Biological Evaluation of the Effects of Implementing Standard Local Operating Procedures for Endangered Species in the Central and Western Pacific Region (Pac-SLOPES) on ESA-Listed Sea Turtles, Sharks, Corals, and Marine Mammals

1.0 Background

This Biological Evaluation (BE) addresses the effects of implementing standard local operating procedures for endangered species in the central and western Pacific region (Pac-SLOPES) for numerous in-water and near-shore activities routinely permitted by the US Army Corps of Engineers Honolulu District (Corps) on marine species that are listed as endangered or threatened under the Endangered Species Act (ESA), and on their designated critical habitat. This BE addresses the proposed actions in compliance with Section 7(c) of the ESA of 1973, as amended. Section 7 of the ESA assures that, through consultation (or conferencing for proposed species) with National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (USFWS), federal actions do not jeopardize the continued existence of any threatened or endangered species or species proposed to be listed for protection under the ESA, or result in the destruction or adverse modification of critical habitat.

The Corps is responsible for overseeing and permitting certain activities regulated under Section 10 of the Rivers and Harbors Act of 1899 (Section 10) or Section 404 of the Clean Water Act (Section 404) within the central and western Pacific region (hereby referred to as *region*) which includes the Main Hawaiian Islands (MHI), the Northwest Hawaiian Islands (NWHI), American Samoa, Guam, the Northern Mariana Islands, and the Pacific Remote Island Areas (PRIA)[1]. Structures or work in, above, or beneath navigable waters of the United States require a Department of the Army (DA) permit under Section 10 prior to the commencement of work. The law applies to any dredging or disposal of dredged material, excavation, filling, re-channelization, or any other modification of a navigable water of the United States, and applies to all structures, from the smallest floating dock to the largest commercial undertaking. It further includes, but is not limited to: construction or installation of any wharf, dolphin, weir, boom, breakwater, jetty, groin, bank stabilization, mooring structure, aerial or subaqueous power transmission line, intake or outfall pipe, permanently moored floating vessels, tunnels, artificial canals, boat ramps, aids to navigation, and any other permanent or semi-permanent obstacle or obstruction to navigation.

Section 404 requires a DA permit, issued by the Corps on behalf of the Office of the Secretary of the Army, prior to the discharge of dredged or fill material into any waters of the United States, including wetlands. Discharges of fill material generally include, but are not limited to: placement of fill necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; dams and dikes; artificial islands; property protection or reclamation devices such as riprap, groins, sea walls, breakwaters,

[1] The PRIA comprise Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Wake Island, Palmyra Atoll, and Midway Atoll. Although physically located in the Hawaiian Archipelago, administratively, Midway is considered part of the PRIA because it is not a part of the State of Hawaii. However, for the purposes of this document, the PRIA do not include Midway Atoll. Midway is considered as part of the Northwest Hawaiian Islands.

and revetments; beach nourishment; levees; fill for intake and outfall pipes and subaqueous utility lines; fill associated with the creation of ponds; and other work involving the discharge of dredged or fill material. A DA permit is required irrespective of whether the work is permanent or temporary. Examples of temporary discharges may include dewatering of dredged material before final disposal, and temporary fills for access roadways, cofferdams, and storage and work areas. The Corps annually receives several hundred permit requests for construction and repair projects that impact marine and aquatic environments in the central and western Pacific region.

Within the central and western Pacific region, nearly all near shore marine waters, as well as the lower reaches of many freshwater streams, within the Corps' jurisdiction are occupied by ESA-listed marine species. Additionally, critical habitat has been designated for the Hawaiian monk seal and is currently being revised to include the MHI. Several species of reef-building corals that occur within the region have been listed as threatened or endangered under the ESA (see Section 3.0 below) and critical habitat is currently being evaluated for these species. Because the activities covered under Pac-SLOPES would occur within, near, or upstream of the marine environment, these actions have the potential to impact ESA-listed marine animals and their habitats across the region. The requirement for ESA consultation on the issuance of DA authorizations has resulted in a substantial and growing workload for both the Corps and the National Marine Fisheries Service (NMFS).

Many of these regulated actions involve similar activity types, and the frequently repeated consultation on them has resulted in standardized conservation practices necessary to minimize impacts on protected species and their habitats. The Corps examined the most frequently encountered regulatory actions in the region to determine the shared activity types with similar environmental effects and similar required conservation practices (conditions and best management practices) necessary for regulatory approval. In this BE the Corps has identified (through coordination with NMFS) those activity types and required practices that ensure predictably insignificant or discountable species effects and environmental impacts. Consequently, additional analysis or deliberation beyond confirmation that a given action meets the applicable constraints on design and the use of conservation practices, described herein, is not likely to be rewarded with additional conservation benefits.

Pac-SLOPES is designed to serve as a fundamental forum between NMFS, the Corps, and applicants for DA permits to streamline the Section 7 consultation process while simultaneously reducing or eliminating the adverse effects of regulated actions on ESA-listed marine species and designated critical habitat in the region. In Pac-SLOPES, the Corps and NMFS have established clear expectations to achieve consistent outcomes that should significantly reduce conflict over listed species and regulatory actions, thus improving public relations and creating new opportunities for further advances in listed species conservation.

The Corps intends to continue use of Pac-SLOPES as conditioned by the consultation with NMFS Pacific Islands Regional Office (PIRO) to guide its review of permit requests under Section 10 and Section 404. Under Pac-SLOPES, permits will be issued with conditions to ensure compliance with Section 7 of the ESA. Applications found to be outside the scope of Pac-SLOPES will be submitted to NMFS Protected Resources Division (PRD) for project-specific ESA consultation. As part of this programmatic consultation, NMFS will continue to review

proposed Corps actions, and will confirm with the Corps during the comment period whether or not applications are within the scope of Pac-SLOPES. Communications will typically be brief and informal via the *Pac-SLOPES Notification and Verification Form*. Applications for actions that are found to be within the scope of Pac-SLOPES will be covered by the proposed programmatic consultation, and will require no further ESA consultation by the Corps or NMFS. Additionally, the Corps and NMFS PRD will meet annually, in August/September of any given year, to summarize the actions permitted under Pac-SLOPES to evaluate and improve future effectiveness of the program.

The current Pac-SLOPES has been expanded beyond its original iteration so that it now considers potential impacts on corals that have been listed under the ESA, as well as critical habitat that has been designated or proposed for designation under the ESA for monk seals. However, the scope of Pac-SLOPES remains limited to those activity types that may affect, but are not likely to adversely affect ESA-listed marine species and designated critical habitat. Pac-SLOPES will continue to be adaptive, accountable, and credible as a conservation and regulatory tool. As such, additional categories of activities may be added and in the future Pac-SLOPES may be modified to include consideration of actions that could result in take of ESA-listed marine species. Should that occur, the Corps would enter into formal consultation with NMFS for the continued implementation of Pac-SLOPES.

It is important to note here that due to the organizational structure of PIRO, consultations under Section 7 of the ESA are completed by PRD. However, consultation with the PIRO Habitat Conservation Division (HCD) is also required to ensure compliance with other statutes, such as the Clean Water Act (CWA), the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and the Fish and Wildlife Coordination Act (FWCA). Although the considerations of consultation with HCD may eventually be incorporated into a future version of Pac-SLOPES, consultations with HCD will continue to be completed in a separate process. Additionally, while NMFS PRD has jurisdiction over ESA-listed sea turtles while in the water, those animals and their nests fall under the jurisdiction of the US Fish and Wildlife Service (USFWS) when above the waterline. Thus, although potential impacts on basking or nesting sea turtles, or their nests, are considered under Pac-SLOPES, those impacts will not be specifically analyzed in this BE or the resulting programmatic consultation with NMFS PRD. As such, projects that may impact those animals, nests, and above water habitats may require separate consultation with the USFWS.

This BE considers modern construction equipment and methodologies, as well as General Conditions (Section 2.0), the best management practices (BMPs) (Section 6.0), and Regional Conditions (Appendix A) under the Corps' Nationwide Permit (NWP) program. This BE covers the proposed activities authorized though Regional general permits, Letters of Permission (LOP), or standard permits. The effects section (Section 5.0) also incorporates affects analyses conducted in recent consultations with NMFS PRD for Corps actions throughout the region. This BE also considers information provided in the recovery plans and status reviews for the ESA-listed marine species known or believed to occur within the action area (Section 3.0), current scientific data, and anecdotal information.

2.0 Proposed Action and Action Area

Standard Local Operating Procedures for Endangered Species in the Central and Western Pacific Region (Pac-SLOPES)

As described above, the Corps intends to use Pac-SLOPES to ensure compliance with Section 7 of the ESA for certain activities regulated under Section 10 and Section 404. Under the proposed programmatic consultation, the Corps would use Pac-SLOPES to issue permits for the following types of actions:

Pac-SLOPES COVERED ACTIONS:

1. Site Preparation for Above-water or Over-water Construction;
2. Survey Activities;
3. Marina or Harbor Repair and Improvement Activities;
4. Piling Installation, Repair, Replacement and/or Removal;
5. Installation and/or Repair of Buoys and Other Similar Structures;
6. Maintenance Dredging;
7. Other Minor Discharges and Dredging/Excavation;
8. Utility Line Installation and Repair;
9. Outfall Structure Repair and/or Replacement;
10. Maintenance of Existing Bank Stabilization Structures;
11. Stream Clearing Activities;
12. Road Repair, and/or Improvements;
13. Bridge Repair and Replacement;
14. Removal of Structures or Vessels.

Use of Pac-SLOPES will ensure that these actions continue to meet requirements of the ESA with procedures that are simple to use, efficient, and accountable for all parties.

Any State Programmatic General Permit (SPGP) issued by the Corps, under Pac-SLOPES, to the State of Hawaii or to the Territorial Governments of American Samoa or Guam, or the Commonwealth of the Northern Mariana Islands (CNMI), to defer regulatory review and evaluation of permits under Section 10 or Section 404 will require the State or Territorial Government to administer the permit program using the same criteria the Corps applies under Pac-SLOPES, including the requirement that each applicable condition and BMP must be attached as an enforceable part of each permit document authorized under the SPGP.

Projects that are explicitly excluded from authorization under Pac-SLOPES, and as such require individual consultation, are those projects in or near the marine environment that utilize any of the following:

Pac-SLOPES EXCLUDED ACTIONS:

1. Blasting or use of explosives for demolition purposes.
2. Installation or proofing of steel or concrete pilings and/or sheetpile via impact hammer.
3. Construction of new bank stabilization.
4. Construction of new roads.

5. New construction dredging or in-water trenching.
6. Construction of new or expanded effluent discharge systems.
7. Any use of treated wood[2] in marine or aquatic habitats.

As part of a permit evaluation or operational planning process:

1. The Corps will confirm whether or not a proposed project is within the present or historic range of an ESA-listed marine species or designated critical habitat, and make an effects determination;
2. If the Corps determines that the project may affect an ESA-listed marine species or critical habitat, the Corps will review the project for applicability under Pac-SLOPES based on the following criteria:
   a) The proposed project conforms with all applicable requirements and limitations described herein;
   b) The general conditions below can be applied to the project; and
   c) All potential effects on ESA-listed marine species or critical habitats are within the range of effects considered in the programmatic consultation with NMFS PRD for the implementation of Pac-SLOPES. Actions that do not initially comply with Pac-SLOPES may be brought into compliance through technical assistance between the applicant, the Corps, and NMFS;
3. The Corps will submit the *Pac-SLOPES Notification and Verification Form* (Appendix B) to NMFS PRD to initiate informal consultation and request confirmation that the action is within the scope of Pac-SLOPES; and
4. NMFS PRD will confirm if the given action complies with Pac-SLOPES.

As part of an adaptive management approach to improving the conservation value, efficiency, and accountability of this program; the Corps will coordinate an annual meeting with NMFS PRD in August/September of each year, to discuss the projects completed under Pac-SLOPES and to share lessons learned in the application of this programmatic to actions throughout the region. This Pac-SLOPES programmatic will remain valid until either the Corps or NMFS PRD request re-initiation of consultation due to changes in listed species, changes in the types of activities covered under the programmatic, or other justifiable reasons.

GENERAL CONDITIONS:

The Corps will apply the following set of general conditions to each action authorized under Pac-SLOPES. Additionally, specific BMPs described in Section 6.0 under the specific activity types will be required, as applicable.

1. Each applicable condition, BMP, and conservation measure will be included as an enforceable part of the permit document.

[2] Treated wood includes use of any chemicals and/or compounds that have been banned by the U.S. Environmental Protection Agency (EPA) or banned for use in marine waters of the U.S. by the EPA or local or state agency. Other chemicals and/or compounds used to treat wood of concern include, but are not limited to: copper-based treatments such as Ammoniacal copper zinc arsenate (ACZA) and Copper Chromium Arsenate (CCA), polycyclic aromatic hydrocarbons (PAHs) in creosote treated wood, borate, Propiconazole-Tebuconazole-Imidicloprid (PTI), sodium silicate, potassium silicate, fire retardant-based, and acetylated wood. If the proposed activity proposes the use of treated wood, an individual ESA consultation would be required so that NMFS could fully evaluate the potential affects the chemicals and/or compounds may have on listed species in and adjacent to the project area.

2. The Corps will retain the right of reasonable access to projects authorized under Pac-SLOPES to monitor the compliance with and effectiveness of permit conditions.

3. Each permit will contain the requirement that the permittee document and report to the Corps and NMFS, all interactions with listed species, including the disposition of any listed species that are injured or killed. Should an ESA-listed species be adversely affected, all work must stop pending re-initiation and completion of consultation between the Corps and NMFS PRD for that action.

4. Projects that would affect structures or substrate with ESA-listed corals attached are excluded from coverage under Pac-SLOPES.

    a) For in-water work where ESA corals may occur, structures and substrate that could be affected by the proposed activity must be surveyed by personnel qualified to identify ESA-listed corals.

    b) Should ESA-listed corals be present in the project area, but not on the structures or substrate that would be directly impacted by the activity, that activity may be covered under Pac-SLOPES if the activity complies with the conditions and best management practices described in this biological evaluation.

    c) To minimize impacts to coral larvae, notably the listed species covered in this programmatic consultation, the permittee shall avoid in-water work during mass-coral spawning times or peak coral spawning seasons. Permittees must consult with local biologists (either NMFS HCD representatives in their respective locations, or the appropriate local government agencies) to determine the exact period and dates when coral spawning would occur for the given year.

5. Constant vigilance shall be kept for the presence of non-coral ESA-listed marine species (sea turtles, marine mammals, sharks) during all aspects of the permitted action.

    a) A responsible party, i.e., permittee/site manager/project supervisor, shall designate a competent observer to search/monitor work sites and the areas adjacent to the authorized work area for ESA-listed marine species;

    b) Searches and monitoring shall be made prior to the start of work each day, including prior to resumption of work following any break of more than one-half hour. Additional periodic searches and monitoring throughout the work day are strongly recommended;

    c) All in-water work will be postponed or halted when ESA-listed marine species are within 50 yards of the proposed work, and will only begin/resume after the animals have voluntarily departed the area, with the following exception: if ESA-listed marine species are noticed within 50 yards after work has already begun, that work may continue only if, in the best judgment of a biologist, the activity is unlikely disturb or harm the animal(s), for example, divers performing surveys or underwater work

(excluding the use of toxic chemicals) is likely safe, the use of heavy machinery is not; and

d) Project-related personnel shall NOT attempt to disturb, touch, ride, feed, or otherwise intentionally interact with any protected species.

6. Project footprints must be limited to the minimum area necessary to complete the project.

7. The project area must be flagged to identify and avoid impacts to sensitive resource areas, such as corals, seagrass beds, listed terrestrial plants, and sea turtle nests.

8. Work located channelward of the Mean Higher High Tide Line of navigable water or channelward of the upward limits of adjacent wetlands must be timed to minimize effects on ESA-listed species and their habitats.

9. Project operations must cease under unusual conditions, such as large tidal events and high surf conditions, except for efforts to avoid or minimize resource damage.

10. A stormwater management plan, commensurate to the size of the project, must be prepared and carried out for any project that will produce any new impervious surface or a land cover conversion that will slow the entry of water into the soil to ensure that effects to water quality and hydrology are minimized.

11. A pollution and erosion control plan for the project site and adjacent areas must be prepared and carried out. As a minimum, this plan shall include:

    a) Proper installation and maintenance of silt fences/curtains, sausages, equipment diapers, or drip pans.

    b) A contingency plan to control and clean spilled petroleum products and other toxic materials.

    c) Appropriate materials to contain and clean potential spills will be stored at the work site, and be readily available.

    d) All project-related materials and equipment placed in the water will be free of pollutants.

    e) Daily pre-work inspections of heavy equipment for cleanliness and leaks, with all heavy equipment operations postponed or halted until leaks are repaired and equipment is cleaned.

    f) Fueling of project-related vehicles and equipment will take place at least 50 feet away from the water and within a containment area, preferably over an impervious surface;

    g) A plan will be developed to prevent trash and debris from entering the marine

environment during the project.

h) All construction discharge water (e.g., concrete washout, pumping for work area isolation, vehicle wash water, drilling fluids) must be treated before discharge.

12. Erosion controls must be properly installed before any alteration of the project area may take place.

13. Temporary access roads and drilling pads must avoid steep slopes, where grade, soil types, or other features suggest a likelihood of excessive erosion or failure; existing access routes must be utilized or improved whenever possible, in lieu of construction of new access routes.

14. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

15. Native species suitable for the impacted habitat must be considered for re-vegetation for the purposes of restoring areas temporarily disturbed by the authorized work to their pre-disturbance condition.

16. All disturbed areas must be immediately stabilized following cessation of activities for any break in work longer than 4 days.

17. Drilling and dredging are restricted to uncontaminated areas, and any associated waste or spoils must be completely isolated and disposed of in an approved upland disposal location.

18. All work authorized under a DA Nationwide Permit, Regional General Permit, Letter of Permission or Standard Permit must also comply with all applicable general, regional conditions, special, or project specific conditions.

2.1 Action Area

The action area for the proposed action encompasses the lands and adjacent waters on and around the Main Hawaiian Islands (MHI), the Northwest Hawaiian Islands (NWHI), American Samoa, Guam, the Northern Mariana Islands, and the Pacific Remote Island Areas (PRIA) where ESA-listed marine species or their habitats may be impacted by Corps actions. This includes but is not limited to all navigable waters of the United States, other water bodies, and adjacent wetlands; such as nearshore marine waters, shoreline areas inland to the point where impacts to the marine environment and ESA-listed marine species are no longer reasonably possible, and upstream into upland watersheds to the point where impacts to the marine environment and ESA-listed marine species are no longer reasonably possible.

2.2 Activity Descriptions

The following activity type descriptions are taken in large part from the descriptions given in the

Nationwide Permits (NWP) that pertain to those actions (33 CFR Part 330). Some actions which could be also be authorized by a Regional General Permit (RGP), Letter of Permission (LOP), or Standard Permit (SP) from the Corps may qualify for the criteria for a "not likely to adversely affect" determination under the ESA. Conversely, some actions that are conceivably covered under the Nationwide Permits system may fall outside the criteria for a "not likely to adversely affect" determination under the ESA. However, based on the programmatic requirements and conditions described above, and the activity-specific BMP listed below, the following activity types have been determined not likely to adversely affect ESA-listed marine species or their habitats, and thus qualify for the proposed programmatic.

2.2.1 Site Preparation for Above-Water or Over-Water Construction

Under Pac-SLOPES, this activity type includes work done to prepare a site for construction or repair of any type of structure or building, driveway, parking area, garage, and storage or utility building that may take place out of the water (i.e. on over-water structures such as existing piers and docks) but still under Corps jurisdiction. Site preparation may involve the use of heavy machinery, operated from the land, or from the deck of a barge or other vessel, for demolition of existing structures, clearing of vegetated areas, excavation, filling, grading, and laying pavement.

Potential vectors of impact include:
1. Collision with vessels;
2. Disturbance from human activity and equipment operation;
3. Exposure to elevated noise levels;
4. Exposure to elevated turbidity and sedimentation; and
5. Exposure to wastes and discharges.

2.2.2 Survey Activities

Under Pac-SLOPES, this activity type includes work done to determine certain characteristics of a substrate. Survey work may involve the use of heavy machinery, operated from the land, a dock or pier, or from the deck of a barge or other vessel to drive core samplers, to lower and raise grab-samplers and submersibles, and to excavate trenches above the waterline. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment.

Core sample surveys typically involve the in-water use of a small gage (approximately 3 inch diameter) pipe that is driven down into the substrate by a small impact hammer or by a drill to determine the vertical constitutional makeup of the substrate from the mudline to sometimes down to more than 100 feet. Grab-samplers consist of a spring-loaded clamshell bucket that takes a "bite" of the bottom sediments for chemical analysis or to determine the infauna. In-water surveys also include work done to characterize marine biological communities though transects run by divers or submersibles. On-land, near water survey activities may include core sampling, exploratory trenching, seismic surveys, soil sampling, and historic resources surveys. Many activities in this category will be authorized under NWP # 6 (Survey Activities).

The use of active sonar or seismic profilers for hydrographic mapping of the seafloor is expressly excluded from coverage under Pac-SLOPES.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation; and
6. Exposure to wastes and discharges.

2.2.3 Marina or Harbor Repair and Improvement Activities

Under Pac-SLOPES, this activity type includes work done to repair or replace harbor or marina structures and facilities such as buildings, driveways, and parking areas where these activities may extend into or above waters of the U.S.; the repair or replacement of overwater structures such as pier or dock surfaces (both floating and piling-supported), mooring aids (such as fenders, guards, and cleats), handrails, and ladders; the repair or replacement of in-water structures such as launch ramps, concrete steps (both pre-formed and poured in-place), or ladders that may extend below the water's surface; the removal or repair of existing pilings, and; the repair of existing breakwaters and seawalls (where the repair involves no pile-driving). Many activities in this category will be authorized under NWP # 3 (Maintenance) and NWP # 28 (Modifications of Existing Marinas).

Marina and harbor repair and improvements will likely involve the use of heavy machinery, operated from the land, or from the deck of a barge or other vessel. Heavy equipment would likely be utilized for demolition of existing structures, removal and replacement of pre-formed decks and finger piers, excavation, filling, grading, laying pavement, and replacement of breakwater stones. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment.

The use of a vibratory hammer to remove and install piles may generate noises that could disturb and temporarily change the behavior of animals that are exposed to the sounds. The applicant must provide detailed information about the size of the piles, duration of the installation of each pile, and details of proposed marine mammal and other species monitoring. NMFS will review the proposal prior to approval under Pac-SLOPES and NMFS and USACE may adjust monitoring requirements or agree to reject it from the coverage under Pac-SLOPES.

The installation or proofing of any steel or concrete pilings and/or sheetpile via impact hammer is expressly excluded from coverage under Pac-SLOPES.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;

5. Exposure to elevated turbidity and sedimentation;
6. Exposure to wastes and discharges; and
7. Loss of forage habitat.

2.2.4 Piling Installation, Repair, Replacement and/or Removal

Under Pac-SLOPES, this activity type includes work done to install, repair, replace, or remove existing pilings. Repair work may take place above- or in-water, and may include the removal of cracked or spalled concrete, the application of concrete or epoxies, the welding of metal patches or sleeves, and the repair or replacement of metal structures attached to or imbedded in pilings. Removal work may include extracting entire pilings by pulling them up and out of the substrate, or it may involve divers using power tools, such as saws or cutting torches, to cut-off pilings at or below the mudline with the piling supported and lifted out by a vibratory hammer or a large crane. Most activities in this category will be authorized under NWP # 3 (Maintenance Activities).

Piling repair and removal will likely involve the use of heavy machinery operated from the land, or from the deck of a barge or other vessel. Heavy equipment would be used to support pilings or to pull them out of the substrate, or to remove cut-off pilings for disposal at an upland site. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment.

The use of a vibratory hammer to remove and install piles may generate noises that could disturb and temporarily change the behavior of animals that are exposed to the sounds. The applicant must provide detailed information about the size of the piles, duration of the installation of each pile, and details of proposed marine mammal and other species monitoring. NMFS will review the proposal prior to approval under Pac-SLOPES and NMFS and USACE may adjust monitoring requirements or agree to reject it from the coverage under Pac-SLOPES.

The installation or proofing of any steel or concrete pilings and/or sheetpile via impact hammer and use of treated wood pilings in marine or aquatic habitats are expressly excluded from coverage under Pac-SLOPES.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation;
6. Exposure to wastes, and discharges; and
7. Loss of forage habitat.

2.2.5 Installation and/or Repair of Buoys and Other Similar Structures

Under Pac-SLOPES, this activity type includes work done to install, repair, or replace buoys and similar structures used for private and commercial moorings, area and regulatory markers,

scientific measurement devices, fish aggregating devices, and aids to navigation. Many activities in this category will be authorized by NWP #1 (Aids to Navigation), NWP #4 (Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities), NWP #5 (Scientific Measurement Devices), NWP #10 (Mooring Buoys), and NWP # 11 (Temporary Recreational Structures). NWP #1 authorizes the placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the USCG. NWP #4 authorizes fish and wildlife harvesting devices and activities such as pound nets, crab traps, crab dredging, eel pots, lobster traps, duck blinds, and clam and oyster digging, fish aggregating devices, and small fish attraction devices such as open water fish concentrators (sea kites, etc.). NWP-#5 authorizes the installation and use of devices, whose purpose is to measure and record scientific data, such as staff gages, tide and current gages, meteorological stations, water recording and biological observation devices, water quality testing and improvement devices, and similar structures. NWP #10 authorizes mooring buoys for non-commercial, single boat use. NWP #11 authorizes temporary recreational structures, including temporary buoys, markers, and similar structures placed for recreation use during specific events provided the structures are removed within 30 days after use has been discontinued. Commercial buoys or other structures may be authorized by a Letter of Permission (LOP) or a standard permit.

Buoy or similar structures installation and repair will involve the use of vessels, and may involve the use of heavy machinery. Vessels will be used to transport buoy components, equipment, and personnel to and from deployment sites. Small boats may be used for diver support for installation and repair work. Heavy equipment may be needed for installation or removal of anchor assemblies and large buoys.

The following buoy deployments are expressly excluded from coverage under Pac-SLOPES:

1. Deployment of mooring buoys in or adjacent to seagrass beds;
2. The deployment of moored active acoustic devices, with the exception of systems that operate in frequency bands well outside the hearing ranges of ESA-listed marine life (such as certain wave and current monitoring systems operating above 200 kHz), and moorings with acoustic release devices that only transmit a brief signal during deployment, then again during recovery of the mooring.

Potential vectors of impact include:

1. Collision with vessels;
2. Direct physical impact;
3. Entanglement;
4. Disturbance from human activity and equipment operation;
5. Exposure to elevated noise levels;
6. Exposure to wastes and discharges; and
7. Loss of forage habitat.

2.2.6 Maintenance Dredging

Under Pac-SLOPES, this activity type includes work done to remove accumulated sediment for maintenance of previously authorized, existing marina basins, access channels to marinas or boat slips, and boat slips to previously authorized depths or controlling depths for ingress/egress,

whichever is less. The removal of accumulated sediments and debris in the vicinity of and within existing structures (e.g., bridges, culverts at road crossings, and water intake structures, etc.) is also authorized. The removal of sediment is limited to the minimum necessary to restore the waterway in the immediate vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend further than 100 feet in any direction from the structure. Many activities in this category will be authorized by NWP #3 (Maintenance Activities) and NWP # 35 (Maintenance Dredging of Existing Basins), LOP or SP.

Maintenance dredging will likely involve the use of heavy machinery operated from the land, from a pier or wharf, or from the deck of a barge or other vessel. Heavy equipment would be used to mechanically excavate (e.g. clamshell bucket, backhoe, etc.), or hydraulically remove (suction) accumulated sediments for disposal elsewhere. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment. Tugs and barges would be likely be used to accumulate and transport dredged materials.

The following dredging operations are expressly excluded from coverage under Pac-SLOPES:

1. Dredging of coral reefs, sites that support submerged aquatic vegetation (including sites where submerged aquatic vegetation is documented to exist but may not be present in a given year), and wetlands;
2. All new construction dredging; such as widening or deepening the original footprint of a previously dredged area, or dredging of substrate that was not previously authorized and dredged;
3. Use of trailing hopper dredges, “dustpan” dredges, and other suction dredges that do not meet the criteria listed in section 6.0;
4. Any dredging for the purpose of connecting canals or other artificial waterways to navigable waters; and
5. Any form of blasting.

Potential vectors of impact include:

1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation;
6. Exposure to wastes and discharges; and
7. Loss of forage habitat.

2.2.7 Other Minor Discharges and Dredging/Excavations

This activity type is intended to cover small scale discharge and excavation activities that may be proposed but are not specifically considered elsewhere under Pac-SLOPES. It is anticipated that most activities in this category will be authorized by either under NWP#18 (Minor Discharges) or under NWP#19 (Minor Dredging).

NWP#18 authorizes minor discharges of dredged or fill material into all waters of the United States, provided the activity meets all of the following criteria:

1. The quantity of discharged material and the volume of area excavated do not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line;
2. The discharge will not cause the loss of more than 1/10 acre of waters of the United States; and
3. The discharge is not placed for the purpose of a stream diversion.

NWP#19 authorizes minor dredging below OHW or the mean high tide line from navigable waters of the United States, provided the activity meets all of the following criteria:
1. The dredging involves no more than 25 cubic yards below the plane of OHW or the mean high water mark;
2. The dredging will result in no degradation of coral reefs, submerged aquatic vegetation, or wetlands; and
3. The dredging involves no connection of canals or other artificial waterways to navigable waters.

Excavation or discharge in areas of significant monk seal haul out or known monk seal pupping is expressly excluded from coverage under Pac-SLOPES.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation;
6. Exposure to wastes and discharges; and
7. Loss of forage habitat.

2.2.8 Utility Line Installation and Repair

Under Pac-SLOPES, this activity type includes work done to construct, maintain, repair, and remove utility lines and associated facilities. A utility line is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance; and any cable or wire transmission lines. The term does not include structures designed to drain a water of the U.S., such as drainage tiles, or French drains. However, the term does apply to pipes conveying drainage from another area. Many activities in this category will be authorized by NWP#12 (Utility Line Activities).

Under Pac-SLOPES, this activity type includes work done to construct, repair, or replace utility lines and related structures and related facilities such as buildings, access roads, driveways, parking areas, foundations, and above ground utility line towers, poles, and anchors where any part of these structures impacts a water of the U.S.. It also includes the potential use of horizontal directional drilling (HDD) or similar technology to bore subterranean boreholes or tunnels through which pipelines or other conduits will be installed beneath Section 10 waters.

Utility line installation and repair work will involve the use of heavy machinery, operated from the land, or from the deck of a barge or other vessel. Heavy equipment will be used for activities

that include demolition of existing structures, clearing of vegetated areas, excavation, filling, grading, laying pavement, construction, and directional-drilling or similar non-trenching technologies. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment.

The following utility line operations are expressly excluded from coverage under Pac-SLOPES:

1. New installations in or adjacent to seagrass beds;
2. Installation of new or expanded outfall or intake structures;
3. Installation, removal, or abandonment of any pipeline used to convey toxic substances (e.g. crude oil or its derivatives, known toxic chemicals, etc.);
4. Any project that involves the installation of new power lines or other conveyances that may radiate or otherwise exude substances or energies into the marine environment;
5. Any projects that involve in-water trenching in the marine environment or in the lower reaches of freshwater streams and rivers where ESA-listed marine species may occur, or where downstream impacts of the trenching may impact those species or their habitats; and
6. Any projects that require new hydrographic surveys that employ acoustic devices such as sonar and seismic profilers.

Potential vectors of impact include:

1. Collision with vessels;
2. Direct physical impact;
3. Entanglement;
4. Disturbance from human activity and equipment operation;
5. Exposure to elevated noise levels;
6. Exposure to elevated turbidity and sedimentation;
7. Exposure to wastes and discharges; and
8. Loss of forage habitat.

2.2.9 Outfall Structure Repair and/or Replacement

Under Pac-SLOPES, this activity type includes work done to repair, modify, or remove outfall pipes and structures, including outfalls from wastewater treatment facilities, where the effluent is authorized, conditionally authorized, or specifically exempted by, or that are otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program. Included is the replacement of riprap or other approved stabilization materials to prevent erosion at an outfall structure. Many activities in this category will be authorized by NWP#7 (Outfall Structures and Associated Intake Structures).

Outfall structure repair and replacement work will likely involve the use of heavy machinery, operated from the land, or from the deck of a barge or other vessel. Heavy equipment will be used for activities that include demolition of existing structures, clearing of vegetated areas, excavation, filling, grading, applying concrete, and other general construction. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment.

The following outfall operations are expressly excluded from coverage under Pac-SLOPES:

1. Installation of new or expanded outfall structures;

2. Installation of structures that increase the amount or rate of effluent discharging from existing outfall structures or add capacity to increase effluent discharges in the future; and
3. Relocation of existing outfall structures.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Entanglement;
4. Disturbance from human activity and equipment operation;
5. Exposure to elevated noise levels;
6. Exposure to elevated turbidity and sedimentation; and
7. Exposure to wastes and discharges.

2.2.10 Maintenance of Existing Bank Stabilization Structures

Under Pac-SLOPES, this activity type includes only activities conducted to repair existing bank stabilization structures in or along marine or estuarine waters, or along nearshore streams and riverbanks. Work may include the demolition and removal of existing structures, clearing of vegetated areas, excavation, grading, pouring concrete, and the placement of fill in the form of rock rip-rap, gabion baskets, concrete blocks or other pre-formed concrete shapes. Maintenance of existing bank stabilization structures would be limited to in-kind repairs within the existing footprint and would not cover any new seaward or channelward encroachments. The maintenance activities covered could not impact live corals or seagrass beds under Pac-SLOPES. Most activities in this category will be authorized under NWP#13 (Bank Stabilization).

Bank stabilization work may involve the use of heavy machinery, operated from the bank, or from the deck of a barge or other vessel.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation; and
6. Exposure to wastes and discharges;

2.2.11 Stream Clearing Activities

Under Pac-SLOPES, this activity type includes work done in rivers and streams to remove obstructions that restrict stream flow and increase the risk of upstream flooding or that pose other adverse environmental impacts. Obstruction may be the result of accumulated sediments, from improperly discarded rubbish and debris, from over-growth of invasive non-native plant species, or a combination of these or other factors. It is noted that there may be no DA permit required for such work if the work is located upstream of the Corps Section 10 jurisdictional cutoff at the mean high water (MHW) line.

There is no NWP currently available for this activity. Any authorization would likely be issued under a RP or IP.

Stream clearing may involve the use of heavy machinery operated from the stream bank, or from the deck of a barge or other vessel, to remove debris or plant material, or to excavate sediments. Potential vectors of impact include:

1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation; and
6. Exposure to wastes and discharges.

2.2.12 Road Repairs and/or Improvements

Under Pac-SLOPES, this activity type includes work done to repair existing roads which cross waters of the U.S. and related structures such as culverts in or over marine, estuarine, and nearshore freshwaters. Most activities in this category will be authorized under NWP#3 (Maintenance Activities) or NWP#14 (Linear Transportation Projects).

Road repairs and improvement work may involve the use of heavy machinery for demolition of existing structures, clearing of vegetated areas, excavation, filling, grading, laying pavement, and installation or repair of bank stabilization structures (see 2.2.10 above).

Construction of new roads and related structures is expressly excluded from coverage under Pac-SLOPES. The installation or proofing of any steel or concrete pilings and/or sheetpile via impact hammer is expressly excluded from coverage under Pac-SLOPES.

Potential vectors of impact include:

1. Direct physical impact;
2. Disturbance from human activity and equipment operation;
3. Exposure to elevated noise levels;
4. Exposure to elevated turbidity and sedimentation; and
5. Exposure to wastes and discharges.

2.2.13 Bridge Repair and Replacement

Under Pac-SLOPES, this activity type includes work done to repair, rehabilitate, or replace a previously authorized, currently serviceable bridge structure and associated fill, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This work may include discharges of dredged or fill material incidental to the repair, rehabilitation or replacement work, including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills. Many activities in this category will be authorized by

NWP # 3 (Maintenance Activities) and NWP#14 (Linear Transportation Projects).

Bridge repair, rehabilitation, or replacement will likely involve the use of heavy machinery, operated from the land, or from the deck of a barge or other vessel. Heavy equipment would be needed for demolition of existing structures, removal and replacement of structural components and debris, excavation, filling, grading, and laying pavement. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment.

The installation or proofing of any steel or concrete pilings and/or sheetpile via impact hammer and use of treated wood pilings in marine or aquatic habitats are expressly excluded from coverage under Pac-SLOPES.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation;
6. Exposure to wastes and discharges; and
7. Loss of forage habitat.

2.2.14 Removal of Structures or Vessels

Under Pac-SLOPES, this activity type includes work required for the removal of wrecked, abandoned, or disabled vessels, or the removal of man-made obstructions to navigation. This activity may require temporary structures or minor discharges of dredged or fill material. Many activities in this category will be authorized by NWP#22 (Removal of Vessels) or by LOP or SP.

Work to remove structures or vessels will likely involve the use of heavy machinery, operated from the land, or from the deck of a barge or other vessel. Heavy equipment will be used for activities that include demolition of existing structures, excavation, filling, and construction of temporary structures. Small boats may be used for diver support and to install and remove silt curtains and other in-water equipment.

Potential vectors of impact include:
1. Collision with vessels;
2. Direct physical impact;
3. Disturbance from human activity and equipment operation;
4. Exposure to elevated noise levels;
5. Exposure to elevated turbidity and sedimentation
6. Exposure to wastes and discharges; and
7. Temporary Loss of forage habitat.

3.0 Listed Species and Critical Habitat in the Action Area

ESA-listed species under NMFS jurisdiction that are known to occur, or could reasonably be expected to occur in waters of the Western Pacific Region, include: three distinct population segments (DPS) of green sea turtles (*Chelonia mydas*), hawksbill sea turtles (*Eretmochelys imbricata*), leatherback sea turtles (*Dermochelys coriacea*), two DPSs of loggerhead sea turtles (*Caretta caretta*), olive ridley sea turtles (*Lepidochelys olivacea*), blue whales (*Balaenoptera musculus*), fin whales *(B. physalus)*, humpback whales (*Megaptera novaeangliae*), North Pacific right whales (*Eubalaena japonica*), sei whales (*B. borealis*), sperm whales (*Physeter macrocephalus*), Main Hawaiian Islands Insular false killer whales (*Pseudorca crassidens*), Indo-West Pacific DPS Scalloped Hammerhead shark (*Sphyrna lewini*), and Hawaiian monk seals (*Neomonachus schauinslandi*).

NOAA Fisheries has listed the following coral species in American Samoa as threatened under the ESA: *Acropora globiceps, Acropora jacquelinae, Acropora retusa, Acropora speciosa, Isopora crateriformis,* and *Euphyllia paradivisa.*

NOAA Fisheries has listed the following coral species in the Commonwealth of the Northern Mariana Islands as threatened under the ESA: *Seriatopora aculeata* and *Acropora globiceps.*

NOAA Fisheries has listed the following coral species in Guam as threatened under the ESA: *Seriatopora aculeata, Acropora globiceps,* and *Acropora retusa.*

NOAA Fisheries has listed the following coral species in the Pacific Remote Island Areas as threatened under the ESA: *Acropora globiceps, A. retusa,* and *A. speciosa*.

The activity types considered in this Programmatic Consultation are limited to on-land and nearshore actions within three (3) miles of the shoreline. Based on that and on the preferred habitats of the ESA-listed marine species under NMFS jurisdiction in the central and western Pacific region, green and hawksbill sea turtles, humpback whales, Hawaiian Insular false killer whales, Indo-West Pacific DPS Scalloped Hammerhead shark, Hawaiian monk seals, and the following coral species in American Samoa and Marianas Islands (Guam and CNMI) only: *Acropora globiceps, Acropora jacquelinae, Acropora retusa, Acropora speciosa, Isopora crateriformis, Euphyllia paradivisa* and *Seriatopora aculeata* are the only ESA-listed species that are expected to occur within the action area. Therefore, the Corps has determined that the actions covered under this programmatic will have no effect on leatherback, loggerhead and olive ridley sea turtles, as well as blue, fin, North Pacific right, sei, and sperm whales.

Critical habitat was originally designated under the ESA for the Hawaiian monk seal on May 26, 1988. A final rule to revise this critical habitat for the Hawaiian monk seal was published in the Federal Register on August 21, 2015 (80 FR 50925) and will become effective 30 days following publication in the Federal Register.

3.1 Green Sea Turtle

The green sea turtle was listed as threatened on July 28, 1978 (43 FR 32800), except for breeding populations found in Florida and the Pacific coast of Mexico, which were listed as endangered.

On March 23, 2015 the services (NMFS and USFWS) released a proposed rule concluding that the green sea turtle population is comprised of 11 DPSs that qualify as ‘‘species’’ for listing under the ESA, and identified eight DPSs as threatened and three as endangered (80 FR 15271). The final rule is anticipated to be published 12 months following publication of the proposed rule.

Green sea turtles are globally distributed, typically along continental coasts and islands in tropical and subtropical waters between 30° N and 30° S. They are highly migratory and use a wide range of broadly separated habitats throughout their lives. Post-hatchling and juvenile green sea turtles are believed to drift along major current systems for several years, where they are assumed to forage at, or near, the surface where currents converge. As pelagic juveniles, their diet appears to be primarily carnivorous, and includes invertebrates and fish eggs. Upon reaching a carapace length of about 35 cm, juveniles recruit to nearshore habitats. Neritic juveniles, subadults and adult green turtles appear to have a primarily herbivorous diet, consisting largely of marine algae and seagrasses. Every few years after reaching sexual maturity, green sea turtles make breeding migrations that may span thousands of km between resident foraging grounds and their natal nesting areas.

The proposed rule includes the Central North Pacific DPS which includes the Hawaiian Archipelago and Johnston Atoll. Green sea turtles of this Central North Pacific DPS are listed as threatened and bounded by the following coordinates: 41° N., 169° E. in the northwest; 41° N., 143° W. in the northeast; 9° N., 125° W. in the southeast; and 9° N., 175° W. in the southwest. The Hawaiian Archipelago is the most geographically isolated island group on the planet and it is therefore unsurprising that green turtles in this DPS are geographically discrete in their range and movements, as evidenced by mark-recapture studies using flipper tags, PIT tags, satellite-linked transmitter tracking, and genetic analyses (Seminoff et al. 2015). The two green sea turtle populations that comprise the Central South Pacific DPS (e.g., American Samoa and PRIA) and the Central West Pacific DPS (e.g., Guam and CNMI) are proposed to be listed as endangered. Green sea turtles of the Central South Pacific Ocean are bounded by the following coordinates: 9° N., 175° W. in the northwest; 9° N., 125° W. in the northeast; 40° S., 96° W. in the southeast; 40° S., 176°E. in the southwest; and 13° S., 171° E. in the west. Green turtles of the Central West Pacific Ocean are bounded by the following coordinates: 41° N., 146° E. in the northwest; 41° N., 169°E. in the northeast; 9° N., 175° W. in the east; 13° S., 171° E. in the southeast; along the northern coast of the island of New Guinea; and 4.5° N., 129° E. in the west (NMFS and USFWS 2015).

Detailed information about the biology, habitat, and conservation status of this species is described in the U.S. green turtle recovery plan (NMFS and USFWS 1998a), the 5-year green sea turtle status review (NMFS and USFWS 2007a), and the green sea turtle status review (NMFS and USFWS 2015). Globally, most of the important green sea turtle nesting populations declined substantially during the 20th century. Harvest of green sea turtles for their meat, shells, and eggs has been a major factor in past declines of green turtles, and continues to be a major threat globally (Humber et al. 2014). Although threats and impacts persist, conservation efforts over the past 25 years or more appear to have had some positive results, especially in Hawaii (Seminoff et al. 2015).

Foraging adult and juvenile green sea turtles occur in the nearshore waters around the all of the island archipelagos considered in this BE. Green sea turtles are very common throughout the Hawaiian archipelago, with the nesting population currently increasing at a rate of about 5% per year (Chaloupka, et. al. 2007; Kittinger et al. 2013; Seminoff et al. 2015). Although sporadic, low level nesting occurs throughout Hawaii, primary nesting habitat is at French Frigate Shoals in the Northwestern Hawaiian Islands (NWHI) where 96% of nesting occurs (Kittinger et al. 2013). In the Central West Pacific DPS, green sea turtle nesting occurs at low levels throughout the geographic distribution of the population, with isolated locations having high nesting activity. The highest numbers of females nesting in this DPS are located in Ulithi Atoll, Yap, Federated States of Micronesia. Within the Marianas, green turtles are reasonably common and present year-round in the waters, and approximately 22 green sea turtles nest in Guam and 57 green sea turtles nest in CNMI (Seminoff et al. 2015). Historical baseline nesting information in general is not widely available in this region, but exploitation and trade of green sea turtles throughout the region is well-known (Groombridge and Luxmoore, 1989). Green sea turtles are common and occur in low abundance in nearshore waters around Tutuila, Ofu, Olosega, Ta'u, and Swains islands in the American Samoa Archipelago of the Central South Pacific DPS. Although nesting is uncommon on Tutuila the majority of green sea turtle nesting in the archipelago occurs at Rose Atoll with 105 turtles recorded nesting between 2006 and 2012 (Seminoff et al. 2015). Green sea turtles departing nesting grounds in this DPS travel throughout the South Pacific Ocean. Post-nesting green turtles tagged in the early 1990s from Rose Atoll returned to foraging grounds in Fiji and French Polynesia (Craig et al. 2004).

The Pacific Remote Islands Marine National Monument was established in January 2009 and is cooperatively managed by the U.S. Secretary of Commerce (NOAA) and the U.S. Secretary of the Interior (USFWS), with the exception of Wake Island and Johnston Atoll, which are currently managed by the Department of Defense. National Wildlife Refuges also exist at each of the islands within the Monument. The areas extend 50 nautical miles from the mean low water lines and include green sea turtle habitat. The protected areas provide some protection to sea turtles and their habitat (e.g., through permitted access and no take protected areas) as well as their remoteness (http://www.fpir.noaa.gov/MNM/mnm_prias.html). Green sea turtles are known to occur in the waters of the PRIA, although no abundance or density information is available. Nesting may occur sporadically but considered rare (Seminoff et al. 2015). Although Palmyra Atoll (for example) is now protected, it was altered by U.S. military activities during World War II through dredging, connection, and expansion of islets (Sterling et al., 2013).

3.2 Hawksbill Sea Turtle

The hawksbill sea turtle was listed as endangered on June 2, 1970 (35 FR 8490). These turtles are distributed globally in tropical and subtropical waters between 30° N and 30° S. They are highly migratory, use different habitats at different stages of their life cycle, and are most commonly associated with healthy coral reefs. Post-hatchlings and oceanic stage juveniles are believed to occupy the pelagic environment for several years where they probably drift along major current systems and feed primarily at the surface. At about 35 cm carapace length, juveniles recruit to nearshore foraging areas where they begin feeding on benthic sponges, other invertebrates, and algae. Every few years, adult hawksbill sea turtles make breeding migrations that may span thousands of km between their foraging and nesting areas. Detailed information

about the biology, habitat, and conservation status of this species is described in the recovery plan (NMFS and USFWS 1998b) and the 5-year status reviews (NMFS and USFWS 2007b; NMFS and USFWS 2013). Globally, hawksbill nesting populations declined substantially during the 20th century, and population declines appear to continue (NMFS and USFWS 2007b; NMFS and USFWS 2013).

In the Pacific areas under U.S. jurisdiction or U.S. affiliation, the most up to date information is included in the most current 5-yr status review (NMFS and USFWS 2013). In Hawaii, about 20 female hawksbill sea turtles nest annually on the Island of Hawaii and Maui. Nesting data have not been analyzed for trend information, although historic nesting density may have been significantly higher. In the Republic of Palau, 15-25 females nest annually, but the population trend is unknown. American Samoa has less than 30 females, and anecdotal information suggests the population has declined. In the Mariana Archipelago of Guam and the Commonwealth of the Northern Mariana Islands, less than 10 females nest annually, which likely represents a significant decrease from historic levels. Information on nesting activity is lacking for the Federated States of Micronesia, and the Republic of the Marshall Islands. However, Micronesia, with its thousands of islands and atolls, probably supports about 300 females annually. The populations in Micronesia, Melanesia and Polynesia (with exception of Hawaii) are exploited for shell, meat and eggs for local consumption, and are considered overall depleted and declining. It is unlikely that hawksbill sea turtles nest in the PRIA.

Hawksbills are uncommon, occurring in much lower numbers than green sea turtles, but foraging hawksbill sea turtles occur in the waters around the main Hawaiian Islands, Guam, and Tutuila in American Samoa (NMFS and USFWS 2013). Capture-mark-recapture studies of sea turtles in the Pacific islands under U.S. jurisdiction occur in the Commonwealth of the Northern Mariana Islands, Palmyra Atoll, and Hawaii which have also captured hawksbills opportunistically during capture activities; however, the duration of these in-water monitoring programs have not been sufficient for trend analysis. Hawksbills probably occur around at least some of the islands in the PRIA.

3.3 Humpback Whale

The humpback whale (*Megaptera novaeangliae*) was listed as endangered in 1970 under the Endangered Species Conservation Act of 1969, the precursor to the ESA (35 FR 18319). When the ESA was enacted in 1973, the humpback whale was transferred to the List of Endangered and Threatened Wildlife and Plants, retaining endangered status. Humpback whales are highly migratory, spending spring, summer, and fall feeding in temperate or high-latitude areas of the North Atlantic, North Pacific, and Southern Ocean and migrating to the tropics in winter to breed and calve. They prey on small schooling fishes and on large euphausiids (krill). They winter in subtropical to tropical waters, where they give birth and probably mate. Calving areas within U.S. jurisdiction are the Hawaiian Islands, Mariana Islands, and American Samoa. Little feeding is thought to occur on the wintering grounds. They reach sexual maturity between four and six years of age, and may live to be 80 years old, and may grow to 17 m long. Females typically produce a single calf about once every two or three years. Humpback whales travel singly, in pairs, or in groups of up to 15. They often form stable feeding groups that stay together throughout a summer and then reform in subsequent summers. Detailed information about the biology, habitat, and conservation status of this species is described in the recovery plan (NMFS

1991). Globally, humpback whale populations were nearly decimated by commercial whaling that persisted until the middle of the 20th century. Since gaining protection against commercial whaling, North Pacific humpback whale stocks have rebounded (Calambokidis et. al. 2008). Humpbacks are common in the shallow nearshore waters of the Main Hawaiian Islands between October and May. They are uncommon around the Mariana Islands, but are known to visit there in winter. Low numbers of South Pacific humpback whales occur around American Samoa between July and December during the austral winter. There are no reports of humpback whales in the PRIA, except off Midway Island, where they are seen infrequently.

On September 8, 2016, NMFS published a final rule (81 FR 62260) that identified 14 distinct population segments within the global population of the humpback whale, *Megaptera novaeangliae* and announced a proposal to revise the listing status of the species. There are 3 separate DPSs within the Pacific Islands Region. These include the Hawaii DPS, the Oceania DPS (includes American Samoa) and the Western North Pacific DPS (includes Guam and CNMI). Under the new rule, both the Hawaii DPS and the Oceania DPS were identified as neither in danger of extinction throughout all or a significant portion of their ranges nor likely to become so in the foreseeable future, and not warranted for listing under the ESA. NMFS concluded that the West North Pacific DPS are at a high risk of extinction throughout all or a significant portion of its range, and listed as endangered under the ESA.

Western North Pacific DPS: The abundance of humpback whales in the Western North Pacific is estimated to be around 1,000, based on the photo-identification, capture-recapture analyses from the years 2004-2006 by the "Structure of Populations, Levels of Abundance and Status of Humpback Whales in the North Pacific" (SPLASH) program (Calambokidis *et al.*, 2008) from two primary sampling regions, Okinawa and Ogasawara. The growth rate of the Western North Pacific DPS is estimated to be 6.9 percent (Calambokidis *et al.*, 2008) between 1991-93 and 2004-06, although this could be biased upwards by the comparison of earlier estimates based on photo-identification records from Ogasawara and Okinawa with current estimates based on the more extensive records collected in Ogasawara, Okinawa, and the Philippines during the SPLASH program. However, the overall number of whales identified in the Philippines was small relative to both Okinawa and Ogasawara, so any bias may not be large. Overall recovery seems to be slower than in the Central and Eastern North Pacific. Humpback whales in the Western North Pacific remain rare in some parts of their former range, such as the coastal waters of Korea, and have shown no signs of a recovery in those locations (Gregr, 2000; Gregr *et al.*, 2000).

3.4 Hawaiian False Killer Whale

The Hawaiian false killer whale (*Pseudorca crassidens*) was listed as an endangered species under the ESA on November 28, 2012 (77 FR 70915). The Status Review report produced by the Biological Review Team (BRT) (Oleson et al. 2010) found that Hawaiian insular false killer whales are a Distinct Population Segment (DPS) of the global false killer whale taxon. Note that the main Hawaiian Islands insular false killer whale is separate from both the Northwestern Hawaiian Islands false killer whale and the Hawaii pelagic false killer whale neither of which are listed under the ESA.

The MHI insular stock false killer whales appears to have declined during the past two decades

(Oleson et al. 2010, Reeves et al. 2009; Baird 2009). Of the 29 identified threats to the population, the BRT considered the effects of small population size, including inbreeding depression and Allee effects, exposure to environmental contaminants (Ylitalo et al 2009), competition for food with commercial fisheries (Boggs and Ito, 1993, Reeves et al 2009), and hooking, entanglement, or intentional harm by fishers to be the most substantial threats to the population.

The insular Hawaiian population of the false killer whale is typically found in both shallow (<200 m) and deeper (>2000 m) waters and has been observed to move extensively between the main Hawaiian Islands. False killer whales are large members of the dolphin family. Females reach lengths of 15 feet (4.5 m), while males are almost 20 feet (6 m). In adulthood, false killer whales can weigh approximately 1,500 pounds (700 kg). They have a small conical head without a beak. Their dorsal fin is tall and their flippers (pectoral fins) have a distinctive hump or bulge in the middle of the front edge. False killer whales have dark coloration except for some lighter patches near the throat and middle chest. Their body shape is more slender than other large delphinids. False killer whales' breeding season lasts several months. Gestation periods range from 14 to 16 months and lactation occurs for one and a half to two years. False killer whales have low reproduction rates with calving intervals of approximately seven years. Maturity occurs at around 12 years of age and maximum longevity is 63 years. These whales are gregarious and form strong social bonds. They are usually found in groups of ten to twenty that belong to much larger groups of up to 40 individuals in Hawai'i and 100 individuals elsewhere. They are known to "strand" in large groups as well. False killer whales are also found with other cetaceans, most notably bottlenose dolphins. To increase success of finding prey, these whales travel in a broad band that can be up to several miles wide. Food sharing has been documented between individual false killer whales. They feed during the day and at night on fishes and cephalopods, and they are known to attack smaller dolphins that are involved in the tuna purse-seine fishery in the Pacific Ocean. The species feeds primarily on fish and cephalopods, with observational studies suggesting the diet of the Hawaii insular population consists mainly of large game fish (e.g., yellowfin tuna, mahi mahi, skipjack tuna, broadbill swordfish, etc.). The greatest threat in Hawaii to this species is incidental mortality and injury due to interactions with the longline fisheries (Fallon, 2009).

3.5 Indo-West Pacific DPS Scalloped Hammerhead Shark

The scalloped hammerhead shark (*Sphyrna lewini*) was listed as threatened under the Endangered Species Act for the Indo-West Pacific Distinct Population Segment (DPS), which includes Guam and CNMI, on July 3, 2014 (79 FR 38213). According to the Final Rule, the primary factors responsible for the decline are overutilization, due to both catch and by-catch of these sharks in fisheries, and inadequate regulatory mechanisms for protecting these sharks, with illegal fishing identified as a significant problem. Critical habitat for the Indo-West DPS of this species was not defined at the time of listing. The species is highly mobile and partly migratory, and feeds on a wide variety of teleosts, cephalopods, crustaceans, and rays (Miller et al., 2013). Adult aggregations are most common offshore over seamounts and near islands, while neonate and juvenile aggregations are more common in nearshore nursery habitats, such as Guam's inner Apra Harbor (Miller et al., 2013). After a gestation period of 9-12 months, females move inshore to give birth to live young, with litters varying between 1 and 41 live pups by region (Miller et al., 2013). On Guam, pupping by the scalloped hammerhead occurs seasonally from January to

March near the mouths of Inner Apra Harbor and Sasa Bay (NOAA, 2005).

3.6 Hawaiian Monk Seal

The Hawaiian monk seal was listed as endangered on November 23, 1976 (41 FR 51611). They are among the most evolutionarily-primitive genera of seals, and are critically endangered, numbering approximately 1,100-1,200 animals, and the majority of the population in the NWHI is decreasing by about 3% annually (Caretta et al., 2014). They are endemic to the Hawaiian Archipelago, and are the only endangered marine mammal that exists wholly within the jurisdiction of the U.S.A. Although they have been reported at Johnston Atoll, in the PRIA, none have been observed since December 2003. To our current knowledge the range of the Hawaiian monk seal is limited to the Hawaiian Islands chain. The overwhelming majority of the population resides in the NWHI, but they are increasingly found in the MHI, where pupping is becoming more common and survival of young seals is very high. Monk seals spend about one third of their time on land and about two thirds in the water. They are non-migratory, but their home ranges are extensive, and inter-island movement is common. They are capable of dives of more than 1,600 ft while foraging, and appear to be opportunistic feeders preying on fish, eels, mollusks, and crustaceans. Hawaiian monk seals are thought to live up to 30 years. Females reach sexual maturity at about five to ten years of age. They give birth on land, bearing single pups, most commonly between February and August, but pupping has been documented during all times of the year. The most current information to describe the biology, habitat, and conservation status of this species can be found in NMFS' 12-month finding for revision of monk seal critical habitat (74 FR 27988), published on June 12, 2009, and in the recovery plan (NMFS, 2007).

Critical habitat was originally designated under the ESA for the Hawaiian monk seal on May 26, 1988 (53 FR 18988). NMFS announced proposed rulemaking to revise the currently designated critical habitat for the Hawaiian monk seals (76 FR 32026) on June 2, 2011. A final rule to revise this critical habitat for the Hawaiian monk seal was published in the Federal Register on August 21, 2015 (80 FR 50925).

Critical Habitat in the revised designation includes sixteen occupied areas within the range of the species: 10 areas in the NWHI and 6 in the MHI. Specific areas in the NWHI include all beach areas, sand spits and islets, including all beach crest vegetation to its deepest extent inland, lagoon waters, inner reef waters, and including marine habitat through the water's edge, including the seafloor and all subsurface waters and marine habitat within 10 meters (m) of the seafloor, out to the 200-m depth contour line around the following 10 areas: Kure Atoll, Midway Islands, Pearl and Hermes Reef, Lisianski Island, Laysan Island, Maro Reef, Gardner Pinnacles, French Frigate Shoals, Necker Island, and Nihoa Island. Specific areas in the MHI include the marine habitat from the 200-m depth contour line, including the seafloor and all subsurface waters and marine habitat within 10 m of the seafloor, through the water's edge 5 m into the terrestrial environment from the shoreline between identified boundary points around the islands of: Kaula, Niihau, Kauai, Oahu, Maui Nui (including Kahoolawe, Lanai, Maui, and Molokai), and Hawaii.

3.7 Corals

The following corals were listed as threatened on September 10, 2014 (79 FR 53851) in American Samoa: *Acropora globiceps, Acropora jacquelineae, Acropora retusa, Acropora*

speciosa, Isopora crateriformis, and *Euphyllia paradivisa.* In the Commonwealth of the Northern Mariana Islands (CNMI) *Seriatopora aculeata and Acropora globiceps* were listed as threatened and in Guam *Seriatopora aculeata, Acropora globiceps* and *Acropora retusa* were listed as threatened.

Critical habitat was not designated at the time of the listing. According to the Final Rule, *Acropora globiceps* occurs on upper reef slopes, reef flats, and adjacent habitats in depths ranging from 0 to 8 m. *Acropora retusa* occupies shallow reef slope and back-reef areas, such as upper reef slopes, reef flats, shallow lagoons, and its depth range is one to five meters. *Seriatopora aculeata* occurs in a broad range of habitats on the reef slope and back-reef, including but not limited to upper reef slopes, midslope terraces, lower reef slopes, reef flats, and lagoons.

To date, critical habitat has not been designated for these coral species. Designation of critical habitat was to occur via a separate rule-making process once this final rule was published.

All of the coral species listed above are "stony" corals. Stony corals are sessile, colonial, marine invertebrates that secrete skeletons of calcium carbonate (aragonite). The living portion of a coral is the soft tissue growing on the outside of the hard skeleton. The individual unit of a colony is called a polyp. A polyp is roughly cylindrical in shape, with a central mouth that is surrounded by numerous small tentacles armed with stinging cells (nematocysts) that are used for prey capture and defense. Polyps secrete the calcium carbonate skeleton, and live in cup-like structures (corallites) on the surface of the coral or in tubes into skeleton. Each polyp is connected to adjacent polyps by a thin layer of interconnecting tissue called the coenenchyme. The soft tissue harbors photosynthetic, mutualistic, intracellular symbiotic dinoflagellates called zooxanthellae. The zooxanthellae provide corals with food through photosynthesis during the day. Corals also capture microscopic prey with the nematocysts on their tentacles. The food is drawn into the mouth by the tentacles and digested in the gut. Corals can also absorb microorganic compounds and free nutrients directly from the water (Bythell, 1990; Grover *et al*. 2008). The dominant feeding mode varies among species and some species can shift among modes as needed (Grottoli *et al*. 2006).

Genus *Acropora* (Table, Elkhorn, and Staghorn Corals) – All of the species within the genus *Acropora* that have been studied to date are simultaneous hermaphrodictic spawners. Each polyp releases a single bundle that includes both eggs and sperm. Self-fertilization is infrequent, and there is a high degree of hybridization among *Acropora* species, which can complicate taxonomic classification. Many *Acropora* have branching morphologies that are susceptible to fragmentation. Translocation of fragments by wave action, where broken pieces continue to grow to form new colonies, is a recognized form of asexual reproduction for some species within the genus. *Acropora* are fast growing during periods of favorable conditions, but at the cost of maintaining lower tissue and energetic reserves than other coral taxa. Consequently, *Acropora* is ranked as one of the most severely susceptible to bleaching, where the coral expels its zooxanthellae. The physiological stress and reduced nutrition from bleaching are likely to have synergistic effects of lowered fecundity and increased susceptibility to disease. Bleaching can also result in mortality of the affected colony. Acidification experiments have demonstrated negative effects on *Acropora* calcification, productivity, and impaired fertilization, larval

settlement, and zooxanthellae acquisition rates in juveniles. The genus is also considered moderate to highly susceptible to disease, to predation by the crown-of-thorns sea star (*Acanthaster planci*) and corallivorous snails and many butterfly fish preferentially prey on *Acropora spp.* Dead areas of the coral are often rapidly overgrown by algae, preventing re-growth of coral. Land-based toxins and nutrients are reported to have deleterious effects on *Acropora spp.* depending on the substance, concentration, and duration of exposure. The genus *Acropora* has also been heavily involved in international trade.

Acropora globiceps

Acropora globiceps morphology was described as digitate and usually small and it is distributed from the oceanic west Pacific to the central Pacific as far east as the Pitcairn Islands. The species occurs on upper reef slopes, reef flats, and adjacent habitats in depths ranging from 0 to 8 m. *A. globiceps* is a hermaphroditic spawner with lecithotrophic (yolk-sac) larvae. *A. globiceps'* vulnerabilities to threats as follows: High vulnerability to ocean warming, moderate vulnerabilities to disease, ocean acidification, trophic effects of fishing, nutrients, and predation, and low vulnerabilities to sedimentation, sea-level rise, and collection and trade.

Acropora jacquelineae

Acropora jacquelineae morphology was described as flat plates up to 1 m in diameter. Viewed from above, plates are covered with a mass of fine delicately-curved axial corallites giving an almost moss-like appearance. *A. jacquelineae* is distributed within the Coral Triangle including Papua New Guinea, and is reported from American Samoa. It is found in numerous subtidal reef slope and back-reef habitats, including but not limited to, lower reef slopes, walls and ledges, mid-slopes, and upper reef slopes protected from wave action, and its depth range is 10 to 35 m. A. jacquelineae is a hermaphroditic spawner with lecithotrophic (yolk-sac) larvae. A. jacquelineae is likely highly susceptible to ocean warming and also likely has some susceptibility to disease, ocean acidification, sedimentation, nutrients, trophic effects of fishing, sea-level rise, predation, and collection and trade.

Acropora retusa

Acropora retusa morphology was described as flat plates with short thick digitate branchlets. Its habitat includes areas exposed to strong wave action, including upper reef slopes, lower reef crests, reef flats, and other habitats, and its depth range is three to 10 meters. *A.retusa* is a hermaphroditic spawner with lecithotrophic (yolk-sac) larvae. A. retusa is likely highly susceptible to ocean warming and also likely has some susceptibilities to disease, ocean acidification, trophic effects of fishing, sedimentation, nutrients, sea-level rise, predation, and collection and trade.

Acropora speciosa

Acropora speciosa morphology was described as thick cushions or bottlebrush branches. It occurs on lower reef slopes and walls, especially those characterized by clear water and high Acropora diversity on steep slopes. *A. speciosa* is distributed from Indonesia to French Polynesia. Its depth range is 12 to 40 meters, and it has been found in mesophotic habitats. Based on information from other *Acropora* species, A. speciosa is most likely a hermaphroditic spawner with lecithotrophic (yolk-sac) larvae. A. speciosa likely is highly susceptible to ocean warming, and also likely has some susceptibility to disease, ocean acidification, trophic effects of

fishing, sedimentation, nutrients, sea-level rise, predation, and collection and trade.

Isopora crateriformis

*Isopora crateriformis m*orphology was described as solid encrusting plates sometimes over one meter diameter. *I. crateriformis'* distribution is from Sumatra (Indonesia) to American Samoa, and there are reports from the western and central Indian Ocean that need confirmation. This species is found most commonly in shallow, high-wave energy environments, from low tide to at least 12 meters deep, and has been reported from mesophotic depths (<50 m depth). *I. crateriformis* is one of the most common species on upper reef slopes of southwest Tutuila, American Samoa. Rangewide, its predominant habitat is reef flats and lower reef crests, and it also occurs in adjacent habitats such us upper reef slopes. *I. crateriformis* is not prone to asexual reproduction via fragmentation, based on its semi-encrusting morphology and often has a lower plate edge on colonies on slopes, colonies are very hard and thus unlikely to fragment often. *I. crateriformis* likely is highly susceptible to ocean warming and likely has some susceptibility to disease, ocean acidification, trophic effects of fishing, sedimentation, nutrients, sea-level rise, predation, and collection and trade.

Seriatopora aculeata

Seriatopora aculeata morphology was described as thick, short, tapered branches, usually in fused clumps. *Seriatopora aculeata* is distributed from Australia, Fiji, Indonesia, Japan, Papua New Guinea, and Madagascar to the Marshall Islands and has been reported in Guam and the Northern Marianas. *S. aculeata*'s habitat as shallow reef environments, and its depth range as three to 40 meters. The species occurs in a broad range of habitats on the reef slope and back-reef, including but not limited to upper reef slopes, mid-slope terraces, lower reef slopes, reef flats, and lagoons. Little is known of *S. aculeata*'s life history. The much more common species, *S. hystrix*, is a simultaneous hermaphrodite that reproduces sexually via brooded larvae. High vulnerability to ocean warming; moderate vulnerability to disease, ocean acidification, trophic effects of reef fishing, nutrients, and predation; and low vulnerability to sedimentation, sea level rise, and collection and trade.

Euphyllia paradivisa

Euphyllia paradivisa morphology was described as branching separate corallites without a shared wall and branching tentacles. *Euphyllia paradivisa's* distribution is restricted to the Coral Triangle, and its habitat includes environments protected from wave action on at least upper reef slopes, mid-slope terraces, and lagoons in depths ranging from two to 25 m depth. *E. paradivisa* is likely to have high susceptibility to ocean warming and collection and trade, some susceptibility to disease, acidification, trophic effects of fishing, nutrients, and predation, and low susceptibility to sedimentation and sea-level rise.

4.0 Environmental Baseline Conditions

Green sea turtle populations have declined dramatically throughout the Pacific and continue to decline, with the exception of populations in the Hawaiian Islands and possibly Australia. Harvest of green sea turtles for their meat, shells, and eggs has been a major factor in past declines of green turtles, and continues to be a major threat globally (Humber et al. 2014).

Despite increasing levels of protection, the direct take of turtles has continued legally in many regions and countries and is now characterized by culturally significant use by traditional coastal populations, or small-scale fisheries supplying local markets with meat and sometimes shell. Humber et al. (2014) found that currently 42 countries still permit the direct take of turtles and collectively take in excess of 40,000 turtles per year of which the majority (>80 percent) are green turtles. This legal take is focused in the wider Caribbean and Pacific Islands. Ten countries account for >90 percent of legal take, with the highest consumers being Papua New Guinea, Australia and Nicaragua. Although, within the 42 countries included in this study, there has been a significant decrease in take since the 1980s and it is generally accepted that globally, harvest of adults and eggs is reduced from previous levels, but still exists in some parts of the species' range (Seminoff et al. 2015). Illegal harvest of turtles and eggs continues with regularity in American Samoa and the Mariana Islands, and low level poaching also likely occurs in Hawaii. Habitat degradation and loss from coastal development, pollution, and global climate change are also serious threats to green sea turtles. Disease is also a significant threat to many green sea turtle populations. An often fatal tumor affliction, fibropapillomatosis, persists in the Hawaiian green turtle population but has not been documented in other Pacific areas under U.S. jurisdiction. Fisheries interactions and vessel collisions are also important threats in some areas (NMFS and USFWS 1998a; NMFS and USFWS 2015).

Hawksbill sea turtle populations have also declined dramatically throughout the Pacific and almost all nesting populations continue to decline. As with the green sea turtle, continued harvest by humans is considered a serious threat to their recovery. Adults and eggs are vulnerable to hunters who take them from nesting beaches in one location, and those same adults are again hunted at their nearshore feeding areas. Whereas greens are taken primarily for food, adult hawksbills are taken primarily for their shells. Hawksbills are not regularly eaten, probably due to their occasional toxicity and poor taste. However their eggs are readily consumed. Habitat degradation and loss from coastal development, nest predation, pollution, and global climate change are also serious threats to hawksbill sea turtles. Fisheries interactions and vessel collisions are also important threats in some areas (NMFS and USFWS 1998b; NMFS and USFWS 2013).

Humpback whale populations in the North and South Pacific Ocean were reduced to about a tenth of their original sizes until commercial whaling for this species was halted in1966. Since then, many populations have begun to rebound. However, humpbacks continue to be taken by some countries, such as Japan, under the auspices of scientific research, and a few other countries allow limited take in subsistence fisheries. Other anthropogenic threats include entanglement in fisheries gear such as lines and nets; ship strikes; exposure to elevated ambient noise and sonar; habitat degradation from coastal development, pollution, over fishing, and global climate change (NMFS 1991).

Recent population surveys of the insular population of Hawaiian false killer whales estimate only about 120 individuals. Further evidence suggests that this population has declined in size over the past 10-20 years. While the exact causes for the decline are not specifically known, multiple factors threaten the population. Although the insular population of Hawaiian false killer whales is found primarily in waters that are excluded from longline fisheries (less than 75 km from the shores of the main islands), fin disfigurements suggest that some members have

experienced interactions with the longline fisheries. The population is also subject to unregulated near-shore and "short" longline fisheries, and recent anecdotal information suggests that they may experience deliberate shootings from local fisherman. These and other fisheries are also likely contributing to a decline in the size or number of the primary prey species for false killer whales, which are large pelagic fishes including mahi mahi, yellowfin tuna and bigeye tuna. Hawaiian false killer whales may be further threatened by ocean acidification and acoustic impacts. Recent toxicological research has documented the presence of persistent organic pollutants in each of 9 tissue samples tested from the insular Hawaiian population of false killer whales. One third of these samples showed high enough concentrations to suggest that these individuals may suffer from health effects due to the level of pollutants. Finally, small populations are inherently at risk for extinction from environmentally stochastic events. The cumulative effects of these risks combined with the population's small size and declining numbers qualifies the insular population of Hawaiian false killer whales as an endangered species under the U. S. Endangered Species Act (Fallon, 2009).

Scalloped hammerhead sharks are at risk of extinction due to the heavy fishing pressure on sharks by artisanal fisheries, especially in nursery areas where substantial takes of juveniles and neonates, and possibly pregnant females, have been recorded, and subsequent catch and population declines can be characterized as overutilization that is significantly increasing the species' risk of extinction. The threat of overutilization by industrial/commercial and artisanal fisheries was identified as a high risk to the extinction of the Indo-West Pacific DPS. High levels of commercial fishing that target sharks or catch them as bycatch occur in this DPS. Unfortunately, few studies on the specific abundance of *S. lewini* have been conducted on this DPS, making it difficult to determine the rate of exploitation of this species. The Biological Review Team also identified other natural factors, such as the species' high at-vessel fishing mortality and schooling behavior, as contributing to the risk of extinction for each DPS when combined with other threats such as overutilization and illegal fishing. Scalloped hammerhead sharks are obligate ram ventilators (they must keep moving to ensure a constant supply of oxygenated water) and suffer very high at-vessel fishing mortality in bottom longline fisheries. Their schooling behavior also increases the shark's likelihood of being caught in large numbers (79 FR 38213).

Beach counts of juveniles, sub-adults, and adults of the Hawaiian monk seal declined by 66% between the years 1958 and 2006. The 2014 estimate of the total population size was 1153 (Caretta *et al*., 2014). Due to low juvenile survival and an aging breeding female population, insufficient replacement of breeding females is expected to lead to declining birth rates over time. Significant threats that face this species include: 1) Very low survival of juveniles and sub- adults in the NWHI due to starvation; 2) mortality due to entanglement in marine debris; 3) predation of juveniles by sharks; 4) loss of haul-out and pupping beaches due to erosion in the NWHI; and 5) limited available habitat in the MHI that might support relocation away from the deteriorating habitats of the NWHI, primarily due to development and human interactions, which include recreational fishery interactions, mother-pup disturbance on popular beaches, and exposure to disease (NMFS 2007).

5.0 Effects of the Action

The following Section is structured to analyze the potential impacts of implementing Pac-SLOPES, as described above, on green and hawksbill sea turtles, humpback whales, false killer whales, scalloped hammerhead sharks, Hawaiian monk seals, listed coral species. Each subsection will address the individual vectors of impact in general terms, and in terms of specific activity type when appropriate. The analyses are based on the construction methods, required BMPs and conditions, the biology and life history of the protected species considered, and on the overlaps between the habitats used by those species and the action area. Some or all the activity types can be reasonably expected to interact directly or indirectly with ESA-listed species though:

1. Collision with vessels;
2. Direct physical impact;
3. Entanglement; (w/moorings, cable, associated lines, etc.);
4. Disturbance from human activity and equipment operation;
5. Exposure to elevated noise levels;
6. Exposure to elevated turbidity;
7. Exposure to wastes and discharges; and
8. Loss of forage habitat.

5.1 Collision with vessels:

Many of the activity types described above involve the use of vessels in nearshore marine waters as well as in the lower reaches of rivers and streams. Vessels may range in size from small outboard boats used to install silt curtains or support divers, up to large tugboats and barges used to position heavy equipment at project locations.

Sea turtles and marine mammals must surface to breathe, and they are known to rest or bask at the surface. Therefore, when at or near the surface, these animals are at risk of being struck by vessels or their propellers as the vessels transit to and from as well as in and around project sites. Potential injuries and their severity will depend on the speed and size of the vessel, the part of the vessel that strikes the animal, and the body part impacted. Injuries from boat strikes may include bruising, broken bones or carapaces, and lacerations. In the case of sea turtles and seals, collisions with even small vessels can result in death. Being much larger, whales are less likely to be killed by a collision with a small boat, but they can be seriously injured by propellers, and collisions with large, fast moving oceangoing vessels is often fatal for even the largest whales.

The recovery plan for green sea turtles indicates that boat collision is a major threat around the MHI (NMFS and USFWS 1998a). Boat collision is not considered a significant risk for green sea turtles in the other archipelagos considered here, nor is it identified as a significant risk in any of the archipelagos for hawksbills, monk seals, or whales. However, the recovery plans for all of these animals suggest that the incidence of collision is expected to increase as vessel size, speed, and traffic density increases, or as animal density increases (NMFS and USFWS 1998b, NMFS 1991 and 2007).

Existing information about sea turtle sensory biology suggests that sea turtles rely more heavily on visual cues, rather than auditory, to initiate threat avoidance. Research also suggests that sea turtles cannot be expected to consistently notice and avoid vessels that are traveling faster than 2 knots (kts) (Hazel et al., 2007). Vanderlaan and Taggart (2007) report that the severity of injury to large whales is directly related to vessel speed. They found that the probability of lethal injury increased from 21%, for vessels traveling at 8.6 kts, to over 79% for vessels moving at 15 kts or more. Additionally, since collisions with whales have been reported for both slow and fast moving craft, it appears that, in at least some situations, whales may either be unaware of a vessel's presence or unable to resolve the vessel's proximity or vector of approach based on available acoustic cues. Consequently, vessel operators must be responsible to actively watch for and avoid sea turtles and marine mammals, and to adjust their speed based on expected animal density and on lighting and turbidity conditions to allow adequate reaction time to avoid marine animals.

5.2. Direct physical impact:

Many of the activity types described above involve the use of heavy equipment such as back hoes and cranes that will be used to do work below the water's surface. Some projects also include the placement of large stones or concrete shapes in or near the water. Other projects include the placement of anchors or project materials on the seafloor. All of these activities have the potential to directly strike ESA-listed marine animals should those animals be present when the equipment or project materials strike the bottom. Potential injuries and their severity will depend on the animal's proximity to the bottom when struck, the angle of the strike, and the body part impacted, but may include cuts, bruises, broken bones, cracked or crushed carapaces, and amputations, any of which could result in the animal's death. Animals could also be pinned to the bottom and drowned.

5.3 Entanglement:

Many of the activity types described above involve the temporary or permanent deployment of markers, buoys, or other moorings in habitats where ESA-listed marine species may encounter lines in the water. Whales, sea turtles, seals, and other animals often become entangled with
marine debris such as mooring lines. As such these activities have the potential to result in the entanglement of ESA-listed marine animals. Drowning is the most serious potential effect of entanglement for air breathing marine animals that are unable to surface to breathe. Slow amputation of an appendage may occur if an entanglement becomes tighter over time, and animals may drag entangled material for the rest of their lives. This burden may require more exertion for movement, reduce foraging efficiency, and it may interfere with reproduction.

5.4 Disturbance from human activity and equipment operation:

Nearly all of the activity types described in Section 2.0 involve work in or near marine habitats where ESA-listed marine species may be directly exposed to project-related activity. Marine species may experience a startle reaction and resulting stress should they encounter site preparation and construction activities. The reaction could range from one extreme where an animal calmly approaches and investigates the activity, to an opposite reaction of panicked flight, where an animal injures itself in an attempt to flee. However, sea turtles and marine mammals typically avoid human activity. Thus, the most likely effect of this interaction will be

moderate level stress with a moderate to high energy avoidance behavior leading to the animal rapidly leaving project areas without injury.

5.5 Exposure to elevated noise levels:
Activities such as blasting, pile-driving, pre-drilling, and construction dredging may produce in-air and in-water sound levels capable of injury or adverse behavioral modifications for marine mammals and other marine life. Consequently, those activity types are expressly excluded from consideration under Pac-SLOPES and will require specific consultation with NMFS. Among the activity types considered under Pac-SLOPES that are capable of producing significant in-water sound levels, maintenance dredging, in-water excavation, movement of large armor stones, benthic core sampling, and deployment of certain acoustic buoys are likely the loudest.

Effects vary with the frequency, intensity, and duration of the sound source, and the hearing characteristics of the affected animal. Effects may include: (1) physical injury or permanent hearing damage, also referred to as permanent threshold shift (PTS); and (2) behavioral impacts through temporarily reduced sensitivity also referred to as temporary threshold shifts (TTS), temporarily masked communications or acoustic environmental cues, and modified behavior such as attraction, areal avoidance.

NMFS is currently developing and revising acoustic guidance for assessing the effects of anthropogenic sound on marine mammal species under our jurisdiction. This document will provide guidance for assessing the effects of anthropogenic (human-made) sound on marine mammal species under the jurisdiction of NMFS. Specifically, it identifies the received levels, or acoustic threshold levels, above which individual marine mammals are predicted to experience changes in their hearing sensitivity (either temporary or permanent) for acute, incidental exposure to underwater anthropogenic sound sources. This guidance is intended for use by proponents and stakeholders, including other federal agencies, when seeking to determine whether and how their activities are expected to result in impacts to marine mammal hearing via acoustic exposure. NOAA has compiled, interpreted, and synthesized the best available science to produce updated acoustic threshold levels for the onset of permanent threshold shifts (PTS) and replace those currently in use by NOAA for determining PTS. Updated information on NOAA's marine mammal acoustic guidance can be found on their website: http://www.nmfs.noaa.gov/pr/acoustics/guidelines.htm.

Acoustics and their effects to sea turtles, sharks, corals, and other marine life have been studied much less than marine mammals. NMFS has some guidelines for sea turtles, and are using guidelines for fish and sharks. NMFS has not evaluated or developed guidelines for acoustic effects on corals. These guidelines are best estimates based on limited science, and NMFS is continuing to research and develop better guidelines for all listed species.

Sound can be measured and quantified in several ways, but the logarithmic decibel (dB) is the most commonly used unit of measure, and sound pressure level (SPL) is a common and convenient term used to describe intensity. In water, sound pressure is typically referenced to a baseline of 1 micropascal (re 1 μPa), vice the 20 μPa baseline used for in-air measurements. Consequently, 26 dB must be added to an in-air measurement to convert to an appropriate in-water value for an identical acoustic source (Bradley and Stern 2008). To assess the potential

impact of a sound on marine resources, NMFS often assesses impacts based on the root-mean-square (dB_{rms}) of an acoustic pulse. This is the portion of a pulse that contains 90% of the sound pressure. For brevity, all further references to SPL assume dB_{rms} re 1 μPa, unless specified differently.

Transmission loss (attenuation of sound intensity over distance) varies according to several factors in water, such as water depth, bottom type, sea surface condition, salinity, and the amount of suspended solids in the water. Sound energy dissipates through mechanisms such as spreading, scattering, and absorption (Bradley and Stern 2008). Spreading refers to the apparent decrease in sound energy at any given point on the wave front because the sound energy is spread across an increasing area as the wave front radiates outward from the source. In unbounded homogenous water, sound spreads out spherically, losing as much as 7 dB with each doubling of range. Toward the other end of the spectrum, sound expands cylindrically when vertically bounded such as by the surface and substrate, losing only about 3 dB with each doubling of range. Scattering refers to the sound energy that leaves the wave front when it "bounces" off of a surface or particles in the water. Absorption refers to the energy that is lost through conversion to heat due to fiction. Irregular substrates, rough surface waters, and particulates in the water column increase scattering loss, while soft substrates, such as mud and silt increase absorption loss. Sound typically dissipates more rapidly in shallow, turbid waters over soft substrates (74 FR 18492).The shallow nearshore waters of harbors and marinas, with silt and mud substrates, are considered poor environments for acoustic propagation.

Accurately predicting received noise levels at a given range (isopleth) requires complex equations and detailed information that is rarely available. Typically, predictions are made by estimating spreading loss based on the equations RL = SL – 20LogR, for spherical spreading, and RL = SL – 10LogR for cylindrical spreading (RL – received level; SL – source level; and R - range in meters). Actual spreading loss is thought to be somewhere between the two, with absorption and scattering increasing the loss. In the absence of site specific transmission loss data, RL = SL – 15LogR is often used to estimate the RLs for actions in the relatively shallow nearshore marine environments. That formula was used in this analysis.

Maintenance dredging, excavation, and movement of large stones: Dickerson, Reine, and Clarke (2001) characterized the underwater sounds from clamshell dredging of course sand and gravel with a cable-operated bucket. Dredging generated distinct, short duration in-water sounds between 20 and 1400 hertz (Hz) with most falling below 200 Hz. The strongest sounds were produced by the bucket's contact with the bottom. The authors recorded a peak SPL of 124 dB at 163 Hz, 158 m from the source, suggesting a SL between 156 and 167 dB. They also indicated that both frequency and intensity of the sound increased with the hardness and size of the material being dredged. They report SLs from other studies of 107 dB at 91 Hz in mud, to 162 dB at 250 Hz in coarse gravel and rocks. Based on the loudest estimated SL of 167 dB and using– 15LogR for transmission loss suggests that the 160 dB isopleth falls at 3 m from the source, whereas the 120 dB isopleth is out at about 1,260 m. The sound intensity at 50 and 100 m is about 142 dB and 137 dB, respectively. A mandatory shut-down range of 50 m for this type of work will ensure that no ESA-listed marine animals are exposed to sound levels anywhere near the TTS threshold, but they may experience an insignificant level of behavioral modification in the form of temporary avoidance of the area out as far as 1,260 meters.

Benthic core sampling: For the purposes of this BE benthic core sampling is limited to probes hammer-driven into relatively soft substrates, such as mud and sands in harbors and marinas.

Hammer driving the probe is similar to impact pile-driving but normally less acoustically intense. Acoustic information for this source is limited. However, based on a recent core sampling action done in Hawaii, the in-air SL (dB re 20 μPa) for driving the probe was estimated at about 90 dB (Devin Nakayama personal communication). This would convert to an in-water SL (dB re 1 μPa) of 116 dB. Rounding up to 120 dB more than doubles the expected sound intensity, yet remains well below the TTS threshold, and the mandatory shut-down range of 50 yards for this type of work will ensure that no ESA-listed marine animals are exposed to RLs above 95 dB. Thus, it is discountable that ESA-listed marine animals will be exposed to sound levels approaching the behavioral disturbance threshold from benthic core sampling.

Acoustic Buoys: For the purpose of this BE, the deployment of moored active acoustic devices must operate in frequency bands well outside the hearing ranges of ESA-listed marine life (such as certain wave and current monitoring systems operating above 200 kHz) and moorings with acoustic release devices may only transmit a brief signal during deployment and during recovery of the mooring.

The use of an acoustic release transducer may produce in-water sound levels capable of injury or adverse behavioral modifications for marine mammals and sea turtles, but with the requirement that such systems must operate above 200 kHz or only emit sound during mooring placement and recovery (i.e. no sound emitted while in standby mode), it is unlikely that ESA-listed marine animals will be exposed to sound levels approaching the behavioral disturbance thresholds.

5.6 Exposure to elevated turbidity and sedimentation:

Exposure to elevated turbidity: Elevated turbidity and sedimentation may impact listed turtles, marine mammals, sharks and corals. Given that sea turtles and marine mammals breathe air instead of water, increased turbidity should not adversely affect their respiration or other biological function. Although listed sharks may be found in turbid waters, it is likely that they may avoid dense turbidity plumes in favor of clearer water and increased turbidity should not adversely affect these species. Listed corals will not have the ability to avoid turbid waters, however, Pac-SLOPES expressly excludes from coverage large scale in-water actions capable of generating large sediment plumes, such as in-water trenching and new construction dredging, construction of new shoreline stabilization and new roads. The potential actions covered under Pac-SLOPES are relatively small scale with limited amounts of in-water substrate disturbance and should not adversely affect any listed species.

Additionally, the Pac-SLOPES requirements, exclusions, general conditions listed in Section 2.0, and best management practices (BMPs) listed in Section 6.0, as well as the general, special, and/or regional conditions of DA permits include measures intended to prevent or reduce erosion and contain mobilized sediments in the marine environment.

5.7 Exposure to wastes and discharges:
Construction and vessel wastes may include plastic trash and bags that may be ingested and cause digestive blockage or suffocation, or if large enough, along with discarded Sections of ropes and lines, may entangle marine life. Equipment spills and discharges likely consist of hydrocarbon-based chemicals such fuel oils, gasoline, lubricants, hydraulic fluids and other toxicants, which could expose protected species to toxic chemicals. Depending on the chemicals and their concentration, exposure could result in a range of effects, from avoidance of an area to death. Local and Federal regulations prohibit the intentional discharge of toxic wastes and plastics into the marine environment. Additionally, the Pac-SLOPES requirements, exclusions, general conditions listed in Section 2.0, and best management practices (BMPs) listed in Section 6.0, as well as the general, special, and/or regional conditions of DA permits include measures intended to prevent or reduce exposure to wastes and discharges in the marine environment.

5.8 Loss of forage habitat:
Nearly all of the activity types described above involve work in or near marine habitats where ESA-listed marine species may forage on various species of seagrass, algae, fish, and invertebrates such as mollusks, crustaceans, and sponges. Construction activities such as excavation, placement of armor stones, various concrete structures, and anchors may impact these resources through direct mechanical damage/destruction. Project components that can cause erosion and sediment mobilization also have the potential to smother forage resources. At the level of the individual, the loss of significant levels of available forage may lead to lower growth rates, reduced fitness, reduced reproductive success, and potential death by starvation. At the population level, significantly reduced forage opportunities may eventually cause local extirpation through the death or emigration of members of that population.

The actions covered under Pac-SLOPES with the greatest potential to remove or damage forage habitats are maintenance dredging and replacement of existing boat launch ramps and docks.

Other potential vectors of impact include: bank stabilization, piling repair and removal, and actions that include the placement of anchors or support structures on marine substrates. The covered actions are relatively small scale with limited amounts of in-water substrate disturbance. For instance dredging is restricted to maintaining existing harbors, marinas, and channels.

Harbor and marina improvements must remain within the existing footprint, and the placement of anchors and support structures must avoid important forage habitats such as seagrass beds and coral reefs. Any losses due to mechanical damage are expected to be temporary, because epibenthic life will likely re-colonize damaged areas and cover new structures soon after construction is complete.

Additionally, the Pac-SLOPES requirements, exclusions, general conditions listed in Section 2.0, and best management practices (BMPs) listed in Section 6.0, as well as the general, special, and/or regional conditions of DA permits include measures intended to prevent or reduce loss of forage habitat.

6.0 Best Management Practices

The following Best Management Practices are in addition to the General Conditions for the following activities identified in Section 2.0 and are required under Pac-SLOPES:

BMPs required for activity types that may result in collision with vessels:

1. Vessel operators shall alter course to remain at least 100 yards from whales, and at least 50 yards from other marine mammals and sea turtles.
2. Vessel operators shall reduce vessel speed to 10 knots or less when piloting vessels in the proximity of marine mammals, and to 5 knots or less when piloting vessels in areas of known or suspected turtle activity.
3. If approached by a marine mammal or turtle, the vessel operator shall put the engine in neutral and allow the animal to pass.
4. Vessel operators shall not encircle or trap marine mammals or sea turtles between multiple vessels or between vessels and the shore.

BMPs required for activity types that may result in direct physical impact:

1. Before any equipment, anchor(s), or material enters the water, a responsible party, i.e., permittee/site manager/project supervisor, shall verify that no ESA-listed species are in the area where the equipment, anchor(s), or materials are expected to contact the substrate. If practicable, the use of divers to visually confirm that the area is clear is preferred.
2. Equipment operators shall employ "soft starts" when initiating work each day and after each break of 30 minutes or more that directly impacts the bottom. Buckets and other equipment shall be sent to the bottom in a slow and controlled manner for the first several cycles before achieving full operational impact strength or tempo.
3. All objects lowered to the bottom shall be lowered in a controlled manner. This can be achieved by the use of buoyancy controls such as lift bags, or the use of cranes, winches, or other equipment that affect positive control over the rate of descent.
4. Equipment, anchor(s), or materials shall not be deployed in areas containing live corals, sea grass beds, or other significant resources.

BMPs required for activity types that may result in entanglement:

1. Mooring systems shall employ the minimum line length necessary to account for expected fluctuations in water depth due to tides and waves.
2. Mooring systems shall be designed to keep the line as tight as possible, with the intent to eliminate the potential for loops to form.
3. Mooring lines shall consist of a single line. No additional lines or material capable of entangling marine life may be attached to the mooring line or to any other part of the deployed system.
4. Mooring systems shall be designed to keep the gear off the bottom, by use of a mid-line float when appropriate, with the intent to eliminate scouring of corals or entanglement of the line on the substrate.
5. Any permanent or long-term deployments shall include an inspection and maintenance program to reduce the likelihood of failures that may result in loose mooring lines

lying on the substrate or hanging below a drifting buoy.

6. Mooring systems, including those used for temporary markers, scientific sensor buoys, or vessel moorings, shall be completely removed from the marine environment immediately at the completion of the authorized work or the end of the mooring's service life. The only exceptions to this rule shall be mooring anchors such as eyebolts that are epoxied into the substrate and which pose little or no risk to marine life.

BMPs required for activities that may result in exposure to elevated noise levels:

1. For any equipment used in undertaking the authorized work (i.e. dredging, minor excavation) a mandatory shut-down range of 50 m will ensure that no ESA-listed marine animals are exposed to sound levels anywhere near the TTS threshold isopleths.
2. Maintenance dredging, in-water excavation, movement of large armor stones, and benthic core sampling shall not be undertaken if any ESA-listed species is within 50 yards of the authorized work, and those operations shall immediately shut-down if an ESA-listed species enters within 50 yards of the authorized work.
3. Operation of buoy acoustic release systems shall cease when marine mammals are within 250 yards (safety zone). It is further recommended that the permittee carefully survey the safety zone around the vessel/buoy from 30 minutes prior to activating the acoustic release, to 30 minutes following the end of transducer operations.

Marina or Harbor Repair and Improvement Activities:

1. Repair and replacement of over-water and in-water structures (such as piers, docks, and launch ramps) under Pac-SLOPES is expressly limited to their existing footprints.
2. No installation or proofing of steel or concrete pilings and/or sheetpile via impact hammer is authorized.
3. Replacement decking should be designed to reduce in-water shading to the greatest extent practicable.
4. Repair and removal work will be accomplished in a manner that minimizes the potential spread of invasive species that may reside on the pilings such as immediate removal from the water upon extraction or other appropriate approved containment methods.
5. Removed materials must be disposed of at an approved upland disposal site.
6. The use of treated wood that would be in constant contact with the marine or aquatic habitats is not authorized.

Piling Installation, Repair, Replacement and/or Removal:

1. Repair and removal work will be accomplished in a manner that minimizes the potential spread of invasive species that may reside on the pilings such as immediate removal from the water upon extraction or other appropriate approved containment methods.
2. Removed pilings must be disposed of at an approved upland disposal site.
3. No installation or proofing of steel or concrete pilings and/or sheetpile via impact hammer is authorized.
4. The use of any treated wood that would be in constant contact with marine or aquatic habitats is not authorized.

Installation and/or Repair of Buoys and Other Similar Structures:

1. Anchoring locations and moorings must be designed to avoid, to the greatest extent practicable, impacts to live corals, sea grass, and other benthic organisms.
2. Deployment of moored active acoustic devices must operate in frequency bands well outside the hearing ranges of ESA-listed marine life (such as certain wave and current monitoring systems operating above 200 kHz), and moorings with acoustic release devices may only transmit a brief signal during deployment and during recovery of the mooring.

Maintenance Dredging:

1. With the exception of the actual dredging apparatus (e.g. clamshell buckets, or the scoop and articulated arm of a backhoe, hydraulic head, etc.), heavy equipment will be operated from above and out of the water.
2. Use of hydraulic dredging must include the installation of excluder devices adequate to prevent the entrainment or impingement of protected marine species such as sea turtles and juvenile scalloped hammerhead sharks.
3. The applicant will not use a Trailing Suction Hopper Dredge (or hopper dredge) to conduct dredges. There have been numerous observed mortalities of sea turtles and sharks associated with these vessels.
4. The applicant will not use Dustpan dredges, which use high velocity water jets to loosen material before sucking it into their apparatus. This technique causes high turbidity and the effects of water velocities from water jets to listed species have not been evaluated.
5. The applicant may use cutterhead dredges that are equipped with suctions heads of 36 inches diameter or less, and a maximum intake velocity of 4.6 meters per second (15 feet per second), and an intake velocity of 95 cm per second (3.1 feet per second) at 1 meter away from the suction head.
6. The applicant may use pipeline dredges with openings no larger than 36 inches diameter, and intake velocities of 4.6 meters at the source and 95 cm per second at 1 meter. To avoid lethal entrainment or dismemberment of sea turtles, hammerhead sharks, or marine mammals, suction head openings larger than 12 inches must be either screened with 2-inch mesh or less, operated or monitored by a diver, or behind a barrier (e.g., coffer dams or silt curtains).
7. To minimize exposure to listed animals in the water column, the applicant will avoid moving the suction head through the water column while the pump is turned on. The applicant will turn on suction only when the suction heads are at the bottom and in contact with the sediment, and turn it off before lifting the suction head up to the surface.
8. In known scalloped hammerhead shark nursery areas, the applicant will conduct all suction dredging behind barriers (e.g., coffer dams or silt curtains), or with a diver operating or monitoring the suction head and screening.
9. The portions of the equipment that enter the water will be clean and free of pollutants;
10. Appropriate silt containment devices must be used and properly installed to avoid degradation of adjacent coral reefs, and aquatic vegetation.
11. Dredged material must be deposited at upland sites, or at EPA designated ocean disposal sites provided sediment standards are met.

Other Minor Discharges and Dredging/Excavations:

1. The dredged or discharged material will be free of contamination.
2. The site of excavation or discharge will contain no known forage or resting habitat for ESA-listed marine species.

Utility Line Installation and Repair:

1. Utility line placement location and method must be designed to avoid to the greatest extent practicable, impacts to live corals, submerged aquatic or marine vegetation and other benthic organisms, and wetlands.

Maintenance of Existing Bank Stabilization Structures:

1. No material will be discharged into special aquatic sites.
2. Bank stabilization would be limited to replacement within the current footprint only and will not extend waterward from the present site.
3. No new bank stabilization.
4. An activity will involve no more than 500 feet in total length along the bank.
5. The maximum amount of material placed shall not exceed the minimum needed for erosion protection.
6. No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the United States.
7. All material will be placed in a manner that will avoid erosion by normal or expected high flows.

Road Repairs and/or Improvements:

1. No new road construction.
2. Maximum road width shall be limited to the minimum width necessary.
3. Roads shall be designed and constructed in a manner that minimizes adverse impacts on surface and marine waters due to runoff and erosion, including adequate stormwater treatment.
4. Roads shall be constructed as near as possible to pre-construction contours and elevations.
5. Roads must be bridged or culverts installed based on present or future (based on climate change data) 100-year flood flows, and in a manner that maintains surface flows with minimal modification to flow direction or velocity.

Bridge Repair and Replacement:

1. Temporary fills must consist of stable materials, and be placed in a manner, that will not be eroded by expected high flows.
2. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations within 30 days of project completion.
3. No installation or proofing of steel or concrete pilings and/or sheetpile via impact hammer is authorized.
4. The use of treated wood that would be constant contact with marine or aquatic habitats is not authorized.

7.0 Effect Determinations

Based on our analysis of the possible impacts on ESA-listed species and designated critical habitat, the Corps has initially determined that the proposed action; i.e., the use of Pac-SLOPES, as described above, to guide the administration of certain activities regulated under Section 10 and Section 404 is not likely to adversely affect endangered or threatened species under NMFS jurisdiction or to destroy or adversely modify critical habitat.

Vessel Collisions: Based on the relatively low number of vessel trips expected to be conducted annually as part of actions covered under Pac-SLOPES, and on the expectation that the vessels will be operated in accordance with the general conditions described in Section 2 and with BMPs in Section 6.0, which collectively require operators to carefully watch for and avoid protected species, we consider the risk of collisions between action-related vessels and protected species to be very low and therefore discountable for all species considered in this biological evaluation.

Direct Physical Impact: Given that marine animals will likely avoid project areas on their own due to on-going activities, that the general conditions and additional BMPs require that the project manager ensure the area is free of ESA-listed marine animals, and that all materials and equipment will lowered in a controlled manner, we have determined that the potential for impact is extremely low and the risk of an ESA-listed animal being injured is discountable.

Entanglement: To minimize the risk to entanglement involving the temporary or permanent deployment of markers, buoys, or other moorings, the BMPs described above are expected to result in well-maintained single line moorings that are designed to minimized slack and thus prevent loops from forming in the lines; it is most likely that ESA-listed marine species will pass harmlessly along any mooring lines. Additionally, the BMPs also require the complete removal of mooring systems at the end of a project's life, minimizing risk of entanglement from abandoned mooring lines. Based on this information we have determined that the risk of adverse effects on ESA-listed marine species due to entanglement related to actions covered under Pac-SLOPES is discountable.

Disturbance from Human Activity and Equipment Operation: Nearly all of the activity types described above involve work in or near marine habitats where ESA-listed marine species may be directly exposed to project-related activity. The general conditions listed in Section 2.0 require applicants to reduce the likelihood of interactions by watching for and avoiding protected marine life before commencing work and by postponing or halting operations when protected species are within 50 yards of project activities. We have determined that disturbance related to actions covered under Pac-SLOPES will be infrequent and non-injurious resulting in insignificant effects on the ESA-listed marine species discussed in this biological evaluation.

Exposure to Elevated Noise Levels: As mentioned, activities such as blasting, pile-driving, pre-drilling, and construction dredging may produce in-air and in-water sound levels capable of injury or adverse behavioral modifications for marine mammals and other marine life. Consequently, those activity types are expressly excluded from consideration under Pac-SLOPES and will require specific consultation with NMFS. Activity types considered under

Pac-SLOPES that are capable of producing significant in-water sound levels include maintenance dredging, in-water excavation, movement of large armor stones, benthic core sampling, and deployment of certain acoustic buoys. Based on the information provided above (section 5.5.) and the incorporation of BMPs, we have determined that exposure to elevated noise levels related to actions covered under Pac-SLOPES will be non-injurious and will result in insignificant effects on the ESA-listed marine species discussed in this biological evaluation

Exposure to Elevated Turbidity: The potential actions covered under Pac-SLOPES are relatively small scale with limited amounts of in-water substrate disturbance. Additionally, the Pac-SLOPES requirements, exclusions, general conditions listed in Section 2.0, and best management practices (BMPs) listed in Section 6.0, as well as the general, special, and/or regional conditions of DA permits include measures intended to prevent or reduce erosion and contain mobilized sediments in the marine environment. We have determined that exposure to any plumes of elevated turbidity related to actions covered under Pac-SLOPES will be non-injurious and will result in insignificant effects on all ESA-listed marine species discussed in this biological evaluation.

Exposure to Wastes and Discharges: Local and Federal regulations prohibit the intentional discharge of toxic wastes and plastics into the marine environment. Additionally, the Pac-SLOPES requirements, exclusions, general conditions listed in Section 2.0, and best management practices (BMPs) listed in Section 6.0, as well as the general, special, and/or regional conditions of DA permits include measures intended to prevent the introduction of and exposure to wastes and toxicants into the marine environment. While we understand that discharges and spills could occur, they are expected to be infrequent, small, and quickly cleaned. Therefore, we have determined that exposure to construction wastes and discharges that may result from this action will result in insignificant effects on all protected marine species considered in this biological evaluation.

Loss of Forage Habitat: Nearly all of the activity types described above involve work in or near marine habitats where ESA-listed marine species may forage on various species of seagrass, algae, fish, and invertebrates such as mollusks, crustaceans, and sponges. The actions covered under Pac-SLOPES are relatively small scale with limited amounts of in-water substrate disturbance. For instance dredging is restricted to maintaining existing harbors, marinas, and channels. Harbor and marina improvements must remain within the existing footprint, and the placement of anchors and support structures must avoid important forage habitats such as seagrass beds and coral reefs. Any losses due to mechanical damage are expected to be temporary, because epibenthic life will likely re-colonize damaged areas and cover new structures soon after construction is complete. Additionally, the Pac-SLOPES requirements, exclusions, general conditions listed in Section 2.0, and best management practices (BMPs) listed in Section 6.0, as well as the general, special, and/or regional conditions of DA permits include measures intended to prevent or reduce erosion and contain mobilized sediments that might smother forage resources. Based on the information above, we expect that potential forage losses will be small in area and temporary in duration. Therefore, we have determined that the loss of forage habitat that may result from this action will result in insignificant effects on the species considered in this biological evaluation.

7.1 Green Sea Turtle

The proposed activities in this biological evaluation may affect this species through direct physical impact with the use of heavy equipment, collision with vehicles, elevated noise levels, elevated turbidity, the temporary loss of foraging habitat, and exposure to wastes and discharges. Juveniles, upon reaching a carapace length of about 35 cm, will recruit to near-shore habitats, where many of the proposed project activities will occur. The implementation of best management practices, general conditions and project-specific conditions will reduce the potential for direct and indirect impacts. Therefore, a determination of **may affect, not likely to adversely affect** is indicated for the Green Sea Turtle.

7.2 Hawksbill Sea Turtle

The proposed activities in this biological evaluation may affect this species through direct physical impact with the use of heavy equipment, collision with vehicles, elevated noise levels, elevated turbidity, the temporary loss of foraging habitat, and exposure to wastes and discharges. Juveniles, upon reaching a carapace length of about 35 cm, will recruit to near-shore habitats, where many of the proposed project activities will occur. The implementation of best management practices, general conditions and project-specific conditions will reduce the potential for direct and indirect impacts. Therefore, a determination of **may affect, not likely to adversely affect** is indicated for the Hawksbill Sea Turtle.

7.3 Humpback Whale

Most of the proposed activities in this biological evaluation are close enough to shore that impacts to the Humpback Whale are unlikely to occur. Some activities however, including buoy installation and repair, utility line installation and repair, and the removal of structures or vessels could occur offshore and have the potential to impact the humpback whale. The implementation of best management practices, general conditions and project-specific conditions will reduce the potential for direct and indirect impacts. Therefore, a determination of **may affect, not likely to adversely affect** is indicated for the Humpback Whale.

7.4 Hawaiian False Killer Whale

Most of the proposed activities in this biological evaluation are close enough to shore that impacts to the Hawaiian False Killer Whale are unlikely to occur. Some activities however, including buoy installation and repair, utility line installation and repair, and the removal of structures or vessels could occur offshore and have the potential to impact the false killer whale. The implementation of best management practices, general conditions and project-specific conditions will reduce the potential for direct and indirect impacts. Therefore, a determination of **may affect, not likely to adversely affect** is indicated for the Hawaiian False Killer Whale.

7.5 Indo-West Pacific DPS Scalloped Hammerhead Shark

Most of the proposed activities in this biological evaluation are close enough to shore that impacts to adult Scalloped Hammerhead Sharks are unlikely to occur. Some activities however, including buoy installation and repair, utility line installation and repair, and the removal of structures or vessels could occur offshore and have the potential to impact Scalloped Hammerhead Sharks. Adult females that move near shore for pupping, have the potential to be impacted by proposed project activities. Neonate and juvenile aggregations are more common in

near-shore nursery habitats where many of the proposed project activities could occur. The implementation of best management practices, general conditions and project-specific conditions will reduce the potential for direct and indirect impacts. Therefore, a determination of **may affect, not likely to adversely affect** is indicated for the Scalloped Hammerhead Shark.

7.6 Hawaiian Monk Seal

The proposed activities in this biological evaluation may affect this species through direct physical impact with the use of heavy equipment, collision with vehicles, elevated noise levels, elevated turbidity, and exposure to wastes and discharges. The implementation of best management practices, general conditions and project-specific conditions will reduce the potential for direct and indirect impacts. Therefore, a determination of **may affect, not likely to adversely affect** is indicated for the Hawaiian Monk Seal.

Many of the proposed activities will occur within designated critical habitat for the Hawaiian Monk Seal and may have both direct and indirect impacts. The implementation of best management practices, general conditions and project-specific conditions will reduce the potential for direct and indirect impacts. Therefore, a determination of **may affect, not likely to adversely modify** is indicated for the Hawaiian Monk Seal designated critical habitat.

7.7 Corals

Direct impacts to listed coral species are not allowed under Pac-SLOPES. Activities that occur near areas with listed corals on them may be authorized under Pac-SLOPES, with the implementation of best management practices, general conditions and project-specific conditions. Corals may be indirectly impacted through elevated turbidity, and exposure to wastes and discharges. Therefore, a determination of **may affect, not likely to adversely affect** is indicated for the *Acropora globiceps, Acropora jacquelineae, Acropora retusa, Acropora speciosa, Isopora crateriformis,* and *Euphyllia paradivisa* in American Samoa, *Seriatopora aculeata and Acropora globiceps* in the Commonwealth of the Northern Mariana Islands (CNMI), and *Seriatopora aculeata, Acropora globiceps* and *Acropora retusa* in Guam.

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APPENDIX A
NATIONWIDE PERMIT PROGRAM
REGIONAL CONDITIONS

HONOLULU DISTRICT REGIONAL CONDITIONS for the 2017 NATIONWIDE PERMITS (NWP)

The Honolulu District Regulatory Office has issued the following Regional Conditions as a means to ensure that activities authorized by NWP in the Honolulu District cause no more than minimal adverse environmental effects, individually and cumulatively. The additional restrictions or requirements imposed by the Regional Conditions avoid and/or minimize adverse impacts to resources of concern in the Honolulu District's area of responsibility. Before the Honolulu District will verify an activity under one or more NWPs, the proposed activity must comply with the NWP terms and all applicable General and Regional Conditions.

APPLICABILITY: The Honolulu District's Area of Responsibility (AOR) consists of the State of Hawaii, including the Northwestern Hawaiian Islands, the territories of American Samoa and Guam, the Commonwealth of the Northern Mariana Islands (CNMI), and the following U.S. Minor Outlying Islands: Baker Island, Howland Island, Jarvis Island, Johnston Atoll, Kingman Reef, Midway Atoll, Palmyra Atoll, and Wake Island.

CORAL REEF ADVISORY: Coral reefs (as defined at 40 CFR 230.44) are special aquatic sites with complex ecosystems that provide ecologically valuable functions and services. Coral reefs are recognized as a difficult-to-replace resource. Proposed impacts to all aquatic resources, including coral reefs, must first demonstrate avoidance and minimization to the greatest extent practicable before being considered for U.S. Army Corps of Engineers (Corps) authorization. Be advised that compensatory mitigation may be required to ensure no more than minimal impact.

RESTRICTIONS:

Regional Condition 1 – Revoked Permits

The following NWPs are revoked within the Honolulu District's AOR:

NWP 21 - Surface Coal Mining Activities
NWP 24 - Indian Tribe or State Administered Section 404 Programs
NWP 34 - Cranberry Production Activities
NWP 44 - Mining Activities
NWP 49 - Coal Remining Activities
NWP 50 - Underground Coal Mining Activities
NWP 52 - Water-Based Renewable Energy Generation Pilot Projects

Regional Condition 2 – Limited Use Areas

When seeking Corps authorization, you must identify in your Pre-Construction Notification (PCN) if any of these resources occur within or in the vicinity of your project area.

- In Honolulu District AOR: National Wildlife Refuges, Hawaii Wildlife Sanctuaries,

Hawaii Marine Life Conservation Districts, Guam Marine Preserve Areas and CNMI Marine Protected Areas
- In Hawaii: Anchialine Pools, Montane Bogs, Natural Freshwater and Saline Lakes
- In Guam: Aquatic areas containing Nipa palms (*Nypa fruticans*)
- In Guam, CNMI and American Samoa: Mangroves, Saline Lakes, Sea/Freshwater Caves (Allogenic Streams, Cenotes, Phreatic Zones, Sinkholes, Stream Caves, and Vadose Shafts)

**Definitions for these terms and others used throughout the Regional Conditions are provided at the end of the document.*

Regional Condition 3 – Acreage Limitation

The maximum acreage of permanent loss to wetlands, other special aquatic sites and other waters for a single project may not exceed 0.10-acre resulting from any discharge of dredged or fill material.

Regional Condition 4 – Stream Channelization and Impoundment Restriction

NWPs may not be used to authorize permanent stream channelization or for the construction of dams that permanently impound wetlands, other special aquatic sites and other waters

CONDITIONS APPLICABLE TO ALL NWPS:

Regional Condition 5 – NWP Verification

A written NWP verification must be obtained from the Corps prior to conducting any activity authorized by NWP (excludes NWPs listed in Regional Condition 1).

Regional Condition 6 – Pre-Construction Notification (PCN)

To obtain a NWP verification, all prospective permittees must submit a written PCN to the Corps that meets NWP General Condition (GC) #32.

Regional Condition 7 – Additional PCN Information

1. For Federal permittees, your PCN must provide documentation demonstrating compliance with the Essential Fish Habitat provisions of the Magnuson-Stevens Fishery Management and Conservation Act. For non-Federal permittees, in addition to the requirements at GC #18, #20 and GC #32, your PCN must contain the following information to demonstrate your avoidance and minimization of adverse impacts to wetlands, other special aquatic sites and other waters, and if applicable, endangered species, essential fish habitat and historic properties, including cultural resources. The level of detail submitted in your PCN shall be commensurate with the anticipated degree of project-related impacts.

    a. For activities where federally-listed or proposed threatened and endangered species or critical habitat, are known or likely to occur within the project area, the PCN must contain

the following information:

i. A list of species, both listed and proposed for listing, and critical habitat, known to occur within and in the near vicinity of the project impact area. Information on the location of threatened and endangered species and their critical habitat and potential project-related impacts to these resources can be obtained directly from the Pacific Islands U.S. Fish & Wildlife Service Office and National Marine Fisheries Service Pacific Islands Regional Office.

ii. Best Management Practices (BMPs) proposed to be implemented throughout the duration of construction to avoid and/or minimize adverse impacts to threatened and endangered species.

b. For activities occurring in tidally-influenced nearshore and marine environments, the PCN must contain the following information:

i. A list of Management Unit Species and associated Essential Fish Habitat (EFH) occurring within and in the near vicinity of the project impact area. Information on the location of EFH and potential project-related impacts to these resources can be obtained directly from your local National Marine Fisheries Service office.

ii. A description of the existing environment within and in the near vicinity of the project impact area: characterization of the benthic substrate (seafloor or stream bed e.g., sand, cobbles, silt, etc.), water depth, distance from shore, tidal range (intertidal, subtidal, submerged), general characterization of water quality (temperature range, salinity, water circulation, turbidity).

iii. Measures to avoid and/or minimize adverse impacts to EFH and proposed mitigation, if applicable.

c. For activities that might have the potential to cause effect to historic properties, including cultural resources, listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties, the PCN must contain the following information:

i. A description of any associated upland activities proposed under the same project.

ii. A list of any known historic properties within the project area and in the near vicinity listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic places. Information on the location of historic properties including cultural resources and potential project-related impacts to these resources can be obtained directly from your local State Historic Preservation Officer.

iii. A list of any Native Hawaiian Organizations, community members, or other parties you think may have an interest in providing comment on the impact the proposed activity may have on cultural resources. Any information you may have related to historic or current cultural use or importance at or near the project site.

iv. Copies of any correspondence from the State Historic Preservation Officer, any NHO, or other party consulted with regarding the potential impacts of the proposed activity on historic properties, including cultural resources.

v. A list of resources, (e.g. published documents, assessments, surveys, etc.) reviewed to provide response to items i-iii, above.

vi. BMP measures proposed to be implemented throughout the duration of construction to avoid and/or minimize adverse impacts to historic properties, including cultural resources.

2. For non-Federal and Federal permittees, activities that would result in the permanent loss of wetlands, other special aquatic sites and other waters, you must provide a written discussion of the on-site design configurations that you considered to demonstrate avoidance and minimization of impacts was evaluated and that the proposed permanent loss is unavoidable. Submission of a plan-view sketch depicting the footprint of on-site design configurations overlaying such waters within the project area will assist in the Corps' review of your proposed activity.

Regional Condition 8 – Best Management Practices

To the extent applicable, the following standard BMPs must be implemented for all NWPs to avoid and/or minimize adverse impacts on environmental resources:

1. Pre-construction BMPs:

   a. Prior to commencement of the authorized work in wetlands, other special aquatic sites and other waters, you must clearly identify (demarcate) in the field the geographic limits of such waters (i.e., High Tide Line, Mean High Water Mark, Ordinary High Water Mark, approved wetland boundary) affected by the authorized work and as approved by the Corps and demarcated on your drawings. The delineation of these geographic bounds may be accomplished by staking, flagging, painting, silt fencing, signage, buoys, etc. and in all cases must be maintained and remain observable throughout the construction period. The permittee must also demarcate in the field the project limits of the Corps-authorized fill footprint to ensure that dredged or fill material is not discharged beyond the authorized limits. The permittee is prohibited from conducting any activity occurring in or affecting wetlands, other special aquatic sites and other waters that requires prior authorization from the Corps, outside of the permitted limits of disturbance (as shown on the permit drawings).

2. During Construction BMPs:

   a. Turbidity and the suspension or re-suspension of sediment from project-related work must be minimized and contained to the immediate vicinity of the authorized activity through the appropriate use of effective containment devices or measures and based on project-specific conditions. Silt fences, silt curtains, or other diversion or containment devices must be installed to contain sediment and turbidity at the work site (a) parallel to, and along the toe of any fill or exposed soil which may introduce sediment to an adjacent aquatic site; and (b) adjacent to any fill placed or soil exposed within an aquatic site. All silt fences, curtains, and other devices must be installed according to the manufacturer's guidelines and properly maintained throughout the construction period and until the impact area is stabilized and/or elevated turbidity levels have returned to ambient levels.

   b. All project-related materials (e.g., fill, rocks, landscaping, structures, etc.) and equipment (e.g., dredges, barges, backhoes, etc.) authorized to be used or placed in wetlands, other special aquatic sites and other waters, must be free of invasive plant and animal species.

   c. Any temporary tethering, anchoring, mooring or similar in-water structural components must be placed in a manner to avoid direct physical impact to coral and seagrass beds during installation and throughout the duration of its use in wetlands, other special aquatic sites and other waters.

   d. Any temporary in-water structures must be removed of, in their entirety, upon completion of the authorized work in or affecting wetlands, other special aquatic sites and other waters. The authorized work is not complete until these temporary structures are removed.

   e. Unless specifically authorized, stockpiling of project-related materials (e.g., fill, dredged material, revetment rock, pipe, etc.) or unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) in or in close proximity to wetlands, other special aquatic sites and other waters such that the stockpiled materials could be carried into such waters by wind, rain, or high surf is prohibited.

   f. Upland containment areas sited in uplands near wetlands, other special aquatic sites and other waters for the purpose of stockpiling, dewatering, etc. must be bounded by impermeable material to prevent return flows of dewatered effluent into such waters. The runoff or overflow from a contained disposal area into such waters requires separate authorization.

3. Post-Construction BMPs:

   a. Native plants appropriate for current site conditions must be used for re-vegetation for the purposes of restoring areas temporarily disturbed by the authorized work.

ACTIVITY-SPECIFIC REGIONAL CONDITIONS:

Regional Condition 9 – Bank Stabilization

1. For new bank stabilization projects in streams with vegetated slopes and/or natural bed and bank, vegetative and environmentally sensitive stabilization practices must be used whenever practicable. Documentation of consideration of environmentally sensitive bank stabilization practices must be included in the PCN to demonstrate whether the use of environmentally sensitive stabilization techniques is practicable given site-specific circumstances. Environmentally sensitive stabilization techniques incorporate organic materials to produce functional structure, provide wildlife habitat, and/or provide areas for re- vegetation. Examples of environmentally sensitive bank stabilization practices include, but are not limited to, the use of the following: adequate sized armoring keyed into the toe of the slope with native plantings, or other suitable vegetation, on the banks above; vegetated geogrids; coconut fiber coir logs; live woody vegetated cuttings; fascines or stumps; brush layering; soil lifts. In situations where the use of these stabilization techniques are not practicable (due to high stream flow velocities, for example) stream bank armoring should be designed to incorporate environmentally friendly natural features, if possible. Examples include: vegetated gabions, vegetated gabion mattresses, live cribwalls and joint plantings.

2. For new shoreline stabilization projects, environmentally sensitive designs that provide wave dissipation, interstitial spaces for fish, crustacean and invertebrate habitat, and other environmental benefits must also be used whenever practicable. Documentation of consideration of environmentally sensitive shoreline stabilization practices must be included in the PCN to demonstrate whether the use of environmentally sensitive stabilization techniques is practicable.

DEFINITIONS

Anchialine pools: An anchialine pool is an enclosed water body or pond with an underground connection to the ocean often formed in limestone or volcanic rock. Water levels in the pools fluctuate in response to ocean tides.

Mangroves: In American Samoa, Commonwealth of the Northern Mariana Islands, and Guam, mangroves are coastal areas dominated by the species *Brueguiera gymnorrhiza* (Oriental Mangrove), *Rhizophora mangle* (Red Mangrove), *Avicennia marina* (Grey Mangrove) and/or *Lumintzera littorea*.

Montane Bogs: An area found in a mountainous region where rainfall exceeds drainage. Dominant vegetation is shrubs, sedges, and grasses.

Natural Freshwater Lakes: Standing water that is always fresh, in well-defined natural basins, with a surface area usually greater than 0.25 acre and in which rooted emergent hydrophytes, if present, occupy no more than 30 percent of the surface area. Freshwater lakes characteristically lack a natural oceanic connection (surface or subsurface) of a magnitude sufficient to cause demonstrable tidal fluctuations.

Saline Lakes: Standing waters of salinities ranging from brackish to hypersaline, located in well-defined natural basins, and lacking a natural surface connection to the ocean. They are usually, but not always, fed by seawater seepage and may be diluted by rainwater, overland runoff, or groundwater, or concentrated by evaporation.

Sea and Freshwater Caves:

Allogenic streams: Streams flowing from an impervious surface, such as volcanic rock into porous limestone. Example: in Northern Guam, such streams will percolate into the ground and can flow into the marine environment from subsurface channels.

Cenotes: Sinkholes open to the surface and extending into groundwater.

Phreatic zones: Zones along a coast where freshwater and saltwater mix usually causing rapid dissolution of limestone with a resulting cave formation.

Sinkholes: Caves formed when a water formed cave either collapses or is opened up by adequate dissolution of limestone by water.

Stream caves: A series of caves formed by water flowing through limestone usually structurally complex.

Vadose Shafts: Vertical shafts in limestone that allows rapid passage of water into the ground water lens.

Special Aquatic Site: Special aquatic sites are identified in 40 CFR 230 Subpart E as sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes.

Coral Reefs: As defined at 40 CFR 230.44 (Clean Water Act, Section 404(b)(1) Guidelines), coral reefs consist of the skeletal deposit, usually of calcareous or silicaceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef.

APPENDIX B

Pac-SLOPES Notification and Verification Form

US Army Corps of Engineers, Honolulu District
and
NOAA Fisheries/PIRO/Protected Resources Division

Pac-SLOPES Notification and Verification Form

DA File Number: POH-2017-XXXX
NMFS PCTS Number:
PIRO Reference Number:
Project Name: XXXX
Subject: Pac-SLOPES Notification and Verification

This form constitutes informal consultation and a request for concurrence under the Standard Local Operating Procedures for Endangered Species in the Central and Western Pacific Region (Pac-SLOPES). The Corps has initially determined that the proposed action regulated under Section 10 and/or Section 404 is not likely to adversely affect endangered or threatened under the Endangered Species Act (ESA) and NMFS jurisdiction or to destroy or adversely modify designated critical habitat. The permittee will be required to comply with the Pac-SLOPES general conditions, special conditions, and activity-specific best management practices (BMPs) to avoid effects to threatened and/or endangered marine species.

Date of Request:
Date of Requested NMFS Response: ***15-days from Date of Request***

Applicant Name:

Project Location:
Project Center Latitude & Longitude:
Project Waterway:

Project Manager Name:
Phone Number & Email:

Project Description:

Provide justification, description of marine environment to be impacted, additional BMPs, special conditions and/or avoidance and minimization measures the applicant has proposed in order to comply with the Pac-SLOPES programmatic consultation and to ensure the proposed project is not likely to

adversely affect endangered or threatened species under NMFS jurisdiction or to destroy or adversely modify critical habitat. Attach map and drawings.

DA Permit to be authorized/verified:

☐ Nationwide Permit XX (NWP-XX)
☐ Regional Permit 2011-001 (RP 2011-001)
☐ Letter of Permission (LOP)
☐ Standard Permit (SP) / Individual Permit (IP)

Type of Action:

☐ Site preparation for above- or over-water construction
☐ Survey activities
☐ Marina or harbor repair & improvement
☐ Piling repair & removal
☐ Buoy, aids to navigation, fish aggregating devices, temporary structures installation & repair
☐ Maintenance dredging
☐ Other minor discharges and dredging/excavation
☐ Utility line installation & repair
☐ Outfall structure repair & replacement
☐ Bank stabilization structures (new and maintenance)
☐ Stream clearing
☐ Road construction, repair, and improvement
☐ Bridge repair & replacement
☐ Vessel removal

NOAA Species/Critical Habitat Present in Action Area:
Identify all the species potentially found in the action area.

Marine Mammals and/or Sea Turtles:

☐ Green sea turtle (*Chelonia mydas*)
  ☐ Central North Pacific DPS (threatened) – Hawaii
  ☐ Central West Pacific DPS (endangered) – Guam/CNMI
  ☐ Central South Pacific DPS (endangered) – American Samoa
☐ Hawksbill sea turtle (*Eretmochelys imbricata*), endangered
☐ Western North Pacific Humpback whale (*Megaptera novaeangliae*), endangered (Guam/CNMI Only)
☐ Hawaiian Insular false killer whales (*Pseudora crassidens*), endangered
☐ Indo-West Pacific DPS Scalloped Hammerhead shark (*Sphyrna lewini*), threatened (Guam/CNMI Only)
☐ Hawaiian monk seals (*Monachus schauinslandi*), endangered

Critical Habitat:

☐ Hawaiian monk seal (*Monachus schauinslandi*) critical habitat

Threatened Coral Species in American Samoa:
☐ *Acropora globiceps*
☐ *Acropora jacquelinae*
☐ *Acropora retusa*
☐ *Acropora speciosa*
☐ *Isopora crateriformis*
☐ *Euphyllia paradivisa.*

Threatened Coral Species in Marianas Islands (Guam and CNMI):
☐ *Acropora globiceps*
☐ *Acropora retusa*
☐ *Seriatopora aculeata*

Corps Conclusion:

☐ The proposed project is consistent with Pac-SLOPES, as described and checked above, and the programmatic Section 7 consultation.

☐ Proposed project is consistent with Pac-SLOPES, as described and checked above, and the programmatic Section 7 consultation per the justification, BMPs and/or special conditions provided above.

_____Corps PM Signature

_____Date

NOAA Fisheries Determination:

☐ NMFS concurs with the Corps determination that the proposed project is consistent with Pac-SLOPES, as described and checked above, and the programmatic Section 7 consultation.

☐ NMFS concurs with the Corps determination that the proposed project is consistent with Pac-SLOPES, as described and checked above, and the programmatic Section 7 consultation and with the following

☐ NMFS does not concur with the Corps determination that the project is consistent with Pac-SLOPES, as described and checked above, and/or with the programmatic Section 7 consultation and recommends a separate Section 7 consultation.

_____NMFS Representative Signature

_____Date