, ʻŌnūnui and ʻŌnuiki, Kamokuokamohoaliʻi, Kamole, Kapou, and Manawai.

The shallow waters within the refuge boundary encompass a significant amount of the coral reef habitat of Papahānaumokuākea, as well as the grounds where seals, turtles, seabirds, and other species forage. It includes much of the designated monk seal critical habitat in Hawaiʻi. Because of the high density and diversity of natural resources, the Hawaiian Islands NWR experiences a relatively high amount of human activity, such as marine debris removal, protected species management, and climate change research. NOAA has been conducting important research and conservation activities in the Hawaiian Islands NWR waters, including the Reef Assessment and Monitoring Program with study sites in the shallow waters around Lalo, Kapou, and Manawai, and work on Rapture Reef at Lalo assessing the impact and recovery after Hurricane Walaka in 2018, and potential future extreme weather events. Many of the non-military heritage sites, including the significant whaling shipwreck sites, are in shallow waters, possibly within NWR boundaries. NOAA's Maritime Heritage Program has been researching these sites, developing field studies, and conducting the searches and assessments within NWR waters.

3.6.2 Regulations

The regulations under Alternative 3 would be the same as those described above under Section 3.3.1 "Actions Common to All Alternatives" for the area of the proposed sanctuary which extends from the seaward edge of the National Wildlife Refuges to 200 nmi. Under Alternative 3, regulations at 50 CFR part 404 would continue to apply within the areas of the PMNM excluded from the proposed sanctuary. Regulations promulgated under the NMSA would largely be consistent with regulations for the Monument. Minor changes have been presented in the proposed regulations to remove discrepancies and gaps in prohibitions, regulated activities, and permitting across the two zones (PMNM and MEA) of the proposed sanctuary. The effective

differences between Alternative 3 and existing regulations under the No Action Alternative are the same as described under Alternative 1 and are not repeated here, except for the following.

Cooperative Management

Under Alternative 3, all the elements of cooperative management described in Section 3.3.1 would apply.

3.7 Alternatives Considered but Eliminated From Detailed Study

Other boundary alternatives and suggested prohibited activities were put forth during the public scoping process to designate the marine areas of Papahānaumokuākea as a national marine sanctuary. The following were eliminated from detailed study for the reasons discussed below.

3.7.1 Boundary Alternatives

NOAA eliminated from detailed study three of the boundary alternatives that were suggested during the public scoping period.

NOAA received scoping comments of support and opposition for an alternative that included all of Middle Bank. This first alternative eliminated from detailed study included the expansion of the southeastern portion of the PMNM boundary toward the main Hawaiian Islands to encompass all of Middle Bank, a geological feature that rises to 60 meters below the water. The southeastern boundary of PMNM was delineated in 2006 by Presidential Proclamation 8031. When Presidential Proclamation 9478 created the MEA, extending from 50 to 200 nmi in 2016, the southeastern boundary of the Monument which already included a portion of Middle Bank (Figure 3.5), remained unchanged. During outreach for this sanctuary designation process, including during scoping and public review of draft designation documents, there remained significant opposition, including from Native Hawaiian fishers, to expand the boundary to include all of Middle Bank. Additionally, in consultations during scoping, Monument co-managers expressed some concerns with this proposed alternative, and the challenges associated with managing an additional area beyond the boundaries of the Monument. State government officials indicated that the State would not support any expansion towards the main Hawaiian Islands due to the lack of support in the community (Nohopapa Hawai‘i, 2023). NOAA Fisheries and the State of Hawai‘i manage fishing activity at Middle Bank and have repeatedly acknowledged the importance of this area for Kaua‘i fishers. Comments of opposition regarding the inclusion of Middle Bank focused on socio-cultural and political/jurisdiction considerations, including references to assurances from NOAA to Kaua‘i fishers during public meetings during the 2016 Monument Expansion that the Monument boundary would not extend further towards Kaua‘i (Nohopapa Hawai‘i, 2023). OHA noted in 2022, a federal change on this original commitment would undermine trust in the management agencies and be an overreach of federal authority.

The second boundary eliminated from detailed study was the expansion of the boundary focused on designating sanctuary waters east of the Monument Expansion boundary at 163°W, to include seamounts as well as weather buoys fished by small-scale boats from Kaua‘i and

Niʻihau. No explicit rationale was provided in public comments for expanding into these largely pelagic waters. The rationale not to consider extending the proposed sanctuary boundary eastward from 163°W is similar to that for not including all of Middle Bank. The socioeconomic impact to small-scale local fishers, originally acknowledged and committed to by NOAA during public meetings regarding the 2016 Monument Expansion, remains for any expansion east of 163°W. This boundary option would have included Middle Bank and weather buoys important to Kauaʻi and Niʻihau fishers, who have fished these grounds for many years. Encroachment of the sanctuary towards Kauaʻi would erode trust and support from many in the Kānaka ʻŌiwicommunity (Nohopapa Hawaiʻi, 2023).

In consideration of the comments that suggested NOAA consider both of these sanctuary boundary alternatives that extend eastward of the Monument boundary, NOAA concluded that maintaining the eastern boundary of the sanctuary, consistent with the Monument, fulfills the purposes and policies of the NMSA. The State of Hawaiʻi opposed a sanctuary that expanded towards the main Hawaiian Islands. The purposes and policies of the NMSA state that ONMS "develop and implement coordinated plans for the protection and management of these areas with appropriate federal agencies, state and local governments, etc." As the State of Hawaiʻi is a co-trustee for the Monument and a co-manager for the proposed sanctuary, NOAA concluded that designating a sanctuary that disregards the State's opposition of expanding towards the main Hawaiian Islands would not fulfill the purposes and policies of the NMSA, and therefore not meet the purpose and need for the proposed designation. In accordance with the NMSA, NOAA may designate any discrete area of the marine environment as a national marine sanctuary and promulgate regulations implementing the designation if it is determined that the area is of a size and nature that will permit comprehensive and coordinated conservation and management. NOAA concluded that any boundary alternative that expands beyond the existing boundaries of PMNM and the MEA would not be practicable in light of the need for comprehensive and coordinated management in a manner which complements the existing Monument management framework.

The final boundary eliminated from detailed study was designating the mean high tide line as the landward boundary at all islands and atolls of Papahānaumokuākea. The landward boundary chosen for action alternatives is the high tide line as defined by the State of Hawaiʻi in its administrative rules (HAR 13-222). NOAA typically uses a state's definition of the shoreline for sanctuary boundaries because, as determined by the Submerged Lands Act, the State's shoreline definition describes the boundary between public and private land. NOAA strives to designate a sanctuary which supplements and complements existing authorities, and this designation adheres to both the State's definition as well as the current landward boundary designation of the Monument.

3.7.2 Regulatory Alternatives

Two regulatory suggestions were put forth during public scoping: 1) prohibiting non-commercial fishing within the MEA, and 2) not applying the discharge regulations of PMNM to the MEA.

Per Section 304(a)(5) of the NMSA, NOAA provided the WPRFMC with the opportunity to recommend any draft fishing regulations it deemed necessary to implement the proposed sanctuary designation. NOAA initiated the consultation on November 19, 2021. On March 22,

2022, the WPRFMC agreed to develop fishing regulations for the proposed sanctuary, and provided a final recommendation to NOAA on April 14, 2023. To reflect the outcome of the NMSA 304(a)(5) process, NOAA Fisheries is preparing a proposed rule for regulations governing fishing in the MEA under the authority of the MSA, and will complete the environmental compliance analysis consistent with NEPA as part of that rulemaking process. The proposed sanctuary regulations reflect the outcome of the NMSA section 304(a)(5) process through a prohibition on non-commercial fishing except when authorized under the MSA in the Outer Sanctuary Zone.

One organization recommended that NOAA not regulate discharge in the area of the proposed sanctuary which overlaps with the MEA. They noted that "discharge restrictions applied to this substantial area (the MEA) would have far-reaching operational impacts, including ships in transit." While not explicitly stated in the comment, the organization was advocating to allow release of untreated sewage, including from cruise ships with as many as 4,000 people aboard. This request did not meet sanctuary designation objectives to strengthen protections of sanctuary ecosystems and resources and manage the sanctuary as a sacred site (draft sanctuary management plan). Further, the prohibition on discharges within or into the sanctuary is proposed in recognition that various substances can be discharged from vessels that can harm sanctuary resources or quality. Allowing unregulated discharges does not meet the purpose and need for the proposed designation, including "safeguarding natural and cultural values of the marine environment" and "applying additional regulatory and non-regulatory tools to augment and strengthen existing protections for Papahānaumokuākea ecosystems, wildlife, and cultural and maritime heritage resources" as described in Chapter 2.

Chapter 4:
Affected Environment

This chapter describes the resources and human uses within or near the proposed sanctuary that could be affected by the proposed action and alternatives. This description of the affected environment serves as the environmental baseline for analyzing the environmental consequences of implementing the proposed action and alternatives in Chapter 5.

This chapter also serves as the resource assessment of present and potential uses of the area to meet the requirements of Section 304(a)(2)(B) of the NMSA.

4.1 Introduction: Scope of Affected Environment

For most of the resources described in this chapter, the study area for the affected environment is the largest proposed sanctuary boundary (0–200 nmi) and, to the extent necessary for analysis, the land areas of Papahānaumokuākea. For socioeconomic resources, the affected environment is defined as the State of Hawai‘i. The temporal scope of the analysis begins with the designation of the Monument in 2006 and projects five years past the anticipated date of sanctuary designation, concurrent with the timeframe projected for the sanctuary management plan. The resources addressed in this chapter include:

- Laws and existing management (Section 4.2).
- Physical resources, including essential fish habitat designations (Section 4.3).
- Biological resources (Section 4.4).
- Cultural and maritime heritage resources (Section 4.5).
- Socioeconomic resources, human uses, and environmental justice (Section 4.6).

The 2020 *State of Papahānaumokuākea Marine National Monument Report* (NOAA ONMS 2020), available on the Monument's website, represents a joint effort by the Monument co-trustees and partners to assess the status and trends of Monument resources. The report includes sections on threats to resources, the condition of the physical, biological, and heritage (Native Hawaiian and Maritime Archaeological) resources, as well as a section describing the co-managers' actions to mitigate threats and conserve these resources. This document is incorporated by reference to provide greater detail to the affected environment. This final EIS only presents the environmental, cultural heritage, and socioeconomic conditions and the threats associated with these resources that are specifically relevant to the proposed action and alternatives. The below resources determined to have no potential for impacts by the proposed action or alternatives are not discussed in this final EIS.

- Air Quality
- Geology
- Oceanography
- Viewsheds and View Planes

4.2 Laws and Existing Management of the Action Area

In addition to meeting the purpose and policies of NEPA, NOAA must also meet the requirements of the NMSA. Under the NMSA, NOAA must determine whether existing federal and State authorities are adequate or should be supplemented to ensure coordinated and comprehensive conservation and management of the area proposed for designation. The analysis of laws and management allows NOAA to consider this requirement of NMSA and meet the purpose and function of NEPA. This section, in conjunction with Section 3.2 describing the No Action Alternative, provides a description of the current management regime, jurisdiction, regulations, and ongoing activities in the area under consideration for sanctuary designation.

4.2.1 Particularly Sensitive Sea Area Designation

Navigation through the Monument is dangerous and must be done with extreme caution, as transiting ships pose a threat to this fragile ecosystem. The International Maritime Organization designated PMNM as a PSSA in 2008 to protect marine resources of ecological or cultural significance from damage by ships while helping keep mariners safe. This status ensures that recently updated nautical charts include boundaries for the PSSA, Areas To Be Avoided, and Ship Reporting Area (extending 10 miles out and entirely around the PMNM boundary, except within the Areas To Be Avoided, Figure 4.1). Entry and exit reporting is mandatory for all U.S. registered vessels and certain foreign vessels as described below and in 50 CFR part 404, and is encouraged for exempted vessels. Each Area To Be Avoided includes one or more Monument-designated Special Preservation Areas, which cover 6,802 square miles of discrete, biologically important shallow-water habitats, including the 907 square mile Midway Atoll Special Management Area (SMA). Areas To Be Avoided have been designated where seamounts, shoals and emergent features present a significant challenge to safe and environmentally sound navigation and where vulnerable and endangered wildlife and sensitive habitats occur.

The boundaries of these areas and the requirement for ship reporting were codified in Monument regulations (50 CFR part 404). These regulations require the following vessels conducting passage without interruption transiting through the PMNM Ship Reporting Area (50 CFR part404 appendix D) to report to ONMS as described in 50 CFR part 404 appendix E:

(1) Vessels of the United States (except as provided in 50 CFR § 404.4(f)).
(2) All other ships 300 gross tonnage or greater, entering or departing a United States port or place.
(3) All other ships in the event of an emergency, entering or departing a United States port or place.

The ship reporting system adopted by the IMO specifically exempts all sovereign immune vessels from the reporting requirements, therefore, the regulations adopted to implement the ship reporting system at 50 CFR part 404 do not apply to sovereign immune vessels.

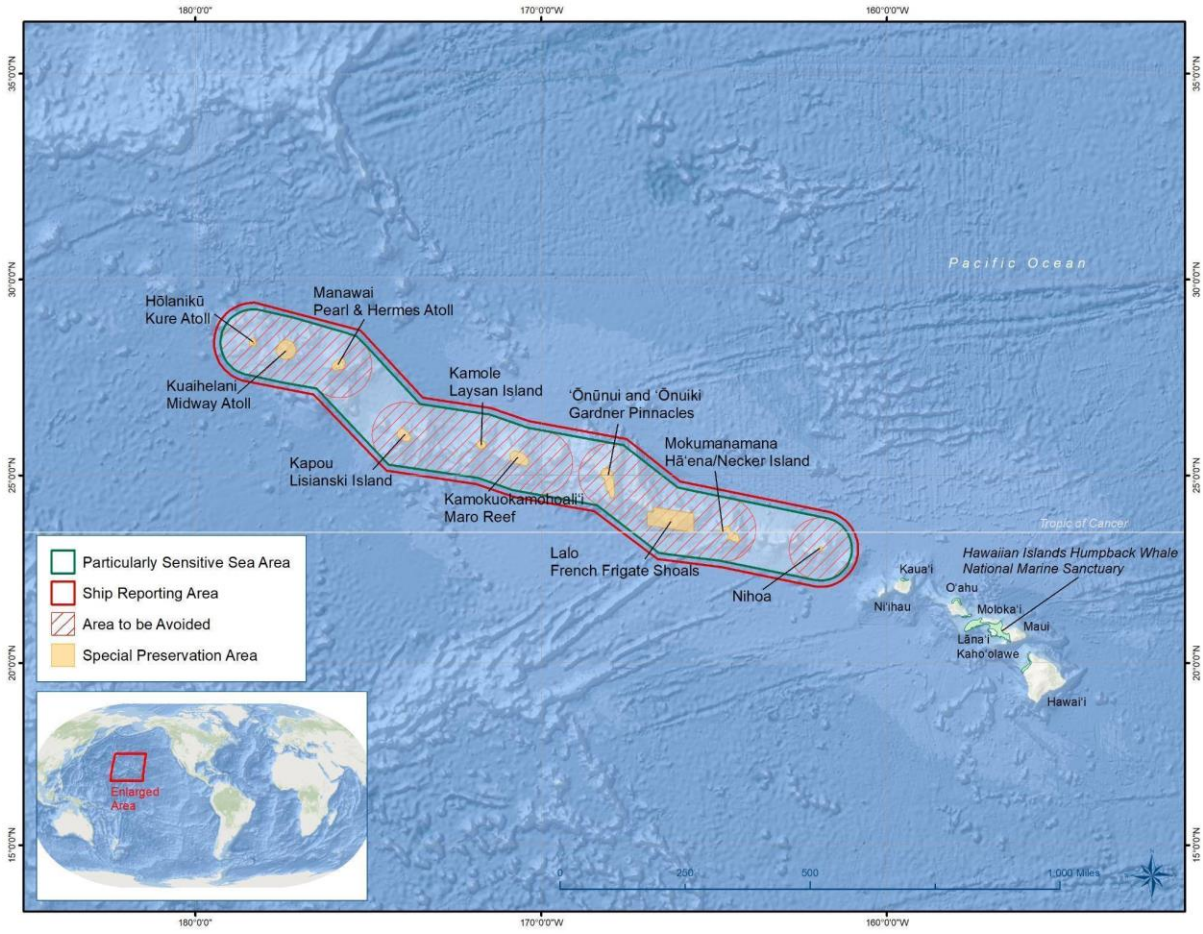

Figure 4.1. Particularly Sensitive Sea Area and Areas to Be Avoided. Image: NOAA

4.2.2 Management Authorities in the Action Area

Co-management by NOAA, USFWS, OHA, and the State of Hawai‘i is guided by a memorandum of agreement between the Monument's co-trustees and coordinated implementation is detailed in the Monument Management Plan. The prohibitions codified in 50 CFR part 404 are based on Presidential Proclamation 8031 and may be subject to enforcement by law enforcement personnel. While the Monument is managed as a unit, several federal and State conservation areas exist in Papahānaumokuākea and specific authorities apply. Marine protected areas that pre-date the Monument and continue conservation management include the Midway Atoll and Hawaiian Islands National Wildlife Refuges, the Battle of Midway National Memorial, the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve, and the State of Hawai‘i Northwestern Hawaiian Islands Marine Refuge and Kure Atoll Wildlife Sanctuary. See Table 3.2 in Chapter 3, which identifies these areas where individual agencies maintain jurisdictions and act as leads for Monument management.

Regulations promulgated for these management regimes remain in place, and where conflicting regulations exist, the more stringent (resource protective) regulation applies. A complete description of the current management regime can be found on the Monument's website.

4.2.3 Management Structure

The Monument is jointly administered by the four co-trustees through the seven-member Monument Management Board (MMB) (Figure 4.2) which oversees day-to-day management. The MMB consists of NOAA ONMS, NOAA Fisheries, USFWS Ecological Services, USFWS Refuges, DLNR-Division of Aquatic Resources, DLNR-Division of Forestry and Wildlife, and OHA, working with many partners to carry out its mission. Activities of the co-managers, as well as other permitted activities in the Monument, are developed and conducted in consideration of multiple goals in the 2008 Monument Management Plan, integrating Hawaiian culture, natural resource management and restoration, science and research, coordinating agency effort, education, and community involvement.

The MMB maintains working groups to engage in ongoing and emerging issues, providing these working groups time to deliberate and recommend an appropriate action to the MMB. The permitting working group, currently chaired by ONMS, reviews submitted permit applications and works with applicants to ensure completeness, address justification deficiencies, and revise proposals before working group recommendations are provided to the MMB. Other working groups (e.g., logistics, climate change) address both ongoing and emerging management issues.

Additionally, a Papahānaumokuākea Native Hawaiian Cultural Working Group (CWG), composed of Kānaka ʻŌiwi kūpuna, researchers, cultural practitioners, educators, and community members with deep connections and historical ties to Papahānaumokuākea, represents a Kānaka ʻŌiwi community voice, advising OHA as a co-trustee of the Monument. The CWG has taken major roles in developing cultural protocols, perpetuating ancestral knowledge, and developing the Mai Ka Pō Mai management guidance document (OHA, 2021) for Papahānaumokuākea.

Given the unique position in the Monument, special discussion is provided for Kuaihelani. USFWS has managed Midway Atoll NWR since 1988. In addition, Presidential Proclamation 8031 states “[t]he Secretary of the Interior, through the Fish and Wildlife Service (FWS), will have sole responsibility for management of the areas of the monument that overlay the Midway Atoll National Wildlife Refuge, the Battle of Midway National Memorial, and the Hawaiian Islands National Wildlife Refuge, in consultation with the Secretary of Commerce.” USFWS management is guided by the NWRSAA, as the organic authorization of the National Wildlife Refuge System; its regulations and policies. The USFWS has also created numerous management documents, with review and input from co-management agencies, applicable to Midway Atoll, including the Midway Atoll Comprehensive Master Plan (2022), the Midway Atoll Visitor Services Plan (2008) and the Monument’s Midway Atoll NWR Conceptual Site Plan (2008).

Monument Management Plan

The Monument Management Plan was written in 2008 by the Monument co-trustees. Because this Monument Management Plan is a mixture of the existing Reserve Operations Plan, the subsequent draft sanctuary management plan, the refuge Comprehensive Conservation Plans, and State plans, as fully described in Section 2.2 of the plan, it does not resemble typical sanctuary management plans, typical refuge CCPs, or typical State of Hawai‘i management

plans. However, this plan and the accompanying environmental analysis meet all applicable federal and State requirements. The Monument Management Plan is a guidance document for management decisions over a 15-year horizon that sets forth desired outcomes through six priority management needs, focused by 22 Action Plans, each with strategies and activities. The Monument Management Plan addresses management needs for lands and waters (nearshore and pelagic) of the Monument.

Key Monument management framework elements described in the 2008 Monument Management Plan include:

- The legal and policy basis for establishment of the Monument.
- The vision, mission, and guiding principles that provide the Monument's overarching policy direction.
- Institutional arrangements between co-trustees and stakeholders.
- Regulations and zoning to manage human activities and threats.
- Goals to guide the implementation of action plans and priority management needs.
- Concepts and direction for moving toward a coordinated ecosystem approach to management.

Other Guiding Documents

In addition to the Monument Management Plan, the co-trustees have developed a number of issue-specific documents to meet the management Goals and Objectives of the Monument. These include:

- Mai Ka Pō Mai Native Hawaiian guidance document
- PMNM Climate Change Vulnerability Assessment
- PMNM Maritime Heritage Research, Education, and Management Plan
- PMNM Natural Resources Science Plan
- 2020 PMNM State of the Monument Report
- Midway Atoll Visitor Services Plan
- Midway Atoll Comprehensive Master Plan
- BMP Requirements (attached as conditions to Monument permits)

These ancillary documents provide more specific information and guidance for management, including the incorporation of cultural components. In particular, the Mai Ka Pō Mai guidance provides protocols to help federal and State agencies further integrate Kānaka ʻŌiwi culture into all areas of management. Mai Ka Pō Mai articulates values and principles that align with Kānaka ʻŌiwi culture and values, as well as various federal and State agency mandates and missions.

4.2.4 Monument Access and Prohibitions

Per Monument regulation 50 CFR § 404.4, access is prohibited within PMNM (to 50 nmi), except for: (1) emergencies, law enforcement and Armed Forces activities; (2) an individual or group operating under a valid Monument permit; or (3) a vessel passing through the Monument without interruption. Per Monument regulations at 50 CFR § 404.12, these regulations are applied in accordance with international law. No restrictions shall apply to or be enforced

against a person who is not a citizen, national, or resident alien of the United States (including foreign flag vessels) unless in accordance with international law, or applicable treaties, conventions, and other agreements.

Permitted vessels, those conducting activities within PMNM, must possess a working VMS allowing NOAA's Office of Law Enforcement to track their movements. Certain vessels passing uninterrupted through the Monument are required to provide entry and exit notifications (Section 4.2.1). The MEA (50–200 nmi) currently has no access restrictions.

50 CFR part 404 provides a list of prohibited activities within PMNM. Similarly, Presidential Proclamation 9478 includes these and additional prohibitions for the MEA. Across both areas, the following are prohibited:

- Gas, oil, and mineral exploration or activities.
- Harvesting Monument resources using poisons, electrical charges, or explosives.
- Releasing, either accidentally or intentionally, a non-native species.
- Having an anchor, anchor chain, or anchor rope contact living or dead coral.
- Commercial fishing.

Additional prohibitions in the MEA are:

- Any energy development.
- Disturbing, damaging or taking any living or non-living Monument resource except as regulated.
- Altering or placing any structure on the seafloor, except for scientific instruments.
- Deserting a vessel at anchor or adrift.

4.2.5 Permitting and Regulated Activities

A joint permitting process has been in place and permits have been issued by the MMB since 2007. The Monument permitting process incorporates the Presidential Proclamations' directives, and follows USFWS, NOAA, and State regulations and procedures. For example, multi-year permits may be granted in federal waters, while the State requires one-year permits for activities in State waters. 50 CFR part 404 provides the authority to issue six permit types, each with specific criteria that the applicant must meet. Specifically, the applicant must demonstrate how the proposed activity meets management needs and adheres to the goals and objectives of the MMP. The six types of activities regulated through the PMNM permitting process are research; education; conservation and management; Native Hawaiian practices; recreation; and special ocean use.

The 50 CFR part 404 regulations apply only to PMNM (0–50 nmi). Management in the MEA is governed by Presidential Proclamation 9478, which explicitly names research, education, conservation and management, and Native Hawaiian practices, in addition to non-commercial fishing. Presidential Proclamation 9478 does not discuss permit application criteria. While Presidential Proclamation 9478 states that the Secretaries of Commerce and the Interior shall share management responsibility of the MEA, regulations to issue permits have not yet been promulgated. Until a formal permitting process is developed, activities in the MEA have been approved via a Letter of Authorization signed by USFWS. The use of Letters of Authorization is

only temporary until regulations are promulgated and a formal permitting process is implemented and should not be considered precedent setting. The co-trustees agreed to implement this USFWS process as an interim measure.

Permit Criteria

In the PMNM, the general and permit specific criteria that each proposed activity must meet are codified in 50 CFR § 404.11 and full descriptions of the application process and review, Monument Best Management Practices (BMP), and permittee reporting are on the Monument's website. The MMB determines whether a permit will be issued based upon meeting the below criteria. Specific terms and conditions can be attached to a permit, as appropriate.

- The activity can be conducted with adequate safeguards for the resources and ecological integrity of the Monument.
- The activity will be conducted in a manner compatible with the goals of the Monument, considering the extent to which the conduct of the activity may diminish or enhance Monument resources, qualities, and ecological integrity, any indirect, secondary or cumulative effects of the activity, and the duration of such effects.
- There is no practicable alternative to conducting the activity within the Monument.
- The end value of the activity outweighs its adverse impacts on Monument resources, qualities, and ecological integrity.
- The duration of the activity is no longer than necessary to achieve its stated purpose.
- The applicant is qualified to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.
- The applicant has adequate financial resources available to conduct and complete the activity and mitigate any potential impacts resulting from its conduct.
- The methods and procedures proposed by the applicant are appropriate to achieve the proposed activity's goals in relation to their impacts to Monument resources, qualities, and ecological integrity.
- The applicant's vessel has been outfitted with a VMS unit approved by NOAA's Office of Law Enforcement.
- There are no other factors that would make the issuance of a permit for the activity inappropriate.

If the applicant has applied for a Native Hawaiian practices permit, the following must be met:

- The activity is non-commercial and will not involve the sale of any organism or material collected.
- The purpose and intent of this activity are appropriate and deemed necessary by traditional standards in the Native Hawaiian culture (pono), and demonstrate an understanding of, and background in, the traditional practice, and its associated values and protocols.
- The activity benefits the resources of the Northwestern Hawaiian Islands and the Native Hawaiian community.
- The activity supports or advances the perpetuation of traditional knowledge and ancestral connections of Native Hawaiians to the Northwestern Hawaiian Islands.

- Any resource harvested from the Monument will be consumed in the Monument.

If the applicant has applied for a recreation permit for activities to be conducted within the Midway Atoll Special Management area the following must be met:

- The activity is for the purpose of recreation as defined in the regulations at 50 CFR 404.
- The activity is not associated with any for-hire operation.
- The activity does not involve any extractive use.

If the applicant has applied for a special ocean use permit the following must be met:

- The purpose of the activity is for research, education, or conservation and management related to the resources or qualities of the Monument.
- The activity will directly benefit the conservation and management of the Monument.
- The activities can be conducted in a manner that does not destroy, cause the loss of, or injure Monument resources.
- The permittee has purchased and maintained comprehensive general liability insurance throughout the duration of the activity, or agreed to post an equivalent bond, against claims arising out of activities conducted under the permit and to agree to hold the United States harmless against such claims.
- The activity does not involve the use of a commercial passenger vessel.
- For special ocean use within the Midway Atoll Special Management Area, the Director of the U.S. Fish and Wildlife Service or their designee has determined that the activity is compatible with the purposes for which the Midway Atoll National Wildlife Refuge was designated.

Permitting Requirements

The following requirements must be fulfilled based on method of entry (e.g., vessel or plane), permit type, location, and permitted activities:

- Vessel must be equipped with an approved and operating VMS unit before departure.
- Vessel Hull, Tender Vessel, Gear and Ballast Water must be inspected and certified free of non-indigenous and invasive species before departure.
- Permittee must provide a certificate or other proof that their respective vessel is free of rodents prior to entering the Monument:
- Permittee must adhere to the following eight general terms and conditions.
    - Vessel reporting, annual and summary reporting.
    - Submittal of a copy of all data acquired under each Monument permit.
    - Compliance with all applicable federal, State, and local laws and regulations.
    - Coordination with Monument staff while in the field.
    - Adherence to hazardous material storage and transport guidelines.
    - Requirement to demonstrate proof of insurance or financial capability to cover evacuation in the event of an emergency, medical evacuation, or weather.
    - Requirement for permittees to attend a cultural briefing on the significance of Monument resources to Native Hawaiians.
    - Prohibition against the disturbance of any cultural or historic property.

- Appropriate activity-specific BMPs are included in the permit conditions. The activity-specific BMPs can be found on the Monument website.

Regulated Activities

Activities are regulated through the Monument permitting system. In any permit application in which the project description includes conducting a regulated activity, the permit will explicitly describe where, when, and how this activity can be conducted within the Monument. Activities regulated in PMNM area include:

- Removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging; or attempting to remove, move, take, harvest, possess, injure, disturb, or damage any living or nonliving Monument resource.
- Drilling into, dredging, or otherwise altering the submerged lands other than by anchoring a vessel; or constructing, placing, or abandoning any structure, material, or other matter on the submerged lands.
- Anchoring a vessel.
- Deserting a vessel aground, at anchor, or adrift (prohibited in the Expansion Area).
- Touching coral, living or dead.
- Possessing fishing gear except when stowed and not available for immediate use during passage without interruption through the Monument.
- Swimming, snorkeling, or closed or open circuit scuba diving within any Special Preservation Area or the Midway Atoll Special Management Area.
- Attracting any living Monument resource.

Permit Application and Review Process

Subject to such terms and conditions as the Secretaries deem appropriate, regulated activities may be permitted to occur within the Monument only if an applicant can demonstrate that their proposed activities are consistent with the goals of the Monument and meet all relevant findings criteria to support issuance of the permit. The joint Monument permit application template and review process were developed and implemented in 2007. Applications are reviewed by managers, scientists, and other experts from the co-trustee agencies and by Kānaka ʻŌiwi cultural reviewers. The MMB may require applicants to submit additional information, comply with special conditions, or undergo additional training to meet this requirement.

Permit applications are posted for public notification, and applications with activities in State waters are approved by the State of Hawaiʻi Board of Land and Natural Resources. All approved permits must meet NEPA and HEPA requirements and comply with all other required federal and State permits and consultations. All permits specify the requirements for compliance with quarantine protocols to avoid introduction of non-indigenous and invasive species, and list prohibited activities such as the disturbance of cultural or historical artifacts or sites. Special Conditions may also be applied to particular permits, placing additional restrictions on activities in order to minimize impacts to Monument resources.

In addition to the requirement that each permit applicant meet the permit review criteria described above, applicants must agree to the General Conditions of their respective permit as

well as any Special Conditions that may apply. Special permit conditions are incorporated into each permit as deemed appropriate by the MMB to achieve effective conservation and management. Before entering the Monument, all permitted personnel must attend a pre-access briefing to review the cultural significance of Papahānaumokuākea. In addition, all permitted vessels require mandatory rodent inspection, hull and tender inspection, and ballast water inspection (if applicable) be completed before entrance to minimize the potential for introduction of non-indigenous or invasive species. Inspection results may result in denial of entrance into the Monument or a list of measures that need to be implemented before the vessel may enter the Monument.

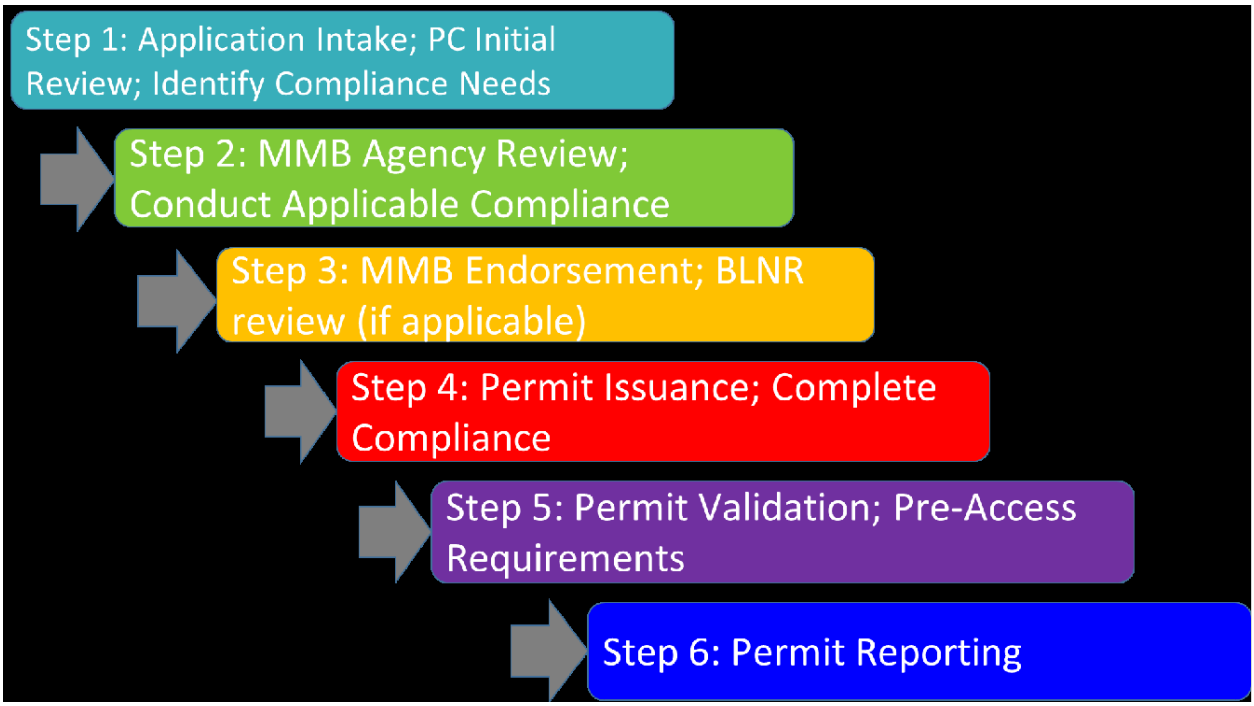

Figure 4.3. Simplified Monument permit process. Image: NOAA

4.2.6 Permitted Activities Summary

Activities permitted over the past 17 years were guided by the 2008 MMP. Monument management activities fall under 22 action areas that are described in detail in the MMP, for which an Environmental Assessment was completed. Ongoing and newly proposed activities that meet the MMP's goals are expected to continue at a similar level of effort.

Monitoring of activities in the Monument is primarily linked to permit requirements. At the discretion of the MMB, as part of the application process, permittees may be required to accommodate a Resource Monitor. These resource monitors are trained in universal and project-specific Best Management Practices developed by the Monument managers. Monitoring would continue for all sanctuary designation alternatives. All those named on a permit application undergo a pre-activity cultural briefing in which they are educated in proper protocols for entering and exiting the Monument as well as manner of conduct while in the Monument to ensure appropriate respect for the sacredness of the place is maintained.

Co-managers track the total number of people in the Monument over the course of the year as well as the number of people at each atoll to monitor the intensity of the permitted activities. This allows managers to proactively monitor for and mitigate cumulative impacts. Most locations average fewer than 1 person any given day on a specific island habitat, although the maximum on a single day can exceed 20 individuals.

With regards to human activity, Kuaihelani is unique within the Monument. On average, 60 people are within Monument boundaries on any given day. Of these, approximately 50 individuals are necessary to manage the Refuge, operate facilities, and conduct environmental management and restoration. Most of this activity is land-based and would not be subject to sanctuary designation analysis. Kuaihelani is also the only location with a working runway, accepting between 22 and 41 flights each year, on average. Hōlanikū sees the next most activity, with a permanent six-person field team stationed at the atoll year-round (PMNM, 2017).

From 2007–2021, a total of 442 Monument permits were issued (NOAA ONMS, 2022). Most (a little over 50%) of these permits have been for research activities, followed by conservation and management actions (21%), special ocean uses (15%), Native Hawaiian practices (7%), education (6%), and recreation (1%) (Table 4.2). Since 2016, eight permits included activities in the MEA.

Table 4.2. Monument Permits Issued 2007–2021

Year	Research	Conservation and Management	Education	Native Hawaiian Practices	Recreation	Special Ocean Use	Total
2007	37	5	2	1	1	5	51
2008	30	10	3	1	2	3	49
2009	28	6	2	4	1	10	51
2010	27	7	6	1	1	8	50
2011	19	6	4	3	0	5	37
2012	18	5	1	1	0	16	41
2013	6	5	0	2	0	5	18
2014	11	7	0	2	0	1	21
2015	9	8	0	4	0	0	21
2016	8	8	1	1	0	4	22
2017	6	8	1	3	0	0	18
2018	7	3	4	4	0	3	21
2019	7	6	0	2	0	1	16
2020	1	5	0	0	0	2	8
2021	8	2	1	4	0	3	18
TOTAL	**222**	**91**	**25**	**33**	**5**	**66**	**442**

While the purpose of each permitted activity is specific, the methodologies and instruments employed are similar. Most efforts are based on or supported by research vessels. Exploration of deep habitats is conducted using various sonar techniques, remotely-operated and autonomous vehicles, and the placement of instruments on the seafloor. Shallow water activities are often supported through small-boat operations, often with people in the water. Specimens may be collected and animals tagged, along with a variety of non-invasive data collection. Some management efforts, specifically marine debris and invasive species removal, impart a higher intensity of contact with the benthic resources, as well as potential disturbance to mobile marine

life. Permit applications are required to describe where and for how long the activities will be conducted, including an analysis of the potential short- and long-term impacts of these activities.

4.2.7 Management of Threats

The *2020 State of Papahānaumokuākea Marine National Monument: Status and Trends 2008–2019* (NOAA ONMS, 2020) describes threats to resources and the measures taken to address those threats under current Monument management. The following provides an overview of these threats. Threats specific to Monument resources (e.g., monk seal entanglement in derelict fishing gear) are discussed under those specific resources.

Climate Change

Climate change contributes to the increased erosion of reef habitat from large wave events, the loss of habitat due to sea level rise, and the inability to form reefs due to ocean acidification. The MMB and partners developed a Climate Change Vulnerability Assessment to understand likely effects of climate change on Papahānaumokuākea's natural and cultural resources to provide guidance for Monument managers (Wagner & Polhemus, 2016). Climate change-specific monitoring efforts conducted by management agencies include assessments of fundamental changes in species composition and distribution for climate-sensitive species such as corals, as well as direct monitoring of calcification rates and calcification minerals in the ocean. Multi-year monitoring has been conducted to evaluate the impacts on corals and the ecosystem from a 2014 coral bleaching event. Using cutting-edge technology, such as 3-D photogrammetry, NOAA scientists assess the impacts of climate change on coral reef ecology and habitats. However, there are still research gaps related to other aspects of climate change under current management.

Invasive Species

A species may be considered invasive when it becomes established and causes negative impacts to the ecosystem, outcompeting native species, and altering habitat and trophic structure. Life history traits commonly demonstrated by invasive species include rapid growth and spread, invasion of new habitats, and displacement of native organisms. Since it is difficult, if not impossible, to determine whether a species will become invasive in a given environment, the majority of efforts are focused on preventing non-indigenous species from entering the Monument. Current Monument operational protocols continue to be developed and refined to minimize the potential for non-indigenous species to be introduced. Regulations (50 CFR § 404.6(c)) and Presidential Proclamation 9478 prohibit introducing or otherwise releasing a non-indigenous species from within or into PMNM and the MEA, respectively. Further, co-managers, led by ONMS research scientists, are actively monitoring habitats where invasive species have or may adversely alter the ecosystem.

Non-indigenous species may arrive on vessels or debris of any kind from ports around the world. Ballast water and biofouling associated with global shipping are considered the most significant cause of human caused oceanic dispersal of invasive species, although biofilms (e.g., bacteria, microalgae, and fungi), encrusting (e.g., barnacles, bryozoans, hydroids) and mobile organisms (e.g., arthropods, mollusks, cnidarians) are commonly found on rafting marine debris

(NOAA Marine Debris Program, 2017), which is a significant concern in the Monument. Discharge from vessels operating in or transiting the Monument can introduce pathogens that contribute to coral disease and threaten marine mammal populations.

The Monument managers maintain an inventory of marine non-indigenous species identified and the location(s) each species was observed. Sixty-eight non-indigenous marine invertebrate, fish, and algal species have been recorded in the proposed sanctuary, including taʻape (bluestripe snapper, *Lutjanus kasmira)* and roi (peacock grouper, *Cephalopholis argus)* (Tsuda et al., 2015; Godwin et al., 2020). Of these, 42 are established and 21 are designated as cryptogenic (hidden, and undetermined whether established). Two species were determined to not be established, and three species are included with questionable data. Fifty-seven of these species occur at Kuaihelani, while 48 of those were observed only at Kuaihelani (Godwin et al., 2005). Appendix D includes all identified non-indigenous species and where they have been observed in the proposed sanctuary.

To prevent the introduction of non-indigenous marine species, ONMS staff perform a complete risk assessment coupled with the visual inspection of hulls for permitted vessels that transit into the Monument. Vessels fouled with marine organisms must be thoroughly cleaned. Vessels are also required to have a professional rodent inspection, and be certified rodent-free, before transiting to the Monument (Monument BMPs 001 and 018). BMPs to prevent the spread of non-indigenous species and disease are often included as permit conditions for those operating in the Monument.

Monitoring of established non-indigenous species is conducted in conjunction with interagency coordination, education, and outreach activities. In 2019, the MMB designated an interagency technical Invasive Algal Working Group comprised of scientists and biosecurity specialists to: 1) identify data gaps; and 2) develop BMPs for biosecurity regarding a previously unrecorded species of invasive red algae (*Chondria tumulosa)* spreading across Manawai in 2019 (Sherwood et al., 2020), to Kuaihelani in 2021 (Kosaki, pers. comm.), and to Hōlanikū in 2023. This species smothered entire sections of coral reef and other vital organisms at Manawai. The Working Group's BMPs were adopted in early 2020 as part of the standard biosecurity conditions for all persons operating at Manawai. Spiny seaweed (*Acanthophora spicifera)*, the most common invasive marine alga of subtidal and intertidal habitats in the Main Hawaiian Islands (Smith et al., 2002), was observed at Kuaihelani in July 2022 (Rankin et al., 2022). Strategies are being considered to control these two algae (USFWS, 2022).

Monument co-managers are also working to prevent introductions of known, aggressively invasive species like the recently documented soft coral *Unomia stolonifera* in Pearl Harbor (Hauk, pers. comm). This species has devastated the marine habitat of Venezuela in a few years, and scientists are working to understand and prevent its spread across the Hawaiian Islands (Ruiz-Allais et al., 2021).

Marine Debris

Marine debris consists of 80% plastic (International Union for Conservation of Nature, 2021). Because plastic is lighter than sea water, it floats on or near the surface of the ocean, allowing marine debris from across the Pacific, driven by wind and currents, to accumulate in the shallow waters of Papahānaumokuākea. This influx entangles marine species, damages reef habitat, is a

potential vector for invasive species, and is mistaken for food by seabirds and sea turtles. Hazardous marine debris and microplastics contaminated with chemical additives and pollutants potentially create vectors for toxic exposure (do Sul & Costa, 2014).

The Marine Debris Program, established in 2005 under NOAA's Office of Response and Restoration, was authorized in 2006 by the Marine Debris Research, Prevention, and Reduction Act. Since 1996, this program and its partners have removed 923 metric tons (more than two million pounds) of primarily derelict fishing gear and plastics from Papahānaumokuākea. Most recently in 2023, two 30-day missions conducted by the non-profit Papahānaumokuākea Marine Debris Project successfully removed over 96 metric tons of marine debris from shallow coral reef and shoreline environments. NOAA will continue to prioritize removal of existing debris, detection and prevention of incoming debris, and education to prevent the generation of more debris to reduce overall impacts. NOAA and its partners will continue to disentangle animals from derelict fishing gear and abandoned military structures (e.g., crumbling seawall at Tern Island), directly preventing their mortality.

4.3 Physical Environment

The physical resources within the study area would generally not be affected by the proposed action, but aspects of the physical environment are linked to potential impacts. For instance, sea surface temperature is not affected by the action, but its connection to coral bleaching is a factor to the impacts to biological resources. Similarly, human-introduced noise (e.g., vessel motors) directly affects the soundscape, but the concern generally relates to the effect it has on marine mammals and other mobile species. Of the physical resources of the Monument, only water quality and benthic habitat could be directly impacted by human activities, although the proposed action does not directly increase or decrease human uses within the action area.

4.3.1 Overview of Physical Environment

The most important physical feature of the action area is its remote location in the middle of the Pacific Ocean. This affects the quality of most of the marine resources described in this chapter, as emphasized in the *2020 State of the Monument Report*. "Due to Papahānaumokuākea's isolation, past management efforts, and current regulations controlling access, impacts from local human uses have been relatively few, and thus its reefs and other resources are considered to be in nearly pristine condition across most of the region (NOAA ONMS, 2020)." While direct human impact to resources is minimal, regional and global threats continue to impact Monument resources. The influx of marine debris into Monument waters from across the North Pacific entangles marine species, damages reef habitat, is a potential vector for invasive species, and is mistaken for food. Sea level rise, increased frequency and power of storms, and increased regional sea surface temperature due to climate change contribute to the erosion of submerged abiotic habitats and contribute to coral bleaching and proliferation of diseases (Wagner and Polhemus, 2016).

The action area is also an enormous size, encompassing 582,578 mi^2 of the Pacific Ocean—an area larger than all U.S. national parks combined. Within this expanse, 1,424 mi^2 (3,687 km^2) of shallow water reef habitat (<30 m depth, Miller et al., 2004; 2006; Maragos et al., 2009)

support a complex and highly productive marine ecosystem. Beyond the shallow reef, scattered in the vast pelagic ocean, are more than 100 submerged banks and seamounts.

Oceanic conditions, including currents, wave events, temperature, nutrients, and productivity, are described in the *2020 State of the Monument Repor*t. Currents transport larvae and marine debris, with the mean average flow of surface water moving east to west in response to the prevailing northeast trade winds (Firing & Brainard, 2006). Significant wave events (33-foot or 10-meter waves) from large winter storms and hurricanes also influence reef structure and distribution of marine life (Dollar, 1982; Dollar & Grigg, 2004; Friedlander et al., 2005) and cause erosion of the low islets in the Monument. Wave energy is highest between November and March and lowest between May and September. Global sea level rise has been documented since 1900, and may be accelerating, although the increase has been variable in Papahānaumokuākea over the past decade (Chen et al., 2017).

On average, four or five tropical typhoons or hurricanes are observed annually in the Central Pacific. Until 2018, the strongest hurricane recorded in the Monument area was Patsy in 1959, which passed between Kuaihelani and Hōlanikū with wind speeds greater than 115 mph (100 knots) (Friedlander et al., 2005). In October 2018, Hurricane Walaka passed through Lalo, with maximum winds of 127 mph (110 knots), causing extensive damage to Rapture Reef at 80 feet depth and almost eliminating East Island (Pascoe et al., 2021).

Sea surface temperature is an important physical factor influencing coral reefs and other marine ecosystems. NOAA's long-running National Coral Reef Monitoring Program collects in situ temperature data and correlates these data to response factors, including bleaching events. The northernmost atolls range from 19°C in the winter to 26°C in the summer, an extremely large fluctuation compared to most reef ecosystems. Across Papahānaumokuākea, sea surface temperatures have been on average 0.6°C higher between 2009–2018 than those recorded from 1984–2008 (NOAA ONMS, 2020). Between July and September 2002, sea surface temperatures across the Hawaiian Archipelago were anomalously warm, resulting in widespread coral bleaching, particularly in three northern atolls. A global coral bleaching event in 2014–2017 also affected corals in the Monument, particularly a shallow reef to the east of Kapou (Couch et al., 2017).

Most of the waters of the action area are low in nutrients, and thus low in primary productivity. A subtropical front that lies primarily north of the Monument migrates southward to the northernmost atolls, bringing high nutrient waters (Seki et al., 2002). This front and its productive waters attract larger species, including sea turtles, squid, and pelagic fish.

Water quality, including excessive nutrients or microbiological contamination, has not been a major issue in nearshore areas of the Monument. Overall, adverse water quality conditions throughout most of the Monument's oceanic waters are not expected, except near legacy pollutant sources from military activities at Kuaihelani, Hōlanikū, and Tern Island at Lalo (NOAA ONMS, 2020). While these sites are on land and outside of the proposed sanctuary, contaminants could easily migrate through the shallow sandy soil into marine waters. Legacy contamination still is present at Kuaihelani (Ge et al., 2013), including petroleum in the groundwater and nearshore waters, pesticides (e.g., DDT) in the soil, PCBs in soil, groundwater, and nearshore sediments and biota, metals such as lead and arsenic in soil and nearshore

waters, and unlined, uncharacterized landfills. While some of the worst areas of contamination were remediated, several areas, including unlined, eroding landfills, warrant continuous monitoring for potential releases (USFWS, 2019). The largest part of these contaminants do not degrade easily and tend to persist in the environment. As a result, any small changes to those areas (on land) could have an impact on the concentration of contaminants in adjacent areas (air, soils, and water). This includes the transport of contamination through stormwater runoff and groundwater infiltration to adjacent areas (Ge et al., 2013). Contamination sites are also present at Kamole and Manawai (NOAA ONMS, 2020). These historical contaminants remain despite remediation, and hazardous marine debris could potentially be sources of contamination, as every emergent and submerged location in the Monument is not regularly monitored for hazardous marine debris. Microplastic debris (<5 mm) accumulates in the water column and in sediments. Because these tiny plastic particles can be contaminated with chemical additives and pollutants absorbed from the surrounding environment, their ingestion potentially creates a new vector for toxic exposure (do Sul & Costa, 2014). Disease-causing microbiota in nearshore marine waters is not expected to be problematic or occur at levels that exceed water quality standards. Physical hazards within the Monument include marine debris and the deterioration of land-based military infrastructure, both which pose a threat to seals, seabirds, and turtles.

Near-shore benthic habitat is threatened from external events, including the influx of derelict fishing gear as well as oceanic scientific equipment. Discarded or lost fishing nets from distant fleets and plastic trash threaten and damage coral reefs, entangle and choke marine life, and aid in the transport of non-indigenous species and contaminants. An estimated 52 metric tons of derelict fishing gear from fisheries all over the Pacific drift into the Monument every year, influenced by large- and small-scale ocean circulation patterns and El Niño and La Niña events, ultimately accumulating in shallow reef habitat (Dameron et al., 2007).

In recent years, three National Weather Service buoys have broken free of their moorings and threatened Monument resources. Two groundings occurred at Kapou in 2015 and 2019. The third entered the MEA in 2022. The 2015 buoy was salvaged in May of 2016 and damage was surveyed using 3-D photogrammetry (Burns et al., 2018). The 2019 buoy's mooring system contacted benthic substrata, remaining stationary for multiple days at three different locations inside the Monument before reaching the shore of Kapou on February 7, 2019 (Fukunaga et al., 2021). A commercial salvage company removed the buoy in August/September of 2020 (Figure 4.4). Habitat recovery at these two sites is still being monitored. The third buoy was successfully recovered in June 2022 from the waters of the MEA. This proactive decision prevented an additional grounding and resulting damage caused by ground tackle and the buoy itself.

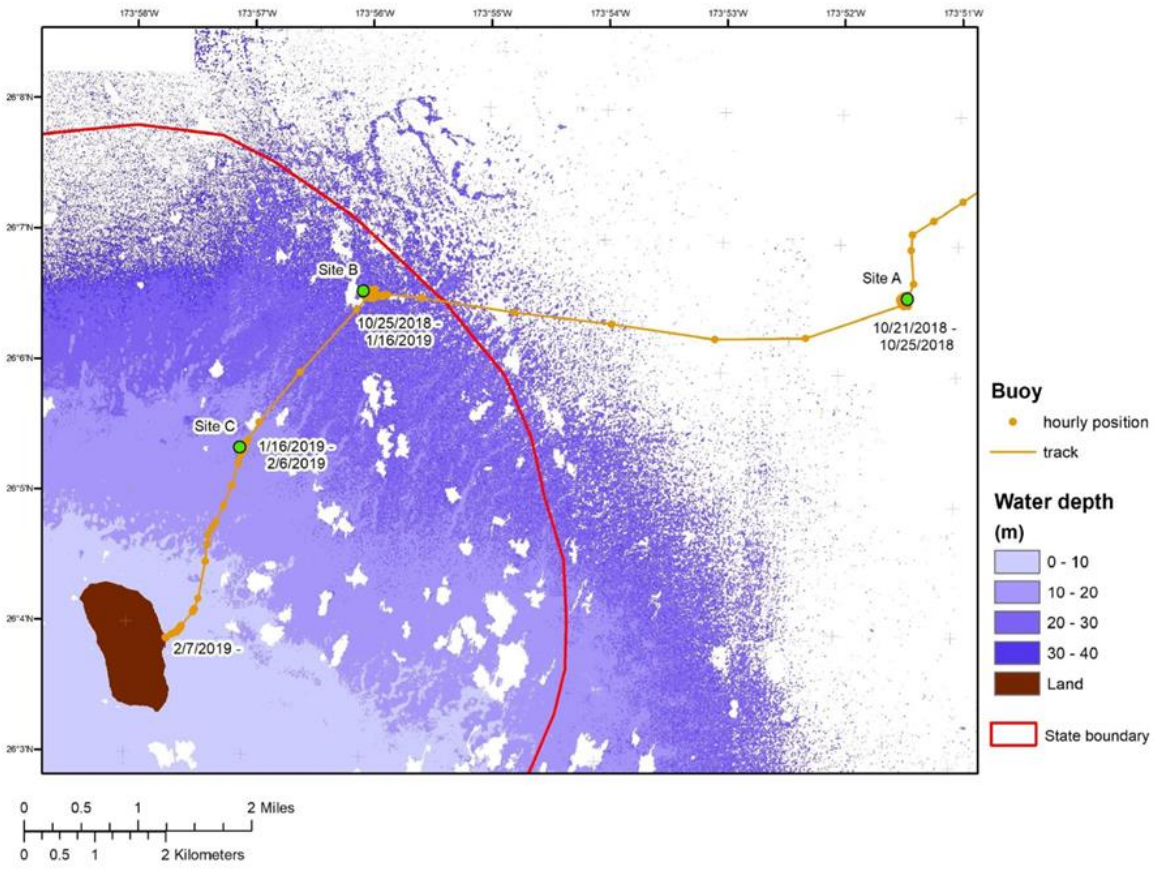

Figure 4.4. Satellite track of National Weather Service buoy, October 21, 2018 to February 7, 2019. Source: Fukunaga et al., 2021

On July 2, 2005, the M/V *Casitas* ran aground at Manawai (NOAA Damage Assessment, Remediation, and Restoration Program, 2021). Intending to salvage the vessel, crews installed temporary patches before towing the M/V *Casitas* towards Honolulu. The vessel could not be salvaged and on August 4, 2005 was sunk in over 7,000 feet of water at an EPA-approved emergency site northwest of the atoll. The grounding sheared and scraped corals across a reef area measuring 42 meters long by 15 to 20 meters wide. Removal efforts required setting and moving cables to position a barge, damaging an additional 1,600 square meters of reef habitat, including 461 square meters of coral. In the Spring of 2011 a Restoration Plan was finalized to restore resources injured by the grounding and compensate the public for injuries from the time of the grounding until full recovery. The focus of the restoration has been the removal of marine debris and monitoring the introduction of non-native species from Papahānaumokuākea.

Designated Essential Fish Habitat

Essential fish habitat (EFH) is defined as those waters and substrate necessary for federally managed species to spawn, breed, feed, and/or grow to maturity. EFH is a tool authorized by MSA to protect, conserve, and enhance habitat for the benefit of fisheries. Table 4.3 provides an overview of EFH species and their ranges in the project area. Habitat Areas of Particular Concern (HAPC) within Essential Fish Habitat are described in Table 4.4. HAPCs are specific areas that are essential to the life cycle of important species. These tables have been updated

since the draft EIS, based on additional information provided through the EFH consultation process with NOAA Fisheries. Details on the EFH and HAPC of the project area can be found in the Fishery Ecosystem Plans for Pelagic Fisheries and the Hawaiian Archipelago of the Western Pacific (WPFMC, 2009; 2016; 2018).

Table 4.3. Essential Fish Habitat of the Project Area

Fishery	**Stock or Stock Complex**	**Life Stage(s)**	**EFH Designation**
Bottomfish	Shallow Stocks: *Aprion virescens*	Eggs	Pelagic zone of the water column in depths from the surface to 240 m, extending from the official U.S. baseline to a line on which each point is 50 miles from the baseline
		Post-hatch pelagic	Pelagic zone of the water column in depths from the surface to 240 m, extending from the official US baseline to the EEZ boundary
		Post-settlement	Benthic or benthopelagic zones, including all bottom habitats, in depths from the surface to 240 m bounded by
		Sub-adult/Adult	Benthopelagic zone, including all bottom habitats, in depths from the surface to 240 m bounded by the official U.S. baseline and 240 m isobath.
Bottomfish	Intermediate Stocks: *Aphareus rutilans, Pristipomoides filamentosus, Hyporthodus quernus*	Eggs	Pelagic zone of the water column in depths from the surface to 280 m (*A. rutilans* and *P. filamentosus*) or 320 m (*H. quernus*) extending from the official U.S. baseline to a line on which each point is 50 miles from the baseline
		Post-hatch pelagic	Pelagic zone of the water column in depths from the surface 280 m (*A. rutilans* and *P. filamentosus*) or 320 m (*H. quernus*), extending from the official U.S. baseline to the EEZ boundary
		Post-settlement	*A. rutilans* – benthic or benthopelagic zones, including all bottom habitats, in depths from 40 to 280 m bounded by the 40 m and 280 m isobaths. *H. quernus* – benthic zone, including all bottom habitats, in depths from 40 to 320 m bounded by the 40 m and 320 m isobaths. *P. filamentosus* – benthopelagic zone, including all bottom habitats, in depths from 40 to 100 m bounded by the 40 m and 100 m isobaths.

Fishery	Stock or Stock Complex	Life Stage(s)	EFH Designation
		Sub-adult/Adult	Benthic (*H. quernus*) or benthopelagic (*A. rutilans* and *P. filamentosus*) zones, including all bottom habitats, in depths from the surface to 280 m (*A. rutilans* and *P. filamentosus*) or 320 m (*H. quernus*) bounded by the 40 m isobath and 280 m (*A. rutilans* and *P. filamentosus*) or 320 m (*H. quernus*) isobaths
Bottomfish	Deep Stocks: *Etelis carbunculus, Etelis coruscans, Pristipomoides sieboldii, Pristipomoides zonatus*	Eggs	Pelagic zone of the water column in depths from the surface to 400 m, extending from the official U.S. baseline to a line on which each point is 50 miles from the baseline
		Post-hatch pelagic	Pelagic zone of the water column in depths from the surface to 400 m, extending from the official U.S. baseline to the EEZ boundary
		Post-settlement	Benthic zone, including all bottom habitats, in depths from 80 to 400 m bounded by the official U.S. baseline and 400 m isobath
		Sub-adult/Adult	Benthic (*E. carbunculus* and *P. zonatus*) or benthopelagic (*E. coruscans* and *P. sieboldii*) zones, including all bottom habitats, in depths from 80 to 400 m bounded by the official U.S. baseline and 400 m isobaths
Bottomfish	Seamount Groundfish: *Pentaceros wheeleri, Beryx splendens, Hyperglyphe japonica*	Eggs and post-hatch pelagic	Pelagic zone of the water column in depths from the surface to 600 m, bounded by the official U.S. baseline and 600 m isobath, in waters within the EEZ that are west of 180°W and north of 28°N
		Post-settlement	Benthic or benthopelagic zone in depths from 120 m to 600 m bounded by the 120 m and 600 m isobaths, in all waters and bottom habitat, within the EEZ that are west of 180°W and north of 28°N
		Sub-adult/adult	Benthopelagic zone in depths from 120 m to 600 m bounded by the 120 m and 600 m isobaths, in all waters and bottom habitat, within the EEZ that are west of 180°W and north of 28°N
Precious Coral	Deep Water: *Pleurocorallium secundum, Hemicorallium laauense, Kulamanamana haumeaae, Acanella sp.*	Benthic	Three precious coral beds are designated as EFH for deepwater species in the NWHI: Westpac bed, Brooks Bank, and 180 Fathom Bank.
	Shallow Water: *Antipathes griggi, Antipathes grandis, Myriopathes ulex.*	Benthic	No coral beds are designated for shallow water precious corals in the NWHI.

Fishery	Stock or Stock Complex	Life Stage(s)	EFH Designation
Crustaceans	Kona crab, *Ranina ranina;* deepwater shrimp, nylon shrimp, *Heterocarpus spp.*	Eggs and Larvae	The water column from the shoreline to the outer limit of the EEZ down to a depth of 150 m (75 fm)
		Juveniles / adults	All of the bottom habitat from the shoreline to a depth of 100 m (50 fm)
Pelagics	N/A	N/A	Water column down to 200 meters depth from shoreline out to EEZ boundary.
			Water column down to 1,000 meters depth from shoreline out to EEZ boundary.

Source: NOAA Fisheries

Table 4.4. Habitat Areas of particular concern (HAPC) for management units of the project area

Fishery	Stock or Complex	HAPC
Bottomfish	Shallow, intermediate, and deep stocks	No HAPC have been designated for shallow, intermediate, or deep bottomfish in the NWHI.
Bottomfish	Seamount groundfish	Congruent with EFH (see table 4.3)
Crustaceans	Kona crab	Kona crab: All banks in the NWHI with summits less than or equal to 30 m (15 fm) from the surface. HAPC has not been identified or designated for deepwater shrimp.
Precious Coral	Deep water	Westpac Bed and Brooks Bank Bed in the NWHI
	Shallow water	No HAPC has been designated in the NWHI.

4.4 Biological Environment

The proposed sanctuary is a large marine ecosystem exposed to a wide range of oceanographic conditions and environmental and anthropogenic stressors. The variety of physical habitats, including reef, slope, bank, submarine canyon, and abyssal plains, support more than 7,000 known shallow and deepwater marine species. Small islands and islets provide essential breeding grounds and nesting sites for endangered, threatened, and rare species, which forage on land and throughout the coral reef, deepwater, and pelagic ecosystems. Biological resources in the study area that may be affected by the proposed action and alternatives include reef organisms, bottomfish, pelagic species, turtles, birds, and marine mammals.

“Most living resources in the [M]onument appear to be in healthy condition, owing in part to years of layered protections by the co-managing agencies. Many populations of endangered and other vulnerable species appear vigorous, and endangered species status is largely attributed to factors inherent in isolated locations, such as limited distributions, small populations, and vulnerability to perturbations. Further, management actions such as translocations, non-

indigenous species removal, and habitat restoration have successfully contributed to improvements in habitat quality and species abundance and distribution" (NOAA ONMS, 2020).

4.4.1 Algae

The marine algal flora of the proposed sanctuary are diverse and abundant, with 335 known species of macroalgae and two seagrass species (Tsuda, 2014). The species composition of the macroalgae community is relatively similar throughout Papahānaumokuākea. *Chlorophyta*, *Rhodophyt*a, *Ochrophyta*, branched coralline, crustose coralline, cyanobacteria, and turf algae occur in varying combinations, with green algae having the largest biomass and area coverage (Vroom & Page, 2006). The calcified algae in the genus *Halimeda* is widespread and contributes greatly to sand formation (Vroom & Page, 2006). Unlike the main Hawaiian Islands, where non-indigenous species and invasive algae have overgrown many coral reefs, reefs in Papahānaumokuākea are relatively free of non-indigenous algae, and the high natural herbivory results in a natural algal assemblage. However, two recently discovered species are known to act invasively. The mat-forming cryptogenic red algae *Chondria tumulosa* was discovered at Manawai in 2019 (Sherwood et al., 2020), Kuaihelani in 2021, and Hōlanikū in 2023. The spiny seaweed (*Acanthophora spicifera)* was discovered at Kuaihelani in 2022 (Rankin et al., 2022).

4.4.2 Corals

Fifty-seven species of stony corals are known in Papahānaumokuākea's shallow subtropical waters (at depths of less than 100 feet [30 meters]), covering 3,687 square kilometers of marine habitat (Miller et al. 2004; 2006; Maragos et al., 2009). Endemism is high, with 17 species (30%) found only in the Hawaiian Archipelago. These endemics account for 37 to 53 percent of visible stony corals in all shallow reef areas surveyed (Friedlander et al., 2005). Deepwater corals are more diverse, with 137 gorgonian octocorals and 63 species of azooxanthellate scleractinians documented in Papahānaumokuākea (Parrish & Baco, 2007). Larval recruitment to deep-water ecosystems, as well as isolated to seamounts, is rare from other locations. Once established, self-recruitment within these habitats is the primary mechanism to sustain these ecosystems (Crochelet et al., 2020).

Live coral cover is highest in the reefs in the middle of Papahānaumokuākea, with 59 to 63 percent of available substrate at Kamokuokamohoali'i and Kapou covered with living corals (Maragos et al., 2004), although there is minimal coverage at most other reef sites (Maragos et al., 2009). The same pattern is observed for species richness, with 41 coral species reported at Lalo and lower diversity at the archipelago's northern end and off the exposed basalt islands to the southeast.

While Papahānaumokuākea's coral reefs are relatively undisturbed by the direct impacts of fishing, tourism, land-based pollution and poor water quality, conditions have recently declined to "fair" in the *2020 State of the Monument Report*, likely due to bleaching events and storms (NOAA ONMS, 2020). Coral disease (tumors and lesions associated with parasites, ciliates, bacteria, and fungi) is lower in the NWHI than in the rest of the archipelago (Aeby, 2006). Derelict fishing gear, an ongoing issue in Papahānaumokuākea, degrades reef health by abrading, smothering, and dislodging corals, as well as by preventing recruitment on reef

surfaces (Donohue & Brainard, 2001). Current science suggests that the direct and indirect effects of climate change are likely to have profound effects on the corals in Papahānaumokuākea (PMNM, 2011), including: 1) ocean warming which can result in coral bleaching, 2) increases in frequency and severity of tropical storms which can affect reef structure and cause erosion, 3) sea level rise which exacerbates habitat loss, and 4) ocean acidification which impedes growth of coral skeletons, mollusk shells, and some plankton. The northern coral reefs, particularly Manawai, Kuaihelani, and Hōlanikū, experience the highest fluctuation in sea surface temperatures, and have experienced the most severe bleaching events in the proposed sanctuary, but are also sentinel sites for research into climate change impacts (NOAA ONMS, 2020).

4.4.3 Benthic Shallow Water Invertebrates

With the exception of coral and lobster species, marine invertebrates of the proposed sanctuary are poorly known. In 2000, the NWHI Reef Assessment and Monitoring Program reported 838 species from 12 orders, along with several new species endemic to the NWHI (DeFelice et al., 2002). In 2006, over 1,000 species of macroinvertebrates were identified at Lalo during the Census of Marine Life expedition (Maragos et al., 2009) and potentially as many as 2,300 unique morphospecies were identified from Lalo alone. Preliminary results from studies in 2010 and 2013 suggest that cryptic invertebrates are far more diverse than previously thought, and species richness is likely 8–10 fold greater than formerly documented values (Timmers 2019).

The black lipped pearl oyster (*Pinctada margaritifera*) was first discovered at Manawai in 1927. It was over harvested between 1928–1930 when approximately 150,000 oysters were taken for their pearls and shell. A 1930 expedition estimated 100,000 oysters remaining. Surveys in 1969, 1996, 2000, and 2003 found only a few oysters, indicating that the population had not recovered (Keenan et al., 2006). The slow recovery of this species demonstrates the fragility of some proposed sanctuary resources (Schultz et al., 2011).

4.4.4 Crustaceans

The NWHI lobster trap fishery, which commenced in the mid-1970s, primarily targeted two species of ula: Hawaiian spiny lobster (*Panulirus marginatus*) and slipper lobster (*Scyllarides squammosus*). Three other ula species, the green spiny lobster (*P. penicillatus*), ridgeback slipper lobster (*S. haanii*), and sculptured slipper lobster (*Parribacus antarcticus*), were caught in low abundance (DiNardo & Marshall, 2001). The fishery was closed in 2000 because of the uncertainty in the population models used to assess the stocks (DeMartini et al., 2003).

Status assessments of the ulastocks ended with the close of the commercial fishery. Fishery-independent tagging research conducted between 2002 and 2008 indicated that the stocks had not recovered. No data has been collected on ulapopulations since. Numerous hypotheses have been advanced to explain population fluctuations of ula in the NWHI, including environmental (Polovina & Mitchum, 1992), biotic (e.g., habitat and competition) (Parrish & Polovina, 1994), and anthropogenic (e.g., fishing) (Polovina et al., 1995; Schultz et al., 2011). Each hypothesis by itself offers a plausible, however simplistic, explanation of events that in fact result from several processes acting together. Population fluctuations of ulain the proposed sanctuary is more likely

a mix of the hypotheses presented, each describing a different set of mechanisms (DiNardo & Marshall, 2001).

4.4.5 Reef Fish

There are approximately 338 species of shallow (< 30 m) and mesophotic (30 to 150 m) fish in the proposed sanctuary. Isolation contributes to a lower fish species diversity relative to other sites (Mac et al., 1998). The long-term protection from fishing pressure has resulted in standing stocks of fish more than 260% greater than the main Hawaiian Islands. Reef fish structure in the proposed sanctuary is very different from the main Hawaiian Islands and most places in the world, with more than 54% of the total fish biomass consisting of reef predators. In contrast, fish biomass in the main Hawaiian Islands is dominated by herbivorous fish species (55%), with only 3% composed of reef predators (Friedlander & DeMartini, 2002). Reef predator biomass on forereef habitats is 1.3 metric tons per hectare, compared with less than 0.05 metric tons per hectare on forereef habitats in the main Hawaiian Islands. Large, predatory fish such as sharks, Ulua (giant trevally, *Caranx ignobilis*), and Hapu‘upu‘u (Hawaiian grouper, *Epinephelus quernus*) that are rarely seen and heavily overfished in populated areas are abundant in the proposed sanctuary.

Papahānaumokuākea is also characterized by a high degree of endemism in reef fish species, particularly at the northern end of the chain, with endemism rates well over 50%, making it one of the most unique fish faunas on earth (DeMartini & Friedlander, 2004). Extremely high endemism has also been reported among mesophotic fish at Hōlanikū (Kane et al., 2014; Kosaki et al., 2017). The decline in global marine biodiversity emphasizes how important endemic “hot spots” like Hawai‘i are for global biodiversity conservation (Friedlander et al. 2005; DeMartini & Friedlander, 2004). Within the proposed sanctuary, endemism increases up the chain and is highest at Kapou, Manawai, Kuaihelani, and Hōlanikū (Fukunaga et al., 2017). Another feature of the shallow-water reef fish community noticed by divers is that some species found only at much greater depths in the main Hawaiian Islands inhabit shallower waters. This might be explained by water temperature preferences or by disturbance levels that vary between the two ends of the archipelago.

4.4.6 Bottomfish

Bottomfish species are in the taxonomic groups Lutjanidae (snappers), Serranidae (groupers), and Carangidae (jacks). Bottomfish stocks in the proposed sanctuary have not been determined to be overfished, and towards the end of the commercial fishing period, were reported as “healthy and lightly exploited” (Brodziak et al., 2009).

4.4.7 Pelagic Marine Life

Pelagic species, including billfish, tuna, mahimahi, and wahoo, are cosmopolitan, occurring in all oceans within the tropical and subtropical zones, although individual species and stocks may have very specific water temperature preferences (Longhurst & Pauly, 1987). Yellowfin tuna prefer water no cooler than 18 to 21°C, which coincides with the proposed sanctuary’s northern boundary. All species undertake seasonal and age-related migrations, traveling between spawning grounds and feeding grounds appropriate for their sizes. They prey on medium-sized

pelagic fish, crustaceans, and cephalopods. Tagging studies of yellowfin tuna and bigeye tuna have demonstrated that, while these species have enormous capacity to travel long distances, they show very specific attraction to fish aggregating devices, island reef ledges, seamounts, and other elements of structure (Itano & Holland, 2000). Lowe et al. (2006) similarly found that while two species of manō, tiger sharks (*Galeocerdo cuvier*) and Galapagos sharks (*Carcharhinus galapagensis*), are capable of long-distance travel, they showed more site fidelity than expected throughout the year, with 70% of tiger sharks exhibiting year-round residence at Lalo. Some of the study subjects did make long-distance movements, with sharks marked at Lalo traveling to both ends of the island chain (Kuaihelani and Hawai‘i Island). The tremendous economic value of these fishes has resulted in declines of most populations because of industrialized fishing. While Myers and Worm (2003) calculated that large predatory fish biomass today is only about 10% of pre-industrial levels worldwide, large predatory fish populations remain healthy and robust in the proposed sanctuary (Friedlander et al., 2005). Based on the *2022 Stock Assessment and Fishery Evaluation Report* (WPRFMC, 2023), only two stocks of fish are overfished in the Western Pacific region: Pacific bluefin tuna (*Thunnus orientalis*) and North Pacific striped marlin (*Tetrapturus audax*).

4.4.8 Reptiles

The five species of sea turtles that occur in the proposed sanctuary are the honu (green, *Chelonia mydas*), the loggerhead (*Caretta carretta*), the olive ridley (*Lepidochelys olivacea*), the leatherback (*Dermochelys coriacea*), and the honu‘ea (hawksbill, *Eretmochelys imbricata*). All of these species are protected by the ESA and HRS 195D. Of these species, only the honu comes ashore to bask and breed. Lalo is the site of the principal rookery for the entire honu (Hawaiian green turtle) stock, with more than 90% of the population nesting there (Balazs & Chaloupka, 2004). As adults, most of these turtles travel to foraging grounds in the main Hawaiian Islands or in Kuaihelani or Kalama (Johnston Atoll), where they graze on benthic macroalgae. They periodically swim back to the nesting grounds at Lalo or, in smaller numbers, to Kapou and Manawai to lay eggs. Breeding adults remain extremely faithful to the colony where they were hatched for their own reproductive activities (Bowen et al., 1992). Hatchling turtles may spend several years in pelagic habitats foraging in the neritic zone before switching to a benthic algae diet as adults.

The Hawaiian population of honu has been monitored for more than 50 years, following the cessation of harvesting in the 1970s, and has shown a steady recovery from its depleted state (Balazs & Chaloupka, 2004). The transition zone chlorophyll front, located north of the proposed sanctuary in most years, occasionally moves southward along with one of the species tightly associated with it, the loggerhead turtle. The North Pacific loggerhead population breeds in Japan but feeds on buoyant organisms concentrated at the convergent front in these high chlorophyll waters, which support a complex food web including cephalopods, fishes, and crustaceans, also fed upon by albacore tuna (*Thunnus alalunga*) and a variety of billfish (Polovina et al., 2001).

The near-pristine nature of the proposed sanctuary’s marine ecosystems has contributed to the low level of diseases observed. Fibropapillomatosis, a disease that causes tumors in turtles, affected 40–60% of the honu in the 1990s, although this declined to 9.7% by 2007 (Chaloupka et

al., 2009) and has remained low. An estimated 52 metric tons of derelict fishing gear drifting into the Monument from across the Pacific is a significant entanglement threat to sea turtles.

4.4.9 Seabirds

The importance of seabirds in Papahānaumokuākea was recognized in 1909 with the establishment as the Hawaiian Islands Bird Reservation, which became the Hawaiian Islands NWR. Early protection and active management have resulted in large, diverse, and relatively intact seabird populations. These seabird colonies constitute one of the largest and most important assemblages of tropical seabirds in the world, with approximately 14 million birds (5.5 million breeding annually), representing 21 species (Naughton and Flint 2004). More than 98% of the world's mōlī (Laysan albatross, *Phoebastria immutabilis*) and kaʻupu (black-footed albatross, *Phoebastria nigripes*) populations nest here, with the largest nesting colonies of both species in the world occurring at Kuaihelani. For several other species, such as Nunulu (Bonin petrel, *Pterodroma hypoleuca*), ʻaoʻū (Christmas shearwater, *Puffinus nativitatis*) ʻakihikeʻehiʻale (Tristram's storm petrel), and the pakalakala (gray-backed tern, *Sterna lunata*), Papahānaumokuākea supports colonies of global significance. The last complete inventory of breeding populations was done between 1979 and 1984 (Fefer et al., 1984). Population trends since then have been derived from more intensive monitoring at three islands, which indicate stable or increasing numbers for most species, but concern for a few, especially the albatrosses.

The conservation status of seabirds in Hawaiʻi was assessed as part of the North American Waterbird Conservation Plan (Kushlan et al., 2002). Eleven of the 21 species were classified as highly imperiled or of high conservation concern at the broad scale of the plan (eastern north Pacific, western north Atlantic, and Caribbean). At the regional scale (Pacific Islands), six species were included in these highest concern categories: mōlī, kaʻupu, ʻaoʻū, ʻakihikeʻehiʻale, makalena, and Noio hinaoku. Distribution, population status and trends, ecology, and conservation concerns of each of these species are in the Regional Seabird Conservation Plan, Pacific Region (USFWS, 2005). The greatest threats to seabirds that reside in Papahānaumokuākea are both local and global. These threats include introduction of non-indigenous mammals and other invasive species, fishery interactions, contaminants, oil pollution, marine debris, and climate change. Active management in the NWRs and State Seabird Sanctuary has included the eradication of the black rat (*Rattus rattus*) at Kuaihelani, and the iole (Polynesian rat, *Rattus exulans*) at Hōlanikū; eradication or control of invasive plants; cleanup of contaminants and hazards at former military sites; and coordination with NOAA Fisheries and the regional fishery management councils, as well as industry and conservation organizations, to reduce fishing impacts.

Table 4.5. Seabirds of Papahānaumokuākea

Common Name	Hawaiian Name	Scientific Name	PMNM Status	BCC?	IUCN Status	ESA Status
Black-footed albatross	Kaʻupu	*Phoebastria nigripes*	I	Y	NT	T
Laysan albatross	Mōlī	*Phoebastria immutabilis*	I	Y	NT	NL
Short-tailed albatross	Makalena	*Phoebastria albatrus*	I	Y	E	E
Bonin petrel	Nunulu	*Pterodroma hypoleuca*	I	Y	V	NL
Hawaiian petrel	ʻUaʻu	*Pterodroma sandwichensis*	M	Y	E	E
Bulwer's petrel	ʻOu	*Bulweria bulwerii*	I	Y	LC	NL
Wedge-tailed shearwater	ʻUaʻu kani	*Puffinus pacificus*	I	N	LC	ENL
Christmas shearwater	ʻAoʻū	*Puffinus nativitatus*	I	Y	V	E
Newellʻs shearwater	ʻAʻo	*Puffinus newelii*	M	Y	E	E
Tristram's Storm-petrel	ʻAkihikeʻehiʻale	*Oceanodroma tristrami*	I	Y	LC	NL
Band-rumped storm Petrel	ʻAkeʻake	*Hydrobates castro*	M	Y	LC	NL
Red-tailed tropicbird	Koaʻe ʻula	*Phaethon rubricauda*	I	Y	LC	NL
White-tailed tropicbird	Koaʻe kea	*Phaethon lepturus*	I	N	LC	NL
Masked booby	ʻĀ, Akeake	*Sula dactylatra*	I	N	LC	NL
Brown booby	ʻĀ	*Sula leucogaster*	I	N	LC	NL
Red footed booby	ʻĀ, Akeake	*Sula sula*	I	N	LC	NL
Nazca booby	ʻĀ, Akeake	*Sula granti*	M	N	LC	NL
Great frigatebird	ʻIwa	*Fregata minor*	I	Y	LC	NL
White tern	Manu o Kū	*Gygis alba*	I	N	LC	NL

Common Name	Hawaiian Name	Scientific Name	PMNM Status	BCC?	IUCN Status	ESA Status
Grey-backed tern	Pakalakala	*Sterna lunata*	I	Y	LC	NL
Sooty tern	ʻEwaʻewa	*Sterna fuscata*	I	N	LC	NL
Least tern	Unknown	*Sternula antillarum*	I	Y	LC	NL
Black noddy	Noio, lae hina	*Anous minutus*	I	Y	LC	NL
Brown noddy	Noio koha	*Anous stolidus*	I	N	LC	NL
Blue noddy	Noio hinaoku, manuohina	*Procelsterna cerulea*	I	Y	LC	NL

[1] E = endemic to PMNM; I = indigenous to PMNM; M = non-breeding in PMNM.
This table has been updated since the draft EIS, based on additional information provided through the ESA consultation process. Source: USFWS

4.4.10 Marine Mammals

Papahānaumokuākea ecosystems play an important role in supporting more than 20 species of marine mammals. The endemic ʻīlioholoikauaua (Hawaiian monk seal), the most endangered pinniped in the United States, is a year-round resident, and is the only seal known to be dependent upon coral reefs for its existence. Some species of naiʻa (dolphins) are year-round residents, including spinner dolphins (*Stenella longirostris*) and bottlenose dolphins (*Tursiops truncatus*). Wide-ranging and migratory species such as spotted dolphins (*Stenella frontalis*), nuʻao (false killer whales, *Pseudorca crassidens*), koholā (humpback whales, *Megaptera novaeangliae*) and numerous other cetaceans also occur within the proposed sanctuary.

ʻĪlioholoikauaua (Hawaiian monk seal)

The marine and littoral ecosystems of the proposed sanctuary provide essential habitat for the ʻīlioholoikauaua (Hawaiian monk seal, *Neomonachus schauinslandi*). The ʻīlioholoikauaua was listed as an endangered species under the ESA in 1976 (41 FR 51611 [Nov. 23, 1976]) and is protected by the State under HRS 195D. The NWHI population reached a low point around 2013 and has been slowly growing since (Baker et al., 2016; Carretta et al., 2022). The total population of ʻīlioholoikauaua is currently estimated to be around 1,465 individuals (Carretta et al., 2020). The majority of the population lives within the proposed sanctuary—nearly 1,200 seals (NOAA ONMS, 2020). Their range consists of the islands, banks, and corridors within Papahānaumokuākea, with most foraging concentrated in depths up to 200m (though some seals range to depths as deep as 500m) (Stewart et al., 2006).

In May 1988, NOAA Fisheries designated critical habitat under the ESA for the ʻīlioholoikauaua from shore to 20 fathoms in 10 areas of the NWHI. Critical habitat for this species includes all beach areas, sand spits and islets, including all beach crest vegetation to its deepest extent inland, lagoon waters, inner reef waters, and ocean waters out to a depth of 20 fathoms around the following: Manawai; Hōlanikū; Kuaihelani, except Sand Island and its harbor; Kapou; Kamole; Kamokuokamohoaliʻi; ʻŌnūnui & ʻŌnūiki; Lalo; Mokumanamana; and Nihoa (50 CFR

§ 226.201). Critical habitat was designated to enhance the protection of habitat used by seals for pupping and nursing, areas where pups learn to swim and forage, and major haul out areas. The loss of terrestrial habitat is a priority issue of concern in the NWHI, primarily caused by environmental factors such as storms and sea level rise. Significant habitat loss at Lalo (e.g., the loss of Whaleskate and Trig Islands, and significant erosion of East Island) was followed by a dramatic drop in pup survival rate (Baker et al. 2020). Sea level rise over the long-term may threaten other islands in the chain, decreasing available haul out and pupping beaches over a large portion of this terrestrial habitat (Baker et al. 2006, Reynolds et al. 2012).

Foraging patterns include a range of 18,593 miles (48,156 square kilometers), or 14% of the proposed sanctuary, and traveling specific corridors associated with the submarine ridge between breeding and haul out sites, where they likely forage around subsurface features like reefs, banks, and seamount (Stewart 2004a, b, and c; Stewart & Yochem 2004a, b, and c). Several banks northwest of Hōlanikū represent the northern extent of the ʻīlioholoikauaua foraging range (Stewart, 2004a).

Past and present impacts to the NWHI seal population include hunting in the 1880s; disturbance from military uses of the area; direct fishery interaction, both recreational fishing (Hōlanikū) and commercial fishing prior to the establishment of the 50 nmi Protected Species Zone around the NWHI in 1991 (NOAA Fisheries, 2007); predation by sharks (Ibid, 2007); entrapment in the degrading steel seawalls of Tern Island at Lalo (Baker et al., 2020); aggression by adult male seals; and reduction of habitat and prey due to environmental change (Antonelis et al., 2006).

The ecological impacts of marine debris are an ongoing problem in Papahānaumokuākea. Mortality as the result of entanglement in derelict fishing gear, primarily nets, is of particular concern (Henderson, 2001; 1990; 1984a; 1984b). Between 1982 and 2019, up to 404 ʻīlioholoikauaua were observed entangled in derelict fishing gear in the proposed sanctuary.

Cetaceans

The waters of the proposed sanctuary are also home to more than 20 cetacean species, six of them federally recognized as endangered under the ESA and HRS 195D, and “depleted” under the Marine Mammal Protection Act, but comparatively little is known about the distributions and ecologies of these whales and dolphins (Barlow, 2006). The proposed sanctuary contains two-thirds of the koholā (humpback whale, *Megaptera novaeangliae)* wintering habitat in the Hawaiian Archipelago (Johnston et al., 2007), and is known to be used for breeding and calving activity, with an apparent high presence of whales at Lalo (Lammers et al., 2023). The most well-studied cetacean species in the proposed sanctuary is the Hawaiian spinner dolphin (*Stenella longirostris*). This geographically isolated subgroup of the spinner dolphin is genetically distinct from those of the eastern tropical Pacific (Galver, 2000). They occur off all of the main Hawaiian Islands and four islands in Papahānaumokuākea (Hōlanikū, Kuaihelani, Manawai, and Lalo) (Karczmarski et al., 2005). Andrews et al. (2010) found that animals at Kuaihelani and Hōlanikū were genetically differentiated from those at Manawai, and both are distinct from island-associated populations in the main Hawaiian Islands. These northern areas are recognized as Biologically Important Areas for spinner dolphins by the U.S. government (Baird et al., 2015; Kratofil et al., 2023). Genetic isolation, together with an apparent low genetic

diversity, suggests that spinner dolphins could be highly vulnerable to anthropogenic and environmental stressors (Andrews et al., 2004).

4.4.11 Summary of Threatened and Endangered Species and Critical Habitat

The species identified in the action area listed as threatened or endangered under the ESA and/or State endangered species list include five marine turtles, the ʻīlioholoikauaua, six cetaceans, four seabirds, three fish, and one coral (Table 4.6). See Appendix D for full species lists, and Appendix C for the details of the ESA consultation process.

Table 4.6a. ESA and State-Listed Marine Reptile Species within the Project Area

Common Name	Hawaiian Name	Scientific Name	Occurrence	ESA Listing
Central North Pacific Green Sea Turtle	Honu	*Chelonia mydas*	Resident	Threatened
Hawksbill Turtle	Honuʻea	*Eretmochelys imbricata*	Resident to Main Hawaiian Islands	Endangered
North Pacific Loggerhead Turtle	None	*Caretta caretta*	Transient	Endangered
Olive Ridley Turtle	None	*Lepidochelys olivacea*	Transient	Threatened
Leatherback Turtle	None	*Dermochelys coriacea*	Transient	Endangered

Table 4.6b. ESA and State-Listed Marine Mammal Species within the Project Area

Common Name	Hawaiian Name	Scientific Name	Occurrence	ESA Listing
Hawaiian Monk Seal	ʻĪlioholoikauaua	*Neomonachus schauinslandi*	Resident	Endangered
Sperm Whale	Palaoa	*Physeter macrocephalus*	Transient	Endangered
Blue Whale	Koholā	*Balaenoptera musculus*	Transient	Endangered
Sei Whale	Koholā	*B. borealis*	Transient	Endangered
Fin Whale	Koholā	*B. physalus*	Transient	Endangered
North Pacific Right Whale	Koholā	*Eubalaena japonica*	Transient	Endangered
False killer whale, Main Hawaiian Islands insular	Unknown	*Pseudorca crassidens*	Unknown	Endangered

This table has been updated since the draft EIS, based on additional information provided through the ESA consultation process.

Table 4.6c. ESA and State-Listed Marine Fish Species within the Project Area

Common Name	Hawaiian Name	Scientific Name	Occurrence	ESA Listing
Giant Manta Ray	Hāhālua	*Manta birostris*	Unknown	Threatened
Oceanic Whitetip Shark	Manō	*Carcharhinus longimanus*	Unknown	Threatened
Shortfin mako shark	Manō	*Isurus oxyrinchus*	Unknown	Candidate
Scalloped hammerhead shark, Indo West Pacific	Unknown	*Sphyrni lewini*	Unknown	Threatened

This table has been updated since the draft EIS, based on additional information provided through the ESA consultation process.

Table 4.6d. ESA and State-Listed Coral Species within the Project Area

Common Name	Hawaiian Name	Scientific Name	Occurrence	ESA Listing
No common name	Unknown	*Acropora globiceps*	Resident	Threatened

Table 4.6e. ESA and State-Listed Seabird Species within the Project Area

Common Name	Hawaiian Name	Scientific Name	Occurrence	ESA Listing
Short-tailed Albatross	Mōlī	*Phoebastria albatruss*	Resident	Endangered
Band-Rumped Storm Petrel	ʻAkeʻake	*Hydrobates castro*	Transient	Endangered
Hawaiian Petrel	ʻUaʻu	*Pterodroma sandwichensis*	Transient	Endangered
Newellʻs Shearwater	ʻAʻo	*Puffinus newelii*	Transient	Threatened

This table has been updated since the draft EIS, based on additional information provided through the ESA consultation process.

In 1988, NOAA Fisheries designated critical habitat for the ʻīlioholoikauaua from shore to 20 fathoms around every island, atoll, and bank of the proposed sanctuary, except Sand Island at Midway Atoll. This habitat includes "all beach areas, sand spits and islets, inner reef waters, and ocean waters."

Both NOAA Fisheries and USFWS have published proposed rules for the designation of critical habitat that includes areas within Papahānaumokuākea. On November 27, 2023, NOAA Fisheries published a proposal to designate 17 island units of critical habitat in the Pacific Islands Region for seven Indo-Pacific coral species listed under the ESA, including one in the proposed sanctuary at Lalo (88 FR 83644[Nov. 27, 2023]). The species *Acropora globiceps* is reported to occur at Lalo on hard substrate at depths of 0–10 meters. Proposed critical habitat includes all hard substrate from 0–10 meters at Lalo based on maps developed by National Centers for Coastal and Ocean Sciences (NCCOS, 2003). Public comments on this proposed action were accepted through February 28, 2024.

On July 19, 2023, USFWS published a proposal to designate critical habitat for the Central North Pacific Distinct Population Segment of the green sea turtle in the terrestrial environment at Kamole, Kapou, Manawai, Kuaihelani, and Hōlanikū (88 FR 46376[July 19, 2023]). Public hearings on the Central North Pacific Distinct Population Segment of the green sea turtle critical habitat were held in August 2023.

4.5 Cultural and Historical Resources

NOAA defines maritime heritage inclusively as "the wide variety of tangible and intangible elements (historic, cultural and archaeological resources) which represent our human connections to our Great Lakes and ocean areas" (NOAA ONMS, 2022). This includes cultural, archaeological, and historical resources, ranging from Traditional Cultural Properties (historic sites that are imbued with cultural importance by a particular group) to more recent historic sunken vessels and aircraft. Therefore, understanding the interconnectedness of maritime heritage resources and Kānaka ʻŌiwi cultural resources is critical to the successful stewardship and preservation of all public heritage resources.

From its inception, Monument co-managers have recognized and valued the importance of human connection to place and the essential role that culture plays. Native Hawaiian culture weaves through all aspects of conservation and co-management of marine resources. In Hawaiian traditions, the NWHI are considered a sacred place, a region of primordial darkness from which life springs and spirits return after death (Kikiloi, 2006).

In recognition of the cultural importance and the original identity of the archipelago, Native Hawaiian cultural resources are addressed as a separate category (Section 4.5.1) and the supplemental document E *Hoʻi I Ke Au A Kanaloa* (Nohopapa Hawaiʻi, 2023), distinguishes Native Hawaiian cultural resources from historical or maritime heritage resources (Section 4.5.2, focuses on post-1778 history of Papahānaumokuākea).

Descriptions of the Native Hawaiian relationships, knowledge systems, values, and practices are documented in oral traditions, and kūpuna (elder) interviews. As knowledge was transmitted through oral traditions, primary data sources of Native Hawaiian knowledge include the mele (songs), hula (dance), moʻolelo (stories), memories, and narratives that serve as indigenous data repositories. Primary data sources for maritime heritage resources included State Historic Preservation Division and local libraries and archives, National Archives and Records Administration, Department of Defense shipwreck and aircraft databases, historical documents and newspaper archives, archaeological field data from submerged resource surveys 1998–2021, and NOAA's Office of Coast Survey and other sources.

4.5.1 Native Hawaiian Cultural Resources

The ocean is a cultural seascape that is vital to Native Hawaiian self-identity, and well-being within a Hawaiian worldview (Lewis, 1972; Kyselka, 1987). It encompasses an ecological kinship within Native Hawaiian genealogies (Oliveira, 2014). It is also an essential component of Native Hawaiian physical and spiritual well-being and sustenance on a daily basis (Andrade, 2008; Olivera, 2014; Malo, 1903). Papahānaumokuākea is the only intact cultural voyaging seascape in the Hawaiian Islands (Kikiloi et al., 2017). This expansive ocean environment was the setting for ancient Hawaiian chiefs to voyage back and forth between the main Hawaiian Islands and the NWHI over the course of a 400–500 year period in traditional times. In addition, smaller communities from Niʻihau, Kauaʻi, and Oʻahu have been documented in the post contact period of continuing voyaging into this region well into the 20th century (Maly & Maly, 2003; Kikiloi, 2012). Continuing to access and acknowledge the biocultural seascapes of the NWHI ensures that these relationships continue to thrive in the broader aloha ʻāina (love for the land) movement and resurgence of Kānaka ʻŌiwi identity and political advocacy to protect the lands, freshwater resources, and oceans that are inextricably linked to the health of Kānaka ʻŌiwi communities (Goodyear-Kaʻōpua et al., 2014). It embodies the tangible and intangible values of Native Hawaiian culture that have developed and evolved over countless generations (Kikiloi, 2010).

Uniquely positioned in Hawaiian cosmologies, genealogies, and practices, the NWHI are commonly referred to as the ʻĀina Akua (realm of the gods) or Kūpuna (ancestral or elder) Islands. This seascape represents a distinctly sacred realm that embodies the realms of Pō (darkness/realm of the ancestors) and Ao (realm of the light and living; Kikiloi, 2010). Hawaiian genealogical chants and oral narratives serve as a rich repository of traditional Hawaiian

practices that connect Kānaka ʻŌiwi to their origin and where ancestral spirits return. ʻŌiwi traditions in Papahānaumokuākea were rooted in a mastery of skill and expertise of na akua (elemental deities) with a specific purpose and intentions on spiritual, physical, emotional, and mental levels (Maly & Maly, 2003; State of Hawaiʻi DLNR, 2008; Kikiloi, 2010, 2019). Aliʻi (Native Hawaiian chiefs) would access this region as a rite of passage to commemorate the source of origins and mana (divine power/authority), and of authority as derived by the ancestral gods (Kikiloi, 2006, 2019).

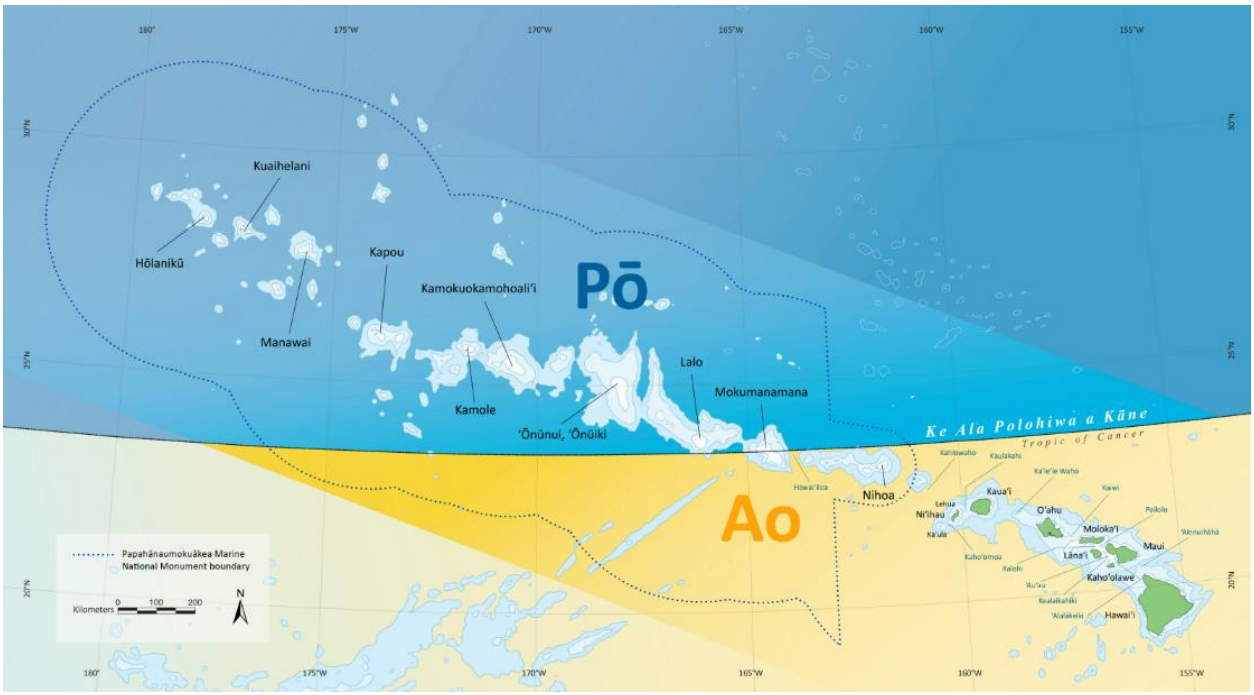

Figure 4.5. Map of the Hawaiian universe from the eastern edge to the northwestern extent of the Hawaiian Archipelago. Image: NOAA

Today, Kānaka ʻŌiwi continue to weave knowledge systems to perpetuate cultural practices in the NWHI, growing living relationships to this ancestral place. These relationships are embodied in the following ʻōlelo noʻeau (traditional Hawaiian proverb), "*I ka wā ma mua ka wā ma hope*" which represents a Kānaka ʻŌiwi worldview that one is always looking to the past to guide the future (Kameʻeleihiwa, 1992). Access to the NWHI allows Kānaka ʻŌiwi to weave diverse knowledge systems that solidify a strong collective pilina (relationship) and kuleana (privilege/responsibilities) to care for Papahānaumokuākea. These growing connections enable ʻŌiwi to perpetuate cultural practices across multiple generations and bring these experiences, enveloped in diverse relationships to this sacred place, into working with local communities back home (OHA, 2021).

Part of strengthening Kānaka ʻŌiwi relationships to the NWHI is reinforcing the perpetuation of traditions, values, and intentions associated with this biocultural seascape. The traditional art of wayfinding has always been an integral aspect of expertise needed to make the journey to the NWHI (Maly & Maly, 2003). Kānaka ʻŌiwi descend from a rich heritage of open-ocean voyaging connected to one of the most remarkable feats of open-ocean voyaging and settlement in all of human history, the movement of ancestral oceanic peoples across the largest ocean on the

planet, beginning as early as 1500 B.C. (Irwin, 2006). This legacy of ocean expertise is perpetuated by the descendants of the ancestral Polynesian navigators who voyaged thousands of kilometers weaving together similar genealogies, cosmologies, and oral traditions across the Pacific (Finney, 1977). The ocean waters of the proposed sanctuary were an ancient pathway for a voyaging sphere that occurred between this region and the main Hawaiian Islands for over 400–500 years (ca. AD 1300–1800). The ocean pathways and knowledge associated with the interconnected weather, marine, and terrestrial systems of the NWHI are part of this ancestral legacy, and are perpetuated by Kānaka ʻŌiwi traditional voyaging organizations such as the Polynesian Voyaging Society, to this day. Young navigators test their skills on voyages from Niʻihau to Nihoa to Mokumanamana that are significant milestones. Ceremonies and protocol associated with visits to these and other islands can only be performed off those shores, where appropriate respect can be paid to one's ancestors, in their particular spiritual, natural, and geological manifestations (NOAA ONMS, 2020; OHA et al., 2021).

In addition to wayfinding, religious practices, and spiritual practices, Kānaka ʻŌiwi continue to perpetuate traditions, values, and intentions associated with Papahānaumokuākea through tangible cultural practices such as indigenous science, traditional gathering, fishing, and burial practices. Indigenous science supports stewardship of the proposed sanctuary and perpetuates the practice of mālama ʻāina associated with Kānaka ʻŌiwi culture and the Aloha ʻĀina movement. Gathering practices include feathers for feather-work, shells, shark teeth, albatross bones for traditional tattooing, and food for subsistence and sustenance. Fishing in the Monument is currently limited to subsistence and sustenance fishing. More details on these cultural practices can be found in *E Hoʻi I Ke Au A Kanaloa* (Nohopapa Hawaiʻi, 2023).

The occupation and use of these islands represent one of the earliest signs of Hawaiian religious activity. For over 400 years (ca. 1400–1815 A.D.) the islands were used as a ritual center of power supported by an extensive voyaging interaction sphere that supported long-term settlement of the islands (Kikiloi, 2012). Nihoa and Mokumanamana have more than 140 archaeological sites that include agricultural, habitation, and religious structures. Based on radiocarbon data, it has been estimated that Nihoa and Mokumanamana Islands could have been inhabited from 100 A.D. to 1700 A.D. (Kikiloi, 2012; PMNM, 2008). The island of Mokumanamana is a potent portal that presides at the boundary between Pō and Ao. This boundary is the northern limit of the sun's journey on the horizon, the Tropic of Cancer, reverently referred to as Ke Alanui Polohiwa a Kāne, the dark glistening path of Kāne, whose kinolau (physical forms) is Kānehoalani, or the sun, and its movements on the horizon. Similar to the sun and the islands themselves, the life path of Kānaka ʻŌiwi begins in the east in the realm of Ao and continues westward, eventually returning to Pō.

Kānaka ʻŌiwi believe that when people pass away, their spirits travel to portals, called leina, located on each inhabited island of the archipelago. This was a place where many kaʻao (oral histories), mele, and moʻolelo document the epic journeys of akua who traveled there and back (Kikiloi, 2010; Kanahele & Nuʻuhiwa, 2015). The Edith Kanakaʻole Foundation continues to conduct research tracking the path of the sun during Ke Ala Polohiwa a Kāne (summer solstice) and Kanaloa (winter solstice) and Ka Piko o Wākea (spring equinox) using celestial expertise and heiau recorded in oral traditions (Kanahele & Nuuhiwa, 2015).

As described above, the cultural value of the area to Kānaka ʻŌiwi is not only measured in the tangible cultural resources of archaeological sites on the islands of Nihoa and Mokumanamana, but also includes intangible cultural resources. The area is integral to Hawaiian spirituality, factoring in the creation myth as well as its position as a portal between the world of the living and the afterlife. Further, natural resources are cultural resources, and the health of the ecosystem directly relates to the vitality of Kānaka ʻŌiwi culture. This region and the resources with it correspond to the Kānaka ʻŌiwi origin and genealogy to Hawaiʻi, weaving knowledge, values, and practices from the past to inform the present and future work to care for pilina to Papahānaumokuākea.

This recognition drives many aspects of current management in order to support, maintain, and propagate the area's critical role in the living Hawaiian culture and spirituality. Guiding principles for considering Kānaka ʻŌiwi cultural resources in the management of the Monument inform cultural practitioners and others who conduct activities in the proposed sanctuary on their responsibilities to the place, to their preparation for the activity conducted, and how to utilize the knowledge attained. The creation and management of PMNM and the MEA has been shaped by over 20 years of weaving a biocultural approach to protect this area as one of the world's largest marine protected areas, where the natural and cultural realms share an intertwined story and a common origin (Kikiloi et al., 2017). Papahānaumokuākea was inscribed as a UNESCO World Heritage site in 2010 for its outstanding natural and cultural significance to the heritage of mankind (UNESCO, 2010). Kānaka ʻŌiwi leadership, engagement, and knowledge has shaped management through various policy and management actions such developing a rigorous permitting process, culturally-appropriate standards and procedures, and opportunities for scientists and Kānaka ʻŌiwi to collaborate in an equitable and ethical way (Kikiloi et al., 2017; OHA et al.; 2021).

The CWG is a group of Kānaka ʻŌiwi kūpuna, researchers, cultural practitioners, educators, and community members that have deep connections and historical ties to Papahānaumokuākea through a living pilina bound by genealogy, cultural protocols, and values, building contemporary multidisciplinary research and practice. Since 2001, the CWG has represented a Native Hawaiian community voice for the NWHI, giving advice, first to NOAA through the RAC, and more recently through OHA as a Monument co-trustee. In 2016, through many discussions among Native Hawaiian leadership uplifting the vision of kūpuna leaders to protect and care for this special place in perpetuity, OHA became a co-trustee of the Monument to, in part, elevate the CWG collective voice and guidance to the MMB. Through the support of OHA and NOAA, the CWG consulted with ʻŌiwi communities for more than a decade which led to the creation of a historic management guidance document called Mai Ka Pō Mai. This document lays the foundational framework to guide the weaving of Kānaka ʻŌiwi knowledge systems, values, and practices into all aspects of management of Papahānaumokuākea (OHA et al., 2021). Cultural protocol is another facet of the CWG's many major contributions to the protection of the NWHI in collaboration with OHA to emphasize a living Kānaka ʻŌiwi culture that relies on moʻolelo, oli, mele, and connection to place to perpetuate ancestral knowledge and cultural connections (Kikiloi, 2010). The CWG members have continued to re-learn ancestral names for the islands and atolls and create new names for places among the islands (Pihana & Lorenzo-Elarco, 2022). New mele and oli have been created for Papahānaumokuākea (OHA et al., 2021).

The co-managers of the Monument have emphasized Indigenous Knowledge in management, with a mission to ensure ecological integrity and achieve strong, long-term protection and perpetuation of NWHI ecosystems, Kānaka ʻŌiwi culture, and heritage resources for current and future generations. The basis for building a firm foundation to apply Indigenous Knowledge to management has been the development of strategies for the involvement of cultural practitioners in policy, management, education, and research (Kikiloi et al., 2017). The long-term planning needed to effectively apply Indigenous Knowledge to management hinges on increasing meaningful and long-lasting engagement with Indigenous peoples within research, management, and policy who are well-positioned to work collaboratively with Kānaka ʻŌiwi communities. These positions tap into community networks and enhance the longevity of management and meaningful relationships to Kānaka ʻŌiwi communities and back to the resource managers.

Papahānaumokuākea is part of Moananuiākea, commonly known today as the Pacific Ocean. The 110 seamounts, open waters, and all life in the proposed sanctuary boundaries are considered biocultural resources and linked to the Kānaka ʻŌiwi through environmental kinship. This connection is further strengthened by ʻŌiwi communities bringing these experiences and knowledge to their communities to support ʻāina momona. These islands symbolize a generational legacy of growing and tending to the pilina to Papahānaumokuākea that continues to guide and shape management activities inclusive of Kānaka ʻŌiwi worldview, knowledge, and values. These relationships solidify the foundations of ancestral memories within Kānaka ʻŌiwi knowledge systems encompassing cultural conduct and protocols, research, and practices into growing respectful and reciprocal relationships to Papahānaumokuākea as a sacred biocultural oceanscape.

4.5.2 Maritime Heritage Resources

Maritime heritage resources in the proposed sanctuary reflect special elements of Hawaiian history, such as the distinctive Hawaiian fishing sampans, a local hybrid of Japanese traditional watercraft historically associated with Hawaii's commercial tuna fishery (Schug, 2001). Some heritage resources, notably the collection of historic whaling shipwrecks that are distinctive on a global scale, reflect both Western and Kānaka ʻŌiwi heritage. The 19th century whaling industry was the mainstay of the Hawaiian economy for decades. In 1846, the Kingdom's Minister of the Interior reported that "perhaps 15,000 (approximately 20%) of the Hawaiian men between the ages of 15 and 30 years were employed at sea or in foreign lands" (Lebo, 2013). The shipwrecks and submerged aircraft of the pivotal Battle of Midway in 1942 stand out as nationally and internationally recognized heritage associated with a critical turning point in World War II. Two of the four Japanese aircraft carriers sunk during the battle have only recently been discovered. Such archaeological and historical properties reflect the events, individuals, and technologies that have shaped our past in important ways at the local, regional, national, and international levels.

There are more than 60 reported vessel losses in the historic record, and hundreds of sunken naval aircraft lost within the proposed sanctuary's boundaries. Thirty-five of these sites have been located and assessed. Appendix G presents NOAA's identification of historic properties

within the area of potential effects for the proposed undertaking, pursuant to NOAA's consultation responsibilities under Section 106 of the NHPA.

Many sites are related to the sea Battle of Midway that occurred in the vast northwestern area of the proposed sanctuary, hundreds of miles from the atoll, and their existence and location are based only on military records. Archaeological surveys of submerged resources in the NWHI were initiated by the University of Hawai'i Marine Option Program in 1998 and 2002. From 2003–2021, NOAA archaeologists continued on an opportunistic basis to research, locate, and assess maritime heritage sites, supported by the Monument and NOAA's Maritime Heritage Program. USS *Yorktown* was discovered in 1998. IJN *Kaga* and *Akagi* were discovered in 2019. In 2023, a collaborative joint-agency expedition returned to the area and conducted a non-invasive survey of the aircraft carriers. The Maritime Heritage Program provides guidance on the assessment and preservation of maritime heritage resources and maintains the database on maritime heritage properties within the Monument. Collaboration is an important part of preservation.

Four military vessels, and five military aircraft listed in Appendix G were found within the waters of the Midway Atoll National Wildlife Refuge/Special Management Area (SMA, 12 nmi surrounding the atoll). Archival research indicates that 22 American and nine Japanese aircraft were lost within five miles of Midway Atoll during the Japanese Air Raid on Midway, June 4, 1942 (Linville, 2010). While the Midway Atoll NWR/SMA encompasses an area of intensive maritime and aviation activities through the pre-WWII, WWII, Vietnam, Korean War, and Cold War periods, there has nevertheless been a limited number of remote sensing surveys conducted to date in these waters. As such, maritime heritage experts anticipate a high likelihood of historically significant heritage resources yet to be discovered within the NWR/SMA and surrounding waters.

Preservation laws including NMSA, NHPA, the Sunken Military Craft Act (SMCA), and other mandates define federal management of the heritage resource (Varmer, 2014). Best Management Practices endorsed by the Presidential Advisory Council for Historic Preservation emphasize in-situ preservation and maintenance of undisturbed conditions at heritage sites, to maximize our knowledge and benefit of the public resource (PMNM, 2011a). Threats to the maritime heritage resource include illegal salvage/looting, anchoring damage, and other intentional or inadvertent human impacts. The natural forces of biochemical deterioration, and mechanical storm and surge erosion will, over time, deteriorate many heritage resource sites, diminishing their significance. Climate changes exacerbate these impacts (Roth, 2021).

4.6 Socioeconomic Resources, Human Uses, and Environmental Justice

4.6.1 Socioeconomic Resources Overview

This section describes recent socioeconomic and demographic conditions in the proposed sanctuary community, which includes the Hawaiian Islands five counties of Hawai'i, Honolulu, Kalawao, Kaua'i, and Maui. These socioeconomic characteristics include population density, income and employment, and economic value to determine the baseline to be used in the impact

analysis. This section describes sources of income and the status of the labor as indicators of the health of the local economy and opportunities for employment. An overview of what is currently known about the uses of natural and cultural resources includes fishing, recreation, and tourism. NOAA prepared a detailed socioeconomic profile to characterize recent demographic and economic conditions and to determine the baseline statistics to be used in the impact analysis of the alternatives (Samonte et al., 2024).

Population

Population Growth and Density

From 2010 to 2022, the sanctuary community's population grew 8.8%, with a population growth rate between 7.8% and 12.3% across counties. The county with the greatest population density in 2022 was Honolulu, with 1,681 people per square mile, followed by Maui and Kalawao (aggregated) at 1 140 people per square mile. Hawai‘i and Kaua‘i had population densities of 50 and 118 people per square mile, respectively.

Per Capita Income

In 2010, the real per capita income for the sanctuary community was $54,621 (in 2022 U.S.$) and in 2022 it increased to $61,779. In 2022, Hawai‘i County had the lowest per capita income at $49,476, and Honolulu County had the greatest at $64,936.

Poverty Rates

In 2022, the poverty rate in the sanctuary community was 9.6%, with the lowest rate of 8.3% in Kaua‘i County and the highest rate of 14.9% in Kalawao County. The U.S. poverty threshold in 2022 was $14,880 for an individual and $23,280 for a family size of three (U.S. Census Bureau, 2022).

Unemployment Rates

In 2022, the unemployment rate in the sanctuary community was 5.1%, with the lowest unemployment rate in Kaua‘i County at 4.1% and the highest in Hawai‘i County at 6.5%. Unemployment rates decreased for the sanctuary community between 2010 and 2022.

Demographics

Gender

From 2010 to 2022, the percentage of female residents in the sanctuary community held consistent between 49.5% and 49.9%.

Racial Composition

In 2022, 37.2% of the population identified as Asian, 25.5% identified as two or more races, and 23.0% identified as White.

Ethnicity

This community is much more racially diverse than the U.S. which is comprised of a 65.9% White demographic. In 2022, the sanctuary community recorded a percentage of Hispanic respondents at 11.0%, compared to 18.7% of the U.S. population.

Age Distribution

The largest percentage of people were between 25 to 34 years of age.

Education Level

Twenty-two percent of the sanctuary community population has a minimum of a bachelor's degree (2022), increasing from 19.7% in 2010. About 26.7% of the sanctuary population has a highest education level of a high school diploma or equivalent in 2022. The proportion of the sanctuary community who attained a high school diploma/equivalent or greater increased between 2010 and 2019.

Labor and Employment

Labor Force

In 2022, the sanctuary community labor force was over 760,000 people, an increase of over 46,000 people since 2010.

Employment

In 2022, over 675,000 people were employed in the sanctuary community, a 6.1% net growth from 2010.

Household Income

In 2022, average household income was similar between the sanctuary community and the U.S. at $100,000 to $149,999.

Employment by Industry

In 2022, the five highest percentages of total employment by industry in the sanctuary community were government and government enterprises (19.1% of total employment), accommodation and food services (11.8%), health care and social assistance (9.5%), retail trade (9.3%), and real estate (5.9%).

Proprietors' Income and Employment

In 2022, proprietors employed over 216,000 people in the sanctuary community, making up 24.0% of total employment in the sanctuary community. This is an increase from the 19.8% of total employment in 2010. Proprietors in the sanctuary community collectively earned $6,521,000,000 in 2022, which comprised 10.6% of total income earned by place of work in the sanctuary community that year.

Tourism

In 2019, a total of 10.4 million visitors came to the State by either air service or cruise ship (primarily air service), spending an average of $196 per person per day (Hawai‘i Tourism Authority, 2020a). The busiest month for tourists was July for 2019 (286,419 visitors per day). The eastern U.S. and Japanese markets contributed 2.3 and 1.6 million tourists in 2019 respectively, participating in sightseeing activities such as self-guided driving, visiting communities, and visiting natural landmarks (Hawai‘i Tourism Authority, 2020b).

Fishery Resources

Detailed socioeconomic data describing commercial fisheries is often warranted for analysis of impacts from sanctuary designation. Because commercial fishing is prohibited within the Monument, lost opportunities, transfer of effort, and lost jobs and revenue, among other typical concerns, would not vary by alternatives and therefore are not relevant for this action. Further, NOAA and WPRFMC are preparing the impact analysis for regulations governing fishing in the MEA under the authority of the MSA.

4.6.2 Human Uses of the Monument

Access to the Monument, and therefore the areas of the proposed sanctuary is regulated through the permitting system described in Section 4.2.5. Permit criteria requires that there is no practicable alternative to conducting the activity within the Monument and the end value of the activity outweighs its adverse impacts on Monument resources, qualities, and ecological integrity. Other criteria and permit-specific conditions (e.g., BMPs, listed in Appendix B) strive to ensure that the activity is conducted in such a way as to reduce adverse impacts to Monument resources. As such, human uses are restricted by the permit types and specific criteria detailed in 50 CFR § 404. 11 and Section 4.2.5.

Permitted Activities in the Monument

Permitted activities constitute the majority of the human use in the Monument, with many activities directly related to addressing threats described in Section 4.2.7, including marine debris removal, invasive species monitoring, and research to understand how climate change is impacting the environment.

From 2007–2021, a total of 442 Monument permits have been issued (NOAA ONMS, 2022). This includes a diverse range of activities conducted by co-managers, filmmakers, cultural practitioners, community members, and researchers within the area of the proposed sanctuary. Activities occur across the entire chain of the NWHI. In 2021, 19 permits were issued, with 16 for activities solely within PMNM, two for activities across the Monument, and one for activities solely within the MEA.

Research

Roughly 50% of PMNM permits have been for research-related activities. Research permits are for activities that enhance the understanding of the proposed sanctuary's resources and improve resource management decision-making. The types of activities that may be conducted under research permits include biological inventories, ecosystem-based research, habitat characterization, and archaeological research, including the two-week expedition for sunken aircraft and vessels commemorating the 75th Anniversary of the Battle of Midway.

During the Section 106 consultation process for this proposed designation, a concern was raised that certain research could be harmful, both to the ecosystem and to the sacredness of the place to Kānaka ʻŌiwi. The concern referred to activities conducted prior to Monument designation, and was related to scientific research conducted to further an outside research program and not research to improve conservation and management based on identified needs (NHPA Section 106 Meeting Notes, August 23, 2022).

Education

Education permits are for activities that further the educational value of Papahānaumokuākea. These activities may help a broader audience understand the ecosystems within the Monument, share lessons learned in resource management with outside partners, promote Kānaka ʻŌiwi knowledge and values, or aid in outreach with schools and community groups. Permits are considered for activities that have clear educational or public outreach benefits and that aim to "bring the place to the people," rather than the people to the place. Examples of education projects include teacher-at-sea programs, distance learning projects and university field classes. Approximately 6% of the permits were issued for educational activities.

Kaʻena Point on the North Shore of Oʻahu shares similar ecosystem, plant, and animal features as those of Papahānaumokuākea. It is often used as an interpretive site to teach students and other groups about Papahānaumokuākea as they gain an understanding of the unique cultural, ecological, and geographic features of Kaʻena Point while highlighting the similarities with Papahānaumokuākea.

In addition to permitted activities occurring in the Monument, the educational initiatives for the Monument include welcoming school groups to the Mokupāpapa Discovery Center, conducting and attending community events, producing educational materials for the public, and fostering an educational component for many of the activities occurring in the Monument.

Conservation and Management

Conservation and management permits are for activities that enable the general management of PMNM. These activities may include field station operations, marine debris removal, development and maintenance of infrastructure, and long-term resource monitoring programs such as monitoring of endangered species, seabird populations, and terrestrial native plant communities. Conservation and management permits also provide a mechanism for response and follow-up to urgent events in the Monument that may not have been anticipated, such as vessel groundings, coral bleaching episodes and invasive species outbreaks. Twenty-one percent of the permits were issued for conservation and management. Kuaihelani requires the highest number of permanent staff to assist with conservation and management, with an average of 50 people at the atoll at any given time. Hōlanikū sees the next most activity, with a permanent six-person team stationed at the atoll year-round.

Native Hawaiian Practices

Native Hawaiian Practices means cultural activities conducted for the purposes of perpetuating traditional knowledge, caring for and protecting the environment, and strengthening cultural and spiritual connections to the NWHI that have demonstrable benefits to the Native Hawaiian community. This may include, but is not limited to, the non-commercial use of marine resources for direct personal consumption while in the Monument. Permit conditions and guidelines are developed by the MMB, and in many cases with input from the CWG through OHA. Native Hawaiian practices consisted of 7% of the issued permits.

Since 2007, there have been 34 Native Hawaiian practices permits submitted, marking a consistent interest in Hawaiian cultural practices, with at least eight ongoing cultural initiatives occurring on 27 separate expeditions. These activities contribute towards active management

and are closely aligned to the Monument's goals (OHA et al., 2021). Identifying appropriate biocultural management strategies within the NWHI requires inclusion of Native Hawaiian cultural knowledge in all aspects of management, research, and policy. The following examples illustrate a mosaic of Native Hawaiian activities weaving diverse knowledge systems and multi-disciplinary teams to grow their understanding of Papahānaumokuākea and the relationships that bind ʻŌiwi to this biocultural seascape.

Native Hawaiian access strengthens pilina to Papahānaumokuākea as an extension of the work of the communities of people and places in the main Hawaiian Islands (OHA et al., 2021). Their work includes:

- Traditional voyaging navigator apprenticeship and training.
- Archaeological and cultural resource research that helped to document, assess, and protect Hawaiian cultural sites (Kikiloi, 2012; Kanahele & Nuuhiwa, 2015; Monahan et al., 2019).
- Integrated cultural and scientific ecosystem monitoring (Andrade, 2022b).
- Cultural observations of natural cycles and seasonal changes to document traditional ecological knowledge (Andrade, 2022a).
- Resource gathering including bird feathers/bones (Cody et al., 2022) and subsistence harvesting of fish, algae, and invertebrates.
- Utilization of the place as a living classroom for university courses on language and cultural studies (OHA et al., 2021).

In general, Native Hawaiian subsistence gathering and harvesting activities are dependent on the keen observations of kilo, an ʻŌiwi observational methodology (Andrade, 2022a, 2022b), that determine appropriate conduct. This is an essential element of Native Hawaiian knowledge, values, and practices fundamental to cultivating healthy reciprocal relationships to the ocean (Kikiloi et al., 2017). Traditionally, Native Hawaiian subsistence gathering and harvesting practices do not equate to harvesting the maximum allowable amount. The maximum allowable harvest is never nearly approached because harvest depends on what is available and if it is culturally appropriate.

Papahānaumokuākea is highly significant as a source of cultural resources. A few local communities have requested permits to use resources from the area to produce symbolic and spiritually significant items to perpetuate traditional practices. Permits have also been issued for non-extractive Native Hawaiian practices including hula, mele, oli, paintings, drawings, prints, clothing, and films. Examples of these permits include:

- Moananuiākea Voyage (2021)- a 42-month, 41,000-mile circumnavigation of the Pacific. The goal of this voyage was to develop 10 million new crew members, navigators, and leaders focused on the vital importance of oceans, nature, and indigenous knowledge.
- Intertidal Monitoring Cruise (2011-2018)- a diverse research group composed of Native Hawaiian community members, fishers, scientists, and managers that combined their work under research and Native Hawaiian practices permits to better understand the holistic health of intertidal ecosystems and ʻopihi (limpet) populations through kilo.

- Kānaka ʻŌiwi scientists conducted sea level rise research and intertidal surveys at Lalo and Nihoa, weaving traditional knowledge systems of the natural habitat and cycles with climate change science (2021).

Management activities in the Monument are bridging a historical divide between Indigenous Knowledge and western scientific research approaches that has persisted in Hawaiʻi for over a century. As a co-trustee, OHA supports Kānaka ʻŌiwi access to Papahānaumokuākea which represents a vital component of successful co-management of this mixed (natural and cultural) UNESCO World Heritage site. Creating accessible and diverse opportunities to increase Kānaka ʻŌiwi participation in diverse roles as a multi-disciplinary team is crucial to supporting the management of this biocultural seascape through inclusivity of ʻŌiwi worldviews (OHA et al., 2021). One of these partnerships with the co-managers has been building the capacity of Kānaka ʻŌiwi from the CWG to complete the resource monitor training facilitated through the MMB. This has the potential to continue uplifting the success of diverse knowledge systems through increasing participation of Kānaka ʻŌiwi in all aspects of management, research, and field camp opportunities.

Special Ocean Use

Special ocean use permits are for activities or uses of the PMNM engaged in to generate revenue or profits for one or more of the persons associated with the activity or use, which do not destroy, cause the loss of, or injure PMNM resources. This includes ocean-based ecotourism and other activities such as educational and research activities that are engaged in to generate revenue. Since the designation of the Monument, 15% of the permits have been issued for special ocean use.

Access for general visitation purposes was previously allowed at Midway Atoll National Wildlife Refuge. However, due to recent reductions in refuge staff and operational capacity, historical and eco-tour access is currently not offered. Internet users can virtually visit the remote islands and atolls using Google Street View, the Kaʻena Point mobile app, and other interactive material created by USFWS and NOAA. Through these resources, visitors can stroll among millions of seabirds and various historic sites on Kuaihelani, or encounter monk seals and green sea turtles basking along the shores of Kapou and Kamole.

Recreation

Recreation permits are for activities conducted for personal enjoyment and are limited to the Midway Atoll Special Management Area. Recreation activities must not result in the extraction of Monument resources or be involved in a fee-for-service transaction. Examples of activities that may be permitted include snorkeling, wildlife viewing, and kayaking. Restrictions may be placed on recreation permits in accordance with the Midway Atoll NWR Visitor Services Plan. Only 1% of the permits issued were for recreation.

Recreational activities have historically been extremely limited. Kuaihelani served as a base for an ecotourism operation from 1996 until its closure in 2012. Prior to the closure, visitors participated in historic preservation service projects, guided tours, diving and snorkeling trips, and fishing operations (extractive and non-extractive). In addition, Kuaihelani was a destination for a limited number of cruise ships. Since 2006, only one recreation permit, in 2010, has been

issued. This was for USFWS to administer their Visitor Services Program. USFWS has the authority to charge fees for services including public visitation (50 CFR Part 25 Subpart E).

Sustenance Fishing

Sustenance fishing is defined in 50 CFR § 404.3 as "means fishing for bottomfish or pelagic species in which all catch is consumed within the Monument, and that is incidental to an activity permitted under this part." This activity is regulated through the permitting process for PMNM, which limits gear types and requires data reporting. Native Hawaiian subsistence fishing (State waters) and sustenance fishing (federal waters) occurs at low levels in PMNM.

The regulations at 50 CFR part 404 allow for the authorization of individuals listed on a permit to perform sustenance fishing within PMNM. Between 2007 and 2021, 33 Native Hawaiian practices permits were awarded (Table 4.2), with 26 including the provision to fish. Permittees report the type of gear used and the number and type of fish caught. Permittees reported catching 35 fish, including 17 ʻahi (yellowfin tuna), 12 uku (gray snapper), three ono (wahoo), and two mahimahi (dolphinfish). Some permit recipients elected not to fish despite their permit authorization (NOAA ONMS 2022).

Because of the higher human presence on Kuaihelani, the Midway-specific compatibility determination provides explicit conditions for sustenance fishing. This includes catch limits (maximum take of 300 fish per year), BMPs, and reporting requirements (PMNM, 2012).

Fishing in the Monument Expansion Area

In 2016, Presidential Proclamation 9478 created a prohibition on commercial fishing within the MEA. This area had been occasionally used by the Hawaiʻi longline fleet, although longlining had been prohibited since 1991 in the waters that became PMNM, after the creation of the Protected Species Zone (50 CFR § 665.806). The federally managed commercial bottom fishery and Pelagic trolling fishery were almost exclusively conducted within the waters that became PMNM until they were phased out in 2011 by Presidential Proclamation 8031. Prior to the establishment of the Monument, recreational fishing had taken place at Kuaihelani and near Nihoa, although catch and effort data are unavailable for those activities.

The NOAA Office of Law Enforcement and USCG monitor fishing vessel activity 24 hours a day through a variety of electronic systems, including NOAA's domestic fishing vessel monitoring system, international regional fisheries management organizations' vessel monitoring systems, and automatic identification system reporting. Additionally, opportunistic and directed aerial and surface law enforcement patrols are conducted by the USCG in coordination with NOAA's Office of Law Enforcement. Between 2009–2019, these efforts identified a number of illegal commercial fishing incidents within PMNM, including four domestic cases involving Hawaiʻi-based longline vessels that resulted in initial assessments totaling over $154,000 (NOAA Office of General Counsel, 2020).

Military and Homeland Security Activities

Activities and exercises of the Armed Forces, including those of the USCG, law enforcement and activities necessary to respond to emergencies are exempt from the prohibitions provided in the Presidential Proclamations. U.S. Navy vessels sometimes support missile defense tests,

occasionally operating in the proposed sanctuary for those operations or other training exercises. Communication between the military and Monument co-managers generally occurs shortly before operations begin, to ensure a particular area is free of permitted activities and vessels conducting passage without interruption. A complete description of the U.S. Navy's activities that occur within and around the Monument (a relatively small percentage of their area of operations) and an analysis of their impacts can be found at Hawaii-Southern California Training and Testing Final Environmental Impact Statement/Overseas Environmental Impact Statement (U.S. Department of the Navy, 2018). The Navy is in the process of preparing a follow-on NEPA analysis to support renewal of current federal regulatory permits and authorizations that expire in December, 2025.

USCG maintains Aids to Navigation buoys around Kuaihelani and periodically enters the Monument to maintain those assets and/or to support other homeland security, law enforcement, or search and rescue activities. The size, remote location, and hazardous navigational conditions present significant enforcement challenges. USCG has long been the primary enforcement agency conducting surface and aerial patrols. However, with their broad mandates and large enforcement area, USCG has limited resources to allocate to Monument patrols. USCG operations in this region cover a broad range, including search and rescue, servicing aids to navigation, response to oil and hazardous chemical spills, inspecting commercial vessels for safety and environmental regulations compliance, interdiction of illegal narcotics and migrants, and enforcement of fisheries management laws (Mathers, 2005). NOAA, USFWS, and the State of Hawai‘i also have authority to enforce regulations within PMNM and are expected to share resources to fulfill the purpose, scope, and guiding principles discussed in the 2017 co-trustee Memorandum of Agreement to promote coordinated management of the Monument (Memorandum of Agreement, 2017).

Overview of Vessel and Air Traffic in the Monument

Vessel Traffic

With the exception of a few small boats at Lalo, Kuaihelani and Hōlanikū, no vessels have home ports in the NWHI. Therefore, almost all marine traffic consists of transiting merchant vessels, research ships, and fishing vessels. Cruise ships, USCG and U.S. Navy vessels, and recreational vessels visit the Monument infrequently. Prior to mandatory ship reporting for certain vessels with the designation of the PSSA (Section 4.2.1), a voluntary reporting system identified 545 vessels inside what became the PMNM boundary between 1994–2004. These vessels were mostly freighters and tankers (>65%) over 600 feet in length. Data from the reporting system collected from 2007–2023 provided a yearly average of approximately 200 vessels transiting through PMNM. The majority of these vessels are container ships, tankers, and military vessels.

Ship traffic within the Monument is cyclical, peaking from November through February, when the NWHI experiences high-energy large wave events from the northwest. Vessels deviate from their regular great circle routes to take advantage of more favorable sea conditions in the lee of the NWHI. During this period, 77% of transiting vessels pass between Manawai and Kapou. This is one of three routes through PMNM that provides uninterrupted and safe north-south passage through the proposed sanctuary. The other two routes, between Kamokuokamohoali‘i and

ʻŌnūnui/ʻŌnuiki and between Mokumanamana and Nihoa, are used much less frequently. Remaining areas between the islets and atolls are designated as Areas To Be Avoided.

Monument co-managers purchased a one-year dataset of the IMO's Automatic Identification System (AIS), a satellite-based reporting system required of all vessels 300 or more tons and all passenger ships regardless of size (SOLAS regulation V/19). The AIS provides an accurate picture of overall ship traffic and an estimate of how many ships comply with voluntary reporting and guidance. The AIS could also be used to identify vessels that transit the more ecologically sensitive areas of the proposed sanctuary. Based on a comparison of the AIS dataset and the reports sent to the Monument, the ship reporting system may be underreporting vessel activity by as much as 50%. This dataset also showed 17 vessels transiting through the Areas To Be Avoided without interruption, including 12 cargo vessels, three tankers, a research vessel, and a tug.

In 2021, there were 16 permitted vessel entries into the Monument done by nine vessels. Vessels supporting permitted activities include large research vessels, supply/cargo ships, fishing vessels used for conservation and management and research, USCG cutters, U.S. Department of Defense vessels, and voyaging canoes. Research vessels permitted since 2017 include NOAA's *Oscar Elton Sette*, *Hiʻialakai, Rainier*, and *Reuben Lasker*. Seven additional university or privately-owned research vessels also operated in the Monument during this period. Two supply/cargo ships, *Imua* and *Kahana II*, were employed for resupplying field camps and Kuaihelani operations, as well as used as chartered research platforms. Three fishing vessels were used for field camp deployment, bird relocations, and sailfish tagging research. Barges and tugboats operated within the area inconsistently on an as-need basis to support conservation and management activities. Finally, three voyaging canoes, *Hōkūleʻa, Hikianalia*, and *Makaliʻi*, have operated within the area.

NOAA maintains a small boat program, which includes its own priorities and action plans. NOAA establishes policies and procedures that promote the safe operation of small boats. The program provides operator training, staffing guidance, and engineering assistance to support NOAA's program needs. While NOAA's small boats are owned, maintained, and operated by individual line offices, the Small Boat Program Office provides administrative oversight and is the point of contact for support regarding engineering, inspections, and policy. All NOAA small boats are transported on larger research vessels that operate in the proposed sanctuary.

Vessels allow access, making activities possible in this vast and remote area. Vessels, however, introduce specific hazards to the marine environment, including groundings and fuel, chemical, and oil spills. Vessel activities can also have biological impacts, including the introduction of non-indigenous species through hull fouling or ballast water discharge, and from interactions with protected marine species. Other environmental threats from vessels include waste, effluent, bilge water discharge, light and noise pollution, and anchor damage. Managers address these threats through applying the prohibitions, permit conditions, and the application of BMPs, though mechanical failure and human error continue to present dangers. Vessel groundings and cargo spills occur infrequently within the Monument, and response to such emergencies has required exceptional collaborative interagency effort and resources to minimize effects on the fragile reef ecosystems. Responses to vessel hazards and groundings within the Monument

include prevention, research, removal, and salvage. Strategies for prevention include developing protocols and practices for safe vessel operations; informing users about hazards, regulations, permit requirements, and compliance regarding vessel operations; investigating domestic and international shipping designations; working with NOAA and USCG to update nautical charts and notices to mariners; and risk assessment. Monument management agencies respond to groundings to the extent possible.

Global trade utilizes large container ships to move cargo between Asia and North America. Thousands of shipping containers were lost in the vicinity of the proposed sanctuary in 2020 and 2021. Efforts were made to locate these containers utilizing satellite imagery and oceanographic modeling. Staff at Hōlanikū began reporting suspicious marine debris on February 18, 2021, and staff on Kuaihelani reported similar items starting on February 26, 2021. Items included: brand new Crocs with plastic display hangers, brand new WILSON volleyballs, children's sippy cups in new packaging, packages of toy "slime," latch-seal mason jars, medical respirator masks, drinking straws, bicycle helmets and unopened groceries. These events came less than three months after the *Maersk Eindhoven*, the *MSC Aries*, the *Maersk Essen,* and the *ONE Apus* lost 260, 41, 732, and 1,816 containers respectively near the proposed sanctuary. Monument staff found additional debris matching these descriptions as far south as Lalo in 2021 (Freightwaves, 2021).

Air Traffic

Kuaihelani has the only operational airstrip in Papahānaumokuākea, a 1.5-mile-long runway originally constructed for the former naval airbase. The airfield is now a FAA-certified, ETOPS (Extended-range Twin-engine Operations Performance Standards) emergency landing strip for aircraft crossing the Pacific. The USFWS and FAA support regular biweekly chartered flights carrying agency personnel, equipment, and supplies to and from Henderson Airfield. USFWS, in partnership with FAA, is responsible for the operation and maintenance of the airfield (USFWS, 2022). In 2021 there were 31 permitted flights to and from Kuahelani.

Chapter 5:
Environmental Consequences

This chapter analyzes the potential environmental impacts of the action and alternatives on the human environment. It evaluates changes in existing laws and management, the anticipated environmental impacts on physical and biological resources, and the anticipated environmental impacts to cultural and historical resources, human uses, and socioeconomic resources. A discussion of cumulative projects and impacts is presented in Section 5.6.

5.1 Approach to Impact Analysis

Selecting No Action would maintain the current management regime, with relevant factors presented in sections 3.2 and 4.2. This analysis assumes that existing activities would continue at current levels under all alternatives. The following analysis of the environmental consequences of the alternatives is based on review of existing literature and studies, information provided by experts, including NHPA Section 106 Consulting Parties, and the best professional judgment of NOAA staff.

Impact analysis for No Action (Section 5.2) describes the impacts of the status quo to provide a baseline for beneficial and adverse impact determinations of the alternatives. NOAA anticipates that implementation of the No Action Alternative would not result in any change to existing or expected future management or uses of the area, and therefore no new beneficial or adverse impacts would occur from the No Action Alternative. Impacts, both adverse and beneficial, presently occurring would continue.

Impact analysis for the action alternatives (sections 5.3, 5.4, and 5.5) is developed through consideration of the beneficial and adverse impacts on specific resources affected by the set of actions, based on the location of the resources and whether these resources occur within or outside each alternative's proposed sanctuary boundary. Impacts to human uses, including the regulatory and management burden of the alternatives, are evaluated based on the level of activity that occurs inside or outside of the boundary, and not necessarily specific locations within the proposed sanctuary. The proposed regulations are consistent for all of the alternatives and alternatives only vary in geographic extent. Alternative 1 is the largest, Alternative 2 excludes the MEA (50–200 nmi), and Alternative 3 includes the MEA but excludes the Midway Atoll and Hawaiian Islands NWRs waters. Alternatives 2 and 3 would have the same effects as Alternative 1 on those resources that occur within their respective proposed sanctuary boundary, because the proposed regulations would not change between these alternatives. Where alternatives exclude specific areas, regulation in the excluded areas would have predominantly the same effect as No Action. In addition, the impact of regulatory complexity associated with these boundary alternatives and their effect on human uses will be discussed. Otherwise, the discussion of impacts under alternatives 2 and 3 will refer to the relevant analyses of No Action and Alternative 1.

5.1.1 Scope of Impact Analysis

Most sanctuary designations require extensive analysis of the proposed action, since the benefits of resource protection identified in the purpose and need must be adequately weighed against potential adverse socio-economic impacts from regulatory measures that may restrict access or use, creating lost opportunities. This includes restricted fishing and recreational access, as well as higher costs due to stricter regulations while operating within a sanctuary, such as insurance requirements, discharge restrictions, and permit conditions, to name a few. Because of the existing management measures and protections enacted over the years, presented in sections 3.2 and 4.2, the proposed sanctuary designation primarily supplements existing protections and imparts only a few new restrictions and requirements on users. Sanctuary designation would not change the area's status as a marine national monument. Sanctuary designation would not remove existing regulations, and would not diminish any other existing authorities, including the USFWS' authority to administer Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge under the National Wildlife Refuge System Administration Act. Rather, it would give NOAA the authority to supplement existing protections.

Due to the remote location and the low level of activity across the proposed sanctuary, available data on human impacts are sparse. When there is incomplete or unavailable information during the evaluation of impacts, the agency may make evaluations based upon reasonably foreseeable causations and impacts (42 U.S.C. 4332(2)(C), 40 CFR 1502.21). As the occurrence of illegal activity, permit violations, and loss or injury to sanctuary resources in the future cannot be predicted, impacts of enhanced enforcement and authority to respond to and hold financially liable any person who destroys, causes the loss of, or injures any sanctuary resource are described qualitatively rather than quantitatively.

Resources within the Monument boundaries have received protection through previous actions, as described in sections 1.2.2, 3.2, and 4.2. Public access and activities are managed currently under No Action. The scope of the impact analysis focuses on minor changes proposed to improve consistency of regulations across the area of the proposed sanctuary and additional protections imparted by a sanctuary designation.

The sanctuary management plan describes strategies to meet the proposed sanctuary's goals and objectives and not specific activities. Any future permitted activities conducted in the proposed sanctuary would require individual environmental analysis as part of the permit review process. As the scope, nature, location, and timing of any specific future projects are currently unknown and will receive individual NEPA review before they are undertaken, they are not analyzed here.

This analysis also addresses the triggers, where applicable, for environmental review under Chapter 343, HRS (HEPA):

- Propose any use of state or county lands or the use of state or county funds.
- Propose any use within any land classified as a conservation district.
- Propose any use within any historic site as designated in the National Register or Hawai‘i Register.

5.1.2 Determining Significance and Quality of Impacts

NOAA's analysis of the environmental consequences of the alternatives is based on review of existing literature and studies, information provided by experts, and the best professional judgment of NOAA staff.

NEPA requires agencies to analyze the reasonably foreseeable environmental effects of the proposed agency action (42 U.S.C. 4332(2)(C)). CEQ defines "effects" or "impacts" to mean "changes to the human environment from the proposed action or alternatives that are reasonably foreseeable" and include direct, indirect, and cumulative effects.

Type of Impact. To facilitate meaningful analysis and to provide clarity to the public about the nature of the potential effects to the human environment that are reasonably foreseeable, CEQ directs agencies to divide the potential effects of the proposed action and alternatives into three categories: direct, indirect, and cumulative. NOAA applies the following meaning to these terms, consistent with historical practice and case law:

- Direct effects: A known or potential impact caused by the proposed action or project that occurs at the time and place of the action.
- Indirect effects: A known or potential impact caused or induced by the proposed action or project that occurs later than the action or is removed in distance from it but is still reasonably expected to occur.
- Cumulative effects: A known or potential impact resulting from the incremental effect of the proposed action added to other past, present, or reasonably foreseeable future actions.

Duration of Impact. NOAA describes the duration of potential impacts as either short-term, long-term, or permanent. This indicates the period of time during which the resource would be impacted. Duration considers the permanence of an impact and is defined as:

- Short-term: A known or potential impact of limited duration, relative to the proposed action and the environmental resource. For the purpose of this analysis, short-term impacts may be instantaneous or may last minutes, hours, days, or up to five years.
- Long-term: A known or potential impact of extended duration, relative to the proposed action and the environmental resource. For the purpose of this analysis, long-term impacts would last longer than five years.
- Permanent Impact: A known or potential impact that is likely to remain unchanged indefinitely.

Significance of Impact. The various levels of impact used in this analysis are:

- No Impact: No effect would occur on the resource.
- Negligible: Impacts on a resource can barely be detected and are therefore discountable. Negligible impacts are not qualified as beneficial or adverse.
- Minor: Impacts on a resource that might be perceptible but are typically not measurable. Impacts would generally be localized and temporary and would not alter the overall condition of the resource from the status quo. For organisms, individuals may be affected but population-level impacts would not occur.

- Moderate: Impacts on a resource that are more perceptible and, typically, more amenable to quantification or measurement. They can be localized or widespread and could alter the overall, fundamental condition of the resource from the status quo. Impacts would not rise to the level of significance as defined below.
- Significant: Impacts resulting in a substantial structural or functional alteration of the state of a resource. Long-term or permanent impacts or impacts with a high intensity or frequency of alteration to a resource, whether beneficial or adverse, would be considered significant. For organisms, a significant impact may mean that population-level impacts would occur. The significance threshold is evaluated on a case-by-case basis, taking into consideration the potentially affected environment and degree of the impact(s).

Quality of Impact. Potential impacts are described as either beneficial or adverse as follows:

- Beneficial impact: Impacts that promote favorable conditions for the resource.
- Adverse impact: Impacts that are likely to be damaging, harmful, or unfavorable to one or more of the resources.

5.1.3 Guiding Questions and Assumptions for Impact Analysis

The limited changes to management, permitting, and regulations that are entailed in the alternatives confines the analysis to a few specific issues. For each resource, the following questions were considered, and where relevant, directed NOAA's analysis:

- What threats are facing the resource and how do the proposed regulations address those threats by providing protection?
- How does the spatial extent of the proposed sanctuary affect the resources, natural environment, cultural heritage, and human uses in and around the proposed sanctuary?
- What new administrative and operational burdens associated with access are anticipated?
- How do the proposed changes in the management structure affect public access, user opportunities, conservation measures, and enforcement?

Based on the remoteness of the proposed sanctuary (nearly 300 miles at its closest point from the main Hawaiian Islands), the proposed action is not expected to increase the level of human activity, including permitted activity, in the area of the proposed sanctuary.

5.1.4 Identify Routes of Effect or Impact Producing Factors

The nature of existing conditions in Papahānaumokuākea is based upon available literature and the direct knowledge of the Monument staff and scientists who assisted in the preparation of this final EIS. Where location-specific information is available, these data are utilized, and when lacking, general conditions of the ecosystem are utilized with appropriate qualifications. For regulatory and management measures proposed within the proposed sanctuary, the methodology used to determine whether effects on the physical and biological environment and human environment would occur is described in the subsequent sections.

Laws and Management

The analysis of the alternatives' impact on the Monument management system includes the key changes, the rationale for these changes, the effect these changes have on the management of proposed sanctuary resources, and how that management is affected by the various boundary alternatives. The steps taken to evaluate how each alternative would impact laws and management is as follows:

- Analyze the impacts on resources and resource uses under existing federal and State authorities (No Action) and under existing federal and State authorities plus the NMSA (action alternatives).
- Analyze the impact of the minor regulatory changes to management.
- Analyze how the personnel and administrative support may change.
- Analyze how law enforcement may change.
- Analyze the impact of the sanctuary management plan on management.

Physical Resources: Water Quality and Habitat

Physical resources within the proposed sanctuary with the potential for impact include habitat and water quality. Habitat consists of both abiotic and biotic components. Abiotic components include sand, rocks, fossil reef, and coral skeleton. Biotic components are principally living coral, the foundation of the coral reef community. Analyses pay specific attention to the carbonate reef structure and other nearshore benthic habitat. In many cases, threats to habitat and living coral are the same and potential impacts from the alternative are often identical. Potential impacts to habitat can result from both poor water quality (e.g., sedimentation, pathogens) and physical damage (e.g., vessel groundings, marine debris). Impacts to water quality from vessel discharge and other marine-based human activities in Papahānaumokuākea are analyzed. The steps taken to evaluate how each alternative would impact water quality and habitats are as follows:

- Evaluate activities and threats described in Chapter 4 to identify the potential effect on marine water quality, emphasizing nearshore waters and benthic habitats.
- Review available literature on the anthropogenic causes of nearshore habitat degradation, assess the level at which these are occurring under No Action, and evaluate if each alternative affects the anthropogenic causes.

Biological Resources

Biological resources within the proposed sanctuary include marine plants, corals, benthic invertebrates, fish, mobile invertebrates, sea turtles, marine mammals, and seabirds. Potential impacts to biological resources can result from natural and anthropogenic causes, both of which are critical to monitor and address. This includes degradation of the coral reef from storms and marine debris, impacts from passive (e.g., drifting within marine debris) and accidental introduction of invasive species, ship groundings, and other anthropogenic activities occurring on land and in the waters of the proposed sanctuary. The steps taken to evaluate how each alternative would impact these resources are as follows:

- Review and evaluate activities and threats to identify the action's potential impact on biological resources.
- Evaluate each alternative, identifying its potential to affect the ecosystem and individual biological resources within the proposed sanctuary, including damage to the coral reef and associated habitats, excessive disturbance of marine life, presence of introduced species, and depletion of species from directed harvest.
- Assess the compliance of each alternative with applicable federal, State, or local regulations and laws, including the Hawai'i Department of Land and Natural Resources (DLNR) regulations, ESA, and Marine Mammal Protection Act (appendices C and E).

Maritime Heritage and Cultural Resources

Maritime Heritage constitutes a wide variety of tangible properties on the seafloor, inclusive of the historic battlefield associated with the Battle of Midway. As described in Section 4.5.1, cultural resources consist of the place—sea, land, sky, and the natural resources therein. Native Hawaiian culture in Papahānaumokuākea is living—past, present, and future. It is with these differing lenses that maritime heritage and cultural resources are analyzed. The steps taken to determine how a sanctuary alternative would impact these resources are:

- Review the National Register of Historic Places, archaeological survey data, and relevant inventories of historic places for pre-contact and historic resources.
- Review cultural resources reports, permit reports, and discussions with subject matter experts to assess how the action's potential impact determines appropriate (pono[10]) future activities and conduct of permittees.
- Identify activities that could affect those resources, and determine how the alternative affects the type and magnitude of potential direct and indirect impacts.
- Consider how access issues and proposed regulations affect future Native Hawaiian and Maritime Heritage activities.
- Identify the risks and benefits of the study of these resources to enhance protection and appreciation.
- Review protections granted under the NHPA and other legislation (see Appendices C and E).

NOAA has made a Finding of No Historic Properties Affected (Finding) for the undertaking of designating a national marine sanctuary within the existing Monument, pursuant to 36 CFR § 800.4(d)(l). NOAA has prepared this documentation following the standards outlined in 36 CFR § 800.11(d). The consulting parties have been notified of the Finding and the Finding was provided to the Hawai'i State Historic Preservation Division for concurrence. The finding is being made available to the public through publication in this EIS, see Appendix C.

In addition, NOAA engaged with the State of Hawai'i DLNR as they conducted their Cultural Impact Assessment (CIA). The State of Hawai'i CIA is triggered by requirements of the HEPA, Hawaii Revised Statutes (HRS) §343, and was conducted parallel to the NHPA Section 106

[10] 50 CFR § 404.3 "Pono" means appropriate, correct, and deemed necessary by traditional standards in the Hawaiian culture.

process and NEPA review conducted by NOAA. The program is codified under HRS Chapter 6E recognizing the State's constitutional duty to conserve and develop the historic and cultural property in the State. The State Historic Preservation Division (SHPD) review includes identification and inventory of historic properties, evaluation of significance of the properties, determination of effects to significant properties, and mitigation. Pursuant to HRS § 6E-8 and HAR § 13-275-3, DLNR submitted a written request to SHPD for an agency determination letter. On June 7, 2024, SHPD concurred with DLNR's determination of no historic properties affected.

A legal analysis was also conducted to support the State's constitutional duties to protect Native Hawaiian traditional and customary practices. Nohopapa Hawai'i, LLC created the document *E Ho'i I Ke Au A Kanaloa* (Nohopapa Hawai'i, 2023) containing the CIA and a legal analysis relating to Native Hawaiian rights and cultural resources.

The CIA presents a detailed genealogy of Papahānaumokuākea, its connection to Native Hawaiian history and the main Hawaiian Islands, and the cultural resources, practices, beliefs, and spirituality associated with this biocultural seascape that are fundamental to Native Hawaiians. Following extensive outreach to identify individuals and groups interested in participating, Nohopapa Hawai'i, LLC interviewed 25 people with connections to Papahānaumokuākea. These interviewees identified their cultural practices and connection to Papahānaumokuākea, potential impacts to these practices and cultural resources, recommendations, and other considerations. The CIA outlines several Native Hawaiian customs such as voyaging, kilo (Indigenous observational science), feather gathering, and fishing. Based on analysis in the CIA, these traditions and customs are not significantly impacted by sanctuary designation but may actually be subject to greater protection with sanctuary designation.

Potential effects on historic properties, including to properties of cultural importance, were identified through the NHPA Section 106 process and through the State's CIA process. Consultees identified various potential impacts to cultural resources by the proposed sanctuary designation. The potential impacts identified included both adverse and beneficial impacts as well as potential impacts by actions external to sanctuary designation. Consultees also provided recommendations regarding mitigation of adverse impacts to cultural resources that could be carried out both within and outside of the proposed sanctuary designation. This final EIS analysis focuses on potential impacts to cultural resources by sanctuary designation, including impacts relating to access for cultural practices, culturally sensitive management and research, protection of resources, and perpetuation of Native Hawaiian culture. The analysis also addresses feasible recommendations regarding mitigation of adverse impacts to cultural resources by sanctuary designation, such as fostering access for Native Hawaiian cultural practices and stewardship, improving protection of resources, enhancing outreach to Native Hawaiian communities, and elevating Indigenous science.

Socioeconomics, Human Uses, and Environmental Justice

For activities proposed within the sanctuary or intended to improve management of the sanctuary, the methodology used to determine how an alternative would impact socioeconomic resources and environmental justice is as follows:

- Review and evaluate ongoing and past activities, including non-commercial fisheries, tourism, education, and outreach efforts within and outside the action area, to identify the action's potential to affect socioeconomics within the Hawaiian Islands.
- Review and evaluate additional permitting and operational burdens for activities within the proposed sanctuary, identifying their potential to affect access and opportunities for human use of the area and resources within Papahānaumokuākea.
- Review and evaluate the potential disproportionate effects on low-income or minority populations and the potential for increased adverse health risks to children.

The criteria to determine the environmental consequences associated with socioeconomic, demographic, and environmental justice are based on federal, State, and local standards and regulations. Environmental justice involves disproportionate impacts on low income or minority populations. Impacts are considered to be significant if the action alternatives were to result in:

- Substantial changes in unemployment rate.
- Substantial changes in total income.
- Substantial changes in business volume.
- A conflict or inconsistency with established land use plans (e.g., county plans).
- A substantial change in existing land uses.
- An interference with the public's right of access to the sea.
- A long-term preemption of a recreational use or substantial temporary preemption during a peak use season.
- Substantial changes to the status of low-income and minority populations, as well as to the health and well-being of children.

The method of analysis applied to the socioeconomics and environmental justice issue areas is primarily qualitative since there is very little quantitative information to assess the proposed action and alternatives.

5.2 Impacts of the No Action Alternative

Under the No Action Alternative, NOAA would not designate a national marine sanctuary, and the existing operations and management within the Monument would continue. Regulations and permitting are expected to continue to exist for PMNM; however, there are no implementing regulations for the provisions of Presidential Proclamation 9478 for the MEA. Continuation under No Action would not result in any change in the existing uses of the Monument. The lack of implementing regulations to permit activities in the MEA could lead to future impacts from unregulated activities. No Action would forgo the beneficial and adverse impacts of implementing Alternative 1 (Section 5.3), Alternative 2 (Section 5.4), and Alternative 3 (Section 5.5) on the resources and human activities in the Monument.

5.2.1 Impacts on Laws and Existing Management

Under No Action, the regulations and management described in sections 3.2 and 4.2 would remain in effect. Threats to Monument resources would continue to be the focus of management, research, and conservation actions. Actions taken to address these threats would still be permitted and undergo comprehensive environmental reviews.

The management authorities described in Chapter 3 and listed in Table 3.1, including the NWRSAA and HAR 13-60.5, provide a variety of management and regulatory tools to manage and provide protections for certain areas and resources within the Monument, and issue penalties within their respective jurisdictions.

Activities authorized by the Monument co-trustees would continue to operate under the regulations at 50 CFR part 404, including access restrictions and permitting requirements as described in sections 3.2 and 4.2.5. While activities occurring within the MEA must remain consistent with the requirements of Presidential Proclamation 9478, there are no codified regulations, including permit requirements or access restrictions provided by Presidential Proclamation 9478. Activities not listed as prohibited could be conducted without NOAA permits or other management conditions. Further, NOAA would not have regulations to issue civil penalties related to violations of Presidential Proclamation 9478 in the MEA, and the co-trustees have only limited authority to issue criminal penalties across the rest of the Monument. NOAA has not documented direct negative impacts to Monument resources based on the lack of penalty authorities. However, based on NOAA's extensive experience in enforcing federal statutes in the marine environment, NOAA concludes that there is a higher potential for user violations that adversely affect marine resources in areas where NOAA lacks these supplemental authorities.

Monument management, including the various working groups that provide the foundation of cooperative management, would continue to address emerging and ongoing management and natural resource issues, analyzed in the following resource sections. Defined roles among the co-trustees and MMB would remain, providing continuity of management. All existing authorities described in Section 3.2 would remain in effect under No Action, as well as all action alternatives.

5.2.2 Impacts on Physical Resources

The study area would remain the same as the status quo and would not be subject to the proposed regulations and sanctuary management plan described in Chapter 3. NOAA anticipates that the No Action Alternative would result in the continuation of existing impacts, including ongoing impacts from the threats described in Section 4.3. These threats, and potential impacts to physical resources associated with human activities in the Monument, would continue to be addressed to a certain degree through existing Monument management and existing federal and State authorities and programs.

Under the No Action Alternative, discharge regulations for PMNM, which restrict the release of harmful pollutants and protect water quality, would continue to exist. However, Presidential Proclamation 9478 for the MEA does not address discharge. This represents a gap in effective management of threats to Monument physical resources, including in the area of the proposed sanctuary that overlaps with the MEA.

As stated above, NOAA does not have regulations to issue permits or civil penalties for the MEA. NOAA has not documented direct negative impacts to MEA resources based on the lack of regulations or penalties. However, based on NOAA's extensive experience in enforcing federal statutes in the marine environment, NOAA concludes that there is a higher potential for user

violations that adversely affect marine resources in areas where NOAA lacks these supplemental authorities.

The No Action Alternative forgoes specific resource protection measures provided with sanctuary designation, including the NMSA's damage assessment authority; penalty authorities; required interagency consultations for federal agency actions likely to destroy, cause the loss of, or injure any sanctuary resource; and the ability to implement emergency regulations. These impacts are characterized as benefits in sections 5.3.2 and 5.3.3.

5.2.3 Impacts on Biological Resources

The study area would remain the same as the status quo and would not be subject to the proposed regulations and draft management plan described in Chapter 3. NOAA anticipates that the No Action Alternative would result in the continuation of existing impacts, including ongoing impacts from the threats described in Section 4.3. These threats, and potential impacts to biological resources associated with human activities in the Monument, would continue to be addressed to a certain degree through existing Monument management and existing federal and State authorities and programs. Ongoing impacts include climate change, marine debris, derelict fishing gear, and deteriorated seawalls, which primarily impact corals, sea turtles, and the ʻīlioholoikauaua. The ongoing threats to habitat and water quality summarized in Section 5.2.2 have similar consequences for corals and other benthic biological resources.

Management under the No Action Alternative addresses many long-standing, predominantly external, threats. For example, invasive species present one of the greatest threats to the Monument ecosystems, with potential devastating effects to the marine environment. Current management includes measures to stop invasive species from entering and taking hold in the Monument, including vessel inspection requirements and the ongoing Invasive Algal Working Group. As described in the State of the Monument Report (2020), Monument managers continue to address these issues through research efforts, conservation programs, and education, as well as through permit requirements and enforcement of existing regulations in the PMNM.

As stated above, NOAA does not have regulations to issue permits or civil penalties for the MEA. NOAA has not documented direct negative impacts to MEA resources based on the lack of permitting regulations. However, based on NOAA's extensive experience in enforcing federal statutes in the marine environment, NOAA concludes that there is a higher potential for user violations that adversely affect marine resources in areas where NOAA lacks these supplemental authorities.

The No Action Alternative forgoes specific resource protection measures provided with sanctuary designation, including the NMSA's damage assessment authority; penalty authorities; required interagency consultations for federal agency actions likely to destroy, cause the loss of, or injure any sanctuary resource; and the ability to implement emergency regulations. These impacts are characterized as benefits in sections 5.3.2 and 5.3.3.

5.2.4 Impacts on Cultural and Historical Resources

The study area would remain the same as the status quo and would not be subject to the proposed regulations and draft management plan described in Chapter 3. As biological resources are also considered cultural resources to many Native Hawaiians, the ongoing and future potential impacts to biological resources described above affect the cultural significance as well.

Threats to the maritime heritage resources would continue, including illegal salvage/looting, anchoring damage, and other intentional or inadvertent human impacts, as well as degradation over time, potentially exacerbated by impacts from climate change. NOAA anticipates that the No Action Alternative would result in the continuation of existing impacts and potential future impacts as described in Section 4.5.

Cultural heritage has been an important aspect of management since the designation of the Reserve in 2000. The integration, promotion, and awareness of Native Hawaiian culture, history, traditional knowledge systems, religion, mythology, and spirituality, as well as Papahānaumokuākea's connection to the greater Pacific Ocean and associated cultures, has been a fundamental principle of Monument management since its designation. The CIA addresses the potential for impacts to cultural practices and resources as well as the importance of facilitating Native Hawaiian cultural access for voyaging, kilo (Native Hawaiian scientific study), feather collecting, and sustenance fishing. Some interviewees shared concerns for "western" research and non-commercial fishing as not culturally appropriate in the Monument. Under current management, these issues are addressed. Every Monument permit application is reviewed by the CWG, who provide recommendations to OHA to ensure adherence to this principle. The RAC, the CWG, Mai Ka Pō Mai guidance document, cultural training for permittees, employment of biocultural resource monitors, and numerous other initiatives will continue to guide Monument management under the No Action Alternative. These procedures, particularly for accessing sensitive areas such as marine areas around Nihoa and Mokumanamana, reduce the potential of adverse impacts.

Historic resources within PMNM, specifically maritime heritage military and nonmilitary wrecks, are protected through access restrictions, permit requirements, and codified regulations, which supplement protections for U.S. military resources provided through the Sunken Military Craft Act. Presidential Proclamation 9478, the guiding document for the MEA, does not explicitly restrict access to the MEA, nor does it include exploration for sunken artifacts as one of the activities subject to permitting. In the MEA, sunken military craft are managed and protected through the Sunken Military Craft Act. While NOAA has not documented direct negative impacts to MEA resources that are not under the authority of the Sunken Military Craft Act based on the lack of permitting authorities for exploration of maritime heritage resources, it is reasonable to conclude that resources not under the authority of the Sunken Military Craft Act may be adversely impacted by unregulated activity.

5.2.5 Impacts on Socioeconomic Resources, Human Uses, and Environmental Justice

The study area would remain the same as the status quo and would not be subject to the proposed regulations and draft management plan described in Chapter 3. Under the No Action Alternative, the impacts from the proposed sanctuary designation would not be realized. For example, the No Action Alternative would prevent NOAA from implementing additional resource protections and access and permitting requirements that would impact human uses.

Under No Action, the Monument provides a number of social and economic benefits, through the promotion of cultural initiatives and Native Hawaiian access, maritime heritage, resource protection, scientific research, and education and outreach. National and international recognition of the area began in 1909, continuing through the designation of the Reserve followed by the Monument and UNESCO World Heritage recognition. Management of the Monument generates jobs, research funding, grant programs, and other direct economic benefits to the State. Access is permitted in PMNM for individuals and groups whose proposed activities meet the criteria of one of the six permit types. In addition, a main objective of the Monument co-trustees is to bring this culturally, ecologically, and historically significant place to the people through interactive media and community events.

While activities occurring within the MEA must remain consistent with the requirements of Presidential Proclamation 9478, there are no codified regulations, including permit requirements or access restrictions provided by Presidential Proclamation 9478.

5.3 Impacts of Alternative 1

This section describes the beneficial and adverse impacts from implementing Alternative 1, which includes the following components, described in detail in Chapter 3:

1) Sanctuary boundary.
2) Regulations and permitting process.
3) Sanctuary management plan and program support.

For the purposes of the analysis, the primary focus is on the impacts caused by the differences between Alternative 1 compared to existing management under the No Action Alternative.

5.3.1 Impacts on Laws and Existing Management

As stated in the purpose and need for the proposed action, alternatives must supplement and complement, rather than supplant, the existing Monument management structure. As such, the proposed regulations, permitting process, and sanctuary management plan have been developed to minimize impacts to the laws and existing management. Rationale for changes to these impacts are discussed below.

Beneficial Impacts on Laws and Existing Management

Under Alternative 1, regulations promulgated under the NMSA would largely be consistent with existing Monument regulations. Minor changes in the proposed regulations would remove discrepancies and gaps in prohibitions, regulated activities, and permitting across the PMNM

and MEA (see Section 3.4.2). Vessels conducting passage without interruption would be required to comply with new discharge restrictions in the area of the proposed sanctuary that overlaps with the MEA. Vessels wishing to conduct regulated activities within the area of the proposed sanctuary that overlaps with the MEA would be required to obtain a permit and adhere to all regulations and permit conditions, including installing VMS that remains on and working when in sanctuary waters. Extending the VMS requirement to the MEA supports monitoring and enforcement, and provides NOAA with a tool to track vessel activity to ensure permit compliance, provide information for USCG or other entities to know the location of an incapacitated vessel and react quickly, and manage sanctuary resources through spatial analysis of activities.

The scope and goal of management actions under Alternatives 1 would be similar to No Action. Both are guided by the same goals and objectives and permit criteria. The research, education and outreach, maritime heritage, and cultural resources programs are supported by the same staff and would operate consistently under all action alternatives. Ongoing maritime heritage and cultural resources programs would continue to add to the knowledge gained over the past two decades and continue to strive to uphold the sacred nature of Papahānaumokuākea. Current efforts to address the threats of climate change, invasive species, and marine debris would continue. The proposed sanctuary designation is not expected to increase the number of annual permits issued, or the level of vessel traffic or person-hours within the action area.

Possibly the most significant difference between No Action and Alternative 1 is the enactment of National Marine Sanctuary Program regulations (15 CFR part 922), allowing ONMS to supplement existing authorities through: 1) emergency regulations; 2) penalties; and 3) authorities to respond to and hold financially liable those responsible for destruction or loss of, or injury to sanctuary resources. Emergency regulations give ONMS the authority to implement immediate temporary regulations where necessary to prevent or minimize the loss or injury to a sanctuary resource. A penalty schedule provides law enforcement with a new tool for violations of sanctuary regulations, potentially improving compliance. The response cost and damage regulation make any person (or vessel) who destroys, causes the loss of, or injures any sanctuary resource liable for response costs and damages resulting from such destruction, loss, or injury. The enactment of National Marine Sanctuary Program regulations at 15 CFR part 922 may have been effective for past events in PMNM, such as the vessel groundings described in Section 4.3.1 and the lost cargo containers in Section 4.6.2. In addition, funds collected from penalties and response costs and damages are available to conduct restoration for damaged resources and comparable resources within the sanctuary. In addition, establishment of a national marine sanctuary would not diminish USFWS' authority to administer Midway Atoll National Wildlife Refuge and Hawaiian Islands National Wildlife Refuge under the National Wildlife Refuge System Administration Act. Where the sanctuary overlays Midway Atoll NWR and Hawaiian Islands NWR, NOAA will implement the NMSA to provide supplemental authority to protect resources.

These additional authorities provide ONMS with new tools to improve management and compliance, and address impacts to resources, providing a direct, long-term, moderate beneficial impact to laws and existing management, based on NOAA's experience with implementing these authorities.

Adverse Impacts on Laws and Existing Management

While NOAA is a member of the MMB and current management would remain largely unchanged, for activities in the MEA, Alternative 1 imparts a new management authority in addition to the authorities described in sections 3.2 and 4.2.2. Co-trustees of the Monument may update the existing memorandum of agreement to reflect the addition of the proposed sanctuary. These changes are anticipated to have negligible impacts on laws and management in the action area.

Under all of the action alternatives, NMSA Section 304(d) would require consultation for any federal agency action that is likely to destroy, cause the loss of, or injure any sanctuary resource. This requirement applies to all federal agencies. Based on NOAA's experience administering NMSA Section 304(d), this requirement to engage in consultation is not likely to cause an adverse impact.

Summary of Impacts on Laws and Existing Management

NOAA has determined that implementing Alternative 1 would have **direct, long-term, moderate beneficial impacts** on laws and existing management.

5.3.2 Impacts on Physical Resources

Given the nature of the proposed action, most physical resources, including noise, air quality, geology, and view planes, will not be affected and are not analyzed. Potential impacts to water quality was analyzed, as it relates to vessel discharge, a proposed regulated activity. Habitat, which can be impacted by both natural events and human activity, has also been analyzed.

As noted in Section 5.1, the low level of activity and available data on impacts to physical resources requires a theoretical approach to potential but reasonably foreseeable impacts from future threats.

Beneficial Impacts on Physical Resources

Implementing Alternative 1 would benefit physical resources in the action area, addressing the threat of user violations by creating a stronger deterrent to permit and regulatory violations through the supplemental penalty authority specific to the proposed regulations, as well as providing a mechanism to conduct damage assessments and hold the permittee or vessel liable for response costs and damages resulting from such destruction, loss, or injury. Passage without interruption is known to be conducted by large container ships (Section 4.6.2) crossing through Areas To Be Avoided, with voluntary reporting. This partially documented activity poses a rare but significant risk to physical resources within the Monument, with minimal ability to hold vessels that accidentally or negligently run aground accountable. Implementation of a penalty schedule, the ability to implement emergency regulations, and ONMS' damage assessment authority is expected to provide a direct, long-term, moderate beneficial impact to the physical resources of the proposed sanctuary, based on NOAA's experience with implementing these authorities.

Under Alternative 1, NOAA would implement regulations and expand the existing permitting system to protect resources in the MEA. While the area of the proposed sanctuary that overlaps

with the MEA consists primarily of pelagic water overlying deep abyssal plains, numerous banks and seamounts occur throughout. These seamounts act as important habitats in primarily pelagic waters, attracting fish and other large predators that are supported by the increased productivity. In addition, recruitment of pelagic larval organisms, including corals, to isolated seamounts is often a rare event (Crochelet et al., 2020), which results in slower recovery of damaged habitat than nearshore habitats. Anchoring and the dragging of anchor chains, deployment of tethered equipment, and unregulated fishing, among other activities, can result in damage to habitat, scarring and reducing the complexity necessary to support biodiversity. In depths at which these seamounts occur, an anchor and other tethered equipment could drag across a huge area. Regulations, including the prohibition to alter the seabed by modification or placement of materials, except for scientific instruments in the area of the proposed sanctuary that overlap with the MEA, provide new protections for these limited and sensitive habitats. Under Alternative 1, access through permitting would allow for managers to review methodologies and monitor permittees, protecting these banks and seamounts. These measures would also protect alteration of the deep seabed of the MEA. While minimal user contact with the seafloor occurs or is anticipated in the area of the proposed sanctuary that overlaps with the MEA, these resources are rare and extremely vulnerable to disturbance. As such, implementing these new regulations in the Alternative 1 boundary area provides direct, long-term, minor benefit to physical resources of the MEA.

Under Alternative 1, discharge would be regulated for vessels conducting passage without interruption throughout the proposed sanctuary, extending the existing regulation from PMNM to the area of the proposed sanctuary that overlaps with the MEA. The regulation of vessel discharge would benefit water quality in the MEA, although given the pelagic nature of this vast area and low vessel presence, this benefit would be negligible related to most vessel activity. For example, container ships with only a few crew members generate minimal sewage and graywater. Conversely, cruise ships could impart a moderate adverse impact to sanctuary resources. A cruise ship with 3,000 people on board generates 150,000 gallons of sewage and greywater per day as well as hazardous wastes such as oily bilge water and bio-waste containing viruses (Ahmed, 2022). These vessels would now be prohibited from discharging anything other than approved marine sanitation device effluent, cooling water, and engine exhaust throughout the Alternative 1 boundary area. Discharge would continue to be regulated through permitting as is done under No Action, allowing for flexibility in managing discharge. For example, permit conditions for discharge would likely differ between a large research vessel and a Hawaiian sailing canoe, while still protecting sanctuary resources. This proposed regulation provides a direct, long-term, moderate benefit to water quality throughout the Alternative 1 boundary area.

Adverse Impacts on Physical Resources

Implementing Alternative 1 would produce no potential adverse impacts on physical resources because the proposed management measures are protective in nature, primarily providing regulations (e.g., discharge limitations) and enforcement deterrents (e.g., civil penalties for infractions) to limit impacts to the physical environment. In addition, existing regulations and the remote nature of the site effectively limit an increase in human and vessel presence.

Summary of Impacts on Physical Resources

Overall, NOAA determined that implementing Alternative 1 would have **direct, long-term, moderate beneficial impacts** on physical resources.

5.3.3 Impacts on Biological Resources

Biological resources include a diversity of shallow-water coral reef species, deep-water fish and invertebrates, and pelagic fish, as well as protected species of sea turtles, dolphins, whales, and the ʻīlioholoikauaua. The co-trustees and partner agencies conduct active management for many of these species, with potential impacts from specific projects assessed through the Monument permitting system. The following analysis addresses how proposed management measures impact external threats, accidents, and permit and regulatory violations.

As noted in Section 5.1, the low level of activity and available data on impacts to biological resources requires a theoretical approach to potential but predictable impacts from future threats.

Beneficial Impacts on Biological Resources

Implementing Alternative 1 would benefit biological resources in the action area. Under Alternative 1, the proposed sanctuary boundary includes all marine waters starting at the shoreline of the Northwestern Hawaiian Islands and extending to the boundary of the U.S. EEZ. This is notable, as the potential for impact to biological resources is greater in the shallow areas of the proposed sanctuary. Further, threats and potential impacts are also higher where human presence is greatest. For example, the introduction and spread of non-indigenous species, accidental groundings, and general disturbance of the biological resources increase with increased human presence (Halpern et al., 2008). Kuaihelani and Hōlanikū experience the highest annual average of human presence, constituting 83% and 11% of the total presence in the proposed sanctuary, respectively (NOAA ONMS, 2020). While safeguards to protect biological resources exist under No Action, sanctuary designation offers additional benefits for the marine waters around Kuaihelani and Hōlanikū as well as around other islands and atolls. Based on NOAA's extensive experience in enforcing federal statutes in the marine environment, NOAA concludes that NMSA regulations may better inform users and dissuade user violations by creating a stronger deterrent to permit and regulatory violations through the supplemental penalty authority specific to the proposed regulations. Sanctuary designation would also provide a mechanism to impose liability for destruction, loss of, or injury to sanctuary resources. Under Alternative 1, implementation of a penalty schedule, the ability to implement emergency regulations, and ONMS' damage assessment authority provides a direct, long-term, moderate beneficial impact to the biological resources of the Alternative 1 boundary area based on NOAA's experience with implementing these authorities.

Illegal fishing incidents within PMNM, described in Chapter 4, resulted in significant fines (NOAA Office of General Counsel, 2020). Given the current lack of codified regulations, enforcement of domestic illegal fishing in the MEA does not carry the same penalties and may result only in a warning to violators. Under Alternative 1, law enforcement would be strengthened in the MEA, including the option to impose civil penalties throughout the

Alternative 1 boundary area, providing a direct, long-term, moderate beneficial impact to biological resources.

There are known and potential maritime heritage resources in the waters of the MEA. These underwater resources are often the only hard substrate in the MEA for dozens or hundreds of miles, and ecosystems and biological resources often build up around them. Disturbing these maritime heritage resources also disturbs these habitats and biological resources, which may not be protected from searching for, potentially damaging, or claiming recovery rights to wrecks or artifacts. Under Alternative 1, access restrictions would require these users to obtain a sanctuary permit, abide by permit conditions including accommodating a resource monitor, and provide reports on their activities. Under Alternative 1, these requirements would reduce the rare threat of user violations and accidents at these sites. As such, implementing these new regulations in the Alternative 1 boundary area provides direct, long-term, minor benefit to biological resources at these deep-water isolated sites of the MEA.

While no threats to species protected under the ESA, MMPA, or the MBTA from past permitted activities have been identified (NOAA ONMS, 2020), Presidential Proclamation 9478 explicitly notes the importance of the MEA for the protection of endangered species. NMSA regulations would provide additional statutory authority to ensure future activities in the MEA are consistent with these statutes to achieve this goal of the Proclamation. The additional protection measures provided under Alternative 1 provide negligible impacts for protected species.

Adverse Impacts on Biological Resources

While all permitted activities cause disturbance to wildlife, through vessel noise, placement of equipment and instruments, and general human presence, the number of permitted activities and people operating in the Alternative 1 boundary area has been falling over the past 17 years (NOAA ONMS, 2020). As the Monument is already globally-renowned, sanctuary designation is unlikely to increase research and other permitted activities. While any increase in permitted activity would be speculative, the potential impact on biological resources would likely be short-term and negligible.

Summary of Impacts on Biological Resources

Overall, NOAA determined that implementing Alternative 1 would have **direct, long-term, moderate beneficial impacts** on biological resources.

5.3.4 Impacts on Cultural and Historical Resources

Kānaka ʻŌiwi view Papahānaumokuākea as a biocultural seascape, where the sea, land, and other components within are integral to their cultural heritage (Kikiloi, 2010). As such, direct impacts described for physical and biological resources are relevant to the cultural resources analysis but will not be repeated. As described in the analysis of the No Action Alternative, cultural heritage is an important focus of Monument management, ensuring use of appropriate protocols, employing biocultural resource monitors on permitted activities, and numerous other measures to protect tangible and intangible cultural resources. These efforts, described below, would continue throughout sanctuary waters under Alternative 1.

Numerous maritime heritage resources (including World War II American and Japanese military vessels and aircraft) occur in unknown locations across the deep northwestern waters of the Monument. Effects of Alternative 1 on maritime resources are described below.

Beneficial Impacts on Cultural and Historical Resources

Cultural Resources

As described in Section 4.5.1, access to and interaction with Papahānaumokuākea directly affects the living Native Hawaiian culture and its people. This includes spiritual well-being, survival of religious and cultural practices, and preservation of sites of historical importance. This cultural and historic heritage was further emphasized in 2010 by UNESCO World Heritage designation, and is integrated into Monument management, ensuring that permitted activities respect, acknowledge, and care for all biocultural resources and the perpetuation of Native Hawaiian culture. Sanctuary designation under Alternative 1 ensures that this perspective continues to be achieved in the MEA through regulations, a permitting system, and guidance of cultural practitioners. The CWG would continue to review all permit applications, ensuring that activities proposed in the area of the proposed sanctuary that overlaps with the MEA would be subject to cultural goals and objectives, promote Native Hawaiian knowledge, expand community involvement, and encourage proper cultural respect by all. Under Alternative 1, the assurance of the perpetuation of Native Hawaiian culture throughout the Alternative 1 boundary area would have a minor beneficial impact on cultural resources in the MEA.

The care for Native Hawaiian cultural resources and responsibility for historic properties merge in the heritage management of Papahānaumokuākea. NOAA's Maritime Heritage Program would assist, where appropriate and mutually beneficial, with protection of cultural resources in the proposed sanctuary's marine environment as part of preservation efforts defined by NHPA for all heritage resources under ONMS management. The Maritime Heritage Program would maintain an inventory of historic properties as defined and required by NHPA. This collaborative approach addresses the comprehensive preservation of all public heritage (cultural, archaeological, and historical) resources managed by ONMS in a manner consistent with NHPA and with the values of sanctuary management:

- Kuleana: respect for Hawaiian cultural foundations throughout all resource preservation initiatives.
- Mālama: stewardship of the broad range of tangible and intangible heritage resources.
- Pono: comprehensive inventory and preservation efforts for all (inclusive of Hawaiian and western).
- ʻImi ʻike: the braiding of traditional and western knowledge in the protection of heritage resources.[11]

Permit criteria, cultural awareness training, and implementation of BMPs included under No Action would be maintained under Alternative 1, addressing concerns raised during the NHPA

[11] The English translations and interpretations of these Hawaiian words do not completely describe or define the unique meanings of the Hawaiian language or the qualities and demonstrated actions of the Hawaiian cultural value system.

Section 106 consultation process and in *E Hoʻi I Ke Au A Kanaloa*, and resulting in no difference in the protection of cultural resources, including potential adverse effects of research and other activities on the integrated cultural, spiritual, and ecological health of Papahānaumokuākea (Nohopapa Hawaiʻi 2023). Under Alternative 1, the continuation of integrating cultural heritage into management, currently being practiced by Monument co-trustees, would continue to provide a minor beneficial impact.

Maritime Heritage Resources

The proposed sanctuary designation and the proposed regulations provide protection for maritime heritage resources, specifically the military vessels and aircraft from the Battle of Midway. The NMSA provides supplemental protection with substantial penalties for harm to maritime heritage resources. Historic properties with both known and unknown locations within the MEA may not be protected from private ventures searching for, potentially damaging, or claiming recovery rights to wrecks or artifacts. Alternative 1 would supplement management and protection of maritime heritage resources by: 1) providing long-term federal protection of heritage properties under NMSA; 2) addressing current management and protection ambiguities for heritage properties within both PMNM and the MEA (e.g., Japanese sunken military aircraft carriers, cruisers, and aircraft located beyond the 24-mile contiguous zone); and 3) ensuring projects exploring for, characterizing, and documenting sanctuary resources are permitted and include appropriate oversight, enforceable conditions, and reporting requirements. These additional protective measures within the Alternative 1 boundary area provide a direct, long-term, moderate beneficial impact for maritime heritage resources, primarily for those within the MEA.

Under Alternative 1, NOAA would protect underwater maritime heritage resources in the proposed sanctuary from injury and disturbances through regulations and implementation of a long-term, comprehensive sanctuary management plan for both PMNM and the MEA. Sanctuary regulations in the area that overlaps with the MEA would provide protections through restricted access and prohibitions on alteration of the seafloor, anchoring, and the removal of any sanctuary resource. Future proposed projects would only be authorized if they meet the goals and objectives of the sanctuary and would be subject to permit criteria and requirements of any equipment used in operations. NOAA's proposed regulations would complement existing federal and State regulations to increase preservation and provide uniform protection for all underwater maritime resources throughout the sanctuary. These regulations would be complemented by management principles that emphasize an in-situ management approach for the long-term protection of site information and integrity, as well as other preservation methods and activities outlined in the ONMS policy guidance document *Monitoring and Management of Tangible Maritime Heritage Resources* (NOAA ONMS, 2021). Under Alternative 1, management and resource expertise brought through designation and new regulations in the area of the MEA provide a direct, long-term, moderate beneficial impact for maritime heritage resources.

Adverse Impacts on Cultural and Historical Resources

Cultural Resources

Certain activities could adversely affect the cultural and spiritual value of Papahānaumokuākea. During NHPA Section 106 consultation meetings, as well as through the State's CIA process, constituents raised concerns regarding the potential adverse effects from scientific research and non-commercial fishing on the sacredness of Papahānaumokuākea. While an activity may not generate significant impacts to natural resources and may meet the established permit criteria and goals and objectives of the sanctuary, the activity may still be regarded as inappropriate, damaging, and disrespectful to some members of the Native Hawaiian community. Natural resources are cultural resources, and the entire area encompasses a connection to the genealogy, history, and spirituality of the Hawaiian people (Kikiloi 2012). Many of those consulted for the CIA believe a broader cultural viewpoint is necessary during the permit approval process (Nohopapa Hawai'i, 2023).Under both Alternative 1 and the No Action Alternative, the MMB and relevant working groups work to address specific concerns as part of the permitting process. These procedures include but are not limited to 1) required cultural briefings for permitted individuals, and 2) permit BMPs for accessing sensitive areas such as marine areas around Nihoa and Mokumanamana, ultimately reducing the potential of adverse impacts. As cultural resource management is effectively unchanged from No Action, this ongoing concern would be no different from No Action.

Maritime Heritage Resources

Maritime heritage activities, including those conducted or permitted by ONMS, are generally non-invasive in nature (i.e., they do not disturb the seafloor, alter wrecks, or have other lasting impacts) and do not pose a risk of damaging these resources. PMNM BMP #017 (Appendix B) would be extended to the area of the MEA for future maritime heritage projects. Field work consists of 1) locating maritime heritage resources within the sanctuary; 2) identifying these historic properties; 3) assessing their condition and stability; and 4) providing protective measures. ONMS practices in situ management, identified by the Advisory Council on Historic Preservation as a protective measure (NOAA ONMS, 2021). As such, implementing Alternative 1 would produce no potential adverse impacts on maritime heritage resources.

Summary of Impacts on Cultural and Historical Resources

Overall, NOAA determined that implementing Alternative 1 would have a **minor beneficial impact** on cultural resources and **direct, long-term, moderate beneficial impacts** on maritime heritage resources.

5.3.5 Impacts on Socioeconomic Resources, Human Uses and Environmental Justice

This section evaluates the impacts of implementing Alternative 1 related to socioeconomics, environmental justice, access, and uses. In evaluating this alternative against the criteria above, the following determinations were made:

- Alternative 1 would not change the population of the sanctuary community. Sanctuary designation is unlikely to increase the amount of visitation, research, or other activities

within the boundary of the proposed sanctuary. While the Monument is already internationally recognized, Alternative 1 would result in a sanctuary designation that may increase the amount of visitation to interpretive centers, exhibits, and other educational opportunities outside of the area of the proposed sanctuary. These opportunities would result in negligible changes for socioeconomic resources across Hawai‘i.

- Alternative 1 would not lead to any negative impacts on underserved and underrepresented communities. In fact, the establishment of a sanctuary in this region is likely to positively impact underserved and underrepresented communities, as a result of actions proposed in the sanctuary management plan. Examples include: working with Native Hawaiian groups to increase their participation and engagement; and working with local and regional organizations to promote biological, cultural, and historical value of the sanctuary through education and outreach activities and events.
- Alternative 1 is expected to result in long-term beneficial impacts on Hawai‘i residents (including low-income and minority populations), as well as on the health and well-being of children. The protection of, and access to, the area are considered to be of major importance for mental well-being and health of the Native Hawaiian community (Kikiloi, 2006, Kikiloi, 2010, Kikiloi et al., 2017).
- Alternative 1 would not conflict with federal, State or local plans, policies, or regulations, including county land use plans. The proposed sanctuary is intended to offer additional resource protection, consistent with existing federal and State policy.
- Under Alternative 1, there would be no anticipated change over No Action in the number of permits issued, positions for staff of the co-trustee agencies, or total operational budget, because permits are required under current management and an increase in permitted activity is not anticipated under sanctuary designation.

The above five determinations are the same for alternatives 2 and 3 and will not be repeated in those sections.

Beneficial Impacts on Socioeconomic Resources and Human Uses

Understanding the ecological, cultural and historic significance of this fragile area, the Monument co-trustees have always worked to bring the place to the people. Designation as a national marine sanctuary and implementing the strategies outlined in the sanctuary management plan would draw visitors and tourists to the learning centers associated with Papahānaumokuākea, enhancing their experiences in the Hawaiian Islands through their enjoyment from outreach and interpretive services. Alternative 1 also would continue to provide benefits to those permittees who experience the sanctuary through perpetuation of Native Hawaiian practices and who depend on a functioning, healthy, and resilient ecosystem for cultural practices and livelihoods.

Proposed discharge regulations would help reduce potentially harmful pollutants such as oil, sewage, and other hazardous materials from injuring sanctuary resources. Enhancing management through the expanded permit system and measures to address damages to sanctuary resources would increase protection. Under Alternative 1, the increased protection of

resources is expected to result in indirect, long-term, negligible impacts on tourism, and direct, long-term, minor beneficial impacts for permitted uses of the sanctuary.

While the scientific and conservation value of Papahānaumokuākea has been apparent to researchers, conservationists, and educators for decades, sanctuary designation may impart a minor beneficial impact on research and education, in addition to minor positive socioeconomic impacts, if designation spurs novel research and education projects. Designation may enhance support for educational activities inside and outside Papahānaumokuākea, including teacher and student training and outreach through interpretive centers, exhibits, and multiple types of media.

Sanctuary designation can provide alternative sources of funding to support education initiatives and programs in Hawai‘i (outside the waters of the proposed sanctuary), including from friends groups, the National Marine Sanctuary Foundation, and other non-profit organizations, including the Ocean Exploration Trust, a close collaborator of the Monument. Friends groups are typically charitable, non-profit organizations whose mission is geared to support a specific marine protected area. The National Marine Sanctuary Foundation, who is currently partnering with the Monument at the Mokupāpapa Discovery Center, is the chief national charitable partner supporting the work and mission of the National Marine Sanctuary System. The National Marine Sanctuary Foundation is authorized under the NMSA and has generated more than $12 million for programs and initiatives across the system in research, conservation, education, citizen science, outreach, and community engagement. The National Marine Sanctuary Foundation also advocates for policymakers to strengthen the protection of the sanctuary system. These additional funding sources provide opportunities to develop new connections and strengthen the public’s appreciation of this area, providing an indirect, long-term, minor beneficial impact to socioeconomic resources.

Adverse Impacts on Socioeconomic Resources and Human Uses

Alternative 1 would regulate activities in the area of the proposed sanctuary that overlaps with the MEA. Activities with no nexus to the proposed permit categories, or activities that do not meet the permit findings criteria, such as tourism and aquaculture, would likely not be approved under Alternative 1. While it is speculative to anticipate future opportunities in the area of the proposed sanctuary that overlaps with the MEA, designation of the Alternative 1 boundary area represents a potential indirect, long-term, minor adverse impact on socioeconomic resources.

The permit process under No Action, required for activities within PMNM, would be expanded to the area of the MEA under Alternative 1. While eight permits through Letters of Authorization have been issued in the MEA since 2016, all but one permittee has conducted activities in both PMNM and the MEA. As such, seven of these eight permittees experienced no additional burden in cost or labor to apply for and meet permit requirements. For any additional permits issued in the area of the proposed sanctuary that overlaps with the MEA, the annual wage burden of the information collection for permits to a user has been estimated to be $549.30 and five hours of labor for a general permit, and $1,224.90 and 10 hours of labor for a special ocean use permit. Therefore, expansion of a permitting process to the area of the proposed sanctuary that overlaps with the MEA would impose only minor administrative costs and project delays, but would not result in significant effect on the operations of permit users. This administrative burden already

exists for activities in PMNM under No Action, and presents a direct, long-term, negligible impact on human uses in the MEA.

Under the existing Monument management framework, as a condition of a permit, permittees are required to have a NOAA OLE type-approved VMS on board when operating within the PMNM. The proposed rule includes this requirement throughout the proposed sanctuary, meaning it would be a new requirement in areas that overlap with the MEA. The cost of a VMS unit is $3,150. Annualized over 3 years, the life of the unit, the cost per year is $1050.00 per year with an additional $100 in annual maintenance costs, and $192 in VMS report transmission costs ($1.28 daily cost based on a vessel averaging 150 days per year in the Monument). Many government and large research institutions have vessels already equipped with a VMS unit. The proposed rule is not expected to result in an increase in the number of permit requests, and the majority of users operate in both the area of the proposed sanctuary that overlaps with PMNM and the MEA. This administrative burden already exists for activities in PMNM under No Action, and presents a direct, long-term, negligible impact on human uses in the MEA.

The establishment of new discharge regulations in the area of the proposed sanctuary that overlaps with the MEA would provide an overall beneficial impact by limiting pollutants and the potential introduction of invasive species (see Section 5.3.1), but may represent a burden to vessels operating within the sanctuary. Vessels without a USCG-approved marine sanitation device are currently required by permit condition to transit outside PMNM (up to 100 nmi round trip) to discharge their effluent. Under Alternative 1, these vessels may be required to transit beyond the boundary of the sanctuary (up to 400 nmi round trip) to discharge their effluent. Conversely, vessels could be retrofitted with an approved marine sanitation device to avoid this permit condition. The cost to retrofit a vessel with either a holding tank or a marine sanitation device varies depending on the vessel, with installing a holding tank in a recreational vessel estimated at $4,000, and the cost to retrofit a large commercial vessel with a Type III marine sanitation device estimated at $150,000 (WA Department of Ecology, 2016). This is an unlikely cost for most large vessels that are originally built with these systems, while discharge permit conditions could be tailored by sanctuary managers for users with small vessels and small crews to avoid this expense while still protecting water quality in the sanctuary. As noted above, most past permittees have either worked solely within the PMNM or in both the PMNM and the MEA, requiring compliance with the existing regulation. Only a single large research vessel has requested a Letter of Authorization to operate solely in the MEA, and this vessel was already equipped with an approved marine sanitation device. Due to the low number of potential permittees affected, and the ability for flexible permit conditions for permittees with small vessels and crew, this represents a direct, long-term, minor adverse impact to human uses in the Alternative 1 boundary area.

Under Alternative 1, sustenance fishing in PMNM would continue to be allowed as a term or condition of a permit and would be newly managed by permit in the MEA. Sustenance fishing allowed as a condition of a permit has been a minor activity over the past 15 years, with a total of 35 fish reported caught and consumed (NOAA ONMS, 2020). In order to sustenance fish in the area of the proposed sanctuary that overlaps with the MEA, permittees would need to request the ability to sustenance fish when applying for a general or special use permit, and abide by permit-specific requirements, including reporting number of people who fish, number and

species of fish caught, and gear used. Under Alternative 1, this management measure presents a direct, negligible impact to sanctuary users, specifically for permittees operating in the portion of the proposed sanctuary that overlaps with the MEA.

Summary of Impacts on Socioeconomic Resources and Human Uses

Overall, NOAA determined that implementing Alternative 1 would have **indirect, minor adverse impacts** on socioeconomics and human uses.

5.3.6 Summary of Impacts on All Resources for Alternative 1

Overall, NOAA determined that implementing Alternative 1 would have **direct, long-term, moderate beneficial impacts** for laws and management, physical, biological, and maritime heritage resources, **direct, long-term, minor beneficial impacts** for cultural resources, and **indirect, long-term, minor adverse impacts** for socioeconomic resources and human uses for the largest proposed sanctuary area of the three alternatives.

5.4 Impacts of Alternative 2

Alternative 2 would designate a sanctuary in the marine environment from the shoreline of the islands and atolls to 50 nmi, while the MEA would continue to be managed as in No Action. No expansion of the permit system and no new sanctuary regulations in the MEA would be promulgated. Under Alternative 2, Presidential Proclamation 9478 would continue to guide management in the MEA. Alternative 2 would implement the sanctuary management plan, while management of non-commercial fishing in the expansion area would remain under the purview of NOAA Fisheries. The impacts to the area designated as a sanctuary (0–50 nmi, PMNM) would be the same as under Alternative 1, while the impacts to the area not designated as a sanctuary (50–200 nmi, MEA) would be the same as No Action. NOAA would not have permitting regulations in the MEA. Specific details are provided in the analyses for those alternatives, with only summaries for each of the resources below.

5.4.1 Impacts to Laws and Existing Management

Beneficial Impacts on Laws and Existing Management

Under Alternative 2, the laws and management would closely resemble that of No Action. Regulations would only be slightly altered from what currently exists for PMNM, as described in Chapter 3. As described in Alternative 1, management would be largely consistent with the existing management framework for the Monument. Relative to No Action, Alternative 2 only provides the benefits of Alternative 1 for PMNM. The National Marine Sanctuary Program regulations (emergency regulations, penalties, and damage assessment authority) would be valid for PMNM, where most of the permitted activities occur, providing enhanced enforcement capabilities and authority to impose liability for destruction, loss of, or injury to sanctuary resources. These additional authorities provide a direct, long-term, minor beneficial impact on laws and existing management for the Alternative 2 boundary area.

Permittees would see little to no difference in application requirements, permit review, or permit conditions compared to No Action. NOAA would not have permit regulations for the area of the MEA. Because the MEA is excluded, neither this benefit nor any other benefits described

in Alternative 1 would carry over to the pelagic realm of the MEA. This limits the benefit of sanctuary designation in Alternative 2 relative to Alternative 1.

Adverse Impacts on Laws and Existing Management

As described under Alternative 2, current management would remain largely unchanged. However, the addition of NMSA could require the co-trustees of the Monument to develop a new memorandum of agreement to address this added management authority. Under Alternative 2, there is a negligible adverse impact on laws and existing management.

Summary of Impacts on Laws and Existing Management

Given the exclusion of the MEA from the Alternative 2 boundary area, NOAA determined that implementing Alternative 2 would have only **direct, long-term, minor beneficial impacts** on laws and existing management.

5.4.2 Impacts on Physical Resources

Beneficial Impacts on Physical Resources

The resource protection measures provided with sanctuary designation, including the ability to impose liability for destruction, loss of, or injury to sanctuary resources and providing natural resource damage assessment authorities for destruction, loss of, or injury to any sanctuary resource; emergency regulations; and law enforcement's capacity to implement a penalty schedule and impose penalties for permit and regulatory violations provide the beneficial impacts described in Alternative 1. These authorities provided by NMSA are most valuable in PMNM, particularly for the shallow reef habitat where natural resources are highest and threats described in the No Action analysis have the greatest potential for impact. These additional protections provide the direct, long-term, moderate beneficial impacts on physical resources described in Alternative 1 for the Alternative 2 boundary area, based on NOAA's experience with implementing these authorities.

The exclusion of the MEA from the Alternative 2 boundary area reduces the beneficial impact of protection for physical resources (e.g., water quality and seamount habitat resources) compared to Alternative 1. Similarly, the NMSA authorities (e.g., penalty schedule and damage assessment) would not apply to physical resources of the MEA, providing less protection than Alternative 1. However, as human use and ecological threats to physical resources are much lower in the MEA than in the shallow waters of PMNM, sanctuary designation still imparts a moderate benefit to physical resources within the Alternative 2 boundary area.

Adverse Impacts on Physical Resources

Two factors limit the adverse impact to physical resources. First, threats to physical resources beyond the Alternative 2 boundary area within the MEA are limited because the area is almost exclusively deep-water habitat, as described in Section 4. Second, the low activity level lessens the potential for human impacts, as indicated by the issuance of a single permit (via letter of authorization from USFWS) since 2016 for a project operating solely within the MEA.

Implementing the proposed management measures within the Alternative 2 boundary area would produce no potential adverse impacts on physical resources as they are protective in

nature, primarily providing regulations (e.g., discharge limitations) and enforcement deterrents (e.g., penalties for infractions). In addition, existing regulations and the remote nature of the proposed sanctuary effectively limit an increase in human/vessel presence.

Summary of Impacts on Physical Resources

Overall, NOAA determined that implementing Alternative 2 would have **direct, long-term, moderate beneficial impacts** on physical resources.

5.4.3 Impacts on Biological Resources

Beneficial Impacts on Biological Resources

The resource protection measures provided with sanctuary designation, including the ability to impose liability for destruction, loss of, or injury to sanctuary resources; provide natural resource damage assessment authorities for destruction, loss of, or injury to any sanctuary resource; and law enforcement's capacity to implement a penalty schedule and impose penalties for permit and regulatory violations, provide the beneficial impacts for biological resources described in Alternative 1. These authorities provided by NMSA are most valuable in the shallow reef habitat of PMNM, where natural resources are highest and identified threats, particularly vessel groundings, marine debris, and other natural and human disturbance have the greatest potential for impact to corals and other benthic organisms. The penalty schedule provides law enforcement with a new and effective tool, which could deter violations of regulations designed to protect the sanctuary's biological resources. These impacts, detailed in Alternative 1, would provide direct, long-term, moderate benefits for the more vulnerable nearshore biological resources within the Alternative 2 boundary area, but would not benefit the waters of the MEA, based on NOAA's experience with implementing these authorities.

Under Alternative 2, biological resources of the MEA would receive the same protections as No Action, including the Monument management framework and prohibitions and regulations described in Presidential Proclamation 9478. As noted above, this limits the overall effectiveness of the sanctuary designation as compared to Alternative 1. However, permitted activity levels in the MEA has been less than in PMNM and biological resources are subject to fewer and less intense threats. Therefore, Alternative 2 maintains much of the beneficial impacts on biological resources, which still imparts a moderate beneficial impact.

Adverse Impacts on Biological Resources

As described in Alternative 1, the proposed action primarily provides additional protections, which impart no adverse impacts to biological resources. Under Alternative 2, any increase in permitted activity due to the increased visibility from a sanctuary designation would be speculative, and any impacts would likely be short-term and negligible.

Summary of Impacts on Biological Resources

Overall, NOAA determined that implementing Alternative 2 would have **direct, long-term, moderate beneficial impacts** on biological resources.

5.4.4 Impacts on Cultural and Historical Resources

Beneficial Impacts on Cultural and Historical Resources

As noted in both the No Action and Alternative 1 analysis, the integration of cultural heritage and awareness will likely remain a high management priority under No Action and the alternatives, building on the efforts made over the past two decades. Most of the beneficial impacts described for maritime heritage resources were for resources found in the MEA, and these would not carry over under Alternative 2, as the MEA is excluded under this boundary alternative. As such, Alternative 2 would provide no beneficial impacts for cultural resources and negligible impacts for historical resources within the Alternative 2 boundary area.

Adverse Impacts on Cultural and Historical Resources

There are no adverse impacts on cultural and historical resources compared to No Action.

Summary of Impacts on Cultural and Historical Resources

Overall, NOAA determined that implementing Alternative 2 would have **no impact** on cultural resources and **direct, long-term, negligible impacts** on maritime heritage resources.

5.4.5 Impacts on Socioeconomic Resources, Human Uses, and Environmental Justice

In general, impacts to socioeconomic resources do not change due to boundary configurations. Sanctuary designation provides administrative and budget stability and public exposure that may attract tourists and resource users, irrespective of the three boundary alternatives. The impacts on human uses are altered based on the additional regulatory aspects, which are fully described under No Action and Alternative 1. Impacts related to environmental justice are the same as those described for Alternative 1. Relevant impacts are mentioned below.

Beneficial Impacts on Socioeconomic Resources and Human Uses

Alternative 2 would provide the same socioeconomic benefits as described in Alternative 1, including potential increases in education and outreach efforts, potential economic gains from sanctuary friends groups, and training and development of a workforce in conservation, protection, and restoration. This would provide an indirect, long-term, minor beneficial impact on socioeconomic resources.

Adverse Impacts on Socioeconomic Resources and Human Uses

The minor adverse impacts described in Alternative 1 would not apply to Alternative 2, as they are related to new operational requirements (i.e. VMS requirements and discharge restrictions) of the MEA, and exist under No Action for the Alternative 2 boundary area. As such, Alternative 2 imparts no adverse effects on socioeconomic resources and human uses.

Summary of Impacts on Socioeconomic Resources and Human Uses

Overall, NOAA determined that implementing Alternative 2 would have an **indirect, long-term, minor beneficial impact** on socioeconomic resources and human uses.

5.4.6 Summary of Impacts for Alternative 2

Overall, for the areas of the proposed sanctuary that overlaps PMNM, NOAA determined that implementing Alternative 2 would have **direct, long-term, minor beneficial impacts** on laws and management, **direct, long-term, moderate beneficial impacts** on physical and biological resources, **no impact** on cultural resources, **negligible impacts** on maritime heritage resources, and **direct, long-term, minor beneficial impacts** on socioeconomic resources and human uses. The beneficial impact is reduced compared to Alternative 1.

5.5 Impacts of Alternative 3

Alternative 3 would designate a sanctuary in the marine environment from the shoreline of the islands and atolls seaward to 200 nmi, excluding the marine environment within the Midway Atoll NWR and Hawaiian Islands NWR. The seaward boundary of this alternative is the same as that of Alternative 1. The inner boundary of this alternative is the seaward boundary of all NWR waters of Papahānaumokuākea. NWR waters would be managed as in No Action, with remaining proposed sanctuary waters managed as in Alternative 1. Relative to No Action, Alternative 3 imparts the same beneficial and adverse impacts of Alternative 1, except within NWR waters, where no benefits of sanctuary designation will be realized. The impacts analysis provided in Alternative 1 for the areas seaward of the NWR boundary will not be repeated.

5.5.1 Impacts on Laws and Existing Management

The exclusion of refuge waters in Alternative 3 creates a boundary division across a continuous ecosystem where various activities occur on both sides of this boundary, including conservation and management, research, and Native Hawaiian practices. These permitted activities occur and would continue to be conducted within and outside of NWR waters. The impacts to laws and management relate to the ambiguity that would result from activities occurring across this boundary. As noted above, the impacts seaward of the NWR boundaries are identical to those described in Alternative. 1.

Beneficial Impacts on Laws and Existing Management

Under Alternative 3, laws and management would closely resemble No Action. Regulations would only be slightly altered from what currently exists for PMNM, as described in Chapter 3. As described in the analysis for Alternative 1, management would be largely consistent with the existing management framework for the Monument. Regulations and permits for the area of the proposed sanctuary that overlaps with the MEA would benefit laws and management over No Action. NOAA determined that Alternative 3 would impart minor beneficial impacts on laws and existing management.

Adverse Impacts on Laws and Existing Management

Hawaiian Islands NWR waters overlap but do not fully encompass the Special Preservation Areas of the Monument and the Areas To Be Avoided of the PSSA. The Special Preservation Areas are discrete, biologically important areas that were designated to reduce concentrations of uses that could result in declines in species populations or habitat, to reduce conflicts between uses, and to protect areas that are critical for sustaining important marine species or habitats.

The authorities to impose liability for destruction, loss of, or injury to sanctuary resources and provide natural resource damage assessment for destruction, loss of, or injury to any sanctuary resource provided through sanctuary designation could be complicated under Alternative 3 due to the ambiguity of the Hawaiian Islands NWR boundary. As discussed in Section 2.3.3, ongoing communication and collaboration between the State and USFWS have not yet resulted in an agreed-upon seaward boundary for the Hawaiian Islands NWR. This is particularly relevant in these shallow waters where anchor damage, vessel groundings, and damages from identifiable marine debris are most likely to happen. Further, the penalty schedule provided by the NMSA is a strong deterrent against illegal activities, and implementation of this deterrent would be similarly complicated for actions occurring across the Hawaiian Islands NWR boundary, which is not agreed upon by the managing agencies, which would also be the landward boundary for the proposed sanctuary. Under Alternative 3, potential ambiguity of where NMSA regulations can be enforced, specifically within and adjacent to the Hawaiian Islands NWR, presents a direct, long-term, moderate adverse impact on laws and existing management.

Under Alternative 3, National Marine Sanctuary Program regulations (emergency regulations, penalties, response costs, and damages) would not be applicable in Midway Atoll NWR. As the Midway Atoll NWR has an unambiguous boundary that encompasses a cohesive ecosystem, including all near shore and adjacent deeper reefs of the atoll, individually-permitted activities are more likely to occur within the NWR boundary and regulations would be consistent. As such, exclusion of Midway Atoll NWR from sanctuary designation does not impart an adverse impact on the laws and management within the Alternative 3 boundary area.

Summary of Impacts on Laws and Existing Management

NOAA determined that implementing Alternative 3, specifically by excluding the Hawaiian Islands NWR and to a lesser extent the Midway Atoll NWR, would have **direct, long-term, minor adverse impacts** on laws and existing management.

5.5.2 Impacts on Physical Resources

The impacts to the area designated as a sanctuary would be the same as under Alternative 1, while the impacts to the areas not designated as a sanctuary would be the same as No Action, for both Midway Atoll NWR and Hawaiian Islands NWR.

Beneficial Impacts on Physical Resources

Alternative 3 provides the same beneficial impacts for physical resources of the area of the sanctuary that overlaps with the MEA (e.g., water quality and seamount habitat resources) as described for physical resources of Alternative 1. Similarly, the NMSA authorities (i.e., the ability to impose liability for destruction, loss of, or injury to sanctuary resources and providing natural resource damage assessment authorities for destruction, loss of, or injury to any sanctuary resource; emergency regulations; and law enforcement's capacity to impose penalties for permit and regulatory violations) would apply to physical resources of the MEA and much of the waters on PMNM. However, the Alternative 3 boundary area excludes the shallow reef habitat of the NWRs, where natural resources are highest and threats described in the No Action analysis have the greatest potential for impact. Because human use and ecological threats to physical resources are much higher in the shallow waters of PMNM and the NWRs, and this alternative

would limit NOAA's ability to respond to these threats in shallow waters, the sanctuary designation imparts only a minor benefit on physical resources within the Alternative 3 boundary area.

Adverse Impacts on Physical Resources

Implementing Alternative 3 would produce no potential adverse impacts on physical resources because the proposed management measures are protective in nature, primarily providing regulations (e.g., discharge limitations) and enforcement deterrents (e.g., penalties for infractions) to limit impacts to the physical environment. In addition, existing regulations and the remote nature of the site effectively limit an increase in human and vessel presence.

Summary of Impacts on Physical Resources

As physical resources in the shallow-waters of the NWRs would be afforded the same protections as No Action, while resources seaward of these waters would benefit from additional protections, NOAA determined that implementing Alternative 3 would have **direct, long-term, minor beneficial impacts** on physical resources.

5.5.3 Impacts on Biological Resources

The impacts on biological resources for the area designated as a sanctuary would be the same as under Alternative 1.

Beneficial Impacts on Biological Resources

The resource protection measures provided with sanctuary designation, including damage assessment authority, emergency regulations, and law enforcement's capacity to impose penalties for permit and regulatory violations are most valuable in shallow reef habitat, where natural resources are highest and identified threats, particularly vessel groundings, marine debris, and other natural and human disturbance have the greatest potential for impact to corals and other marine life. The enhanced enforcement capability to issue penalties for regulatory and permit condition infractions under the NMSA, an important deterrent for violators, would be unavailable for activities within NWR waters under Alternative 3. Because NWR waters are excluded in this alternative, neither these benefits nor any other benefits described in Alternative 1 would carry over to these excluded areas. Due to these limitations, Alternative 3 would only provide direct, long-term, minor beneficial impacts on biological resources within the Alternative 3 boundary area.

Adverse Impacts on Biological Resources

Implementing Alternative 3 would produce no potential adverse impacts on biological resources because the proposed management measures are protective in nature, primarily providing regulations and enforcement deterrents to limit impacts to biological resources.

Summary of Impacts on Biological Resources

NOAA determined that implementing Alternative 3 would have **direct, long-term, minor beneficial impacts** on biological resources of the proposed sanctuary.

5.5.4 Impacts on Cultural and Historical Resources

Direct impacts described for physical and biological resources are relevant to the cultural resources analysis but are not repeated. As described in the No Action analysis, cultural heritage is an important focus of Monument management, ensuring use of appropriate protocols, employing resource monitors on permitted activities, and numerous other measures to protect tangible and intangible cultural resources. These efforts would be maintained within and outside sanctuary waters under Alternative 3.

Regulatory protection of maritime heritage resources within the NWRs is the same as No Action, while protection of maritime resources in sanctuary waters would be the same as described under Alternative 1. Effects of Alternative 3 on maritime resources are described below.

Beneficial Impacts on Cultural and Historical Resources

As cultural protocols would extend to the MEA as described in Alternative 1, Alternative 3 imparts a minor beneficial impact on cultural resources.

As described in Alternative 1, the NMSA provides supplemental protection to maritime heritage resources by requiring sanctuary permits for projects exploring these resources. These impacts, detailed in Alternative 1, would benefit the area of the MEA, but would not benefit the waters of the Midway Atoll and Hawaiian Islands NWRs. Under Alternative 3, maritime heritage resources in the NWRs would receive the same level of protection as No Action. Specifically, maritime heritage resources are well protected by existing statutory and regulatory protections, including the Sunken Military Craft Act as well as a Monument permit system.

Adverse Impacts on Cultural and Historical Resources

There are no adverse impacts on cultural and historical resources compared to No Action.

Summary of Impacts on Cultural and Historical Resources

Alternative 3 would have **a minor beneficial impact on cultural resources**, and a **direct, long-term, moderate beneficial impact on maritime heritage resources**.

5.5.5 Impacts on Socioeconomic Resources, Human Uses, and Environmental Justice

In general, most impacts to socioeconomic resources do not change due to boundary configurations. Sanctuary designation provides administrative and budget stability and public exposure that may attract tourists and resource users, irrespective of the three boundary alternatives. The impacts on human uses are altered based on the additional regulatory aspects, which are fully described under No Action and Alternative 1. Impacts related to environmental justice are the same as those described for Alternative 1. Relevant impacts are mentioned below.

Beneficial Impacts on Socioeconomic Resources and Human Uses

Alternative 3 would provide the same socioeconomic benefits as described in Alternative 1, including potential increases in education and outreach efforts, potential economic gains from sanctuary friends groups, and training and development of a workforce in conservation,

protection, and restoration. This would provide an indirect, long-term, minor beneficial impact on socioeconomic resources.

Adverse Impacts on Socioeconomic Resources and Human Uses

The socioeconomic and human use impacts from new regulatory requirements in the MEA, including access restrictions, discharge regulations, and permittee requirements are the same as described for Alternative 1. These would be direct, long-term, and minor adverse impacts based on the minimal additional administrative and regulatory burden, coupled with the low overall activity within the MEA.

Summary of Impacts on Socioeconomic Resources and Human Uses

Overall, NOAA determined that implementing Alternative 3 would have **indirect, long-term, minor adverse** impacts on socioeconomics and human uses.

5.5.6 Summary of Impacts for Alternative 3

While beneficial impacts described in Alternative 1, including penalties for violations and authorities to respond to and hold financially liable those responsible for destruction or loss of, or injury to sanctuary resources, would not be available to protect resources and manage permittees within Midway Atoll and Hawaiian Islands NWRs, this impact is the same as No Action, reflecting a lesser beneficial impact compared to Alternative 1, but imparting no adverse impacts. Under Alternative 3, the waters with the greatest need for comprehensive protection would not be included within the boundary area, and therefore would obtain fewer beneficial impacts than waters of the surrounding ecosystem within the boundary area.

There are three specific adverse impacts from the exclusion of Hawaiian Island NWRs waters under Alternative 3:

- The lack of an agreed-upon boundary of the Hawaiian Islands NWR may create permitting conflicts and enforcement ambiguities, and limit the effectiveness of damage assessment authorities, as described in adverse impacts on laws and existing management.
- NMSA protections would not be consistently applied where permittees operate in contiguous areas that straddle the Hawaiian Islands NWR seaward boundary.
- Exclusion of Hawaiian Islands NWR waters excludes approximately 327 square miles of State waters within Papahānaumokuākea, which is not consistent with the recommendation of the State of Hawai‘i to include State waters in this action.

NOAA determined that implementing Alternative 3 would have direct, long-term, minor adverse impacts on laws and management, direct, long-term, minor beneficial impacts on physical resources, direct, long-term, minor beneficial impacts on biological resources, indirect, minor beneficial impact on cultural resources, direct, long-term, moderate beneficial impacts on maritime heritage resources, and indirect, long-term, minor adverse impacts on socioeconomic resources and human uses. This determination equally represents the independent impacts to both the Midway Atoll NWR and the Hawaiian Islands NWR.

5.6 Cumulative Impact Analysis

As explained in Section 5.1.2, NOAA divided the reasonably foreseeable effects of the proposed action and alternatives into three categories—direct impacts, indirect impacts, and cumulative impacts—to facilitate the most meaningful analysis and to provide clarity to the public about the nature of those effects. Cumulative effects are defined as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." 40 CFR § 1508.1(g).

This section presents the methods used to evaluate cumulative impacts, lists projects that may have cumulative effects when combined with the impacts from the proposed action or alternatives discussed in this final EIS, and evaluates potential cumulative impacts.

5.6.1 Cumulative Impact Assessment Methods

CEQ's cumulative effects guidance identifies several different methods for assessment of cumulative impacts, such as checklists, modeling, forecasting, and economic impact assessment (CEQ, 1997). In general, past, present, and future foreseeable projects are assessed by topic area. Cumulative effects may arise from single or multiple actions and may result in additive or interactive effects. Interactive effects may be countervailing, where the adverse cumulative effect is less than the sum of the individual effects, or synergistic, where the net adverse effect is greater than the sum of the individual effects (CEQ, 1997). For the purposes of this analysis, NOAA considered cumulative effects to be significant if they exceed the capacity of a resource to sustain itself and remain productive. The geographic scope of the cumulative effects analysis is the boundaries of the proposed sanctuary under each action alternative, and the marine boundaries immediately adjacent to the proposed sanctuary boundaries. The temporal scope of the cumulative analysis is from five years prior to the publication of the draft EIS to 10 years after designation.

The project area is isolated from almost all human activity, with an average of 60 people working under permit-controlled conditions within the Monument on any given day. Virtually all commercial activities are prohibited under No Action, with additional prohibitions proposed under alternatives 1 and 3 that would further restrict activities within the area of the proposed sanctuary that overlaps with the MEA. The number and types of projects listed in Table 5.1, all of which are currently occurring or are anticipated to occur in the reasonably foreseeable future (10 years) within the study area, were analyzed, along with the proposed action. These projects are limited to the extent of the potential impact as well as NOAA's cumulative impact analysis, which considers the effects of these actions in combination with the impacts of the proposed action to determine the overall cumulative impact on the human environment.

5.6.2 Past, Present, and Reasonably Foreseeable Future Projects

Table 5.1 lists the other federal and non-federal actions in the study area that could contribute to cumulative impacts. This list was compiled based on input from cooperating and partnering agencies, along with NOAA staff knowledge, of other existing or planned activities occurring in

and around the proposed sanctuary. Many of these other federal and non-federal actions relate to management and research of shoreline habitat and resources. The projects expected to contribute to cumulative impacts would likely affect similar resources to those that are affected by the proposed action or are large enough to have far-reaching effects on a resource.

As the proposed action for the designation of Papahānaumokuākea National Marine Sanctuary is a regulatory and management action rather than an implementation level action, the cumulative effects are related primarily to local and regional management of marine resources in the study area. For the purposes of this cumulative effects analysis, NOAA assumed that any of the actions in Table 5.1 that have not already been implemented would be approved and implemented within the time period for this analysis.

As described in detail in the subsections below, NOAA found that the combination of implementation of the alternatives with the actions in Table 5.1 would result in minor indirect cumulative beneficial impacts to legal, management, enforcement; physical and biological resources; cultural and historical resources; and socioeconomic and human resources along with environmental justice in the study area.

Table 5.1. Actions with potential to contribute to cumulative impacts

Project Title	**Location**	**Project Lead**	**Project description**	**Estimated Completion Timeline**
Endangered Species Conservation	U.S. federal waters	NOAA Fisheries, and USFWS	NOAA Fisheries and USFWS developing and implementing recovery plans and conducting five-year status reviews for ESA-listed species. Consulting on federal actions that may affect a listed species or its designated critical habitat. Issuing permits that authorize scientific research on listed species.	Ongoing
Fisheries Management Actions	U.S. federal waters	NOAA Fisheries, Western Pacific Regional Fishery Management Council	Implementing and amending fishery management plans and associated fishing regulations, issuing exempted fishing permits, modifications to EFH and Habitat Areas of Particular Concern, enforcing fisheries regulations.	Ongoing
Military activities	Monument-Wide	U.S. Department of Defense, USCG	Military readiness, training, inspections, missile defense tests, servicing aids to navigation buoys, and law enforcement	Ongoing

Project Title	Location	Project Lead	Project description	Estimated Completion Timeline
Commercial Shipping Traffic	Commercial shipping lanes within Monument	International Maritime Organization	Transit of the proposed sanctuary	Ongoing
Seawall removal at French Frigate Shoals	Lalo (French Frigate Shoals)	Co-managers, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency	Planning options include complete removal, partial removal and repair to minimize entrapment of wildlife, including seals, turtles and seabirds.	Unknown
Implementation of Midway Atoll Comprehensive Master Plan	Kuaihelani (Midway Atoll)	USFWS	Habitat Restoration; Inner Harbor improvements; South seawall repairs; Wastewater treatment system improvements	10 years

5.6.3 Description of Cumulative Impacts on Laws and Existing Management

Of the actions listed in Table 5.1, two (endangered species conservation by NOAA Fisheries and USFWS, and fisheries management actions by NOAA Fisheries) have the potential to affect the laws and management structure of Papahānaumokuākea. These actions are intended to designate critical habitat for corals and manage non-commercial fisheries in the MEA and would create new requirements and restrictions for users in the Monument.

Legal protection as a national marine sanctuary, pursuant to NMSA, would complement and supplement these regulatory authorities to provide needed protections for otherwise vulnerable ocean resources. A purpose and policy of the NMSA is to provide authority for comprehensive and coordinated conservation and management of marine areas, and activities affecting them, in a manner which complements existing regulatory authorities (16 U.S.C. § 1431(b)(2)).

- See Section 3.3.1 for an overview of proposed sanctuary regulations and appendices C and E for a comprehensive list of existing federal and State authorities that NMSA would complement and supplement.
- See Section 4.4 for further discussion of protected species and habitats.
- See Section 4.5 for discussion of cultural and historic resources in the proposed sanctuary.
- See sections 5.3.1, 5.4.1, and 5.5.1 for summaries of the impact to laws and existing management.

When the expected impacts of the proposed action on the regulatory environment are combined with the impacts of endangered species conservation and fisheries management actions, NOAA does not anticipate any significant cumulative impacts, as the proposed rule would supplement and complement the existing laws and management of the Monument. The presidential proclamations that designated the Monument and the area's existing regulations served as benchmarks for the proposed sanctuary. The proposed sanctuary would only add to and not diminish Monument management measures and protections. NOAA has adopted the management measures from these benchmarks, and in a few places, added onto those measures to allow for consistency in regulation and management across the proposed sanctuary. The proposed rule unifies management of the area by removing discrepancies and gaps in prohibitions, regulated activities, and permit criteria.

Due to the complementary nature of the regulatory and management actions by NOAA Fisheries and USFWS and the low level of activity within the proposed sanctuary in which users would be subjected to the regulations of the proposed action and alternatives, the cumulative impact to laws and management from the proposed action and alternatives in combination with potential impacts from these other actions would be less than significant.

5.6.4 Cumulative Impacts on Physical Resources

The proposed action and alternatives would not have adverse impacts on physical resources, including water quality and habitat, as described in Section 4.3. NOAA's implementation of the proposed action and alternatives are expected to result in no increases in public use within the boundaries of the sanctuary, and minimal to no increase in management activities occurring within the boundaries.

Of the actions listed in Table 5.1, four (commercial shipping, military activities by the U.S. Department of Defense and USCG, seawall removal by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency, and implementation of Midway Atoll Comprehensive Master Plan by USFWS) have the potential to affect the physical resources within the boundary alternatives.

The seawall removal and Midway Atoll Comprehensive Master Plan could have short term adverse impacts on physical resources, but would have long term beneficial impacts on physical resources, as the overall purpose of these actions are for conservation, species protection, and habitat restoration, complementing the beneficial impacts of the proposed action. While unlikely, commercial shipping may cause adverse impacts, such as from minimal levels of pollution generated and low risks from invasive species introduction, to physical resources.

As described in Section 4.6.2, the U.S. Navy conducts a few of their testing and training exercises within the southeastern portion of the Monument, with potential impacts and mitigation measures provided in the associated EIS (U.S. Department of Navy, 2018). According to the EIS, "it is possible that Navy stressors would combine with non-Navy stressors, particularly in nearshore areas and bays" but the "impacts may temporarily intermingle with other inputs in areas with degraded existing conditions, most of the Navy impacts on water quality and turbidity are expected to be negligible, isolated, and short term, with disturbed sediments and particulate matter quickly dispersing within the water column or settling to the

seafloor and turbidity conditions returning to background levels." As a result, "the relatively minute concentrations of Navy stressors are not likely to combine with other past, present, or reasonably foreseeable activities in a way that would cumulatively threaten the water and sediment quality within the Study Area" (U.S. Department of the Navy, 2018).

The proposed action and alternatives would not make a substantial contribution to these adverse impacts. Rather, the beneficial impacts on physical resources from the proposed action and alternatives could offset some of the potential adverse impacts caused by the anticipated activities described above. The resource protections provided by sanctuary designation would result in beneficial impacts on physical resources, primarily due to the proposed sanctuary's regulatory protections prohibiting seafloor disturbance and discharges, thereby preventing degradation of physical resources.

Due to the limited extent of activities undertaken by the U.S. Department of Defense, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, and USFWS, and the commercial shipping industry, the remote location of the proposed sanctuary, and the overall benefits of the proposed action on the physical environment, the cumulative impact to physical resources from the proposed action and alternatives in combination with potential impacts from these other actions would be less than significant.

5.6.5 Cumulative Impacts on Biological Resources

The proposed action and alternatives would not significantly contribute to any adverse impacts on biological resources, as described in Section 4.4. NOAA's implementation of the proposed action and alternatives are expected to result in no increases in public use and management activities occurring within the proposed boundaries.

All six of the actions listed in Table 5.1 (endangered species conservation by NOAA Fisheries and USFWS, fisheries management actions by NOAA Fisheries, military activities by U.S. Department of Defense and USCG, commercial shipping, seawall removal at French Frigate Shoals by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency, and the implementation of Midway Atoll Comprehensive Master Plan by USFWS) have the potential to affect the biological resources within the boundaries of the proposed sanctuary. Any activity requiring the use of vessels and/or a human presence in the proposed sanctuary may cause short-term, minor local adverse effects on biological resources. However, these negligible impacts would be mitigated by NOAA's implementation of BMPs and other regulatory and management activities that would protect the sanctuary from any potential biological disturbances.

The endangered species conservation and fisheries management actions proposed critical habitat designation for corals; and non-commercial fisheries regulations in the MEA, respectively, may benefit these resources in the future through improved management and by potentially creating new conservation requirements and restrictions for users. While unlikely, commercial shipping may cause adverse impacts to biological resources, such as from minimal levels of pollution generated and low risks from invasive species introduction. The seawall removal and Midway Atoll Comprehensive Master Plan could have short-term adverse effects on

biological resources but would have long-term beneficial impacts through habitat restoration which would minimize entrapment of wildlife.

The Navy conducts limited testing and training exercises within the southeastern portion of the Monument, including readiness, training, and operations. (U.S. Department of Navy, 2018). These activities are considered short term in duration, and are not expected to have significant adverse impacts. The Navy's EIS acknowledges that these activities "contribute incremental effects on the ocean ecosystem" but are "not anticipated to meaningfully contribute to the decline of these (marine mammals and sea turtles) populations or affect the stabilization and recovery thereof" (U.S. Department of the Navy, 2018).

The proposed action and alternatives would not make a substantial contribution to these adverse cumulative impacts. Rather, the beneficial impacts on biological resources from the proposed action and alternatives could offset some of the potential adverse impacts caused by the anticipated activities described above. The resource protections provided by sanctuary designation would result in beneficial impacts on biological resources, primarily due to the proposed sanctuary's regulations, which include a prohibition on removing, moving, taking, harvesting, possessing, injuring, disturbing, or damaging any sanctuary resource. In addition, research, resource protection, education, and management activities are expected to be coordinated with the activities of other agencies and jurisdictions. Several other organizations, including federal, State, and local government entities, are involved in the protection of biological resources in the designation area.

Due to the limited extent of activities described above (including those beneficial to biological resources), the remote location of the proposed sanctuary, and the overall benefits of the proposed action on the environment, the cumulative impact to biological resources from the proposed action and alternatives in combination with potential impacts from these other actions would be less than significant.

5.6.6 Cumulative Impacts on Cultural and Historic Resources

The proposed action and alternatives would not significantly contribute to any adverse impacts on cultural and historic resources, as described in Section 4.5. NOAA's implementation of the proposed action and alternatives are expected to result in no increases in public use and management activities occurring within the proposed boundaries.

Of the actions listed in Table 5.1, three (military activities by the U.S. Department of Defense and USCG, seawall removal at French Frigate Shoals by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency, and implementation of Midway Atoll Comprehensive Master Plan by USFWS) have the potential to affect the cultural and historic resources within the boundaries of the proposed sanctuary.

The seawall removal and Midway Atoll Comprehensive Master Plan would likely have no adverse effects on cultural and maritime heritage resources, and would have long term beneficial impacts through the protection of any cultural and historic resources on land, as well as the protection of marine life as a cultural resource.

Military readiness activities may adversely impact cultural resources within the boundary alternatives. With regards to maritime heritage resources, the Navy's EIS notes that "stressors, including explosive and physical disturbance and strike stressors, associated with the" Navy Hawaii-Southern California Training and Testing action "would not affect submerged prehistoric sites and submerged historic resources in accordance with Section 106 of the National Historic Preservation Act because mitigation measures have been implemented to protect and avoid these resources" (U.S. Department of the Navy, 2018).

The proposed action and alternatives provide beneficial impacts for cultural and maritime heritage resources, which could offset some of the potential adverse impacts caused by the anticipated activities described above. The resource protections provided by sanctuary designation would result in beneficial impacts on cultural and maritime heritage resources, primarily due to regulations that provide uniform protection for all underwater maritime resources, management principles that emphasize an in situ management approach for the long-term protection of site information and integrity, as well as other preservation methods and activities outlined in the ONMS policy guidance document *Monitoring and Management of Tangible Maritime Heritage Resources* (NOAA ONMS, 2021). NOAA would mitigate any potential impacts to underwater cultural and historic resources from potential human activities through compliance with the proposed sanctuary regulations, collaboration with State officials, and compliance with the NHPA for any potential impacts to historic properties within the sanctuary.

Due to the limited extent of activities undertaken by the U.S. Department of Defense, the remote location, and the overall benefits of the proposed action and other actions described above, the cumulative impacts to cultural and maritime heritage resources from the proposed action and alternatives in combination with potential impacts from these other actions would be less than significant.

5.6.7 Cumulative Impacts on Socioeconomic Resources, Human Uses, and Environmental Justice

The proposed action and alternatives would have long-term minor adverse (alternatives 1 and 3) to minor beneficial (Alternative 2) impacts to socioeconomic resources, human uses, and environmental justice, as described in Section 4.6. NOAA's implementation of the proposed action and alternatives are expected to result in no increases in public use within the boundaries of the sanctuary, and minimal increase in management activities within the boundaries.

Of the actions listed in Table 5.1, only fisheries management actions by NOAA Fisheries have the potential to affect socioeconomic resources, human uses, and environmental justice. As commercial fishing is already prohibited throughout all proposed boundary alternatives, only fishery management actions on forms of non-commercial fishing in the MEA may impact socioeconomic resources and human uses. There are currently no anticipated activities within the proposed sanctuary that could have adverse effects on socioeconomic resources, human uses, and environmental justice as the area is extremely remote, nearly 300 miles at its closest point from the main Hawaiian Islands, and very few entities operate there.

The cumulative impact of this action with fishery management actions in the MEA is only relevant to alternatives 1 and 3, as the action occurs beyond the proposed sanctuary boundary of Alternative 2. Given the remote nature of this area, few users are anticipated to conduct non-commercial fishing activities within the proposed sanctuary. Impacts to these users would primarily relate to the effort required to obtain a permit and ensure they meet the proposed vessel and reporting requirements.

As permitted non-commercial fishing could not be conducted simultaneously with any permitted sanctuary activity, and permitted non-commercial fishers would be exempt from some sanctuary regulations, the cumulative impact to socioeconomic resources, human uses, and environmental justice from the proposed action and alternatives in combination with potential impacts from the regulatory requirements for non-commercial fishing would be less than significant.

Chapter 6:
Conclusions

6.1 Comparison of Impacts of the Alternatives

As noted throughout this final EIS, the proposed designation of Papahānaumokuākea National Marine Sanctuary is principally an administrative action, with the same protective measures to all resources within each alternative's boundary. All identified beneficial and adverse impacts have been categorized as negligible, minor, moderate, or significant.

Table 6.1. Comparison of the Aggregate Average Impacts for Each Alternative

Resource/Action	Alternative 1 (Preferred)	Alternative 2	Alternative 3
Laws and Existing Management	++ Long term **Direct Moderate Benefits**	+ Long term **Direct Minor Benefits**	x Long term **Direct Minor Adverse Impact**
Physical Resources	++ Long term **Direct Moderate Benefits**	++ Long term **Direct Moderate Benefits**	+ Long term **Direct Minor Benefits**
Biological Resources	++ Both short and long term **Direct Moderate Benefits**	++ Long term **Direct Moderate Benefits**	+ Long term **Direct Minor Benefits**
Cultural Resources	+ **Direct Minor Benefits**	O **No Impact**	+ **Direct Minor Benefits**
Maritime Heritage Resources	++ Long term **Direct Moderate Benefits**	O Long term **Direct Negligible Benefits**	++ Long term **Direct Moderate Benefits**
Socioeconomics, Human Uses, and Environmental Justice	x **Indirect Minor Adverse Impacts**	+ Long term **Indirect Minor Benefits**	x Long term **Indirect Minor Adverse Impacts**

Key to Symbols:

xxx (or greater)	Significant Adverse Impact
xx	Moderate Adverse Impact
x	Minor Adverse Impact
O	No Impact or Negligible Impact
+	Minor Beneficial Impact
++	Moderate Beneficial Impact
+++ (or greater)	Significant Beneficial Impact

6.2 Unavoidable Adverse Impacts

Pursuant to NEPA, an EIS must describe any adverse environmental effects which cannot be avoided should the proposed action be implemented (42 U.S.C. § 4332(C)(ii)). The environmental impacts of each alternative are fully described in Chapter 5. The potential impacts from the sanctuary designation include numerous beneficial impacts, as well as adverse impacts that range from negligible to minor. These adverse impacts are expected to result even when the activities are carried out responsibly and while observing all practicable mitigation measures, and therefore represent unavoidable adverse impacts. NOAA's analysis found that implementing the action alternatives would not result in any unavoidable significant adverse impacts.

6.3 Relationship of Short-Term Use and Long-Term Productivity

NEPA requires that federal agencies consider the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term productivity (42 U.S.C. § 4332(C)(iv)).

The short-term uses of the environment relating to each of the action alternatives would be limited to the on-site management activities that are not currently taking place or planned under the No Action Alternative. These management activities would not harm, degrade, or otherwise adversely affect the long-term productivity of the environment. Conversely, they are designed to preserve and enhance this long-term productivity, either directly (such as through invasive species management) or indirectly (such as through education).

6.4 Irreversible and Irretrievable Commitment to Resources

NEPA requires discussion of commitments of nonrenewable resources that would be irreversible or irretrievable if the proposed action is implemented (42 U.S.C. § 4332(C)(v)). The mission of a national marine sanctuary is to conserve resources for future users, but implementing routine management activities and protective regulations may require some irreversible and irretrievable commitments of resources.

Irreversible commitments of natural resources include the consumption or destruction of nonrenewable resources or degradation of renewable resources over long periods of time. The proposed action would result in the following irreversible commitments of natural resources:

- Nonrenewable resources that would be consumed during management and research activities include fuel, water, power, and other resources necessary to maintain and operate the vessels used for sanctuary management and permitted activities, as well as potential future sanctuary offices.
- Ongoing operation of facilities operated by NOAA would continue to consume power, an irreversible use of resources, if derived from a nonrenewable electrical power source (e.g., natural gas or nuclear energy).

Irretrievable commitments of resources include opportunities foregone, expenditure of funds, loss of production, and restrictions on resource use. The proposed action and alternatives could result in the following irretrievable commitments of natural resources:

- Monetary funds would be expended to support management activities in the purchase of fuels, electricity, water, and other nonrenewable supplies, for wages and rents and for potential construction of facilities.
- Natural resources may be used in construction of sanctuary facilities and structures, such as buildings and signs.

The irreversible and irretrievable commitment of resources would be minimized and mitigated by best management practices and staff training.

6.5 Environmentally Preferable Alternative

As the regulatory regime is the same across the three alternatives, the key difference is where new protections would be applicable. NOAA has determined Alternative 1 as the Agency-Preferred Alternative for the following reasons:

- Meets all goals and objectives, including designating a national marine sanctuary that would complement and supplement existing federal and State resource protection laws to manage nationally significant resources.
- Includes State waters as requested by the State (the co-action agency).
- Provides implementing regulations to protect resources in the MEA (in contrast to Alternative 2, where the MEA is excluded from the proposed sanctuary).
- Provides new protections for the shallow habitats, where threats are highest (in contrast to Alternative 3, where the NWRs are excluded from the proposed sanctuary).

Glossary

ʻĀina Akua – Realm of the gods

ʻĀina Momona – Healthy and thriving communities of people and place

Aliʻi – Native Hawaiian chiefs

Aloha ʻāina – A Hawaiian philosophy of love for land and all that which feeds us, representing a most basic and fundamental expression of the Hawaiian experience. A Hawaiian expression of the rights and responsibilities to care for ʻāina as kin.

Ao – Realm of the light and living

Biocultural – A dynamic, integrative approach to understanding the links between nature and culture and the interrelationships between humans and the environment (Maffi & Woodley, 2012).

Hula – Traditional Native Hawaiian dance

Kaʻao – Histories, stories, and legends. They are often thought of as similar to moʻolelo, however can be much more fanciful and embellished for storytelling purposes.

Kānaka ʻŌiwi, Kānaka Maoli – Terms that refer to Native Hawaiians; an individual who is a descendant of the aboriginal peoples who, prior to 1778, occupied and exercised sovereignty in the Hawaiian Islands, the area that now constitutes the State of Hawaiʻi.

Ke Alanui Polohiwa a Kāne – Traditional Native Hawaiian term referring to the Tropic of Cancer

Ke Ala Polohiwa a Kanaloa – Winter solstice

Ke Ala Polohiwa a Kāne – Summer solstice

Kilo – Native Hawaiian observational methodologies of the environment

Kinolau – A myriad of physical forms manifested in spiritual deities of nature

Kuleana – A Hawaiian value that originates from the traditional practice of stewarding particular areas of land, known as kuleana, that are associated with familial lineages. It requires lineal and/or personal responsibility, rights, and privileges based on relationships to place and people.

Kūpuna – Elder(s), ancestor(s)

Kūpuna Islands – Ancestral or elder islands

Leina – Spiritual portal where the spirits of people who have passed return to

Mai Ka Pō Mai –2021 Native Hawaiian guidance document for the management of Papahānaumokuākea Marine National Monument

Mana – Supernatural/divine power, authority

Mele – Song(s)

Moananuiākea – Pacific Ocean

Moʻolelo – Stories and narratives

ʻŌiwi – A term referring to Native Hawaiians

ʻŌlelo Hawaiʻi – Native Hawaiian language

ʻŌlelo noʻeau – Native Hawaiian proverb or wise saying

Oli – Traditional Hawaiian chant

Papahānaumokuākea – Papahānaumoku is considered a motherly figure personified by the earth and all things that "give birth," including plants, animals, humans, and even one's consciousness. Wākea is a father figure personified as an expanse, or a greater space, such as the sky; the two are honored and highly recognized as ancestors of Native Hawaiian people. Their union is also referenced as the creation, or birthing, of the entire Hawaiian archipelago. The name Papahānaumokuākea was chosen for the Marine National Monument as a combination of these two entities and to emphasize their relationship and importance to Hawaiian culture.

Pilina – Relationship(s)

Pō – Darkness/realm of the ancestors

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