BILLING CODE 3510-22-P

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

RIN: 0648-XD065

Takes of Marine Mammals Incidental to Specified Activities; Taking Marine Mammals Incidental to Murray Street Bridge Seismic Retrofit Project by the California State Department of Transportation

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

ACTION: Notice; proposed incidental harassment authorization; request for comments and information.

SUMMARY: NMFS has received an application from California State Department of Transportation (Caltrans) for an Incidental Harassment Authorization (IHA) to take marine mammals, by harassment, incidental to Murray Street Bridge seismic retrofit project in Santa Cruz, California. Pursuant to the Marine Mammal Protection Act (MMPA), NMFS is requesting comments on its proposal to issue an IHA to Caltrans to incidentally take, by Level B Harassment only, marine mammals during the specified activity.

DATES: Comments and information must be received no later than [*insert date 30 days after date of publication in the FEDERAL REGISTER*].

ADDRESSES: Comments on the application should be addressed to Jolie Harrison, Chief, Permits and Conservation Division, Office of Protected Resources, National Marine Fisheries Service, 1315 East-West Highway, Silver Spring, MD 20910. The

mailbox address for providing email comments is *itp.guan@noaa.gov*. NMFS is not responsible for e-mail comments sent to addresses other than the one provided here. Comments sent via e-mail, including all attachments, must not exceed a 25-megabyte file size.

Instructions: All comments received are a part of the public record and will generally be posted to *http://www.nmfs.noaa.gov/pr/permits/incidental.htm* without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit Confidential Business Information or otherwise sensitive or protected information.

A copy of the application may be obtained by writing to the address specified above or 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: Shane Guan, 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 specified 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.

An 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" 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."

Section 101(a)(5)(D) of the MMPA established an expedited process by which citizens of the U.S. can apply for a one-year authorization to incidentally take small numbers of marine mammals by harassment, provided that there is no potential for serious injury or mortality to result from the activity. Section 101(a)(5)(D) 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 marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny the authorization.

Summary of Request

On October 22, 2013, CALTRANS submitted a request to NMFS requesting an IHA for the possible harassment of small numbers of Pacific harbor seal (*Phoca vitulina richardii*) and California sea lion (*Zalophus californianus*) incidental to construction associated with the Murray Street Bridge seismic retrofit project in the city of Santa Cruz, California, for a period of one year starting March 2016. After receiving NMFS

comments and questions, CALTRANS submitted a revised IHA application on February 17, 2015. NMFS determined the IHA application was complete on May 29, 2015, and proposes to issue an IHA that would be valid between March 1, 2016, and February 28, 2016. NMFS is proposing to authorize the Level B harassment of Pacific harbor seal and California sea lion.

Description of the Specified Activity

Overview

The proposed project consists of a seismic retrofit of the existing Murray Street Bridge, which spans the Santa Cruz Small Craft Harbor and additional minor modifications to replace deficient bridge barriers (widening shoulders to standard widths and replacement and improvement of sidewalks and railings). The seismic retrofit project will provide the bridge with additional vertical support and resistance to lateral seismic forces by installing additional pilings and supplemental structural elements. In order to provide sufficient area for construction operations, some boats, Harbor facilities, and commercial businesses will require temporary relocation. Pile installation would include both impact and vibratory pile driving methods.

The nine-span bridge is supported by two abutments (identified as Abutments 1 and 10, located at the western and eastern ends of the bridge, respectively) and 8 "bents" (identified as Bents 2 through 9, located at 60-foot intervals between the abutments). The seismic retrofit project consists of the following basic in-water elements:

- Installation of concrete infill walls at Bents 2, 3, 4, and 9 to span the voids between the existing concrete support columns. The infill walls will also span the void between the existing and new columns at Bent 9.

- Installation of shear keys and seat extenders at Bents 2 through 9.
- Retrofit of foundations with 16-inch diameter CISS (cast-in-steel-shell) piles at Bent 9. These piles will extend to depths of approximately –55 feet to –90 feet at Bent 9.
- Retrofit of both outriggers and bents with 30-inch diameter CISS piles at Bents 6, 7, and 8 and 30-inch diameter CIDH piles at Bents 2, 3, 4, and 5. These piles will extend to depths of approximately -55 feet to -85 feet at Bent 5 and at approximately –85 feet to -120 feet at Bents 6-8.
- Installation of fenders to protect boats passing by the pier foundations, new pile caps at Bents, 5, 6, 7, and 8, and replacement of existing fender.

A summary of in-water piles to be removed and installed is listed in Table 1.

Table 1. Summary of in-water piles to be removed and installed for CALTRANS' Murray Street Bridge Seismic Retrofit Project

	Location	Number	Pile Type
Removal-Bridge	Bridge Bent 6	4	14-inch P/C concrete
Total in-water removal		*4*	
Install new permanent bridge piles	Bridge Bent 5	4	30-inch CIDH
	Bridge Bent 6 – 8	12	30-inch CISS
	Bridge Bent 9	8	16-inch CISS
Total in-water bridge pile installation		*24*	

Dates and Duration

The Murray Street Bridge Retrofit project is currently planned to commence in the spring of 2016. Overall, the seismic retrofit work will be executed over a period of approximately 18 months, with in-water construction lasting for an approximate total 10-month period over two years with 5 months during the first year and 5 months during the second year. The in-water pile driving for the bridge piles would occur over a total of 30

days within the 10-month period. Due to in-water work timing restrictions to protect federally-listed salmonids, all in-water construction activities including pile removal/installation would occur between the period from July 1 to mid-November. This IHA would cover activities conducted March 1, 2016 – February 28, 2017.

Specified Geographic Region

The project area includes waters within the Santa Cruz Small Craft Harbor and adjacent lands managed by the Santa Cruz Port District (see Figure 2 of the IHA application). The study area consists of the open waters, docks, and other potential haul-out features of the Harbor from the Harbor Launch Ramp area (including the fuel dock and Vessel Assist dock) to 500 feet upstream of the boundary of the Area of Impact (see Figure 2 of the IHA application).

The Murray Street Bridge Retrofit project is tentatively proposed for construction in five partially overlapping interchangeable phases. Generally, work will begin on the eastern side of the Harbor and progress to the western side.

Detailed Description of Murray Street Bridge seismic retrofit

Details of each activity for the Murray Street Bridge seismic retrofit project are provided below.

(1) *Installation of Bridge Piles*: The most intense activity would be the installation of new bridge support piles, which will also involve the demolition of the existing piles at Bent 6. CISS piles at Bents 5 through 8 will be installed within the waterway by impact driving 30-inch steel casings either to refusal at rock or into a shaft drilled within rock (depending on the location). The installation of new piles at Bents 5 through 8 will include two piles on each side for a total of 16 piles in the water. The

work activity will be focused within the area of the bridge. Overall the installation of piles is expected to take a total of approximately 1 day for each 30-inch pile and 4 days for 8 16-inch piles for a total of 30 days. The installation of these piles requires the use of a crane(s), a drilling rig, a pile driver, excavation and earthmoving equipment, concrete trucks and pumps, concrete vibrators, supply trucks, welding equipment, and other machinery.

(2) *Installation of In-Water Barge or Temporary Bridge Trestle*: Installation of an in-water barge or temporary bridge trestle is planned to accommodate equipment for pile installation. The installation would be done using impact and vibratory hammers. Work within the waterway will require either the use of barges or construction of trestles to provide work platforms. If barges are utilized, prefabricated modular units may be brought to the site and locked together. This type of platform can be installed, reconfigured, and removed relatively quickly, but the system is not suitable for areas that are too narrow to accommodate the modules. For example, footings from the Union Pacific Railroad Bridge to the north and footings from the Murray Street Bridge appear too close together to allow use of a modular barge between footings. In these areas, a trestle likely will need to be constructed.

(3) *Removal and Replacement of Boat Berths*: The temporary use of portions of the eastern harbor boat yard and the western parking lot for contractor staging, in combination with provision of construction access to the bridge from the waterway, will result in temporary disruptions of harbor activities including temporary removal of existing boat berths and replacement upon completion of the project. To accommodate construction staging and in-water construction, the project calls for the temporary

relocation of berths at Dock FF and Dock BY (Boat Yard on east side) to existing visitor berths with reconstruction of Dock FF and Dock BY upon completion of the bridge seismic retrofit construction. Dock FF accommodates University of California Santa Cruz (UCSC) boats that are used for university classes. A walking dock (gangway) would be constructed to connect the existing parking lot area to the portion of Dock FF that will remain during construction. Six temporary berths may be constructed adjacent to the gangway to minimize relocation of some of the existing boats. Upon completion of construction, no additional new boat berths will be constructed as was originally proposed. Although design plans have not yet been completed for the reinstalled berths, it is expected that the berth docks would be plastic, wood or concrete over polyethylene floats and would be anchored with pilings. Piles would be driven into the harbor floor by impact hammer. There would be no dredging or placement of fill in harbor waters with reinstallation of docks and both berths.

Description of Marine Mammals in the Area of the Specified Activity

The marine mammal species under NMFS jurisdiction most likely to occur in the proposed construction area include Pacific harbor seal (*Phoca vitulina richardsi*) and California sea lion (*Zalophus californianus*).

Table 2. Marine Mammal Species Potentially Present in Region of Activity

Species	ESA Status	MMPA Status	Occurrence
Harbor Seal	Not listed	Non-depleted	Frequent
California Sea Lion	Not listed	Non-depleted	Frequent

General information on the marine mammal species found in Oregon coastal waters can be found in Caretta *et al.* (2015), which is available at the following URL: *http://www.nmfs.noaa.gov/pr/sars/pdf/pacific_sars_2014_final_noaa_swfsc_tm_549.pdf*.

Refer to that document for information on these species. A list of marine mammals in the vicinity of the action and their status are provided in Table 2. Specific information concerning these species in the vicinity of the proposed action area is provided in detail in the CALTRANS' IHA application (CALTRANS, 2015).

Potential Effects of the Specified Activity on Marine Mammals

This section includes a summary and discussion of the ways that the types of stressors associated with the specified activity (e.g., pile removal and pile driving) have been observed to impact marine mammals. This discussion may include reactions that we consider to rise to the level of a take and those that we do not consider to rise to the level of a take (for example, with acoustics, we may include a discussion of studies that showed animals not reacting at all to sound or exhibiting barely measurable avoidance). This section is intended as a background of potential effects and does not consider either the specific manner in which this activity will be carried out or the mitigation that will be implemented, and how either of those will shape the anticipated impacts from this specific activity. The "**Estimated Take by Incidental Harassment**" section later in this document will include a quantitative analysis of the number of individuals that are expected to be taken by this activity. The "**Negligible Impact Analysis**" section will include the analysis of how this specific activity will impact marine mammals and will consider the content of this section, the "**Estimated Take by Incidental Harassment**" section, the "**Proposed Mitigation**" section, and the "**Anticipated Effects on Marine Mammal Habitat**" section to draw conclusions regarding the likely impacts of this activity on the reproductive success or survivorship of individuals and from that on the affected marine mammal populations or stocks.

When considering the influence of various kinds of sound on the marine environment, it is necessary to understand that different kinds of marine life are sensitive to different frequencies of sound. Based on available behavioral data, audiograms have been derived using auditory evoked potentials, anatomical modeling, and other data, Southall *et al.* (2007) designate "functional hearing groups" for marine mammals and estimate the lower and upper frequencies of functional hearing of the groups. The functional groups and the associated frequencies are indicated below (though animals are less sensitive to sounds at the outer edge of their functional range and most sensitive to sounds of frequencies within a smaller range somewhere in the middle of their functional hearing range):

- Low frequency cetaceans (13 species of mysticetes): functional hearing is estimated to occur between approximately 7 Hz and 25 kHz;
- Mid-frequency cetaceans (32 species of dolphins, six species of larger toothed whales, and 19 species of beaked and bottlenose whales): functional hearing is estimated to occur between approximately 150 Hz and 160 kHz;
- High frequency cetaceans (eight species of true porpoises, six species of river dolphins, *Kogia*, the franciscana, and four species of cephalorhynchids): functional hearing is estimated to occur between approximately 200 Hz and 180 kHz; and
- Pinnipeds in Water: functional hearing is estimated to occur between approximately 75 Hz and 75 kHz, with the greatest sensitivity between approximately 700 Hz and 20 kHz.

As mentioned previously in this document, two marine mammal species (both are pinniped species) are likely to occur in the proposed seismic survey area.

Marine mammals exposed to high-intensity sound repeatedly or for prolonged periods can experience hearing threshold shift (TS), which is the loss of hearing sensitivity at certain frequency ranges (Kastak *et al.* 1999; Schlundt *et al.* 2000; Finneran *et al*. 2002; 2005). TS can be permanent (PTS), in which case the loss of hearing sensitivity is unrecoverable, or temporary (TTS), in which case the animal's hearing threshold will recover over time (Southall *et al*. 2007). Since marine mammals depend on acoustic cues for vital biological functions, such as orientation, communication, finding prey, and avoiding predators, hearing impairment could result in the reduced ability of marine mammals to detect or interpret important sounds. Repeated noise exposure that causes TTS could lead to PTS.

Experiments on a bottlenose dolphin (*Tursiops truncates*) and beluga whale (*Delphinapterus leucas*) showed that exposure to a single watergun impulse at a received level of 207 kPa (or 30 psi) peak-to-peak (p-p), which is equivalent to 228 dB (p-p) re 1 μPa, resulted in a 7 and 6 dB TTS in the beluga whale at 0.4 and 30 kHz, respectively. Thresholds returned to within 2 dB of the pre-exposure level within 4 minutes of the exposure (Finneran *et al*. 2002). No TTS was observed in the bottlenose dolphin. Although the source level of one hammer strike for pile driving is expected to be much lower than the single watergun impulse cited here, animals being exposed for a prolonged period to repeated hammer strikes could receive more noise exposure in terms of sound exposure level (SEL) than from the single watergun impulse (estimated at 188 dB re 1 μPa^2-s) in the aforementioned experiment (Finneran *et al*. 2002).

Chronic exposure to excessive, though not high-intensity, noise could cause masking at particular frequencies for marine mammals that utilize sound for vital biological functions (Clark *et al*. 2009). Masking is the obscuring of sounds of interest by other sounds, often at similar frequencies. Masking generally occurs when sounds in the environment are louder than, and of a similar frequency as, auditory signals an animal is trying to receive. Masking can interfere with detection of acoustic signals, such as communication calls, echolocation sounds, and environmental sounds important to marine mammals. Therefore, under certain circumstances, marine mammals whose acoustical sensors or environment are being severely masked could also be impaired.

Masking occurs at the frequency band which the animals utilize. Since noise generated from in-water vibratory pile removal and driving is mostly concentrated at low frequency ranges, it may have little effect on high-frequency echolocation sounds by odontocetes (toothed whales), which may hunt California sea lion and harbor seal. However, the lower frequency man-made noises are more likely to affect the detection of communication calls and other potentially important natural sounds, such as surf and prey noise. The noises may also affect communication signals when those signals occur near the noise band, and thus reduce the communication space of animals (e.g., Clark *et al*. 2009) and cause increased stress levels (e.g., Foote *et al*. 2004; Holt *et al*. 2009).

Unlike TS, masking can potentially impact the species at community, population, or even ecosystem levels, as well as individual levels. Masking affects both senders and receivers of the signals and could, in certain circumstances, have long-term chronic effects on marine mammal species and populations. Recent science suggests that low frequency ambient sound levels in the world's oceans have increased by as much as 20

dB (more than 3 times, in terms of SPL) from pre-industrial periods, and most of these increases are from distant shipping (Hildebrand 2009). All anthropogenic noise sources, such as those from vessel traffic and pile removal and driving, contribute to the elevated ambient noise levels, thus intensifying masking.

Finally, in addition to TS and masking, exposure of marine mammals to certain sounds could lead to behavioral disturbance (Richardson *et al*. 1995), such as: changing durations of surfacing and dives, number of blows per surfacing, or moving direction and/or speed; reduced/increased vocal activities; changing/cessation of certain behavioral activities, such as socializing or feeding; visible startle response or aggressive behavior, such as tail/fluke slapping or jaw clapping; avoidance of areas where noise sources are located; and/or flight responses (e.g., pinnipeds flushing into water from haulouts or rookeries). The onset of behavioral disturbance from anthropogenic noise depends on both external factors (characteristics of noise sources and their paths) and the receiving animals (hearing, motivation, experience, demography), and is therefore difficult to predict (Southall *et al*. 2007).The activities of workers in the project area may also cause behavioral reactions by marine mammals, such as pinnipeds flushing from the jetty or pier or moving farther from the disturbance to forage. However, observations of the area show that it is unlikely that more than 10 to 20 individuals of pinnipeds would be present in the project vicinity at any one time. Therefore, even if pinnipeds were flushed from the haul-out, a stampede is very unlikely, due to the relatively low number of animals onsite. In addition, proposed mitigation and monitoring measures would minimize the startle behavior of pinnipeds and prevent the animals from flushing into the water.

The biological significance of many of these behavioral disturbances is difficult to predict, especially if the detected disturbances appear minor. However, the consequences of behavioral modification could be expected to be biologically significant if the change affects growth, survival, or reproduction. Some of these types of significant behavioral modifications include: Drastic change in diving/surfacing patterns (such as those thought to be causing beaked whale strandings due to exposure to military mid-frequency tactical sonar); habitat abandonment due to loss of desirable acoustic environment; and cessation of feeding or social interaction.

Potential Effects on Marine Mammal Habitat

The primary potential impacts to marine mammal habitat are associated with elevated sound levels produced by vibratory pile removal and pile driving in the area. However, other potential impacts to the surrounding habitat from physical disturbance are also possible.

Potential Impacts on Prey Species

With regard to fish as a prey source for cetaceans and pinnipeds, fish are known to hear and react to sounds and to use sound to communicate (Tavolga *et al.* 1981) and possibly avoid predators (Wilson and Dill 2002). Experiments have shown that fish can sense both the strength and direction of sound (Hawkins 1981). Primary factors determining whether a fish can sense a sound signal, and potentially react to it, are the frequency of the signal and the strength of the signal in relation to the natural background noise level.

The level of sound at which a fish will react or alter its behavior is usually well above the detection level. Fish have been found to react to sounds when the sound level

increased to about 20 dB above the detection level of 120 dB (Ona 1988); however, the response threshold can depend on the time of year and the fish's physiological condition (Engas *et al.* 1993). In general, fish react more strongly to pulses of sound rather than non-pulse signals (such as noise from pile driving) (Blaxter *et al.* 1981), and a quicker alarm response is elicited when the sound signal intensity rises rapidly compared to sound rising more slowly to the same level.

During the coastal construction only a small fraction of the available habitat would be ensonified at any given time. Disturbance to fish species would be short-term and fish would return to their pre-disturbance behavior once the pile driving activity ceases. Thus, the proposed construction would have little, if any, impact on the abilities of marine mammals to feed in the area where construction work is planned.

Finally, the time of the proposed construction activity would avoid the spawning season of the ESA-listed salmonid species.

Proposed Mitigation Measures

In order to issue an incidental take authorization 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.

For CALTRANS' proposed Murray Street Bridge seismic retrofit project, CALTRANS worked with NMFS and proposed the following mitigation measures to minimize the potential impacts to marine mammals in the project vicinity. The primary

purposes of these mitigation measures are to minimize sound levels from the activities, to monitor marine mammals within designated zones of influence (ZOI) corresponding to NMFS' current Level B harassment thresholds and, if marine mammals are detected within or approaching the exclusion zone, to initiate immediate shutdown or power down of the impact piling hammer, making it very unlikely potential injury or TTS to marine mammals would occur and ensuring that Level B behavioral harassment of marine mammals would be reduced to the lowest level practicable.

Time Restriction

Work would occur only during daylight hours, when visual monitoring of marine mammals can be conducted.

Pre-Construction Removal of Artificial Haul-out Sites.

All known and potential artificial structures could be used by pinnipeds for haul-out that occur in the construction work area would be removed, preferably to a near-by location outside of the work area prior to construction. These structures could include floating docks (i.e. Dock FF), rubber docks, or boats, such as those used by UCSC.

Pre-Construction Workers Training

Prior to in-water construction, the approved monitor would conduct a workers training to instruct construction crews regarding the status and sensitivity of the target species in the area and the actions to be taken to avoid or minimize impacts in the event of a target species entering the in-water work area.

Establish Exclusion Zones

A 10-m (33 ft) radius around the piling site should be established as an exclusion zone. The commencement of pile driving activities should be delayed if marine mammals are present within the exclusion zone. This exclusion zone is based on measured source level at 10 m by CALTRANS (2012) where the noise level reached 190 dB re 1 μPa from impact pile driving of a 30-in diameter steel pile in similar environment. There would be no exclusion zone for vibratory pile driving. Each day prior to the start of pile-driving, the PSO would survey the exclusion zone for marine mammals. If a pinniped is detected, impact pile driving would be delayed until the marine pinniped(s) has moved beyond the exclusion zone, verified by visual confirmation or lack of visual sighting within the next 15 minutes of the last sighting, to assume that the animal has moved beyond the exclusion zone.

Establishment of Level B Harassment Zones of Influence

A 1,000-m (0.62-mi) radius around the piling site should be established as a preliminary zone of influence (ZOI) for impact pile driving. This distances is calculated based on practical spreading model where the edge of the ZOI correspond to received level falls to 160 dB re 1 μPa from impact pile driving. The preliminary ZOI would be adjusted based on a measurement of the distance to the 160 dB isopleth. CALTRANS stated that it would not be able to monitor beyond several km for marine mammal takes. Therefore, if underwater acoustic monitoring shows that the 120 dB isopleth for vibratory pile driving is beyond 1,000 m, CALTRANS would not use vibratory pile driving for this project. A summary of modeled exclusion zone and ZOI radii based on CALTRANS (2012) is listed in Table 3.

Table 3. Modeled exclusion zone and ZOI distances to from pile driving activities for CALTRANS' Murray Street Bridge seismic retrofit project

Pile Type/Method	Source Level (dB_{rms} re 1 µPa at 10m)	Exclusion Zone (m) for pinnipeds (190 dB re 1 µPa)	ZOI (m) for impact hammer (160 dB re 1 µPa)	ZOI (m) for vibratory hammer (120 dB re 1 µPa)
14-inch P/C concrete vibratory removal (use 12-inch steel H pile as proxy)	150	NA	NA	1,000
16-inch CISS impact pile driving	187	10	631	NA
16-inch CISS vibratory pile driving (using 24-inch steel pile as proxy)	160	NA	NA	4,642
30-inch CISS or CIDH impact pile driving	190	10	1,000	NA
30-inch CISS or CIDH vibratory pile driving (use 36-inch steel pile as proxy)	170	NA	NA	21,544

Soft Start

CALTRANS would implement "soft start" (or ramp up) to reduce potential startling behavioral responses from marine mammals. Soft start requires contractors to initiate noise from the vibratory hammer for 15 seconds at reduced energy followed by a 1-minute waiting period. The procedure would be repeated two additional times. Soft start for impact hammers requires contractors to provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a 1-minute waiting period, then two subsequent three-strike sets. Each day, CALTRANS would use the soft-start technique at the beginning of pile driving, or if pile driving has ceased for more than one hour.

Shutdown Measures

CALTRANS shall implement shutdown measures if a marine mammal is sighted approaching the Level A exclusion zone. In-water construction activities shall be

suspended until the marine mammal is sighted moving away from the exclusion zone, or if the animal is not sighted for 30 minutes after the shutdown.

In addition, CALTRANS shall implement shutdown measures if the number of any allotted marine mammal takes reaches the limit under the IHA (if issued), if such marine mammals are sighted within the vicinity of the project area and are approaching the Level B ZOI during in-water pile driving.

Furthermore, CALTRANS shall implant shutdown measures if any marine mammals not authorized under the IHA (if issued) are sighted within the vicinity of the project area and are approaching the Level B ZOI during in-water pile driving.

Mitigation Conclusions

NMFS has carefully evaluated the applicant's proposed mitigation measures and considered a range of other measures in the context of ensuring that NMFS prescribes the means of effecting the least practicable impact on the affected marine mammal species and stocks and their habitat. Our evaluation of potential measures included consideration of the following factors in relation to one another:

- The manner in which, and the degree to which, the successful implementation of the measure is expected to minimize adverse impacts to marine mammals
- The proven or likely efficacy of the specific measure to minimize adverse impacts as planned
- The practicability of the measure for applicant implementation.

Any mitigation measure(s) prescribed by NMFS should be able to accomplish, have a reasonable likelihood of accomplishing (based on current science), or contribute to the accomplishment of one or more of the general goals listed below:

(1) Avoidance or minimization of injury or death of marine mammals wherever possible (goals 2, 3, and 4 may contribute to this goal).

(2) A reduction in the numbers of marine mammals (total number or number at biologically important time or location) exposed to received levels of pile driving and pile removal or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

(3) A reduction in the number of times (total number or number at biologically important time or location) individuals would be exposed to received levels of pile driving and pile removal, or other activities expected to result in the take of marine mammals (this goal may contribute to 1, above, or to reducing harassment takes only).

(4) A reduction in the intensity of exposures (either total number or number at biologically important time or location) to received levels of pile driving, or other activities expected to result in the take of marine mammals (this goal may contribute to a, above, or to reducing the severity of harassment takes only).

(5) Avoidance or minimization of adverse effects to marine mammal habitat, paying special attention to the food base, activities that block or limit passage to or from biologically important areas, permanent destruction of habitat, or temporary destruction/disturbance of habitat during a biologically important time.

(6) For monitoring directly related to mitigation – an increase in the probability of detecting marine mammals, thus allowing for more effective implementation of the mitigation.

Based on our evaluation of the applicant's proposed measures, as well as other measures considered by NMFS, NMFS has preliminarily determined that the proposed

mitigation measures provide the means of effecting the least practicable impact on marine mammals species or stocks and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance.

Proposed Monitoring and Reporting

In order to issue an incidental take authorization (ITA) 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 ITAs 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 in the proposed action area. CALTRANS submitted a marine mammal monitoring plan as part of the IHA application. It can be found at *http://www.nmfs.noaa.gov/pr/permits/incidental.htm*. The plan may be modified or supplemented based on comments or new information received from the public during the public comment period.

Monitoring measures prescribed by NMFS should accomplish one or more of the following general goals:

(1) An increase in the probability of detecting marine mammals, both within the mitigation zone (thus allowing for more effective implementation of the mitigation) and in general to generate more data to contribute to the analyses mentioned below;

(2) An increase in our understanding of how many marine mammals are likely to be exposed to levels of pile driving that we associate with specific adverse effects, such as behavioral harassment, TTS, or PTS;

(3) An increase in our understanding of how marine mammals respond to stimuli expected to result in take and how anticipated adverse effects on individuals (in different ways and to varying degrees) may impact the population, species, or stock (specifically through effects on annual rates of recruitment or survival) through any of the following methods:

- Behavioral observations in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Physiological measurements in the presence of stimuli compared to observations in the absence of stimuli (need to be able to accurately predict received level, distance from source, and other pertinent information);
- Distribution and/or abundance comparisons in times or areas with concentrated stimuli versus times or areas without stimuli;

(4) An increased knowledge of the affected species; and

(5) An increase in our understanding of the effectiveness of certain mitigation and monitoring measures.

Proposed Monitoring Measures

During in-water pile driving, CALTRANS would employ NMFS-approved protected species observers (PSOs) to conduct marine mammal monitoring for its Murray Street Bridge seismic retrofit project. The PSOs would observe and collect data on marine mammals in and around the project area for 30 minutes before, during, and after all pile removal and pile installation work. If a PSO observes a marine mammal approaching the exclusion zone, in-water impact pile driving would be ceased

immediately. In addition, if a PSO observes a marine mammal within a ZOI that appears to be disturbed by the work activity, the PSO would notify the work crew to initiate shutdown measures.

Monitoring of marine mammals around the construction site shall be conducted using high-quality binoculars (e.g., Zeiss, 10 x 42 power). The PSO(s) should be deployed in locations with the best vantage point where the entire ZOI can be monitored.

CALTRANS would also conduct hydroacoustic monitoring of its initial pile driving to establish exclusion zones and ZOIs based on acoustic measurements. CALTRANS would also submit the hydroacoustic monitoring plan for NMFS approval before the measurements are conducted. The size of these zones listed in Table 3 may be adjusted based on in situ acoustic measurements.

Data collection during marine mammal monitoring would consist of a count of all marine mammals by species, a description of behavior (if possible), location, direction of movement, type of construction that is occurring, time that pile replacement work begins and ends, any acoustic or visual disturbance, and time of the observation. Environmental conditions such as weather, visibility, temperature, tide level, current, and sea state would also be recorded.

Proposed Reporting Measures

CALTRANS would be required to submit a final monitoring report within 90 days after completion of the construction work or the expiration of the IHA (if issued), whichever comes earlier. This report would detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed. NMFS would have an opportunity to provide comments on the

report, and if NMFS has comments, CALTRANS would address the comments and submit a final report to NMFS within 30 days.

In addition, NMFS would require CALTRANS to notify NMFS' Office of Protected Resources and NMFS' Stranding Network within 48 hours of sighting an injured or dead marine mammal in the vicinity of the construction site. CALTRANS shall provide NMFS with the species or description of the animal(s), the condition of the animal(s) (including carcass condition, if the animal is dead), location, time of first discovery, observed behaviors (if alive), and photo or video (if available).

In the event that CALTRANS finds an injured or dead marine mammal that is not in the vicinity of the construction area, CALTRANS would report the same information as listed above to NMFS as soon as operationally feasible.

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].

As discussed above, in-water pile removal and pile driving (vibratory and impact) generate loud noises that could potentially harass marine mammals in the vicinity of CALTRANS's proposed Murray Street Bridge seismic retrofit project.

As mentioned earlier in this document, currently NMFS uses 120 dB re 1 µPa and 160 dB re 1 µPa at the received levels for the onset of Level B harassment from non-

impulse (vibratory pile driving and removal) and impulse sources (impact pile driving) underwater, respectively. Table 4 summarizes the current NMFS marine mammal take criteria.

Table 4. Current Acoustic Exposure Criteria for Non-explosive Sound Underwater

Criterion	Criterion Definition	Threshold
Level A Harassment (Injury)	Permanent Threshold Shift (PTS) (Any level above that which is known to cause TTS)	180 dB re 1 µPa (cetaceans) 190 dB re 1 µPa (pinnipeds) root mean square (rms)
Level B Harassment	Behavioral Disruption (for impulse noises)	160 dB re 1 µPa (rms)
Level B Harassment	Behavioral Disruption (for non-impulse noise)	120 dB re 1 µPa (rms)

Numbers of marine mammals that could be incidentally harassed are calculated by estimating the maximum number of marine mammal being present within a ZOI during active pile driving based on estimates of numbers of animals identified during the marine mammal surveys. Numbers of residential harbor seals are expected to be at a maximum during the season in which surveys were conducted (outside of breeding and molting seasons).

Pile driving (in-water and on-land) estimates are based on the maximum number of days that pile driving could potentially occur (installation of 42 permanent bridge; installation and removal of 120 temporary piles to support a construction trestle, if used; removal and reinstallation 35 boat berth piles, and removal of 4 existing bridge piles. In total, up to 49 days of pile driving and 15.5 days of pile removal are anticipated.

For the exposure estimate, it is conservatively assumed that the highest count of sea lions, harbor seals, and sea otters observed will be foraging within the ZOI and be exposed multiple times during the Project.

The calculation for estimated marine mammal takes is:

Instances of estimated take = N (number of animals in the area) * Number of days of pile removal/driving activity

Numbers of animals in the proposed project area are based on CALTRANS marine mammal counts conducted in September and October, 2009. Estimates include the number of anticipated instances of Level B acoustical harassment during impact pile driving and vibratory pile removal. All estimates are conservative, as pile removal/driving would not be continuous during the work day. Additionally, the number of individual marine mammals taken is anticipated to be lower than the number of estimated instances, because we expect some individuals to be taken on multiple days. Using this approach, a summary of estimated instances of takes of marine mammals incidental to CALTRANS's Murray Street Bridge seismic retrofit project are provided in Table 5.

Table 5. Estimated numbers of marine mammals that may be exposed to Level B behavioral harassment

Species	Estimated instances of marine mammal take	Abundance	Percentage
Pacific harbor seal	710	30,968	2.29%
California sea lion	968	296,750	0.32%

Analysis and Preliminary Determinations

Negligible Impact

Negligible impact is "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" (50 CFR 216.103). A negligible impact finding is based on the lack of likely adverse effects on annual rates of

recruitment or survival (i.e., population-level effects). An estimate of the number of Level B harassment takes, alone, is not enough information on which to base an impact determination. In addition to considering estimates of the number of marine mammals that might be "taken" through behavioral harassment, NMFS must consider other factors, such as the likely nature of any responses (their intensity, duration, etc.), the context of any responses (critical reproductive time or location, migration, etc.), as well as the number and nature of estimated Level A harassment takes, the number of estimated mortalities, and effects on habitat.

To avoid repetition, this introductory discussion of our analyses applies to both species listed in Table 5, given that the anticipated effects of CALTRANS's Murray Street Bridge seismic retrofit project on marine mammals are expected to be relatively similar in nature. There is no information about the nature or severity of the impacts, or the size, status, or structure of any species or stock that would lead to a different analysis for this activity, else species-specific factors would be identified and analyzed.

CALTRANS's proposed Murray Street Bridge seismic retrofit project would involve vibratory pile removal and impact pile driving activities. Elevated underwater noises are expected to be generated as a result of these activities. The exclusion zone for Level A harassment is extremely small (10 m from the source), and with the implementation of the proposed monitoring and mitigation measures described above, there would be no Level A take of marine mammals. For vibratory pile removal and pile driving, noise levels are not expected to reach the level that may cause TTS, injury (including PTS), or mortality to marine mammals.

Additionally, the sum of noise from CALTRANS's proposed Murray Street Bridge seismic retrofit activities is confined to a limited area within the Santa Cruz Harbor; therefore, the noise generated is not expected to contribute to increased ocean ambient noise outside the Harbor. In addition, due to shallow water depths in the project area, underwater sound propagation of low-frequency sound (which is the major noise source from pile driving) is expected to be poor.

In addition, CALTRANS's proposed activities are localized and of short duration. The entire project area is limited to CALTRANS's Murray Street Bridge seismic retrofit work. The entire project would involve the removal of 4 existing piles and installation of 24 in-water piles. The duration for pile removal and pile driving would be 30 days within the 10-month period. These low-intensity, localized, and short-term noise exposures may cause brief startle reactions or short-term behavioral modification by the animals. These reactions and behavioral changes are expected to subside quickly when the exposures cease. Moreover, the proposed mitigation and monitoring measures are expected to reduce potential exposures and behavioral modifications even further. Additionally, no important feeding and/or reproductive areas for marine mammals are known to be near the proposed action area. Therefore, the take resulting from the proposed Murray Street Bridge seismic retrofit work is not reasonably expected to, and is not reasonably likely to, adversely affect the marine mammal species or stocks through effects on annual rates of recruitment or survival.

The proposed project area is not a prime habitat for marine mammals, nor is it considered an area frequented by marine mammals. Behavioral disturbances that could result from anthropogenic noise associated with CALTRANS's construction activities are

expected to affect only a small number of marine mammals on an infrequent and limited basis.

The project also is not expected to have significant adverse effects on affected marine mammals' habitat, as analyzed in detail in the "**Anticipated Effects on Marine Mammal Habitat**" section. The project activities would not modify existing marine mammal habitat. The activities may cause some fish to leave the area of disturbance, thus temporarily impacting marine mammals' foraging opportunities in a limited portion of the foraging range; but, because of the short duration of the activities and the relatively small area of the habitat that may be affected, the impacts to marine mammal habitat are not expected to cause significant or long-term negative consequences.

Based on the analysis contained herein of the likely effects of the specified activity on marine mammals and their habitat, and taking into consideration the implementation of the proposed monitoring and mitigation measures, NMFS preliminarily finds that the total marine mammal take from CALTRANS's Murray Street Bridge seismic retrofit project will have a negligible impact on the affected marine mammal species or stocks.

Small Number

Based on analyses provided above, it is estimated that approximately 710 harbor seals and 968 California sea lions could be exposed to received noise levels that could cause Level B behavioral harassment from the proposed construction work at the Murray Street Bridge in Santa Cruz, California. These numbers represent approximately 2.29% and 0.32% of the populations of harbor seal and California sea lion, respectively, that could be affected by Level B behavioral harassment, respectively (see Table 5 above),

which are small percentages relative to the total populations of the affected species or stocks. Accordingly, NMFS preliminarily finds that small numbers of marine mammals will be taken relative to the populations of the affected species or stocks.

Impact on Availability of Affected Species for Taking for Subsistence Uses

There are no subsistence uses of marine mammals in the proposed project area; and, thus, no subsistence uses impacted by this action. Therefore, NMFS has determined that the total taking of affected species or stocks would not have an unmitigable adverse impact on the availability of such species or stocks for taking for subsistence purposes.

Endangered Species Act (ESA)

NMFS has determined that issuance of the IHA will have no effect on listed marine mammals, as none are known to occur in the action area.

National Environmental Policy Act (NEPA)

NMFS prepared a draft Environmental Assessment (EA) for the proposed issuance of an IHA, pursuant to NEPA, to determine whether or not this proposed activity may have a significant effect on the human environment. This analysis will be completed prior to the issuance or denial of this proposed IHA.

Proposed Authorization

As a result of these preliminary determinations, NMFS proposes to issue an IHA to CALTRANS for conducting the Murray Street Bridge seismic retrofit project, provided the previously mentioned mitigation, monitoring, and reporting requirements are incorporated. The proposed IHA language is provided next.

1. This Authorization is valid from March 1, 2016, through February 28, 2017.

2. This Authorization is valid only for activities associated in-water construction work at the Murray Street Bridge seismic retrofit project in Santa Cruz, California.

3. (a) The species authorized for incidental harassment takings, Level B harassment only, are: Pacific harbor seal (*Phoca vitulina richardsi*) and California sea lion (*Zalophus californianus*).

(b) The authorization for taking by harassment is limited to the following acoustic sources and from the following activities:

- Impact pile driving;
- Vibratory pile removal; and
- Work associated with above piling activities.

(c) The taking of any marine mammal in a manner prohibited under this Authorization must be reported within 24 hours of the taking to the West Coast Administrator (206-526-6150), National Marine Fisheries Service (NMFS) and the Chief of the Permits and Conservation Division, Office of Protected Resources, NMFS, at (301) 427-8401, or her designee (301-427-8401).

4. The holder of this Authorization must notify the Chief of the Permits and Conservation Division, Office of Protected Resources, at least 48 hours prior to the start of activities identified in 3(b) (unless constrained by the date of issuance of this Authorization in which case notification shall be made as soon as possible).

5. Prohibitions

(a) The taking, by incidental harassment only, is limited to the species listed under condition 3(a) above and by the numbers listed in Table 5. The taking by Level A harassment, injury or death of these species or the taking by harassment, injury or death

of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this Authorization.

(b) The taking of any marine mammal is prohibited whenever the required protected species observers (PSOs), required by condition 7(a), are not present in conformance with condition 7(a) of this Authorization.

6. Mitigation

(a) Time Restriction

In-water construction work shall occur only during daylight hours, when visual monitoring of marine mammals can be conducted.

(b) Pre-Construction Removal of Artificial Haul-out Sites.

All known and potential artificial structures could be used by pinnipeds for haul-out that occur in the construction work area shall be removed. These structures include floating docks (i.e. Dock FF), rubber docks, or boats.

(c) Pre-Construction Workers Training

Prior to in-water construction, construction crews should be trained regarding the status and sensitivity of the target species in the area and the actions to be taken to avoid or minimize impacts in the event of a target species entering the in-water work area.

(d) Establish Exclusion Zones

A 10-m (33 ft) radius around the piling site should be established as an exclusion zone. This exclusion zone is based on received sound levels exceed 190 dB re 1 μPa from impact pile driving.

(e) Establishment of Level B Harassment Zones of Influence

A 1,000-m (0.62-mi) radius around the piling site should be established as a preliminary zone of influence (ZOI) for impact pile driving and for vibratory pile removal. The distance to the edge of the ZOI correspond to received level falls to 160 dB re 1 μPa from impact pile driving and 120 dB re 1 μPa from vibratory pile removal.

(f) Soft Start

(i) CALTRANS shall implement "soft start" (or ramp up) to reduce potential startling behavioral responses from marine mammals.

(ii) Soft start requires contractors to initiate noise from the vibratory hammer for 15 seconds at reduced energy followed by a 1-minute waiting period. The procedure would be repeated two additional times.

(iii) Soft start for impact hammers requires contractors to provide an initial set of three strikes from the impact hammer at 40 percent energy, followed by a 1-minute waiting period, then two subsequent three-strike sets.

(iv) Each day, CALTRANS would use the soft-start technique at the beginning of pile driving, or if pile driving has ceased for more than one hour.

(g) Shutdown Measures

(i) CALTRANS shall implement shutdown measures if a marine mammal is sighted approaching the Level A exclusion zone. In-water construction activities shall be suspended until the marine mammal is sighted moving away from the exclusion zone, or if the animal is not sighted for 30 minutes after the shutdown.

(ii) CALTRANS shall implement shutdown measures if the number of any allotted marine mammal takes reaches the limit under the IHA (if issued), if such marine

mammals are sighted within the vicinity of the project area and are approaching the Level B ZOI during in-water pile driving.

(iii) CALTRANS shall implant shutdown measures if any marine mammals not authorized under the IHA (if issued) are sighted within the vicinity of the project area and are approaching the Level B ZOI during in-water pile driving.

7. Monitoring:

(a) Visual Monitoring

(i) CALTRANS shall employ NMFS-approved PSO(s) to conduct marine mammal monitoring for its construction project.

(ii) Monitoring of marine mammals around the construction site shall be conducted using high-quality binoculars (e.g., Zeiss, 10 x 42 power).

(iii) The PSO(s) should be deployed in locations with the best vantage point where the entire ZOI can be monitored.

(iv) The PSO(s) shall observe and collect data on marine mammals in and around the project area for 30 minutes before, during, and for 30 minutes after all pile removal and pile installation work.

(v) Data collection during marine mammal monitoring would consist of a count of all marine mammals by species, a description of behavior (if possible), location, direction of movement, type of construction that is occurring, time that pile replacement work begins and ends, any acoustic or visual disturbance, and time of the observation. Environmental conditions: weather, visibility, temperature, tide level, current, and sea state shall also be recorded.

(b) Hydroacoustic Monitoring

(i) CALTRANS shall conduct hydroacoustic monitoring of its initial pile driving to establish exclusion zones and ZOIs based on acoustic measurements.

(ii) CALTRANS shall submit the hydroacoustic monitoring plan for NMFS approval before the measurements are conducted.

(iii) The size of modeled exclusion zones and ZOIs may be adjusted based on in situ acoustic measurements.

8. Reporting:

(a) CALTRANS shall provide NMFS with a draft monitoring report within 90 days of the conclusion of the construction work or within 90 days of the expiration of the IHA, whichever comes first. This report shall detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed.

(b) If comments are received from the NMFS West Coast Regional Administrator or NMFS Office of Protected Resources on the draft report, a final report shall be submitted to NMFS within 30 days thereafter. If no comments are received from NMFS, the draft report will be considered to be the final report.

(c) In the unanticipated event that the construction activities clearly cause the take of a marine mammal in a manner prohibited by this Authorization (if issued), such as an injury, serious injury, or mortality, CALTRANS shall immediately cease all operations and immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators. The report must include the following information:

(i) Time, date, and location (latitude/longitude) of the incident;

(ii) Description of the incident;

(iii) Status of all sound source use in the 24 hours preceding the incident;

(iv) Environmental conditions (including wind speed and direction, sea state, cloud cover, visibility, and water depth);

(v) Description of marine mammal observations in the 24 hours preceding the incident;

(vi) Species identification or description of the animal(s) involved;

(vii) The fate of the animal(s); and

(viii) Photographs or video footage of the animal (if equipment is available).

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

(E) In the event that CALTRANS discovers an injured or dead marine mammal, and the lead PSO 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), CALTRANS will immediately report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators. The report must include the same information identified above. Activities may continue while NMFS reviews the circumstances of the incident. NMFS will work with CALTRANS to determine whether modifications in the activities are appropriate.

(F) In the event that CALTRANS discovers an injured or dead marine mammal, and the lead PSO 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), CALTRANS shall report the incident to the Chief, Permits and Conservation Division, Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinators, within 24 hours of the discovery. CALTRANS shall provide photographs or video footage (if available) or other documentation of the stranded animal sighting to NMFS and the Marine Mammal Stranding Network. CALTRANS can continue its operations under such a case.

9. This Authorization may be modified, suspended or withdrawn if the holder fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals, or if there is an unmitigable adverse impact on the availability of such species or stocks for subsistence uses.

10. A copy of this Authorization must be in the possession of each contractor who performs the construction work at the Murray Street Bridge seismic retrofits project.

Dated: December 7, 2015.

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Donna S. Wieting,
Director,
Office of Protected Resources,
National Marine Fisheries Service.

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