BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN 0648-XC018

Takes of Marine Mammals Incidental to Specified Activities; Pile Driving for Honolulu Seawater Air Conditioning Project

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice; issuance of an incidental harassment authorization.

SUMMARY: In accordance with the Marine Mammal Protection Act (MMPA) implementing regulations, notification is hereby given that NMFS has issued an Incidental Harassment Authorization (IHA) to Honolulu Seawater Air Conditioning, LLC (HSWAC), allowing the take of small numbers of marine mammals, by Level B harassment, incidental to pile driving during construction of a sea water air conditioning project.

DATES: Effective October 1, 2012, through September 30, 2013.

ADDRESSES: A copy of the IHA, application, and Environmental Assessment are available by visiting the internet at: http://www.nmfs.noaa.gov/pr/permits/incidental.htm. Documents cited in this notice may also be viewed, by appointment, during regular business hours, at the aforementioned address.

FOR FURTHER INFORMATION CONTACT: Michelle Magliocca, Office of Protected Resources, NMFS, (301) 427-8401.

SUPPLEMENTARY INFORMATION:

Background

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

Authorization for incidental takings shall be granted 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 subsistence uses (where relevant), and if the permissible methods of taking and requirements pertaining to the mitigation, monitoring and reporting of such takings are set forth. NMFS has defined "negligible impact" 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."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. Section 101(a)(5)(D) further established 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 marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

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].

Summary of Request

On April 16, 2012, NMFS received an application from HSWAC requesting an IHA for the take, by Level B harassment, of small numbers of 19 marine mammal species incidental to pile driving activities offshore Honolulu, Hawaii. In accordance with the MMPA and implementing regulations, NMFS issued a notice in the Federal Register on July 24, 2012 (77 FR 43259), requesting comments from the public on a proposed IHA.

Description of the Specified Activity

A complete description of the specified activity may be found in NMFS' proposed IHA notice in the Federal Register (77 FR 43259, July 24, 2012) and a summary is provided here. HSWAC will construct a district cooling system for commercial and residential properties in Honolulu, consisting of an offshore seawater intake pipe, an offshore seawater discharge pipe, a land-based pump station, and a land-based chilled water distribution system. HSWAC will drive steel sheet piles and cylindrical steel piles as part of construction. Only pile driving activities are expected to result in incidental harassment of marine mammals. A summary of the pile driving activities are provided in Table 1 below. Further details regarding installation of the pipelines are provided in HSWAC's IHA application here:

http://www.nmfs.noaa.gov/pr/permits/incidental.htm.

Table 1. Summary of pile driving activities to occur during construction of the seawater air conditioning system.

Activity	51-cm Test Pipe Piles	61-cm Sheet Piles	51-cm Production Pipe Piles
Location	488-1,128 m offshore	488 m offshore	488-1,128 m offshore
Number of piles	10-12	80	113
Pile driving duration	1-2 weeks	16 days	4-6 weeks
Dates of activity	October 2012	November 2012 or April 2013	March/April 2013
Hammer type	Impact	Vibratory	Impact

Date and Duration of Proposed Activity

HSWAC plans to begin pile driving in October 2012. The test piles will be driven in 1-2 weeks in October 2012. Sheet pile installation will last for about 16 days either in November 2012 or April 2013 in order to avoid the peak humpback whale season. The production piles will be installed out to about 46 m depth once the intake and discharge pipes are deployed. If construction proceeds quickly enough, the production piles will be installed around March/April 2013. If production piles cannot be installed during the 1-year IHA period, HSWAC will apply for another IHA and install the production piles sometime after September 2013.

Region of Proposed Activity

Pile driving will take place between Diamond Head and the Reef Runway of the Honolulu International Airport, 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.

Sound Propagation

For background, sound is a mechanical disturbance consisting of minute vibrations that travel through a medium, such as air or water, and is generally characterized by several variables. Frequency describes the sound's pitch and is measured in hertz (Hz) or kilohertz (kHz), while sound level describes the sound's loudness and is measured in decibels (dB). Sound level increases or decreases exponentially with each dB of change. For example, 10 dB yields a sound level 10 times more intense than 1 dB, while a 20 dB level equates to 100 times more intense, and a 30 dB level is 1,000 times more intense. Sound levels are compared to a reference sound pressure (micro-Pascal) to identify the medium. For air and water, these reference pressures are "re: 20 μPa" and "re: 1 μPa," respectively. Root mean square (RMS) is the quadratic mean sound pressure over the duration of an impulse. RMS is calculated by squaring all of the sound amplitudes, averaging the squares, and then taking the square root of the average (Urick, 1975). RMS accounts for both positive and negative values; squaring the pressures makes all values positive so that they may be accounted for in the summation of pressure levels (Hastings and Popper, 2005). This measurement is often used in the context of discussing behavioral effects, in part because behavioral effects, which often result from auditory cues, may be better expressed through averaged units rather than by peak pressures.

Source levels for the vibratory and impact hammer are estimated to be 160 dB and 190 dB at 10 m (not 175 dB and 205 dB at 1 m that was incorrectly stated in the proposed IHA notice). These source levels are based on near-source, unattenuated sound pressures from the California Department of Transportation's Compendium of Pile Driving Sound. Assuming a practical spreading loss of 15 log R, HSWAC estimated distances from the sound source to sound thresholds at which point NMFS considers marine mammals to be harassed (CALTRANS, 2007). The distances to each threshold for each pile driving activity are summarized in Table 2 below.

Table 2. Distances to NMFS' harassment thresholds for each pile driving activity.

Harassment Threshold	**51-cm Test Pipe Piles**	**61-cm Sheet Piles**	**51-cm Production Pipe Piles**
Level A – 180 dB	47 m	n/a	47 m
Level B – 160 dB (impulsive sound)	1,000 m	n/a	1,000 m
Level B – 120 dB (continuous sound)	n/a	4,700 m	n/a

Comments and Responses

A proposed IHA and request for public comment was published on July 24, 2012 (77 FR 43259). During the 30-day public comment period, the Marine Mammal Commission (Commission) provided the only comments.

Comment 1: The Commission recommends that NMFS require HSWAC to conduct in-situ sound measurements during impact and vibratory pile driving at representative depths to 1,128 meters offshore.

Response: As stated in the proposed IHA notice (77 FR 43259, July 24, 2012), and in the Monitoring and Reporting section of this notice, HSWAC will perform in-situ underwater sound monitoring during the initial sheet pile and test pile driving operations to verify source levels

and ensure that the harassment isopleths are not extending past the estimated threshold distances. HSWAC will perform monitoring measurements at a distance of 10 meters from the pile and then at varying distances from the pile in order to evaluate the proposed harassment isopleths.

Comment 2: The Commission recommends that NMFS reestimate the total number of takes for spinner and pantropical spotted dolphins based on the total number of pile driving days.

Response: NMFS reestimated the total number of takes for pantropical spotted dolphins based on the total number of pile driving days because density information is available for this species. The new take estimate is shown in Table 3 of this notice and does not change NMFS' small numbers determination. However, NMFS disagrees that the take estimates for spinner dolphins should be reestimated. NMFS believes that the authorized take numbers are conservative enough to account for all pile driving days based on the relatively small harassment zone for impact pile driving (1,000 meters), the limited amount of pile driving per day (1 hour total over four 15-minute periods), the use of average pod size to estimate take (based on visual observations around the entire island of Oahu), and the implementation of soft-starts for all impact pile driving.

Comment 3: The Commission recommends that NMFS require HSWAC to monitor before, during, and after all soft-starts of vibratory and impact pile driving to gather the data needed to determine the effectiveness of this technique as a mitigation measure.

Response: NMFS disagrees that HSWAC needs to monitor for marine mammals before, during, and after all soft-starts. Protected species observers will be on-site and monitoring for marine mammals during all impact driving (including during soft-starts) and at least five full days of vibratory pile driving. NMFS believes that this amount of monitoring will allow for

adequate interpretation of how marine mammals are behaving in response to pile driving, including during soft-starts.

Comment 4: The Commission recommends that NMFS require HSWAC to monitor the Level A and Level B harassment zones to detect the presence and characterize the behavior of marine mammals during all pile driving activities.

Response: As stated in the proposed IHA notice (77 FR 43259, July 24, 2012), and in the Monitoring and Reporting section of this notice, HSWAC will monitor the Level A harassment zone (plus an additional 47 m) and Level B harassment zone during all impact pile driving. In addition, HSWAC will designate two additional observers to monitor the Level B harassment zone during at least 5 days of vibratory pile driving. NMFS believes that this amount of monitoring is sufficient to validate take estimates and evaluate the behavioral impacts that pile driving has on marine mammals.

Comment 5: The Commission recommends that NMFS require HSWAC to monitor for marine mammals not only before and during pile driving activities, but for 30 minutes after vibratory and impact pile driving activities have ceased.

Response: HSWAC agreed to implement additional monitoring for 30 minutes after pile driving has ceased, or until nightfall, whichever comes first. NMFS included this monitoring measure in the text of the IHA and in the Monitoring and Reporting section of this notice.

Description of Marine Mammals in the Area of the Specified Activity

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. Information on the following 19 species was provided in the July 24, 2012 Federal Register notice (77 FR 43259):

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.

Potential Effects of the Specified Activity on Marine Mammals

This action consists of both in-water and above-water components, but the only activity with the potential to take marine mammals is pile driving. A detailed description of potential impacts to marine mammals can be found in NMFS' July 24, 2012 Federal Register notice (77 FR 43259) and is summarized here.

Marine mammals are continually exposed to many sources of sound. For example, lightning, rain, sub-sea earthquakes, and animals are natural sound sources throughout the marine environment. Marine mammals produce sounds in various contexts and use sound for various biological functions including: (1) social interactions; (2) foraging; (3) orientation; and (4) predator detection. Interference with producing or receiving these sounds may result in adverse impacts. Audible distance or received levels depend on the sound source, ambient noise, and the sensitivity of the receptor (Richardson et al., 1995). Marine mammal reactions to sound may depend on sound frequency, ambient sound, what the animal is doing, and the animal's distance from the sound source (Southall et al., 2007).

Hearing Impairment

Marine mammals may experience temporary or permanent hearing impairment when exposed to loud sounds. Hearing impairment is classified by temporary threshold shift (TTS) and permanent threshold shift (PTS). There are no empirical data for when PTS first occurs in

marine mammals; therefore, it must be estimated from when TTS first occurs and from the rate of TTS growth with increasing exposure levels. PTS is likely if the animal's hearing threshold is reduced by ≥ 40 dB of TTS. PTS is considered auditory injury (Southall et al., 2007) and occurs in a specific frequency range and amount. Irreparable damage to the inner or outer cochlear hair cells may cause PTS; however, other mechanisms are also involved, such as exceeding the elastic limits of certain tissues and membranes in the middle and inner ears and resultant changes in the chemical composition of the inner ear fluids (Southall et al., 2007). Due to proposed mitigation measures and source levels in the proposed project area, NMFS does not expect marine mammals to be exposed to PTS levels.

Temporary Threshold Shift (TTS)

TTS is the mildest form of hearing impairment that can occur during exposure to a loud sound (Kryter, 1985). While experiencing TTS, the hearing threshold rises and a sound must be louder in order to be heard. TTS can last from minutes or hours to days, occurs in specific frequency ranges (i.e., an animal might only have a temporary loss of hearing sensitivity between the frequencies of 1 and 10 kHz), and can occur to varying degrees (e.g., an animal's hearing sensitivity might be reduced by 6 dB or by 30 dB). For sound exposures at or somewhat above the TTS-onset threshold, hearing sensitivity recovers rapidly after exposure to the sound ends.

Few data on sound levels and durations necessary to elicit mild TTS have been obtained for marine mammals. Southall et al. (2007) considers a 6 dB TTS (i.e., baseline thresholds are elevated by 6 dB) sufficient to be recognized as an unequivocal deviation and thus a sufficient definition of TTS-onset. Because it is non-injurious, NMFS considers TTS as Level B harassment that is mediated by physiological effects on the auditory system; however, NMFS does not consider onset TTS to be the lowest level at which Level B harassment may occur.

Marine mammal hearing plays a critical role in communication with conspecifics and in interpretation of environmental cues for purposes such as predator avoidance and prey capture. Depending on the degree (elevation of threshold in dB), duration (i.e., recovery time), and frequency range of TTS and the context in which it is experienced, TTS can have effects on marine mammals ranging from discountable to serious. For example, a marine mammal may be able to readily compensate for a brief, relatively small amount of TTS in a non-critical frequency range that takes place during a time when the animal is traveling through the open ocean, where ambient noise is lower and there are not as many competing sounds present. Alternatively, a larger amount and longer duration of TTS sustained during a time when communication is critical for successful mother/calf interactions could have more serious impacts if it were in the same frequency band as the necessary vocalizations and of a severity that it impeded communication. The fact that animals exposed to levels and durations of sound that would be expected to result in this physiological response would also be expected to have behavioral responses of a comparatively more severe or sustained nature is also notable and potentially of more importance than the simple existence of a TTS. For HSWAC's proposed project, NMFS expects cases of TTS to be improbable given: (1) the limited amount of pile driving over a 1-year period; (2) the motility of free-ranging marine mammals in the water column; and (3) the propensity for marine mammals to avoid obtrusive sounds.

Behavioral Effects

Behavioral disturbance includes a variety of effects, including subtle to conspicuous changes in behavior, movement, and displacement. Marine mammal reactions to sound, if any, depend on species, state of maturity, experience, current activity, reproductive state, time of day, and many other factors (Richardson et al., 1995; Wartzok et al., 2004; Southall et al., 2007;

Weilgart, 2007). If a marine mammal does react briefly to an underwater sound by changing its behavior or moving a small distance, the impacts of the change are unlikely to be significant to the individual, let alone the stock or population. However, if a sound source displaces marine mammals from an important feeding or breeding area for a prolonged period, impacts on individuals and populations could be significant (e.g., Lusseau and Bejder, 2007; Weilgart, 2007). Given the many uncertainties in predicting the quantity and types of impacts of noise on marine mammals, it is common practice to estimate how many mammals would be present within a particular proximity to activities and/or exposed to a particular level of sound. In most cases, this approach likely overestimates the numbers of marine mammals that would be affected in some biologically-important manner.

Continuous Sound

Southall et al. (2007) summarizes numerous behavioral observations made of low-frequency cetaceans to a range of nonpulse sound sources, such as vibratory pile driving. Generally, the data suggest no or limited responses to received levels of 90-120 dB (rms) and an increasing probability of behavioral effects in the 120-160 dB (rms) range. However, differences in source proximity, novelty of the sound, operational features, etc. seem to be at least as important as exposure level when predicting behavioral response. Southall et al. (2007) also summarizes numerous mid-frequency cetaceans have also been observed responding to nonpulse sounds such as pingers, vessel noise, sonar, and playbacks of drilling sounds. Again, contextual variables seem to play a large role in behavioral response. In some studies, animals responded with high severity scores while others did not respond even at higher exposure levels. There are also notable differences in results from field versus laboratory conditions. While multiple controlled studies of high-frequency cetaceans to nonpulse sound have been conducted, only one

species (harbor porpoise) has been extensively studied. The data suggest that harbor porpoises may be sensitive to lower received levels than some other taxa. Wild harbor porpoises avoided all recorded exposures above 140 dB (rms), but it is unknown whether this type of behavioral response translates to other high-frequency cetaceans (Southall et al., 2007).

There are limited data available on the behavioral effects of continuous sound (e.g., vibratory pile driving) on pinnipeds while underwater; however, field and captive studies to date collectively suggest that pinnipeds do not react strongly to exposures between 90 and 140 dB re: 1 microPa; no data exist from exposures at higher levels. Jacobs and Terhune (2002) observed wild harbor seal reactions to high-frequency acoustic harassment devices around nine sites. Seals came within 44 m of the active acoustic harassment devices and failed to demonstrate any behavioral response when received SPLs were estimated at 120-130 dB. In a captive study (Kastelein, 2006), scientists subjected a group of seals to non-pulse sounds between 8 and 16 kHz. Exposures between 80 and 107 dB did not induce strong behavioral responses; however, a single observation from 100 to 110 dB indicated an avoidance response. The seals returned to baseline conditions shortly following exposure. Southall et al. (2007) notes contextual differences between these two studies; the captive animals were not reinforced with food for remaining in the noise fields, whereas free-ranging animals may have been more tolerant of exposures because of motivation to return to a safe location or approach enclosures holding prey items.

Impulse Sounds

Southall et al. (2007) addresses behavioral responses of marine mammals to impulse sounds (like impact pile driving). The studies that address the responses of mid-frequency cetaceans to impulse sounds include data gathered both in the field and the laboratory and related

to several different sound sources, including: small explosives, airgun arrays, pulse sequences, and natural and artificial pulses. The data show no clear indication of increasing probability and severity of response with increasing received level. Behavioral responses seem to vary depending on species and stimuli. Data on behavioral responses of high-frequency cetaceans to multiple pulses are not available.

The studies that address the responses of pinnipeds in water to impulse sounds include data gathered in the field and related to several different sources, including: small explosives, impact pile driving, and airgun arrays. Quantitative data on reactions of pinnipeds to impulse sounds are limited, but a general finding is that exposures in the 150 to 180 dB range generally have limited potential to induce avoidance behavior (Southall et al., 2007).

Anticipated Effects on Habitat

No permanent detrimental impacts to marine mammal habitat are expected to result from the project. Pile driving (resulting in temporary ensonification) 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. The receiving pit will be backfilled after construction and while the intake and discharge pipes will take up a limited amount of space on the seafloor, there are no expected adverse impacts to marine mammal habitat. The pipelines will actually create additional benthic habitat for coral recruitment and growth of fish communities by increasing surface area. The discharge pipe will return slightly cooler, nutrient-rich water to the ocean. However, the discharge water will be within one degree of ambient seawater temperature and is not expected to affect marine mammal habitat.

Mitigation Measures

In order to issue an IHA under section 101(a)(5)(D) of the MMPA, NMFS must set forth the permissible methods of taking pursuant to such activity, and other means of effecting the least practicable adverse impact on such species or stock and its habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of such species or stock for taking for certain subsistence uses. There are no relevant subsistence uses of marine mammals implicated by this action. The following measures will be required in HSWAC's authorization:

Temporal Restrictions

Based on NMFS' recommendation, HSWAC will not conduct any vibratory pile driving from December 1 through March 31. This is the peak humpback whale season for Hawaii and there is a possibility that humpback whales may occur within the project site. HSWAC agreed to restrict vibratory pile driving because elevated sound levels (120 dB or higher) from this activity could extend out 4,700 m from the source and monitoring such a large area in order to prevent Level B harassment is not feasible.

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 for impact pile driving is much smaller (1,000 m) and HSWAC will monitor this area and stop pile driving in order to prevent Level B harassment of humpback whales (see next section). 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.

Establishment of an Exclusion Zone

The purpose of HSWAC's proposed 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 will establish a radius around each pile driving site that will be continuously monitored for marine mammals. If a marine mammal is observed nearing or entering this perimeter, HSWAC will stop pile driving operations to prevent marine mammals from being exposed to sounds at or above 180 dB. More specifically, HSWAC will monitor a 91-m distance around each pile driving site. This area will encompass the estimated 180-dB isopleth of 47 m, within which injury could occur, plus an additional 44-m buffer. The exclusion zone will be monitored 30 minutes before, during, and 30 minutes after all impact pile driving to ensure that no marine mammals enter the 91-m radius. One protected species observer will be located on the pile driver barge to perform monitoring.

Based on NMFS' recommendation, HSWAC will extend the exclusion zone to 1,000 m for all large whales from December 1 through March 31. The purpose is to prevent Level B harassment of humpback whales during Hawaii's peak humpback whale season.

Once in-situ underwater sound measurements are taken, the exclusion zone may be adjusted accordingly so that marine mammals are not exposed to Level A harassment sound pressure levels. An exclusion zone does not need to be established during vibratory pile driving because source levels will not exceed the Level A harassment threshold.

Pile Driving Shut Down and Delay Procedures

If a protected species observer sees a marine mammal approaching or entering the 91-m exclusion zone (or a large whale approaching or entering the 1,000-m exclusion zone from December 1 through March 31) prior to start of impact pile driving, the observer will notify the on-site project lead (or other authorized individual) who will then be required to delay pile driving until the marine mammal has moved away or if the animal has not been resighted within NMFS' recommended 15 minutes for pinnipeds or 60 minutes for cetaceans. If a marine

mammal is sighted entering or on a path toward the 91-m exclusion zone (or a large whale approaching or entering the 1,000-m exclusion zone from December 1 through March 31) during pile driving, pile driving will 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.

Soft-start Procedures

A 'soft-start' technique is intended to allow marine mammals to vacate the area before the pile driver reaches full power. HSWAC will implement this technique by initiating pile driving at an energy level of about 40-60 percent. This level will be maintained for at least 5 minutes before gradually increasing the energy to full power. Soft-start procedures will be conducted prior to driving each pile if hammering ceases for more than 15 minutes.

Monitoring and Reporting

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.

HSWAC will 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 this notice. If necessary, the 91-m exclusion zone will be expanded to include sound levels reaching 180 dB.

In addition to monitoring the 91-m exclusion zone, HSWAC will designate an observer to monitor the 160-dB zone around the sound source during all pipe pile driving (impact pile

driving) operations. This observer will also be stationed on the pile driving rig and will be responsible for monitoring from the 91-m exclusion zone out to the Level B harassment zone at 1,000 m. The purpose of this observer is to: (1) conduct behavioral monitoring of marine mammals and record any Level B takes of marine mammals that occur during pipe pile driving operations; and (2) notify the onsite project lead (or other authorized individual) if a large whale is seen approaching or entering the 1,000-m exclusion zone from December 1 through March 31.

During at least 5 of the 16 days of sheet (i.e., vibratory) pile driving operations, HSWAC will designate two additional observers to monitor the 120-dB zone around the sound source. These observers will be stationed on a small power boat with an operator and will 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 will be 10 nautical miles per hour. Monitoring will 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 will continue during sheet pile driving operations and the observer will record all marine mammal sightings and behavior. Monitoring will end 30 minutes after pile driving operations have ceased, as long as there is daylight. At a minimum, monitoring of the 120-dB zone will occur on the first and second day of pile driving operations, followed by the fifth day, the tenth day, and fifteenth day. Observer data from the 120-180 dB area (for both pipe and sheet pile driving) will be used to validate take estimates and evaluate the behavioral impacts that pile driving has on marine mammals.

Protected species observers will be provided with the equipment necessary to effectively monitor for marine mammals (for example, high-quality binoculars, spotting scopes, 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. If in-situ underwater sound monitoring indicates that threshold isopleths are greater than originally calculated, HSWAC will contact NMFS within 48 hours and make the necessary adjustments. Protected species observers will be required to submit a report to NMFS within 90 days of completion of pile driving. The report will include data from marine mammal sightings (such as species, group size, and behavior), any observed reactions to construction, distance to operating pile hammer, and construction activities occurring at time of sighting.

In the unanticipated event that the specified activity clearly causes the take of a marine mammal in a manner prohibited by the IHA, such as an injury (Level A harassment), serious injury, or mortality (e.g., ship-strike or gear interaction), HSWAC will immediately cease the specified activities and report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Michael.Payne@noaa.gov and Michelle.Magliocca@noaa.gov and the Pacific Islands Regional Stranding Coordinator at 808-944-2269 (David.Schofield@noaa.gov). The report must include the following information:

- Time, date, and location (latitude/longitude) of the incident;
- Name and type of vessel involved;
- Vessel's speed during and leading up to the incident;
- Description of the incident;
- Status of all sound source use in the 24 hours preceding the incident;
- Water depth;
- Environmental conditions (e.g., wind speed and direction, Beaufort sea state, cloud cover, and visibility);

- Description of all marine mammal observations in the 24 hours preceding the incident;
- Species identification or description of the animal(s) involved;
- Fate of the animal(s); and
- Photographs or video footage of the animal(s) (if equipment is available).

Activities will not resume until NMFS is able to review the circumstances of the prohibited take. NMFS will work with HSWAC to determine what is necessary to minimize the likelihood of further prohibited take and ensure MMPA compliance. HSWAC will not resume their activities until notified by NMFS via letter, email, or telephone.

In the event that HSWAC discovers an injured or dead marine mammal, and the lead observer determines that the cause of the injury or death is unknown and the death is relatively recent (i.e., in less than a moderate state of decomposition as described in the next paragraph), HSWAC will immediately report the incident to the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Michael.Payne@noaa.gov and Michelle.Magliocca@noaa.gov and the Pacific Islands Regional Stranding Coordinator at 808-973-2941 (David.Schofield@noaa.gov). The report will include the same information identified in the paragraph above. Activities could continue while NMFS reviews the circumstances of the incident. NMFS will work with HSWAC to determine whether modifications in the activities are appropriate.

In the event that HSWAC discovers an injured or dead marine mammal, and the lead observer determines that the injury or death is not associated with or related to the activities authorized in the IHA (e.g., previously wounded animal, carcass with moderate to advanced decomposition, or scavenger damage), HSWAC will report the incident to the Chief of the

Permits and Conservation Division, Office of Protected Resources, NMFS, at 301-427-8401 and/or by email to Michael.Payne@noaa.gov and Michelle.Magliocca@noaa.gov and the Pacific Islands Regional Stranding Coordinator at 808-944-2269 (David.Schofield@noaa.gov), within 24 hours of the discovery. HSWAC will provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS.

Estimated Take by Incidental 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].

Current NMFS practice regarding exposure of marine mammals to anthropogenic noise is that in order to avoid the potential for injury (PTS), cetaceans and pinnipeds should not be exposed to impulsive sounds of 180 and 190 dB or above, respectively. This level is considered precautionary as it is likely that more intense sounds would be required before injury would actually occur (Southall et al., 2007). Potential for behavioral harassment (Level B) is considered to have occurred when marine mammals are exposed to sounds at or above 160 dB for impulse sound (such as impact pile driving) and 120 dB for continuous sound (such as vibratory pile driving). Table 2 summarized the distances to NMFS' harassment thresholds from each type of pile driving activity. Based on this information, and considering the required mitigation measures, marine mammals will not likely be exposed to sound levels reaching 180 dB (Level A harassment) or higher.

HSWAC initially requested marine mammal takes for all species that could potentially be around Hawaii at any point during the year. However, as noted in the Description of Marine Mammals in the Area of the Specified Activity section of this document, some species only occur during winter months or are considered rare around Hawaii. Based on further consultation with the NMFS Pacific Islands Region and Pacific Islands Fisheries Science Center, NMFS is authorizing the amount of take detailed in Table 3. These numbers are based on species density around Hawaii (when available), taking habitat preference, seasonality, average group size, and number of pile driving days into consideration.

Where applicable, the density of each species was applied to the largest Level B harassment isopleth (4,700 m) and multiplied by the maximum number of pile driving days. For example, the density estimate for dwarf sperm whales is 0.31 animals within the 120 dB isopleth. This number was rounded to one and multiplied by the number of total pile driving days (72). For some species, only vibratory pile driving duration (16 days) was used to calculate take due to the following: (1) the Level B harassment zone for impact pile driving is relatively small (1,000 m); (2) impact pile driving would occur in relatively shallow water; and (3) some species prefer deep water and are unlikely to occur within the 1,000-m radius. Beaked whales were lumped together due to the difficulty in identifying them to the species level. Although vibratory pile driving is prohibited from December through March, there is still a possibility of some large whales (humpbacks and minkes) being in the area during November or April. Therefore, based on the number of pile driving days, NMFS estimated that 16 humpbacks and 16 minke whales may be exposed to Level B harassment from vibratory pile driving during this time. The authorized take numbers in Table 3 are conservative in that they indicate the maximum number of animals expected to occur within the largest Level B harassment isopleth (4,700 m).

Table 3. Authorized takes for marine mammals during pile driving operations.

Species	Density within the Project Area	Expected Take from Vibratory Pile Driving (density x number of pile driving days)	Expected Take from Impact Pile Driving (density x number of pile driving days)	Authorized Take
Beaked whales (Blainville's, Cuvier's, Longman's)	0.08	16	0	16
Bryde's whale	0.01	16	0	16
Dwarf sperm whale	0.31	16	56	72
False killer whale	0.05	16	0	16
Humpback whale	n/a	16	0	16
Melon-headed whale	0.10	16	0	16
Minke whale	n/a	16	0	16
Short-finned pilot whale	0.65	16	56	72
Pygmy killer whale	0.02	16	0	16
Pygmy sperm whale	0.13	16	0	16
Bottlenose dolphin	n/a	-	-	216[1]
Fraser's dolphin	0.02	16	0	16
Risso's dolphin	0.11	16	0	16
Rough-toothed dolphin	0.35	16	0	16
Spinner dolphin	n/a	-	-	384[2]
Pantropical spotted dolphin	0.87	16	56	72
Monk seal	1.01	32	56	88[3]

[1]There is no density estimate for bottlenose dolphins around Hawaii, so the minimum group size (3) was multiplied by the total number of pile driving days (72).
[2]There is no density estimate for spinner dolphins around Hawaii, so the average group size (24) was multiplied by the number of vibratory pile driving days (16).
[3]Contrary to the proposed notice of IHA, density values were calculated for the proposed project area and used to estimate take. The density value in column 2 was rounded up and multiplied by the number of pile driving days.

Negligible Impact and Small Numbers Analysis and Determination

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."

In making a negligible impact determination, NMFS considers a number of factors which include, but are not limited to, number of anticipated injuries or mortalities (none of which would be authorized here), number, nature, intensity, and duration of Level B harassment, and the context in which takes occur.

As described above, marine mammals will not be exposed to activities or sound levels which will result in injury (PTS), serious injury, or mortality. Rather, NMFS expects that some marine mammals may be exposed to elevated sound levels which will result in Level B behavioral harassment. No impacts to marine mammal reproduction are expected because the closest known monk seal haul out is outside of the Level B harassment zone for in-air sound and required mitigation and monitoring measures will prevent harassment of humpback whales during the peak humpback whale season. During winter months, humpback whales migrate to Hawaii. Some level of socializing, breeding, and/or calving is thought to take place along the south of Oahu. The highest estimates of humpback whale surface density occur around Maui, Molokai, and Lanai; however, there are estimated areas of high humpback whale surface density around the other islands and humpbacks may be present around Oahu's south shore during winter months (Mobley et al., 2001). While the Hawaiian Islands Humpback Whale National Marine Sanctuary includes part of Oahu's south shore, NMFS does not expect sound levels at or above 120 dB from pile driving to reach the sanctuary boundary. Otherwise, the project area is not considered significant habitat for marine mammals.

Required mitigation and monitoring measures are expected to prevent impacts to cetacean reproduction. Marine mammals may avoid the area around the hammer, thereby reducing their exposure to elevated sound levels. NMFS expects any impacts to marine mammal behavior to be temporary, Level B harassment (e.g., avoidance or alteration of behavior).

HSWAC expects that a maximum of 72 pile driving days may occur over a 1-year period. Marine mammal injury or mortality is not likely, as the 180-dB isopleth (NMFS' Level A harassment threshold for cetaceans) for the impact hammer is expected to be no more than 47 m from the sound source. The 190 dB isopleth (NMFS' Level A harassment threshold for pinnipeds) will be even smaller. Considering the required mitigation measures, NMFS expects any changes to marine mammal behavior from pile driving noise to be temporary. The amount of take NMFS is authorizing is considered small relative to the estimated population sizes detailed in the proposed IHA notice (less than twelve percent for two species and less than seven percent for all others). There is no anticipated effect on annual rates of recruitment or survival of affected marine mammals.

Based on the analysis contained in this notice, the proposed IHA notice (77 FR 43259, July 24, 2012), and the IHA application, and taking into consideration the implementation of the mitigation and monitoring measures, NMFS has determined that HSWAC's pile driving activities will result in the incidental take of small numbers of marine mammals, by Level B harassment only, and that the total taking will have a negligible impact on the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no relevant subsistence uses of marine mammals implicated by this action.

Endangered Species Act (ESA)

The humpback whale and Hawaiian monk seal are the only marine mammals listed as endangered under the ESA with confirmed or possible occurrence in the project area during pile driving. Currently, no critical habitat has been designated for either species on or around Oahu. However, in June 2011, NMFS proposed revising the Hawaiian monk seal critical habitat by

extending the current area around the Northwestern Hawaiian Islands and designating six new areas in the main Hawaiian Islands. This would include terrestrial and marine habitat from 5 m inland from the shoreline extending seaward to the 500-m depth contour around Oahu. The Hawaii insular stock of false killer whales is also currently proposed for listing under the ESA. Under section 7 of the ESA, the U.S. Army Corps of Engineers (as the federal permitting agency for HSWAC's project) consulted with NMFS Pacific Islands Region on the seawater air conditioning project. NMFS also consulted internally on the issuance of an IHA under section 101(a)(5)(D) of the MMPA for this activity. Section 7 consultation concluded that HSWAC's project is not likely to jeopardize the continued existence of listed species and would have no effect on designated or proposed critical habitat.

National Environmental Policy Act (NEPA)

In compliance with the National Environmental Policy Act of 1969 (42 U.S.C. 4321 et seq.), as implemented by the regulations published by the Council on Environmental Quality (40 CFR parts 1500-1508), and NOAA Administrative Order 216-6, NMFS prepared an Environmental Assessment (EA) to consider the direct, indirect, and cumulative effects to marine mammals and other applicable environmental resources resulting from issuance of a 1-year IHA and the potential issuance of future authorizations for incidental harassment for the ongoing project. NMFS made a finding of no significant impact (FONSI) and the EA and FONSI are available on the NMFS website listed in the beginning of this document (see ADDRESSES).

The U.S. Army Corps of Engineers also prepared an Environmental Impact Statement (EIS) to consider the environmental effects from the seawater air conditioning project.

Dated: September 25, 2012.

Helen M. Golde,
Acting Director,
Office of Protected Resources,
National Marine Fisheries Service.

[FR Doc. 2012-24155 Filed 09/28/2012 at 8:45 am; Publication Date: 10/01/2012]