ENVIRONMENTAL ASSESSMENT

Issuance of an Incidental Harassment Authorization to
Honolulu Seawater Air Conditioning, LLC to Take Marine Mammals by Harassment
Incidental to Pile Driving Offshore Honolulu, Hawaii

September 2012

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ABSTRACT: The National Marine Fisheries Service (NMFS) proposes to issue an Incidental Harassment Authorization (IHA) to Honolulu Seawater Air Conditioning, LLC (HSWAC) for the incidental taking of small numbers of marine mammals. The IHA would be valid for one year from the date of issuance and would authorize the take, by Level B harassment, of marine mammals incidental to pile driving associated with a seawater air conditioning project offshore Honolulu, HI.

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CHAPTER 1 PURPOSE OF AND NEED FOR ACTION

1.1 DESCRIPTION OF ACTION

On April 16, 2012, the National Marine Fisheries Service (NMFS), Office of Protected Resources received a request from HSWAC to take[1], by Level B harassment[2] only, small numbers of marine mammals incidental to pile driving associated with construction of a seawater air conditioning project offshore Honolulu, HI. After receipt of supplemental information, the application was determined complete on April 27, 2012. As such, NMFS proposes to issue an Incidental Harassment Authorization (IHA) pursuant to Section 101(a)(5)(A) and (D) of the Marine Mammal Protection Act of 1972, as amended (MMPA; 16 U.S.C. 1371 *et seq*.), and the regulations governing the taking and importing of marine mammals (50 CFR Part 216). The U.S. Army Corps of Engineers is the federal action agency responsible for permitting the construction of HSWAC's project. The U.S. Army Corps of Engineers' Environmental Impact Statement (EIS) assesses the impacts of the HSWAC project on the broader environment and is incorporated here by reference.

The in-water work for the HSWAC project is scheduled to begin in October 2012. HSWAC would install a maximum of 205 piles over a 1-year period. These piles would be necessary for construction of a temporary receiving pit and to help support the intake and discharge pipes offshore. Ten to 12 51-cm diameter steel pipe piles would be installed as "test piles" using a hydraulic impact hammer. Eighty 61-cm steel sheet piles would be installed around the perimeter of a receiving pit using a barge-mounted vibratory pile driver. Lastly, 113 15-cm diameter steel pipe piles would be installed using a hydraulic impact hammer to help support the intake and discharge pipes. Pile driving results in elevated noise levels; therefore, this activity may impact marine mammals in the vicinity of the pile driver.

HSWAC expects to drive the test piles during a 1-2 week span in October 2012. Sheet pile installation would last for about 16 days either in November 2012 or April 2013 in order to avoid the peak humpback whale season. If construction proceeds quickly enough, the production piles would be installed around March/April 2013. If production piles cannot be installed during the 1-year IHA period, HSWAC would apply for another IHA and install the production piles sometime after September 2013.

Only pile driving activities are expected to result in incidental harassment of marine mammals. The depth and water flow velocity of the 1.6-meter seawater intake pipe would be such that take of a marine mammal is unlikely to occur. HSWAC considered placing a screen across the intake pipe (acting as an excluder device), but NMFS Pacific Islands Region and NMFS Pacific Islands Fisheries Science Center determined that such a device may actually increase the water flow velocity, and therefore, the potential for impingement. Further details regarding installation of the pipelines are provided in the proposed IHA *Federal Register* notice

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1 Under the MMPA, "take" is defined as to "harass, hunt, capture, kill or collect, or attempt to harass, hunt, capture, kill or collect." [16 U.S.C. 1362(18)(A)].

2 Under the MMPA, Level B harassment "has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breating, nursing, breeding, feeding, or sheltering." [16 U.S.C. 1362]

(77 FR 43259, July 24, 2012) and in HSWAC's IHA application here: http://www.nmfs.noaa.gov/pr/permits/incidental.htm.

1.1.1 Purpose and Need

The purpose and need of the action is to ensure compliance with the MMPA and its implementing regulations for the activities associated with the HSWAC project. The MMPA prohibits takes of all marine mammals in the U.S. (including territorial seas) with a few exceptions. Sections 101(a)(5)(A) and (D) of the MMPA direct the Secretary of Commerce to allow, upon request, the incidental, but not intentional, taking of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) if certain findings are made and regulations are issued or, if the taking is limited to harassment, notice of a proposed authorization is provided to the public for review.

Depending on the type of authorization issued, the take of marine mammals may be allowed for up to five years if NMFS finds that the taking will have a negligible impact on the species or stock(s), will not have an unmitigable adverse impact on the availability of the species or stock(s) for certain subsistence uses, and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring, and reporting of such taking are set forth. NMFS has defined "negligible impact" in 50 CFR 216.103 as: "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival."

NMFS' issuance of an incidental take authorization requires the preparation of an environmental analysis pursuant to the National Environmental Policy Act (NEPA). NMFS prepared this Environmental Assessment (EA) to inform our decision of whether to issue an IHA authorizing the incidental take of small numbers of marine mammals associated with the HSWAC project.

1.1.2 Objectives of the HSWAC Project

As described in the application, the fundamental objective of the project is to construct a district cooling system for commercial and residential properties in Honolulu. Once constructed, an offshore pipe would pump cold, deep seawater to a pump station onshore. In summary, the system would consist of a seawater intake pipe and a seawater discharge pipe extending offshore, a land-based pump station, and a land-based chilled water distribution system.

1.2 NEPA REQUIREMENTS AND SCOPE OF NEPA ANALYSIS; PUBLIC INOLVEMENT

This EA focuses primarily on the environmental effects of authorizing MMPA Level B incidental takes of marine mammals during pile driving off Honolulu, HI. The MMPA and its implementing regulations governing issuance of an IHA require that upon receipt of an adequate and complete application for an IHA, NMFS must publish a notice of proposed IHA in the *Federal Register* within 45 days. The notice issued for HSWAC's action summarized the purpose of the requested IHA, included a statement that NMFS would prepare an EA for the

proposed action, and invited interested parties to submit written comments concerning the application and NMFS' preliminary analyses and findings including those relevant to consideration in the EA.

NOAA Administrative Order 216-6 (NAO 216-6) established agency procedures for complying with the National Environmental Policy Act (NEPA) and the implementing regulations issued by the President's Council on Environmental Quality (CEQ). Consistent with the intent of NEPA and the clear direction in NAO 216-6 to involve the public in NEPA decision-making, NMFS requested comments on the potential environmental impacts described in HSWAC's application and the proposed IHA. Comments received on the proposed IHA were considered and informed this EA.

NMFS has prepared this EA to assist in determining whether the direct, indirect, and cumulative impacts related to its issuance of the authorization for incidental take under the MMPA of four marine mammal species are likely to result in significant impacts to the human environment. Given the limited scope of the decision for which NMFS is responsible (i.e. whether or not to issue the authorization including prescribed means of take, mitigation measures, and monitoring requirements) and that this EA is intended to inform, we have limited our NEPA analysis only to those living marine resources and their habitat likely to be affected by issuance of an IHA authorizing the take of marine mammals incidental to HSWAC's pile driving activities. As described more fully below this section, the EA identifies all marine mammals, and species protected under the ESA, that are likely to occur within the action area.

The EA focuses on the environmental impacts that could result from NMFS' decision to authorize the take of marine mammal species incidental to the proposed pile driving off Honolulu. We have also described the impacts that could arise from the alternatives presented. Impacts to other marine species and habitat located in the action area were considered unlikely and are evaluated in the U.S. Army Corps of Engineers' EIS.

1.3 APPLICABLE LAWS AND NECESSARY FEDERAL PERMITS, LICENSES, AND ENTITLEMENTS

This section summarizes federal, state, and local permits, licenses, approvals, and consultation requirements necessary to implement the proposed action.

1.3.1 National Environmental Policy Act (NEPA)

NEPA's EIS requirement is applicable to all "major" federal actions with the potential to significantly affect the quality of the human environment. Major federal actions include activities that are fully or partially funded, regulated, conducted, or approved by a federal agency. NMFS' issuance of an IHA for incidental harassment of marine mammals is a federal action for which environmental review is required. While NEPA does not dictate a substantive outcome for an IHA, it requires consideration of environmental issues in federal agency planning and decision making, and requires an analysis of alternatives and direct, indirect, and cumulative environmental effects of the NMFS proposed action to authorize MMPA Level B incidental take.

As noted, NMFS has prepared this EA to assist in determining whether an EIS is necessary for the action.

1.3.2 Endangered Species Act (ESA)

Section 7 of the ESA requires consultation with the appropriate federal agency (either NMFS or the U.S. Fish and Wildlife Service) for federal actions that "may affect" a listed species or critical habitat. NMFS' issuance of an authorization affecting ESA-listed species or designated critical habitat, directly or indirectly, is a federal action subject to these section 7 consultation requirements. Accordingly, NMFS is required to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of any threatened or endangered species or result in destruction or adverse modification of critical habitat for such species. Section 7 requires federal agencies to use their authorities in furtherance of the purposes of the ESA by carrying out programs for the conservation of endangered and threatened species. Regulations specify the procedural requirements for these consultations (50 Part CFR 402).

1.3.3 Marine Mammal Protection Act (MMPA)

Sections 101(a)(5)(A) and (D) of the MMPA (16 U.S.C. 1361 *et seq*.) direct the Secretary of Commerce (Secretary) to allow, upon request, the incidental, but not intentional, taking of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specific geographic region if certain findings are made and a *Federal Register* notice of a proposed authorization is provided to the public for review.

Section 101(a)(5)(D) of the MMPA established an expedited process by which U.S. citizens can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Except with respect to certain activities not pertinent here, the MMPA defines "harassment" as:

> any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild ["Level A harassment"]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering ["Level B harassment"].

Section 101(a)(5)(D) of the MMPA establishes a 45-day time limit for NMFS' review of an application followed by a 30-day public notice and comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Not later than 45 days after the close of the public comment period, if the Secretary of Commerce makes the findings set forth in section 101(a)(5)(D)(i) of the MMPA, the Secretary of Commerce shall issue the authorization with appropriate conditions to meet the requirements of section 101(a)(5)(D)(ii) of the MMPA.

NMFS has promulgated regulations to implement the permit provisions of the MMPA (50 CFR Part 216) and has produced Office of Management and Budget (OMB)-approved

application instructions (OMB Number 0648-0151) that prescribe the procedures necessary to apply for permits. All applicants must comply with these regulations and application instructions in addition to the provisions of the MMPA. Applications for an IHA must be submitted according to regulations at 50 CFR § 216.104.

1.3.4 Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA)

Under the MSFCMA, Congress defined Essential Fish Habitat (EFH) as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. 1802(10)). The EFH provisions of the MSFCMA offer resource managers means to accomplish the goal of giving heightened consideration to fish habitat in resource management. NMFS Office of Protected Resources is required to consult with NMFS Office of Habitat Conservation for any action it authorizes (e.g., research permits), funds, or undertakes, or proposes to authorize, fund, or undertake that may adversely affect EFH. This includes renewals, reviews, or substantial revisions of actions.

NMFS Pacific Islands Region concluded EFH consultation with the U.S. Army Corps of Engineers (the federal action agency responsible for permitting the construction of HSWAC's project). NMFS Pacific Islands Region concluded that the proposed project will have adverse effects to EFH and provided EFH conservation recommendations to help ensure that those effects are avoided, mitigated, and offset. Issuance of an IHA results in "no effect" to EFH and therefore, an EFH consultation is not required.

CHAPTER 2 ALTERNATIVES INCLUDING THE PROPOSED ACTION

The NEPA implementing regulations (40 CFR § 1502.14) and NAO 216-6 provide guidance on the consideration of alternatives to a federal proposed action and require rigorous exploration and objective evaluation of all reasonable alternatives. Each alternative must be feasible and reasonable in accordance with the CEQ implementing regulations (40 CFR §§ 1500-1508). This chapter describes the range of potential actions (alternatives) determined reasonable with respect to achieving the stated purpose and need, as well as alternatives eliminated from detailed study and also summarizes the expected results and any related mitigation for each alternative.

NMFS' proposed action (preferred) alternative represents the activities proposed by the applicant for the IHA, along with required monitoring and mitigation measures that would minimize potential adverse environmental impacts.

2.1 ALTERNATIVE 1 – NO ACTION

Under the No Action alternative, NMFS would not issue an IHA to HSWAC authorizing the take of small numbers of marine mammals incidental to the specified activity. However, NMFS does not have authority to permit or prohibit the construction activity itself. The possible consequences of not authorizing incidental take are (1) the entity conducting the activity may be in violation of the MMPA if take occurs, (2) mitigation and monitoring measures cannot be required by NMFS, (3) mitigation measures might not be performed voluntarily by the applicant, and (4) the applicant may choose not to conduct the activity. By undertaking measures to further protect marine mammals from incidental take through the authorization process, the impacts of these activities on the marine environment can potentially be lessened. While NMFS does not authorize the construction project itself, NMFS does authorize the incidental harassment of marine mammals in connection with this activity and prescribes the methods of taking and other means of effecting the least practicable adverse impact on the species and stocks and their habitats. If an IHA was not issued, HSWAC could decide either to cancel construction or to continue the proposed activity. If the latter decision was made, HSWAC could independently implement mitigation measures; however, they would be proceeding without take authorization from NMFS pursuant to the MMPA. If HSWAC did not implement mitigation measures during survey activities, increased takes of marine mammals by harassment (and potentially by injury or mortality) could occur if the activities were conducted when marine mammals were present. Although the No Action Alternative would not meet NMFS' purpose and need to allow incidental takings of marine mammals under certain conditions, CEQ regulations require consideration and analysis of a No Action Alternative for the purposes of presenting a comparative analysis to the action alternatives.

2.2 ALTERNATIVE 2 – PROPOSED ACTION (Issuance of an IHA with Proposed Conditions)

The Proposed Action is the Preferred Alternative. Under the Proposed Action alternative, NMFS would issue an IHA to HSWAC allowing the take of small numbers of marine mammals incidental to specified activities as proposed by the applicant, with the mitigation, monitoring, and reporting conditions contained within HSWAC's application and NMFS' proposed IHA *Federal Register* notice. Accordingly, the Proposed Action, as described in Chapter 1 of this document, would satisfy the purpose and need of the NMFS MMPA action – issuance of an IHA, along with required mitigation and monitoring measures – and would enable HSWAC to comply with the statutory and regulatory requirements of the MMPA. The proposed action was analyzed independently by NMFS and is considered the preferred alternative.

2.2.1 Specified Activity

The in-water work for the HSWAC project is scheduled to begin in October 2012. HSWAC would install a maximum of 205 piles over a 1-year period. These piles would be necessary for construction of a temporary receiving pit and to help support the intake and discharge pipes offshore. Ten to 12 51-cm diameter steel pipe piles would be installed as "test piles" using a hydraulic impact hammer. Eighty 61-cm steel sheet piles would be installed around the perimeter of a receiving pit using a barge-mounted vibratory pile driver. Lastly, 113 15-cm diameter steel pipe piles would be installed using a hydraulic impact hammer to help support the intake and discharge pipes. Pile driving results in elevated noise levels; therefore, this activity may impact marine mammals in the vicinity of the pile driver.

HSWAC expects to drive the test piles during a 1-2 week span in October 2012. Sheet pile installation would last for about 16 days either in November 2012 or April 2013 in order to avoid the peak humpback whale season. If construction proceeds quickly enough, the production piles would be installed around March/April 2013. If production piles cannot be installed during the 1-year IHA period, HSWAC would apply for another IHA and install the production piles sometime after September 2013.

Only pile driving activities are expected to result in incidental harassment of marine mammals. The depth and water flow velocity of the 1.6-meter seawater intake pipe would be such that take of a marine mammal is unlikely to occur. HSWAC considered placing a screen across the intake pipe (acting as an excluder device), but NMFS Pacific Islands Region and NMFS Pacific Islands Fisheries Science Center determined that such a device may actually increase the water flow velocity, and therefore, the potential for impingement. Further details regarding installation of the pipelines are provided in the proposed IHA *Federal Register* notice (77 FR 43259, July 24, 2012) and in HSWAC's IHA application here: http://www.nmfs.noaa.gov/pr/permits/incidental.htm.

2.2.2 Mitigation Measures

The NMFS' proposed IHA *Federal Register* notice (77 FR 43259, July 24, 2012) describes the required mitigation and monitoring measures in detail and this EA briefly summarizes them here. To reduce the potential for disturbance from acoustic stimuli associated with the activities, HSWAC has proposed, with NMFS' guidance, to implement the following mitigation and monitoring measures for marine mammals: (1) temporal restrictions; (2)

establishment of an exclusion zone; (3) pile driving shutdown and delay procedures; and (4) soft-start procedures.

(1) Temporal Restrictions

Based on NMFS' recommendation, HSWAC would not conduct any vibratory pile driving from December 1 through March 31. This is the peak humpback whale season in Hawaii and there is a possibility that humpback whales may occur within the proposed HSWAC project site during this time. HSWAC may still conduct impact pile driving during the humpback whale season (with an additional mitigation measure). The distance to the Level B harassment zone (1,000 meters) is much shorter during impact pile driving and HSWAC would monitor this area in order to prevent harassment of humpback whales. Further temporal restrictions are not practicable for HSWAC because pile driving cannot be conducted during summer months due to swells on the south shore of Oahu.

(2) Establishment of an Exclusion Zone

The purpose of HSWAC's exclusion zone is to prevent Level A harassment (injury) of any marine mammal species and Level B harassment of humpback whales. During all in-water impact pile driving, HSWAC would establish a 91-m radius around each pile driving site, which encompasses the estimated 180-dB isopleth plus a 44-m buffer, that would be continuously monitored for marine mammals. If a marine mammal is observed nearing or entering this perimeter, HSWAC would stop pile driving operations to prevent marine mammals from being exposed to sounds at or above 180 dB.

Based on NMFS' recommendation, HSWAC would extend the exclusion zone to 1,000 meters for all large whales from December 1 through March 31, which would be monitored to prevent Level B harassment of humpback whales during Hawaii's peak humpback whale season.

(3) Pile Driving Shut Down and Delay Procedures

If a protected species observer (PSO) sees a marine mammal approaching or entering the 91-meter exclusion zone (or a large whale approaching or entering the 1,000-meter exclusion zone from December 1 through March 31) prior to the start of impact pile driving, the PSO would notify the on-site construction manager (or other authorized individual) who would then be required to delay pile driving until the marine mammal has moved outside of the exclusion zone or if the animal has not been resighted within NMFS' recommended 15 minutes for pinnipeds and 60 minutes for cetaceans. If a marine mammal is sighted approaching or entering the 91-meter exclusion zone (or a large whale approaching or entering the 1,000-meter exclusion zone from December 1 through March 31) during pile driving, pile driving would cease until that animal is on a path away from the exclusion zone or NMFS' recommended 15/60 minutes has lapsed since the last sighting.

(4) Soft-Start Procedures

HSWAC would implement a "soft-start" technique to allow marine mammals to leave the immediate area before sound sources reach full energy. Soft-start procedures would be conducted prior to driving each pile if hammering ceases for more than 15 minutes.

2.2.3 Monitoring Measures

In order to issue an IHA for an activity, section 101(a)(5)(D) of the MMPA states that NMFS must set forth "requirements pertaining to the monitoring and reporting of such taking". The MMPA implementing regulations at 50 CFR § 216.104 (a)(13) indicate that requests for IHAs must include the suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species and of the level of taking or impacts on populations of marine mammals that are expected to be present.

(1) In-situ Underwater Sound Monitoring

HSWAC would perform in-situ underwater sound monitoring during sheet pile and test pile driving operations to verify source levels and ensure that the harassment isopleths are not extending past the calculated distances described in the proposed IHA Federal Register notice (77 FR 43259, July 24, 2012). If necessary, the 91-meter exclusion zone and the 1,000-meter exclusion zone (for large whales from December 1 through March 31) would be expanded to meet NMFS' harassment thresholds.

(2) Protected Species Observers

HSWAC would designate at least one biologically-trained, on-site individual, approved in advance by NMFS, to monitor the 160-dB zone around the sound source during all impact pile driving operations. This observer would be stationed on the pile driving rig and would be responsible for monitoring from the 91-meter exclusion zone out to the Level B harassment zone at 1,000 meters. The purpose of this observer would be to: (1) conduct behavioral monitoring of marine mammals and record Level B takes of marine mammals that occur during impact pile driving operations; and (2) notify the onsite project lead (or other authorized individual) if a large whale is seen within or approaching the 1,000-meter exclusion zone from December 1 through March 31.

During 5 of the 16 days of vibratory pile driving operations, HSWAC would designate two additional observers to monitor the 120-dB zone around the sound source. These observers would be stationed on a small power boat with an operator and would travel in a semi-circular route about 3.1 km from the sound source in order to observe and record any marine mammals that could be exposed to sound levels between 120-180 dB. Maximum travel speed would be 10 nautical miles per hour. Monitoring would begin 40 minutes prior to the start of sheet pile driving operations in order to observe whether any marine mammals in the area remained once pile driving operations started. Monitoring would continue during sheet pile driving operations and the observer would record all marine mammal sightings and behavior. At a minimum, monitoring of the 120-dB zone would occur on the first and second day of pile driving operations, followed by the fifth day, the tenth day, and the fifteenth day. Observer data from

the 120-180 dB area (for both impact and vibratory pile driving) would be used to validate take estimates and evaluate the behavioral impacts that pile driving may have on marine mammals.

(3) Equipment

PSOs would be provided with the equipment necessary to effectively monitor for marine mammals (for example, high-quality binoculars, compass, and range-finder) in order to determine if animals have entered into the exclusion zone or Level B harassment isopleth and to record species, behaviors, and responses to pile driving.

(4) Reporting

If in-situ underwater sound monitoring indicates that threshold isopleths are greater than originally calculated, HSWAC would contact NMFS within 48 hours and make the necessary adjustments. HSWAC would submit a report to NMFS within 90 days of completion of pile driving. The report would include data from marine mammal sightings (such as species, group size, and behavior), and observed reactions to construction, distance to operating pile hammer, and construction activities occurring at time of sighting. Further reporting requirements pertaining to unexpected takes are detailed in the proposed IHA Federal Register notice (77 FR 43259, July 24, 2012).

2.2.5 Other Alternatives Considered but Eliminated

NMFS considered whether other alternatives could meet the purpose and need. An alternative that would allow for the issuance of an IHA with no required mitigation or monitoring was considered but eliminated from consideration, as it would neither be in compliance with the MMPA nor satisfy our purpose and need. For that reason, this alternative is not analyzed further in this document.

HSWAC worked with NMFS and the Pacific Islands Region to develop the above mitigation and monitoring measures needed to ensure their project resulted in the least practicable adverse impacts to marine mammals. HSWAC already agreed to restrict pile driving activities during the peak humpback whale season from December 1 through March 31. In so doing, no other alternatives were provided or analyzed. HSWAC's pile driving activities are further restricted by the inability to do in-water work during summer months because of swells off Oahu's south shore.

CHAPTER 3 AFFECTED ENVIRONMENT

The summary of the physical and biological environment of the project area, as analyzed in the IHA application and notice of proposed IHA, is hereby incorporated by reference (HSWAC, 2012; 77 FR 43259, July 24, 2012) and provided below.

3.1 PHYSICAL ENVIRONMENT

The proposed area for installation of the HSWAC intake and discharge pipes lies between Diamond Head and the Reef Runway of the Honolulu International Airport and is just offshore from the entrances of Honolulu Harbor and Kewalo Basin. Honolulu Harbor has historically been, and continues to be, an industrial area. Honolulu Harbor is the largest and most important of Oahu's three commercial harbors as the state's port-of-entry for nearly all imported goods. Kewalo Basin, Oahu's smallest commercial harbor, was constructed in the 1920s to ease the congestion in Honolulu Harbor and provide docking for lumber schooners. Over the years, the surrounding waters have been repeatedly polluted by wastewater treatment plant outfalls, sewage pumps, and stream discharges. The basin is now also used by tour boats, commercial fishing vessels, and charter fishing boats. Recreational activities in the area include fishing, swimming, surfing, snorkeling, diving, and paddling. However, fishery resources in the proposed project area are considered depleted as a result of habitat degradation and overfishing. An underwater survey was performed around the area proposed for pipeline installation. The seafloor slopes with varying degrees and consists mostly of medium to coarse sands and coral rubble.

3.2 BIOLOGICAL ENVIRONMENT

The waters surrounding Oahu are habitat for numerous aquatic and marine species, including birds, fish, and marine mammals, that are protected by a variety of environmental regulations. The U.S. Army Corps of Engineers' EIS for HSWAC's proposed project, incorporated here by reference, identifies and describes a variety of biologically important and protected species inhabiting the action area (USACE, 2012). NMFS' proposed action of issuing an IHA would only authorize the harassment of marine mammals, which are the focus of this section.

3.2.1 Marine Mammals

There are 24 marine mammal species with possible or known occurrence around the Main Hawaiian Islands. However, not all of these species occur within HSWAC's proposed project area or during the same time as proposed pile driving activities. Nineteen species are described in detail in NMFS' proposed IHA *Federal Register* notice (77 FR 43259, July 24, 2012): Blainville's beaked whale, Bryde's whale, Cuvier's beaked whale, dwarf sperm whale, false killer whale, humpback whale, Longman's beaked whale, melon-headed whale, minke whale, short-finned pilot whale, pygmy killer whale, pygmy sperm whale, bottlenose dolphin, Fraser's dolphin, Risso's dolphin, rough-toothed dolphin, spinner dolphin, pantropical spotted dolphin, and Hawaiian monk seal.

No permanent detrimental impacts to marine mammal habitat are expected to result from the proposed project. Pile driving (i.e., elevated sound levels in the water column) may impact prey species and marine mammals by resulting in avoidance or abandonment of the area and increased turbidity; however, these impacts are expected to be localized and temporary.

3.2.2 Sea Turtles

There are two sea turtle species that may be impacted by HSWAC's project: green sea turtles and hawksbill sea turtles. Both of these species are found throughout the Pacific ocean and rely on the Hawaiian islands for nesting and foraging. Green sea turtles of the Hawaiian nesting aggregation next exclusively within the Hawaiian Archipelago, with over 90 percent of the nesting occurring in the Northwestern Hawaiian Islands. However, foraging takes place around the Main Hawaiian Islands. In contrast, nearly all hawksbill nesting and foraging in Hawaii occurs in the Main Hawaiian Islands. More information on the species, status, and potential effects from the HSWAC project are included in the Biological Opinion.

3.2.3 Fish

The proposed project area supports a variety of life stages for a variety of management unit species (MUS) identified under the Western Pacific Regional Fishery Management Council's Pelagic and Hawiii Archipelago Fishery Ecosystem Plans. The MUS and life stages found within the area include: eggs, larvae, juveniles, and adults of Coral Reef Ecosystem MUS; eggs, larvae, juveniles, and adults of Bottomfish MUS; eggs, larvae, juveniles, and adults of Crustacean MUS; and juveniles and adults of Pelagic MUS. The proposed project will have an adverse effect to EFH; however, NMFS provided EFH Conservation Recommendations to help ensure that any adverse impacts to EFH are avoided, mitigated, and offset. A detailed description of species information and presence is provided in HSWAC's EIS (USACE, 2012).

CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

This chapter represents the scientific and analytic basis for comparison of the direct, indirect, and cumulative effects of the alternatives. Regulations for implementing the provisions of NEPA require consideration of both the context and intensity of a proposed action (40 CFR Parts 1500-1508).

4.1 EFFECTS OF ALTERNATIVE 1: No Action

Under the No Action Alternative, NMFS would not issue an IHA to HSWAC for the proposed pile driving activities. In this case, HSWAC would decide whether or not it would want to continue with survey activities. If HSWAC chose not to conduct the activity, then there would be no effects to marine mammals. Conducting the activity without an MMPA authorization (i.e., an IHA) could result in a violation of federal law if marine mammal takes occur. If HSWAC decided to conduct some or all of the activity without implementing any mitigation measures, and if activities occur when marine mammals are present in the action area, there is the potential for unauthorized and/or increased harassment of marine mammals. The sounds produced by pile driving would have the potential to cause behavioral harassment of marine mammals in the action area, while some marine mammals may avoid the area altogether. Additionally, masking of natural sounds may occur. Auditory impacts (i.e., temporary and permanent threshold shifts) could also occur if no mitigation or monitoring measures are implemented. Monitoring of exclusion zones for the presence of marine mammals allows for the implementation of mitigation measures, such as shutdowns and delays when marine mammals occur within these zones. These measures are required to prevent the onset of shifts in hearing thresholds. However, although unlikely, if a marine mammal occurs within these high energy ensonified zones, it is possible that hearing impairments to marine mammals could occur. If HSWAC were to decide to implement mitigation measures similar to those described in the proposed IHA, then the impacts would most likely be similar to those described for Alternative 2 below.

4.2 EFFECTS OF ALTERNATIVE 2: Issue IHA with Proposed Conditions

The IHA *Federal Register* notice, incorporated by reference (77 FR 43259, July 24, 2012), describes in detail the potential effects of pile driving on marine mammals. The Biological Opinion, incorporated here by reference, also analyzes the potential effects of the proposed activity on ESA-listed species (NMFS, 2012). In summary, elevated in-water sound levels from pile driving in the proposed project area may temporarily impact marine mammal behavior. NMFS expects these changes to be in the form of temporary, Level B harassment. More specifically, exposure to elevated sound levels from vibratory and impact pile driving may result in temporary impacts to (1) marine mammal hearing (in the form of masking or temporary threshold shift) and (2) behavior. Elevated sound levels may cause masking if the pile hammering prevents marine mammals from hearing other naturally occurring sounds. Marine mammals may change their behavior in response to elevated sound levels or increased human presence by temporarily avoiding the project area, swimming in a different direction, etc. As explained in the proposed IHA *Federal Register* notice, NMFS does not expect any takes of marine mammals by injury, serious injury, or mortality. Marine mammal prey species, such as

fish, may also be temporarily impacted by elevated in-water-sound levels. While habitat in the proposed action may become temporarily undesirable due to elevated sound levels and human disturbance, overall, the proposed activity is not expected to cause significant or long-term adverse impacts on marine mammal habitat.

HSWAC proposed a number of monitoring and mitigation measures for marine mammals, which were included in the proposed IHA *Federal Register* notice (77 FR 43259, July 24, 2012). In analyzing the effects of the preferred alternative, NMFS has considered the following monitoring and mitigation measures as part of the preferred alternative:

(1) temporal restrictions;
(2) proposed exclusion zone;
(3) pile driving shut-down and delay procedures;
(4) soft-start procedures;
(5) visual monitoring by PSOs; and
(6) in-situ sound monitoring.

Inclusion of these monitoring and mitigation measures is anticipated to minimize and/or avoid impacts to marine resources. With the above planned monitoring and mitigation measures, any unavoidable impacts to a marine mammal encountered are expected to be limited to short-term, localized changes in behavior (such as brief masking of natural sounds) and short-term changes in animal distribution near the pile hammer. At worst, effects on marine mammals may be interpreted as falling within the MMPA definition of "Level B behavioral harassment." Under the proposed action, NMFS expects no long-term or substantial adverse effects on marine mammals, the populations to which they belong, or on their habitats.

NMFS does not anticipate that take by injury (Level A harassment), serious injury, or mortality would occur and expects that harassment takes would be at the lowest level practicable due to the incorporation of the mitigation measures proposed in the application and NMFS' notice of proposed IHA (77 FR 43259, July 24, 2012), nor is take by injury, serious injury, or mortality authorized by the proposed IHA.

4.2.1 Compliance with Necessary Laws – Necessary Federal Permits

NMFS has determined that the IHA is consistent with the applicable requirements of the MMPA, ESA, and NMFS' implementing regulations. The applicant has secured or applied for necessary permits. The applicant is responsible for complying with all other applicable laws and regulations.

4.2.2 Unavoidable Adverse Impacts

The summary of unavoidable adverse impacts to marine mammals, fish, the populations to which they belong, and on their habitats occurring in the survey area are described in this chapter and are also analyzed in the BiOp and NMFS' notice of proposed IHA, are hereby incorporated by reference (NMFS, 2012; 77 FR 43259, July 24, 2012).

NMFS does not expect HSWAC's activities to have adverse consequences on the viability of marine mammals in the study area. Further, NMFS does not expect that marine mammal populations in the survey area would experience reductions in reproduction, numbers, or distribution that might appreciably reduce their likelihood of surviving and recovering in the wild. Numbers of individuals of all species taken by harassment are expected to be small (relative to species or stock abundance), and effects from pile driving, e.g., harassment, will have a negligible impact on the affected species or stocks of marine mammals. The MMPA requirement of ensuring the proposed action has no unmitigable adverse impact to subsistence uses does not apply here because of the location of the proposed activity.

4.3 CUMULATIVE EFFECTS

Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR§1508.7). Cumulative impacts may occur when there is a relationship between a proposed action and other actions expected to occur in a similar location or during a similar time period, or when past or future actions may result in impacts that would additively or synergistically affect a resource of concern. These relationships may or may not be obvious. Actions overlapping within close proximity to the proposed action can reasonably be expected to have more potential for cumulative effects on "shared resources" than actions that may be geographically separated. Similarly, actions that coincide temporally will tend to offer a higher potential for cumulative effects.

Actions that might permanently remove a resource would be expected to have a potential to act additively or synergistically if they affected the same population, even if the effects were separated geographically or temporally. Note that the proposed action considered here would not be expected to result in the removal of individual cetaceans or pinnipeds from the population or to result in harassment levels that might cause animals to permanently abandon preferred feeding areas or other habitat locations, so concerns related to removal of viable members of the populations are not implicated by the proposed action. This cumulative effects analysis considers these potential impacts, but more appropriately focuses on those activities that may temporally or geographically overlap with the proposed activity such that repeat harassment effects warrant consideration for potential cumulative impacts to the affected four marine mammal species and their habitats.

Honolulu Harbor has historically been, and continues to be, an industrial area. The proposed project area is just offshore from two commercial harbors. Over the years, the surrounding waters have been repeatedly polluted by wastewater treatment plant outfalls, sewage pumps, and stream discharges. The basin is now also used by tour boats, commercial fishing vessels, and charter fishing boats. Recreational activities in the area include fishing, swimming, surfing, snorkeling, diving, and paddling. As described in Richardson et al. (1995), marine mammals are likely habituated and tolerant to a certain degree of anthropogenic disturbance, including noise. HSWAC's project is not likely to add an increment of disturbance which would cumulatively, when combined with other actions, result in significant adverse impacts to marine

mammals. The potential cumulative effects to the broader environment are analyzed in the ACOE's EIS and incorporated here by reference.

Issuance of an IHA to HSWAC is not related to other actions with individually insignificant, but cumulatively significant impacts. All activities for which NMFS has or is considering the authorization of incidental take would necessarily result in no more than a negligible impact on the relevant species or stocks of marine mammals, and these authorizations would require the use of mitigation and monitoring measures, where applicable, to minimize impacts to marine mammals and other living marine resources in the activity area. NMFS does not believe that these activities would result in any significant cumulative effects, considering both the context and intensity of effects resulting from individual actions. Any other future authorizations will have to undergo the same permitting process and will take the HSWAC project into consideration when addressing cumulative effects. Should NMFS receive an application from applicants requesting authorization to take marine mammals incidental to specified activities in the action area, NMFS would also consider cumulative impacts to the affected species or stock, as required under NEPA.

NMFS proposed action of issuing an IHA for the incidental take of marine mammals by Level B harassment around Honolulu Harbor is only expected to result in temporary, behavioral impacts to marine species in the area. This limited action and any temporary, behavioral effects that may result from HSWAC's proposed action, are not expected to contribute substantially to other cumulative impacts from activities in Honolulu Harobr.

4.4 CONCLUSION

The inclusion of the mitigation and monitoring requirements in the IHA, as described in the Preferred Alternative, would ensure that HSWAC's activity and the proposed mitigation measures under Alternative 2 (Preferred Alternative) are sufficient to minimize any potential adverse impacts to the human environment, particularly marine mammal species or stocks and their habitat. With the inclusion of the required mitigation and monitoring requirements, NMFS has determined that the proposed pile driving activities, and NMFS' proposed issuance of an IHA to HSWAC, would result at worst in a temporary modification of behavior (Level B harassment) of some individuals of four species of marine mammals. In addition, no take by injury, serious injury, and/or mortality is anticipated, and the potential for temporary or permanent hearing impairment would be avoided through the incorporation of the mitigation and monitoring measures described earlier in this document.

CHAPTER 5 List of Preparers and Agencies Consulted

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REFERENCES

HSWAC. 2012. Application for an incidental harassment authorization. 22 pp.

NMFS. 2012. Endangered Species Act – Section 7 Consultation. Biological Opinion. 68 pp.

Richardson, W.J., C.R. Greene, Jr., C.I. Malme, and D.H. Thomson. 1995. Marine mammals and noise. San Diego: Academic Press. 576 pp.

USACE. 2012. Honolulu Seawater Air Conditioning Final Environmental Impact Statement. Honolulu, Hawaii. 883 pp.