these seats should expect to serve until February 2007. Applicants are chosen based upon their particular expertise and experience in relation to the seat for which they are applying; community and professional affiliations; philosophy regarding the protection and management of marine resources; and possibly the length of residence in the area affected by the Sanctuary.

DATES: Applications are due by December 5, 2003.

ADDRESSES: Application kits may be obtained from Nicole Capps at the Monterey Bay National Marine Sanctuary, 299 Foam Street, Monterey, California 93940. Completed applications should be sent to the same address.

FOR FURTHER INFORMATION CONTACT: Nicole Capps at (831) 647–4206, or *Nicole.Capps@noaa.gov.*

SUPPLEMENTARY INFORMATION: The MBNMS Advisory Council was established in March 1994 to assure continued public participation in the management of the Sanctuary. Since its establishment, the Advisory Council has played a vital role in decisions affecting the Sanctuary along the central California coast.

The Advisory Council's twenty voting members represent a variety of local user groups, as well as the general public, plus seven local, State and Federal Government jurisdictions. In addition, the respective managers or superintendents for the four California National Marine Sanctuaries (Channel Islands National Marine Sanctuary, Cordell Bank National Marine Sanctuary, Gulf of the Farallones National Marine Sanctuary and the Monterey Bay National Marine Sanctuary) and the Elkhorn Slough National Estuarine Research Reserve sit as non-voting members.

Four working groups support the Advisory Council: The Research Activity Panel (''RAP'') chaired by the Research Representative, the Sanctuary Education Panel (''SEP'') chaired by the Education Representative, the Conservation Working Group (''CWG'') chaired by the Conservation Representative, and the Business and Tourism Activity Panel (''BTAP'') chaired by the Business/Industry Representative, each dealing with matters concerning research, education, conservation and human use. The working groups are composed of experts from the appropriate fields of interest and meet monthly, or bi-monthly, serving as invaluable advisors to the Advisory Council and the Sanctuary Superintendent.

The Advisory Council represents the coordination link between the Sanctuary and the State and Federal management agencies, user groups, researchers, educators, policy makers, and other various groups that help to focus efforts and attention on the central California and coastal and marine ecosystems.

The Advisory Council functions in an advisory capacity to the Sanctuary Superintendent and is instrumental in helping develop policies, program goals, and identify education, outreach, research, long-term monitoring, resource protection, and revenue enhancement priorities. The Advisory Council works in concert with the Sanctuary Superintendent by keeping him or her informed about issues of concern throughout the Sanctuary, offering recommendations on specific issues, and aiding the Superintendent in achieving the goals of the Sanctuary program within the context of California's marine programs and policies.

Authority: 16 U.S.C. 1431, *et.seq.*

(Federal Domestic Assistance Catalog Number 11.429 Marine Sanctuary Program)

Dated: November 7, 2003.

Richard W. Spinrad,

Assistant Administrator, Ocean Services and Coastal Zone Management, National Oceanic and Atmospheric Administration.

[FR Doc. 03–28468 Filed 11–13–03; 8:45 am]

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 110801C]

Taking of Marine Mammals Incidental to Specified Activities; Construction of the East Span of the San Francisco-Oakland Bay Bridge

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

ACTION: Notice of issuance of an incidental harassment authorization.

SUMMARY: In accordance with provisions of the Marine Mammal Protection Act (MMPA) as amended, notification is hereby given that an Incidental Harassment Authorization (IHA) has been issued to the California Department of Transportation (CALTRANS) to take small numbers of California sea lions, Pacific harbor seals, and gray whales, by harassment, incidental to construction of a replacement bridge for the East Span of the San Francisco-Oakland Bay Bridge (SF-OBB) in California.

DATES: This authorization is effective from November 10, 2003, through November 9, 2004.

ADDRESSES: A copy of the application and/or a list of references used in this document may be obtained by writing to the Chief, Marine Mammal Conservation Division, Office of Protected Resources, NMFS, 1315 East-West Highway, Silver Spring, MD 20910–3225, or by telephoning one of the contacts listed here.

FOR FURTHER INFORMATION CONTACT: Kenneth Hollingshead, NMFS, (301) 713–2322, ext 128.

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, notice of a proposed authorization is provided to the public for review.

Permission may be granted if NMFS finds that the taking will have no more than a negligible impact on the species or stock(s) and will not have an unmitigable adverse impact on the availability of the species or stock(s) for subsistence uses and that the permissible methods of taking and requirements pertaining to the monitoring and reporting of such taking are set forth. NMFS has defined ''negligible impact'' in 50 CFR 216.103 as ''...an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival.”

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. Under section 18(A), the MMPA defines ''harassment'' as:

> any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing

disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

Section 101(a)(5)(D) establishes a 45–day time limit for NMFS review of an application followed by a 30–day public notice and comment period on any proposed authorizations for the incidental harassment of small numbers of marine mammals. Within 45 days of the close of the comment period, NMFS must either issue or deny issuance of the authorization.

Summary of Request

On September 14, 2001, NMFS received a request from CALTRANS requesting an IHA for the possible harassment of small numbers of California sea lions (*Zalophus californianus*), Pacific harbor seals (*Phoca vitulina richardsii*), and gray whales (*Eschrichtius robustus*) incidental to construction of a replacement bridge for the East Span of the SF-OBB, in San Francisco Bay (SFB, or the Bay), California.

Project Description

The SF-OBB is an important transportation component of the Bay area that provides regional access between the San Francisco Peninsula and the East Bay. An average of 272,000 vehicles currently use the SF-OBB, a part of Interstate 80, each day. The East Span Project will provide a seismically upgraded vehicular crossing for current and future users. The existing East Span must be replaced or retrofitted because it is not expected to withstand a maximum credible earthquake on the San Andreas (Richter 8) or Hayward (Richter 7.25) faults, it does not meet lifeline criteria for providing emergency relief access following a maximum credible earthquake, and it does not meet current operational and safety design standards.

The new bridge will be constructed north of the existing East Span and will be approximately 3,514 meters (m) (2.18 mi) long and approximately 70 m (230 ft) wide, including a 15.3 m (50 ft) minimum space between the east and westbound bridge decks. The bridge decks will be side-by-side, except for the double deck portion between the existing Yerba Buena Island (YBI) tunnel and the transition structures where the double deck structure becomes two parallel structures. Each deck will consist of five traffic lanes and inside and outside shoulders and a bicycle/pedestrian path will be constructed on the south side of the eastbound structure. The East Span Project would also replace the eastbound on-ramp on YBI. The existing ramp needs to be dismantled to construct the new bridge. The ramp would be rebuilt and would meet current design and safety standards.

The foundations for the piers of the replacement East Span will consist of large diameter steel pipe piles that will be driven into the Bay floor. Current plans anticipate driving a total of 189 2.5 m (8.2 ft) diameter piles and 70 1.8 m (5.9 ft) diameter steel pipe piles. Each pile is expected to consist of two or more segments; the first segment will be driven to an established depth, then the next segment(s) will be welded on and driven in succession until the pile is driven to its final or ''tip'' depth (or elevation). However, the contractor could choose to drive the piles in one piece. Some piles will be battered, meaning that they will be driven in at an angle, essentially splaying out from the pier to provide additional stability. The rest would be vertical piles. The larger piles will support the skyway and main span sections of the replacement bridge; they will be driven to depths ranging from about -66 m to about -108 m (-256 ft to -358 ft), with most being driven to about -95 m (-312 ft). The smaller diameter piles will support the Oakland Touchdown structures; they will be driven to ''tip'' depth ranging from about -41 m to about -65 m (-135 ft to 213 ft).

Due to the untested nature of large hammers and piles in SFB, a pile installation demonstration was conducted in the central SFB between October 23 and December 12, 2000, to evaluate engineering and environmental factors associated with installing large steel piles to support the replacement East Span. The Pile Installation Demonstration Project (PIDP) involved driving three steel piles, using two types of hydraulic hammers, one with a maximum energy rating of 500 kilojoules (kJ) and one with a maximum rating of 1,700 kJ. Each pile had four segments, which were welded together on site. In addition to driving one pile without the use of any sound attenuation devices, the PIDP tested two different types of in-water sound attenuating equipment: (1) An air bubble curtain (using approximately 1.6 cubic-feet-per minute per linear foot of air flow) and (2) a proprietary fabric barrier system with an aerating mechanism. The PIDP was conducted to investigate construction requirements, identify potential problems, make modifications to equipment, and examine the potential effectiveness of sound attenuation devices during pile driving activity. Additional discussion on the PIDP and the results of its monitoring program is contained throughout this document.

CALTRANS obtained an IHA from NMFS for the PIDP (65 FR 35047, June 1, 2000), which established a safety zone around each pile driving site where underwater sound pressure levels (SPLs) were anticipated to equal or exceed 190 decibels (dB) re 1 micro-Pascal (micro-Pa) with a maximum root mean square (RMS) sound pressure level averaged over a 35–millisecond time frame (Harris, n.d.; DOT, 2001)). This IHA also included several other stipulations about pile driving operations and requirements for marine mammal monitoring and reporting. During the PIDP, 3 large steel piles each required approximately 5 hours total driving time to reach the specified ''tip'' depth.

Based on the PIDP experience, it is expected that the 259 in-Bay piles could require about 1,300 hours of total pile driving time or approximately 5 hours total for each pile to reach the specified tip depth. However, the contractor will be allowed to drive simultaneously at multiple locations. Furthermore, it is possible that piles necessary for the YBI portion, the skyway, and the Oakland approach structures would be driven simultaneously. Pile driving will be allowed to begin only from 7 a.m. to 8 p.m., 7 days a week. Pile driving that is underway at 8 p.m. will continue until driving of that pile segment is complete. If the contractor uses piles consisting of multiple segments, it is expected that the first segments driven will take less energy and drive faster than subsequent segments because the top Bay sediments are soft, with hard mud and soft rock at deeper levels. If the contractor uses a pile that is driven in one piece, early driving will take less energy and progress faster than later driving. While the total time that the hammer is operating will be the same in both cases, the total placement time for multiple segments will be longer.

In a typical pile-driving scenario, the first pile segment would require about 1 hr of driving time. The next segment would then be welded to the driven segment. This process takes 2 to 3 days. After welding is complete, 3 to 4 hours would be required to drive the pile to tip elevation. The actual time would depend on local substrate conditions.

In addition to in-Bay pile driving, the East Span Project will include pile driving on YBI for construction of the YBI transition structures on the northeastern side of the island. These piles will be steel-driven piles, which are conventionally used in building construction. Unlike in-Bay pile driving which may require hammer energy

levels up to 1,700 kJ, pile driving activity on YBI will require hammer energy levels less than 100 kJ. A total of approximately 2,950 piles will be needed to support the YBI transition structures. Each pile will require about 30 minutes of driving time; therefore, it is estimated that the East Span Project will include a total of about 1,500 hours of driving time for piles on YBI.

To construct all permanent structures, contractors will also install piles to found temporary structures, supports, falsework, a barge dock and trestles. These temporary structures are required to facilitate construction and support the permanent structures until they are self-supporting. Since the temporary structures will be designed by the contractor, their exact nature (size, type, quantity, etc.) will not be known until the contractors submit their plans to CALTRANS. While the number of piles placed to found the structures will be large, it is expected that they will be of a smaller size than the permanent structures since they are temporary and are not designed for traffic or seismic loading. There may be 1,000 to 2,000 temporary piles. These piles are expected to be 0.5 m (18 in) to 0.9 m (36 in) in diameter and 12 m (40 ft) to 30 m (100 ft) long. A vibratory driver/extractor will be used to install and remove these temporary piles, with energy levels less than 100 kJ. Driving time for each pile is likely to be 3 to 5 hours; therefore, the estimated range for driving time for the temporary structures varies from 3,000 to 10,000 hours.

The East Span Project would take 7 years to complete, plus 2 years to remove the existing East Span. Seismic safety and lifeline criteria would be achieved for westbound traffic 4 years after the start of construction and, for eastbound traffic, 5 years after the start of construction. The eastbound structure of the Skyway will be built first. Once all the piles supporting the piers for the eastbound structure are driven, construction will start for the westbound structure of the Skyway.

Construction will begin at the Oakland Approach and progress towards YBI, from Pier E16 to Pier E–3. Piers E–16 through E–7 for the eastbound and westbound structures of the Skyway will be surrounded by sheet-pile cofferdams that will be dewatered before the start of pile-driving. The sheet-pile sections for the cofferdam will be driven by a vibratory hammer. Cofferdam dimensions are approximately 84 ft (25 m) by 63–68 ft (19–20 m).

Construction began in early 2002. For more detailed description on the work proposed by CALTRANS and potential environmental impacts, please refer to the CALTRANS application and/or the Final Environmental Impact Statement (Final EIS) prepared by the Federal Highway Administration (FHWA).

Comments and Responses

A notice of receipt and request for 30–day public comment on the application and proposed authorization was published on November 26, 2001 (66 FR 59001). During the 30–day public comment period, comments were received from the Marine Mammal Commission (the Commission) and CALTRANS. After the end of public comment period, letters were received from the Natural Resources Defense Council (NRDC), Campbell, George, and Strong, L.L.P. (CG&S) on behalf of Gunderboom, Inc., and an individual member of the public. These late comments are a part of this Administrative Record and were given full consideration in making a final determination in this matter (and are addressed within the text of this document). However, late comments that simply reference and either support or contradict comments that were submitted within the public comment period are not discussed in this document. In addition, because some public comments raised issues that needed resolution prior to NMFS making its determinations under section 101(a)(5)(D) of the MMPA, NMFS has incorporated into this document additional information that it requested from CALTRANS in reference to the statements submitted by the commenters. Finally, because the issue under consideration here is the issuance of an IHA to CALTRANS for the taking of marine mammals incidental to the activity, and because an IHA to CALTRANS does not authorize the CALTRANS' activity as such authorization is not within the jurisdiction of the Secretary of Commerce, comments that were submitted regarding subjects other than marine mammals, such as water quality concerns, have not been addressed in this document.

Activity Concerns

Comment 1: The Commission notes that the **Federal Register** notice does not address noise and other issues associated with destruction and removal of existing structures. The Commission recommends that NMFS consult with the applicant regarding any planned demolition activities, and provide authorization for potential takings of marine mammals that may occur as a result of such activities.

Response: Bridge demolition activities will not take place until after completion of construction of the new span. Those issues will be addressed in a future incidental take application and potential authorization action. As mentioned, this activity will take several years to complete. During this IHA, CALTRANS expects to conduct the following activities: (1) Complete construction of eastbound pier E7 (in cofferdam), (2) construct eastbound pier E6 (using bubble curtain), (3) start westbound Pier 16E (in cofferdam), (4) complete westbound pier 7E (in cofferdam), (5) start construction westbound pier 6E (in bubble curtain), and (6) possibly begin construction on pier E2. Presumably under a new IHA issued around October, 2004, CALTRANS will continue work on westbound piers E16 through E7 (in cofferdams) and E6 through E3 (using bubble curtains).

Comment 2: CALTRANS notes several minor technical corrections to the proposed authorization document. These corrections include that the 31–millisecond (ms) time frame should be 35 ms.

Response: NMFS has made several minor recommended changes as appropriate in this document without further reference. Use of the 35–ms time frame will allow CALTRANS to monitor sound with standard noise-meters with ''real-time'' results. Otherwise, CAlTRANS notes, it would need to post-process the data. From the calibrated audio tapes made during the PIDP, the 31–ms (1.32–sec) RMS level of a pile strike was originally measured and found to be the same as the impulse (35 ms). There was zero dB difference between the 31–ms impulse RMS from the 35–ms sound level meter and that measured with the 31–ms RMS time constant. The 35ndash;ms rise-time constant has been adopted in national and international standards as design goals for measurements of impulse sound level, the ''RMS'' Impulse (Harris, n.d.). Based on the data collected for the PIDP, averaging over 35 ms is a conservative measure of the maximum RMS SPL with respect to the Greenridge analysis (Greenridge, Appendix G in Illingworth and Rodkin, 2002) for pile 1D at 103 m (338 ft) distant and 6 m (20 ft) deep the Greenridge-measured SPL is 195 dB, and the RMS impulse (31 and 35 ms) is 196 dB.

Marine Mammal Impact Concerns

Comment 3: CALTRANS questioned the statement made by NMFS in the proposed authorization notice that both permanent in-Bay pile driving and pile driving on YBI has the potential to

harass harbor seals. CALTRANS notes that land-based pile driving will involve hammers with less than 100 kJ of energy. CALTRANS believes that marine mammals are unlikely to be harassed by land-based pile driving and therefore, monitoring should apply only to in-Bay pile driving.

Response: NMFS agrees. During site visits, NMFS noted that a large hill (Yerba Buena Hill) was located between the YBI construction site and the YBI haulout. Therefore, with the combination of this permanent acoustic barrier and the low energy level for this pile driving activity, no impacts are anticipated at the YBI haulout and therefore monitoring by the SF-OBB monitoring team is not warranted.

However, the YBI haulout has been a pinniped control site for the monitoring program under CALTRANS' IHA for the Richmond San Rafael Bridge (see 67 FR 61323, September 30, 2002) for several years. Therefore this site will continue to be monitored by CALTRANS and any changes in harbor seal activity will be noted.

Comment 4: CG&S states that the source level of acoustic wave energy that will be generated in the water of SFB will be approximately 265 dB, and possibly greater. CG&S also states, that instantaneous lethal effects (rupturing of internal organs such as eyes and swim bladders) for aquatic organisms are well documented for energy levels of 204 dB, with delayed lethal effects occurring with energy levels down to 180 dB, and sub-lethal effects beginning as low as 170 dB.

Response: The PIDP had a measured pile-driver energy of 900 kJ with a measured underwater peak pressure of 207 dB (re 1 uPa) at a distance of 103 m (338 ft) and 191 dB at a distance of 358 m (1174.5 ft). Greene (2001) corrected for the larger hammer size expected to be used at SF-OBB and calculated excess attenuation of approximately 30 dB per tenfold increase in distance and, after applying the spreading loss formula, estimated that the pile driving source level (at 1 m (3.3 ft)) would be 268.5 dB (re 1 microPa) for the 1,700 kJ hammer. This 30–dB level is close to the 28–dB change observed at a Hong Kong refueling facility.

However, the estimated 268.5 dB (re 1 microPa) for the 1700 kJ hammer is made by taking measurements made in the far-field and extrapolating those measurements to the near-field. Estimating a source level from the far-field assumes that the sound emanates from a single point, and that the level reported is measured 1 m (3 ft) from that point. This method is useful for comparing sound sources against each other. However, the 1700–kJ hammer is not a point source; there is no hypothetical location one meter from it where measurements could be made. Because of the dispersed nature of the sound, the procedure used in estimating a source level from the far-field gives a poor prediction of the levels an animal could actually receive in the near-field. Near-field received levels are expected to be considerably less than the far-field estimates predict.

Based on a formula provided by Greenridge Sciences, CALTRANS has made a rough extrapolation of the measurements made in the farfield back to 1 m (3.3 ft) that would put the source level at about 233 dB re 1 microPascal and an unmitigated underwater SPL for the 1700 kJ hammer to the 190–dB isopleth is estimated to be approximately 100 m (328 ft). This 190–dB isopleth is where current NMFS policy conservatively holds that onset of Level A harassment occurs for pinnipeds. Therefore, to the extent practicable, activities should avoid exposing pinnipeds to sound pressure levels exceeding this value in order to limit Level A harassment (injury). This does not mean that pinnipeds would be injured at the 190–dB isopleth distance, only that the 190–dB SPL is the point above which some potentially serious problems in the hearing capability of marine mammals could start to occur. We note that the 190 dB (re 1 uPa (rms)) criterion was established as an interim criterion that is still evolving. Newer information indicates that 190 dB is extremely conservative and that Level A harassment is unlikely to occur at that level.

Also, NMFS does not concur with the commenter that SPLs of 180 to 204 dB would necessarily result in lethal effects for fish. Studies suggest that intense sound may result in damage to the sensory hair cells in the ears of fish. Hastings *et al.* (1995, 1996) studied the effects of intense sound stimulation on the inner ear and lateral line of the oscar (*Astronotus ocellatus*) and Cox *et al.*(1986a, 1986b, 1987) exposed goldfish (*Carassius auratus*) to pure tones at 250 and 500 Hz at 204 and 197 dB, respectively. They found some indications of sensory hair cell damage. Enger (1981) determined that some ciliary bundles (the sensory part of the hair cell) on sensory cells of the inner ear of the cod (*Gadus morhua*) were destroyed when exposed to sounds at several frequencies from 50 to 400 Hz at 180 dB for 1–5 hours. In reviewing the results of their study and that of the previous studies, Hastings *et al.*(1996) suggested that sounds 90 to 140 dB above a fish's hearing threshold may potentially injure the inner ear of a fish. This suggestion was supported in the findings of Enger (1981) in which injury occurred only when the stimulus was 100 to 110 dB above threshold at 200 to 250 Hz for the cod. Hastings *et al.* (1996) derived the values of 90 to 140 dB above threshold by examining the sound levels that caused minimal injury in the oscar, and then hypothesizing that extensive injury would require more energy. They conservatively suggest that received levels (RLs) of 200 dB to 240 dB would potentially cause damage to sensory hair cells in non-hearing specialist fishes. Calculations for hearing specialist fish using the Hastings (1996) values (i.e., 90 to 140 dB above threshold) conservatively indicate RLs of 140 to 190 dB continuously for at least one hour would be necessary to induce hearing damage. Also Hastings *et al.* (1995) showed that the oscars recovered within 1 day, suggesting that the impairment was not permanent.

In addition, the primary potential for non-auditory impact to fishes would be resonance of fish swim bladders. Studies show that the resonant frequency of the swim bladder is considerably above the frequency of best hearing. It is not expected, therefore, that resonance of the swim bladder would play a significant role in response to low-frequency sound, especially since only larger fish would have swim bladders large enough to resonate. While NMFS does not believe the evidence supports a finding that instantaneous lethal effects are likely for energy levels of 180 to 204 dB, it does believe that mitigation measures implemented to reduce the impacts to marine mammals and threatened/endangered species will have benefits for other marine life as well.

Mitigation Concerns

Comment 5: The Commission believes that NMFS' preliminary determinations are reasonable provided all reasonable measures will be taken to ensure the least practicable adverse impact on affected species of marine mammals. In that regard, the Commission notes that CALTRANS indicates that a fabric barrier sound attenuation system proved effective in reducing SPLs generated during the PIDP. It is unclear however, whether this method will be employed during the proposed pile-driving operations, or, in the alternative, that CALTRANS has made a showing that using such a system is not practical.

Response: An explanation of the PIDP findings and CALTRANS analysis are provided here, followed in later comments and responses with

additional commenter concerns and NMFS determination on mitigation.

The PIDP study involved driving three piles, with two different sizes of hammers and the use of two different methods of underwater sound attenuation. The test piles, Piles 1, 2 and 3, were made of steel and were 2.4 m (8 feet) in diameter. Pile 1 was driven straight down and did not use any sound attenuation. Pile 2 was a battered pile angled 1h:6v to the east and used an air bubble curtain. The single-ring air-bubble curtain provided a curtain of air around the pile to attenuate noise from driving activities. Bubbles emerged from a submerged piping system that surrounded the pile template (used to hold the hammer/pile in place). The piping system was comprised of three 10.2–cm (4–in) diameter perforated polyvinyl chloride (PVC) pipes attached to a steel frame, forming a 30.5–m (100–ft) diameter octagonal ring. Two rows of 0.1–centimeter (0.04–inch) diameter holes were drilled into the PVC pipes. The bubble curtain system was fabricated and assembled off-site, then transported to the pile-driving site using a barge-mounted crane. The piping system ring was then submerged to the Bay floor to encircle the pile template. Air was supplied from a 1,600 ft^3/min (cfm; 45.3 m^3/min) compressor located on the PIDP barge. Though Pile 2 was driven at an angle, the bubbles streamed straight up to the water surface, potentially providing less attenuation near the surface than at greater depths. A similar system was used by Wursig e*t al.* (2000) for attenuating noise received by dolphins during pile driving activities for an airport expansion.

Pile 3 was a battered pile angled 1h:6v to the west and was surrounded by a proprietary method of sound attenuation referred to as a fabric barrier system with an aerating mechanism. The fabric barrier system consisted of an in-water, double-layer fabric curtain with a single 7.6–cm (3–in) diameter pipe between the two fabric sheets and three 7.6–cm (3–in) diameter pipes between the inner fabric layer and the pile. The fabric curtain was made of water-permeable material which enclosed the pile template. The top of the curtain attached to the pile template at a level a few meters above the surface of the water. The bottom was attached with beams to the bottom of the template. The fabric barrier system with aerating mechanism had a 10.7–m by 22.9–m (35–ft by 75–ft) rectangular footprint. This proprietary fabric barrier system with aerating mechanism was assembled and attached to the template off-site. The template/air bubble and fabric barrier was transported by barge to the Pile 3 location. Air was supplied from the same 1,600–cfm compressor that was used on Pile 2; however, air was supplied to four pipes which were arranged in a smaller footprint than for the air bubble curtain, thereby providing a higher density of air bubbles around the pile.

Each pile was made up of four 33–m (108–ft) long sections which were driven and welded together in succession until the full length of the pile was achieved. Two types of Menke hydraulic hammers were employed to drive the piles; a small hammer rated at 500 kJ, and a large hammer rated at 1,700 kJ.

Sound measurements were taken during pile driving, and marine mammals were monitored at the project site and at harbor seal haul-out site on YBI. Problems were encountered with the collection of data about sound pressure levels. As a result, the information about sound pressure levels that CALTRANS has obtained to date is limited. Based on the available data, the distances to the 190 dB contour for the large hammer without attenuation was estimated for each test pile driven. (The underwater sound level boundary for the pinniped safety zone was specified by the IHA as 190 dB re 1 mPa RMS (impulse) to protect pinniped hearing). Field measurements indicated that this 190 dB re 1 microPa RMS (impulse) contour would be between 100 and 350 m (328 and 1,148 ft) for the unattenuated pile (Pile 1) and the bubble curtain pile (Pile 2) and less than 100 m (328 ft) for the fabric barrier system with aerating mechanism (Pile 3).

The PIDP Report (CALTRANS, 2001) determined that:

> the air bubble curtain is effective and adaptable to a seafloor with either a sloping or flat bottom. The air bubble curtain has a disadvantage in that fast currents in deep water may divert the air bubbles at an angle thereby reducing the effectiveness of the curtain. However, even with strong currents during the PIDP, the bubbles always surrounded Pile 2. Assembly of the bubble ring must typically be done off-site where sufficient land area is available for construction. For repeated use during the proposed East Span Project, this system could be redesigned to better withstand the pressures of being repeatedly raised to the surface. When compared to the fabric barrier system with aerating mechanism, there would be a larger economy of scale if it were designed for multiple reuse. The air bubble curtain is advantageous in that it does not need to be attached to the pile template itself, and marine construction equipment can easily maneuver around and over the site without any hindrance from the air bubble curtain. Marine construction equipment does not appear to affect the operation of the air bubble curtain. For reuse, the air bubble system's lack of bulk reduces the deployment logistics of relocating it to other pile locations. Once deployed, this system requires minimal inspection. With easier deployment maneuverability, and minimal inspection, the chances for time consuming delays would likely be decreased. For the PIDP, the bid cost was $120,000 for one installation.
>
> The fabric barrier system with aerating mechanism would be most effective in an area where a flat or consistently level bottom exists. Differences in bottom contour would result in a gap between the bottom of the curtain and the seafloor where sound would not be attenuated. For the proposed East Span Project, this system might be redesigned to be smaller for a single pile or much larger for a whole pier system. When compared with the air bubble curtain, there would be a smaller economy of scale if this system were designed for multiple reuse. Designing this system for reuse may include moving the template off-site, fitting different length curtain to it, and returning the refitted template back out to the project site. This could reduce the possibility of a gap between the bottom of the curtain and the sloping seafloor bottom. Costs would increase if the system needed to be redesigned for varying bottom elevations. Strain on the system from currents is less of a problem with this device than with the air bubble curtain alone, as the weight of the (fabric) curtain typically keeps the system nearly vertical. For the PIDP, the fabric barrier system was attached to the pile template by the proprietor of the system. In future applications, this can be expected to be performed off-site. The bulkiness of this arrangement makes movement to the project site and movement between piles to be driven very difficult. The first attempt to deploy this system at the PIDP had to be postponed because in windy weather the (fabric) curtain and template effectively acted as a sail. The height of this system and having it welded to the template does not allow for easy maneuverability for the marine equipment. For example, a derrick barge cannot maneuver over it, and equipment on the barge must reach over the barrier to the pile being driven. Once deployed, this system requires inspection of the condition of the zippers in the fabric and the bottom alignment. Any damage to the fabric barrier system would likely require removing the template and barrier from the water to conduct repairs. This would cause time-consuming delays to the pile driving operations. For the PIDP, the bid plus change order cost was $580,000 for one installation at Pile 3. This included an additional bubble ring between the curtain and the pile, which was not in the project specifications, but likely aided in sound attenuation.

CALTRANS believes that an air bubble curtain is preferable to the fabric curtain in that the air bubble curtain does not need to be attached to the pile template itself and the marine equipment needed on site can easily maneuver around and over the site without any hindrance. The air bubble

system also results in lower deployment logistics when moving it around to other piles to be driven. Once deployed, the air bubble system requires minimal inspection. With easier deployment, maneuverability, and minimal inspection, the chances for costly project delays will be decreased. In addition, a fabric barrier/air bubble system would have to be designed to surround the entire template and pile cap (4 or 6 pile group of piles driven through sleeves in the pile cap). This would require the use of larger or more compressors to the extent that it may require multiple barges for support. This could cause significant congestion around the footing and additional delays related to installing and moving the bubble curtain, installing the piles, and completing construction of the footing.

In order to adjust the fabric barrier/air bubble system for the varying bathymetry in the Bay, the system would have to be removed from the Bay and reconfigured to meet the bathymetric conditions at each pier. An air bubble curtain will allow for a consistent close fit of the bottom of the curtain to the bay mud.

A fabric barrier/air bubble system would require a complete redesign and construction of a new system of false work for the support of the pile cap-footing box due to the large lateral forces that would be applied to this structure by the flow of Bay currents against the fabric. The placement of the fabric barrier/air bubble curtain can be expected to only be possible at slack tides, with very low winds due to the sail effect of the fabric barrier. This too, will cause delays in placement of the system and the driving of the piles.

As a result of this analysis, NMFS determined that the air bubble curtain had the potential to provide the means for effecting the least practicable adverse impact on the affected species and stocks of marine mammals, but wanted CALTRANS to provide another demonstration of the air bubble curtain's effectiveness in water currents than was shown at the PIDP. Subsequent testing of the air bubble curtain has indicated that it will effectively attenuate sound (see Response to Comment 6).

Comment 6: CG&S states that based on the PIDP “the unconfined air bubble system provided little or no attenuation of harmful energy levels; however, CALTRANS is proposing this type system for the entire East Bay project. CG&S believes that the use of the confined air bubble system with fabric curtain would not only reduce energy levels but also serve as a physical barrier to exclude (marine mammal) entry into the project area.

Response: CALTRANS has proposed to use the air bubble curtain to construct eastbound and westbound piers E6 through E3. CALTRANS would also construct eastbound and westbound piers E16 through E7 (in cofferdams, not using an air bubble curtain). Work done within cofferdams would use a 500–kJ hammer whenever possible, but switching to the 1700 kJ hammer only if stiffer sub-bottom sediments are encountered.

NMFS believes that the PIDP did not provide an accurate assessment of the capability of the air bubble curtain due to the failure to compensate for the currents in the area. One of the problems noted during the PIDP was that the air bubbles did not completely enclose the piles during periods with tidal currents. As a result, CALTRANS redesigned the air bubble curtain system and tested that system in 2002 and again in 2003 so that the new design of the bubble curtain completely enclosed all permanent in-water piles/pile groups during the pile driving process. One reason for the delay in issuing this IHA was our review of the redesigned air bubble curtain to ensure that marine mammals would be protected to the greatest extent practicable. That report was released on July 23, 2003. In summary, the effectiveness of a bubble curtain consisting of two or more rings over the single-bubble curtain used in the PIDP for reducing underwater sound pressures during marine pile driving was assessed through underwater sound pressure measurements. This was conducted when the three 108–m long, 2.4 m diameter piles driven in 2000 as part of the PIDP, were restruck in December, 2002. During the measurements, the bubble curtain system was turned on and off. The restrike involved driving the piles at refusal with the hammer at maximum energy (1600–1740 kJ).

The reduction in sound pressures provided by the bubble curtain system ranged considerably. The direct reduction in sound pressures for piles 1 and 2 was 6 to 17 dB for peak pressures and 3 to 10 dB for RMS SPLs. Piles 1 and 2 were next to each other. SPL reductions at Pile 3, which was in shallower water, were over 20 dB for both peak pressures and RMS SPLs on the north side. However, reductions on the south side were much less. Close to pile 3 on the south side, the reductions were on the order of 5 to 7 dB. Further away at about 450 m (1476 ft) south, the reductions were only about 2 dB. Uneven bottom topography around pile 3, which could have compromised the bubble curtain performance near the bay bottom is suspected to have resulted in lower reductions to the south.

Analysis of individual pile strike impulses indicates that the bubble curtain reduced sound pressure at all measurement positions at frequencies above 1 kHz. There was a reduction in sound pressures below 500 Hz where the bubble curtain worked particularly well.

Measurements of peak pressures made at about 100 m (328 ft) were consistent with the measurements made during the PIDP in 2000. Those measurements were the basis for predictions of the maximum peak pressures during the SF-OBB east span construction. With the exception of the 450 m (1476 ft) south position, predicted peak pressures used in the NMFS October 30, 2001 Biological Opinion on the effects of construction of the East Span of the SFOBB on listed species were lower than those measured. At 450 m (1476 ft) south, measured peak pressures were 5 to 8 dB higher than predicted. Conversely, peak pressures at 450 m (1476 ft) to 500 m (1640 ft) north were 0 to 6 dB lower than predicted.

RMS SPLs did not exceed 190 dB at any of the measurement positions (between 65 and 500 m) when the bubble curtain was operating. SPLs of 180 dB RMS did not extend out to the 450 m (1476 ft) south for pile 1, but did not exceed 172 dB at 450 m (1476 ft) north. With the bubble curtain off, the 190–dB RMS SPLs extended out to somewhere between 200 m (656 ft) to 300 m (984 ft) for piles 1 and 2, and less than 100 m (328 ft) for pile 3.

Comment 7: On December 17, 2001, CALTRANS requested that the paragraph in the proposed authorization notice regarding barrier systems be removed since the marine pile-driving attenuator system that will be installed by CALTANS is to protect fish and is not intended to protect marine mammals.

Response: While the CALTRANS application did not indicate that a sound-attenuating device would be installed during pile driving at SF-OBB, by the time the proposed authorization notice was published on November 26, 2001, the NMFS Biological Opinion on CALTRANS' construction of a replacement bridge for the East Span of the SF-OBB had been issued. That document notes that ''application of an air bubble curtain to attenuate sound is expected to restrict th[e] area of direct mortality [i.e., for fish], a radius of approximately 69 meters and the proposed monitoring program will allow for confirmation of the bubble curtain's effectiveness '' Therefore,

while NMFS agrees that the term ''barrier systems'' was incorrect, in accordance with the Biological Opinion, some method to decrease the SPLs would be necessary to protect listed fish species. In addition, this would serve as a practical marine mammal mitigation measure. Therefore, the information provided in that paragraph of the proposed **Federal Register** notice has been expanded in this document to include NMFS determination on effective mitigation.

Comment 8: CALTRANS requests the following clarifications be made if NMFS intends to require the pile-driving attenuator in the IHA: (1) although the attenuator planned for use is similar in concept to the one that was used in the PIDP, it will have a substantially enhanced performance; (2) use of the attenuator is only for driving the large in-Bay piles, not for the smaller, temporary in-Bay piles nor for any land-based piles; and (3) NMFS should clarify its intent (for requiring the attenuator to protect marine mammals).

Response: NMFS agrees. In reviewing the Administrative Record on this IHA application, NMFS has determined that deployment of an improved air bubble curtain would effectively reduce impacts to marine mammals at the SF-OBB to the lowest level practicable. For example, at the Benicia-Martinez Bridge in California an unconfined air bubble curtain system was developed that used vertically-stacked air bubble rings and large volumes of air to reduce sound pressures. Findings indicate that this system resulted in sound pressure reductions of 19 to 33 dB re 1 microPascal and 17 to 29 dB on an rms basis. At most measurement positions, peak sound pressures were reduced by over 22 dB and RMS SPLs were reduced by over 25 dB. The measurement results and discussion can be found in the report (Reyff, 2003) which is available upon request.

Therefore, as a result of the findings made during the PIDP restrike and the investigation at the Benicia-Martinez Bridge, NMFS has determined that CALTRANS must install an air bubble curtain for pile driving for the in-Bay piles located at the SF-OBB. Based on CALTRANS redesign, this air bubble curtain system will consist of concentric layers of perforated aeration pipes stacked vertically and spaced no more than five vertical meters apart in all tide conditions. To address, in part, the issue of currents, CALTRANS has determined that the number of layers of pipe must be in accordance with water depth at the subject pile: 0-<5 m = 2 layers (1263 cfm); 5-<10 m = 4 layers (2526 cfm), 10-<15 m = 7 layers (4420 cfm); 15-<20 m = 10 layers (6314 cfm); 20-<25 m= 13 layers (8208 cfm). The lowest layer of perforated aeration pipes must be designed to ensure contact at all times and tidal conditions with the mudline without sinking into the bay mud. Pipes in any layer must be arranged in a geometric pattern, which will allow for the pile driving operation to be completely enclosed by bubbles for the full depth of the water column and for a radial dimension of at least 2 m (6.6 ft) as measured from the outside surface of the pile.

To provide a uniform bubble flux, each aeration pipe must have four adjacent rows of air holes along the pipe. Air holes must be 1.6-mm diameter air holes spaced approximately 20 mm apart. The bubble curtain system will provide a bubble flux of at least three cubic meters per minute, per linear meter of pipeline in each layer. Air holes must be placed in 4 adjacent rows. The air bubble curtain system must be in a frame to facilitate transport and placement of the system, keeping the aeration pipes stable, and providing ballast to counteract the buoyancy of the aeration pipes in operation.

Comment 9: On April 23, 2002, CALTRANS informed NMFS that, with some modifications, the description of ''barrier systems'' should remain in the final IHA **Federal Register** notice as it provides information about the sound attenuating device to be used during the project. CALTRANS suggested the following language: ''The bubble curtain system will be used only when driving the permanent in-Bay piles. While the bubble curtain is required specifically as a method to reduce impacts to endangered and threatened fish species in SFB, it may also provide some benefit for marine mammals. The NMFS' Biological Opinion and the California Department of Fish and Game's (CDFG) 2001 Incidental Take Permit also allow for the use of other equally effective methods, such as cofferdams, as an alternative to the air bubble curtain system to attenuate the effects of sound pressure waves on fish during driving of permanent in-Bay piles (NMFS 2001; CDFG, 2001). Piers E–16 through E–7 for both the eastbound and westbound structures of the Skyway will be surrounded by sheet-pile cofferdams, which will be dewatered before the start of pile-driving. De-watered cofferdams are effective sound attenuation devices. For Piers E3 through E6 of the Skyway and Piers 1 and E2 of the Self-Anchored Suspension span, it is anticipated that cofferdams will not be used: therefore, a bubble curtain will surround the piles.''

Response: NMFS agrees and has inserted the recommended text as it clarifies where CALTRANS is required to install the air bubble curtain (see Mitigation). It should be noted that NMFS has determined that installation of the redesigned bubble curtain (described in response to comment 8) along with additional mitigation measures described later in this document (see Mitigation) will reduce marine mammal impacts to the lowest level practicable. Therefore, NMFS has determined that the piles for Piers E3, E4, E5, and E6 of the Skyway, as well as for Piers 1 and E2 of the Self-Anchored Suspension span, which will not be surrounded by cofferdams, must have an air bubble curtain system surrounding each pile driven to attenuate peak underwater sound pressure levels.

Comment 10: GC&S states that ''it appears that CALTRANS has not considered the potential for marine mammals to wander into the project area during nocturnal periods of no activity. If this happens (and there is not a physical barrier to prevent this), the individuals that remain in the area during initial startup of the pile-driving activity could experience death or serious bodily injury. The use of the confined air bubble system (with fabric curtain) would not only reduce energy levels, but also serve as a physical barrier to exclude entry into the project area.''

Response: NMFS has determined that the marine mammal monitoring program will effectively locate all pinnipeds in the vicinity of the pile-driving activity prior to beginning the driving of each pile. The IHA requires trained observers to conduct observations at least 30 minutes prior to the start of all in-water, permanent pile-driving. If any marine mammals are observed, pile-driving cannot begin until the animals leave the 190–dB safety zone or until 15 minutes after the animal was last seen. In addition to monitoring, requirements for the installation of an improved air bubble curtain and to incorporate ''soft-start'' of the hammer will ensure that no pinnipeds (or cetaceans) will be injured or killed incidental to placement of piles at SF-OBB.

Comment 11: The CG&S and others believe that the MMPA provides NMFS with the authority to require CALTRANS ensure the least practicable impact to marine mammals by the project.

Response: NMFS agrees and believes that requiring CALTRANS to install and use the air-bubble curtain, as redesigned after the re-strike and described in

response to comment 6, will result in the least practicable adverse impact to the affected species or stocks of seals or sea lions that might be in the area prior to starting pile driving.

Comment 12: CG&S submitted additional documentation on June 18, 2002, regarding the efficacy of a gravel-filled cofferdam for sound attenuation. CG&S concludes that dewatering the cofferdam by filling it with solid material may, at best, provide little to no reduction of noise levels and may actually intensify sound levels in some applications, rendering this technique ineffective for sound attenuation. The CG&S' supporting documentation provides a summary of the finding: ''A basic estimate of the sound propagation for the driven pile in the sand-filled cofferdam is made. The first order calculation for the geometry presented indicates about 10 dB loss due to this construction. This loss has reduced significance when considering the potential need for more hammer energy to drive the pile through the sand. The acoustic conditions could potentially be no better and even could become worse.''

Response: CALTRANS plans to construct the eastbound and westbound piers E16 through E7 in dewatered cofferdams using a 500–kJ hammer, not a 1,700–kJ hammer unless resistence is met. However, as detailed in CALTRANS (2002b), the cofferdam is not simply dewatered and filled with sand. Instead, the bottom is dredged, a base-rock blanket is placed on the bottom of the cofferdam and a pile cap is placed in the cofferdam. After the cofferdam is dewatered to the extent practicable, the battered piles are driven through sleeves in the pile cap, not through the sand or rock (except for the 1.5 m (4.9 ft) of base rock under the pile cap). Figure 2–3 of CALTRANS (2002b) provides a good illustration of the expected decoupling of the airborne sounds from the pile driver into the water column when pile driving is conducted in the relatively shallow water between piers E16 and E7. Essentially, it does not matter even if there is water between the voids of the rock fill inside the cofferdam during pile driving. This is because the rock fill starts at the mudline and continues down to the bottom of the excavated coffer cell. Therefore, little or no energy is transmitted to the Bay water through the locking fill or the water in the voids of the locking fill. The pile is not surrounded by Bay waters and little or no energy is transmitted to the Bay waters. As a result, NMFS has concluded that the use of cofferdams is an effective method to reduce the sound pressure level of pile driving into the water environment.

Comment 13: CALTRANS comments that the restriction on start-up of pile driving until marine mammals have moved out of the area should be revised to include an alternative of a time period of 15 minutes. CALTRANS is concerned that costly delays of up to $38,000/hour could result from a delay.

Response: Both the proposed and final documents make clear that pile driving cannot begin until marine mammals have left the respective safety zone for their appropriate taxa, no matter how long the period. This is appropriate since CALTRANS did not request the taking of marine mammals by Level A harassment, which becomes a potential means of take if animals are still within the safety zone when pile driving commences. However, as noted in the IHA, if an animal dives below the water surface and does not reappear within the safety zone within 15 minutes, then the animal may be presumed to have left the safety zone and pile driving can begin. If the presence of seals or California sea lions within the safety zone seriously compromises CALTRANS' activity, CALTRANS will need to contact the Regional Administrator, NMFS, for appropriate resolution.

Monitoring and Reporting Concerns

Comment 14: CALTRANS proposed that approval of a monitoring plan prior to any construction activity would unnecessarily delay construction of the first project-related activity, a fill surcharge contract on land and in intertidal sand flats at the Oakland Touchdown, which is scheduled to start before the IHA is issued. This contract would be delayed if this requirement were to remain in place. CALTRANS notes that such a plan was not required in advance of the IHA for the PIDP.

Response: The fill contract work is on land and in intertidal sand flats at the Oakland Touchdown and is therefore not expected to have a potential for marine mammal harassment. Since this work does not include any pile-driving and the location of the work is far from the YBI haulout site, it was proper for CALTRANS to proceed with this work prior to issuance of an IHA. Work began in early March, 2002 and included monitoring for herring spawn in the area five times a week for about 6 weeks (late February through March). No seals were observed during monitoring.

CALTRANS submitted a site-specific monitoring plan to NMFS for review in May, 2002. That plan has been reviewed by NMFS and is discussed in more detail in this document. The monitoring program associated with the PIDP was contained in the CALTRANS application for an IHA; a separate report was not necessary to establish the monitoring requirements contained in the IHA.

Comment 15: CALTRANS notes that the proposed authorization notice proposes safety zone monitoring before the entire East Span Project begins. This is not feasible since the safety zones are located around specific pile sites. CALTRANS proposes baseline monitoring of the general project areas rather than monitoring safety zones for which locations will not have been defined by then. The fill surcharge contract (see previous comment) is scheduled to begin construction before the marine mammal monitoring will take place. The nature of this work and its distance from marine mammal haulouts and foraging areas suggests that this work will not result in the harassment of marine mammals. CALTRANS therefore proposes to begin baseline monitoring 14 days prior to construction of the second project contract, the Skyway contract, which will involve pile driving and other major in-Bay construction activities. CALTRANS believes that this will meet the intent of this requirement to collect background data about marine mammal behavior prior to the beginning of construction work that has the potential to incidentally harass marine mammals.

Response: NMFS concurs. A detailed description of the visual monitoring program recommended by CALTANS and accepted by NMFS is provided later in this document (see Monitoring).

Comment 16: CALTRANS recommends that in several places in the proposed authorization notice, NMFS substitute ''permanent in-Bay pile-driving'' in place of ''all pile driving'' since only in-Bay pile driving will be monitored by marine mammal observers.

Response: While NMFS agrees to the modification, it must point out that in-Bay, land-based, and temporary pile driving activities all have some monitoring associated with it. However, only the in-Bay pile driving has the requirement for monitoring during all pile-driving activities.

Comment 17: CALTRANS recommends that, similar to the PIDP monitoring, monitoring be required for a minimum of 30 minutes prior to the initiation of each pile-driving episode. Also, CALTRANS recommends having one team of observers to observe the safety zone at each in-Bay pile-driving site. Therefore, multiple teams would be required if pile driving is occurring at multiple sites at any one time.

Response: NMFS agrees, noting that these proposed requirements were also contained in CALTRANS May, 2002 monitoring plan.

Comment 18: CALTRANS notes that no offsite monitoring sites (i.e. haul-outs) offer comparable conditions for use as a control site. Mowry Slough, for example, is quite different from the YBI haul-out as it is a pupping site, is located in a different environment, and has far less ambient human disturbance. If it is included as a comparison site, CALTRANS proposes that the frequency of monitoring at YBI be conducted twice a week during driving permanent in-Bay piles.

Response: In order to evaluate whether harbor seals use alternative hauling-out areas as a result of construction work at SF-OBB, CALTRANS is required to monitor at least one additional harbor seal haul-out within the Bay. Since Mowry Slough has been designated as a control site for the Richmond-San Rafael Bridge seismic retrofit work, NMFS recommends that this site continue to be monitored using the same protocol designed by researchers for that project.

Comment 19: CALTRANS notes that land-based pile driving will involve hammer energy less than 100 kJ and believes that marine mammals are not likely to be harassed by land-based pile driving. Therefore, CALTRANS believes that monitoring should apply only to in-Bay pile driving.

Response: The piles on YBI for construction of the YBI Transition structures are on the northeastern side of YBI and will be conventional steel-driven piles requiring hammer energy levels less than 100 kJ. With each pile requiring about 30 minutes of driving time, the 2,950 piles will require about 1,500 hours at YBI. However, the YBI harbor seal haul-out site is located about 450 m (1,476 ft) from the closest planned piledriving activity and is separated from the activity by a large hill. Therefore, monitoring is unnecessary for this land-based pile-driving but monitoring will be conducted by the bi-weekly monitoring team from the Richmond Bridge project.

Comment 20: The Commission believes that NMFS' preliminary determinations are reasonable provided that the visual monitoring of the safety zone to be conducted prior to and during pile driving operations is adequate to detect all marine mammals within the safety zone. According to CALTRANS, since pile driving is scheduled to occur from 7 a.m. to 7 p.m., visual monitoring in the late afternoon and early evening would be compromised during the winter months. The Commission recommends that this issue should be addressed in CALTRANS' detailed marine mammal monitoring plan to ensure that visual monitoring is effective during all periods in which pile driving activities are conducted.

Response: On December 13, 2001, and April 23, 2002, CALTRANS notified NMFS that there was a discrepancy between the time period for pile driving activities in the IHA application and the construction specifications and that the time period provided in the IHA application was not accurate. The construction specification states: “No pile-driving activities are to be conducted between the hours of 8 p.m. and 7 a.m. Therefore, CALTRANS requested the change be made in this document. In addition, CALTRANS clarified, on December 17, 2001, that he specification also states that if a pile driving episode has started before 8 p.m., and is not completed by that time, it can be finished. Finally, CALTRANS' May, 2002 Marine Mammal Monitoring Plan notes that marine mammal observers will have night-time infra-red (IR) scopes or other tools to conduct monitoring during low light conditions.

As noted by the Commission, night-time conditions may exist which will limit observations. In addition, IR-scopes have indicated limited usefulness. Marine mammal observers in other activities recently have employed Bushnell/ITT F5000 binocular night-vision devices (NVDs) (Lawson, 2000). Therefore, NMFS recommends that NVDs be available for use by each team as needed and, if not, additional work site lighting be provided to enhance visibility whenever NVD-trained observers are not available. It should be recognized that the safety zone needs to be visible only during the 30–minute period prior to the start of driving a pile segment, not at other times.

Visual monitoring has two purposes: (1) to monitor the safety zone, and (2) to conduct marine mammal behavioral observations. Since pile driving, whether a single pile or a segment of a pile, cannot be stopped once started until the pile reaches its predetermined depth, and because sufficient opportunities exist during daylight period to make behavioral observations, stopping pile driving during periods of darkness (or fog) is not warranted, provided the entire safety zone can be effectively monitored for the entire 30–minute period prior to startup of each pile segment being driven. Therefore, NMFS is requiring CALTRANS to conduct monitoring and detailed reporting on activities during periods of darkness. NMFS will review this information prior to processing any subsequent requests for renewal of this IHA to determine if additional mitigation measures are necessary.

MMPA Concerns

Comment 21: The Commission believes that, in situations where a temporary threshold shift (TTS) may lead to biologically significant behavior effects (e.g., an increased risk of natural predation or ship strikes), the activity should be considered as having a potential for injury (Level A harassment).

Response: NMFS has addressed the issue of second order impact assessment in several previous small take authorizations, and without new scientific documentation on this issue, a detailed response is not warranted here. For reviewers interested in this discussion, refer to the small take authorizations for the USS WINSTON S. CHURCHILL shock trial (66 FR 22450, May 4, 2001) and the Surveillance Towed Array Sensor System Low Frequency Active sonar (67 FR 46712, July 16, 2002).

Comment 22: The Commission believes that an across-the-board reclassification of TTS from Level A harassment to Level B harassment raises questions both in terms of the activities that involve the potential for repeated TTS harassment and, in general, cumulative effects.

Response: First, whether TTS is Level B harassment or Level A harassment is irrelevant for this IHA since mitigation and monitoring requirements under the IHA should prevent TTS. While there is some recent published research to the contrary, the general state of knowledge indicates that a permanent shift in hearing threshold (PTS) can occur with repeated exposures of TTS without allowing animals to completely recover. However, in order for this to occur, the marine mammal would need to remain within a safety zone and not be detected by the marine mammal observer team for a significant period of time in order to incur repeated TTS sufficient to result in PTS injury from pile-driving source. Therefore, NMFS believes that, considering the previously observed behavior of pinnipeds in the vicinity of the PIDP, the monitoring and mitigation measures imposed and the transitory nature of those marine mammal species likely to be impacted, it would be very unlikely a marine mammal would incur a TTS impairment and virtually impossible for a marine mammal to incur a PTS injury. For proposed authorizations other than SF-OBB, NMFS will review each of these as

appropriate to determine whether there is a significant potential for TTS and whether that impact could lead to PTS.

Other Concerns

Comment 23: One commenter asked what in-air noise mitigation was recommended.

Response: Previously (see 68 FR 52332, September 2, 2003), NMFS determined that Level B disturbance in the air for California sea lions and northern elephant seals began at approximately 100 dBA, and for Pacific harbor seals at approximately 90 dBA. Based on airborne measurements made during the PIDP, airborne SPLs will be significantly below these levels within the safety zones that have been established under this IHA in order to prevent injury. Therefore, NMFS does not believe that in-air noise mitigation measures are needed to protect pinnipeds from injury. In addition, airborne acoustic measurements will be made during this IHA to determine whether Level B harassment is occurring on the nearest pinniped haulout.

Description of the Marine Mammals Potentially Affected by the Activity

General information on California sea lions, Pacific harbor seals, gray whales and other marine mammal species found in California waters can be found in Caretta *et al.* (2002, 2001), which are available at the following URL: *http://www.nmfs.noaa.gov/prot__res/PR2/Stock__Assessment__Program/sars.html*. Refer to those documents for information on these species. The marine mammals most likely to be found in the SF-OBB area are the California sea lion and Pacific harbor seal. From December through May gray whales may also be present in the SF-OBB area.

California Sea Lions

While there is evidence that California sea lions historically used the Bay, they are rarely observed hauled out in the Bay (Bauer, 1999). However, since at least 1987, sea lions have been observed occupying the docks near Pier 39 in San Francisco, approximately 5.7 km (3.5 mi) from the project site. Pier 39 has now become a regular haul-out site for California sea lions. Currently, no other California sea lion haul-out sites have been identified in the Bay. Approximately 85 percent of the animals hauled out at the Pier 39 site are males, and no pupping has been observed at this site or any other site in the Bay (Lander pers. comm. to CALTRANS, 1999).

The number of California sea lions hauled out at Pier 39 ranged from 63 to 737 in 1998 and from 5 to 906 in 1997 (Marine Mammal Center, Sausalito data). For both years, the lows occurred in June and the highs occurred in August. In October 1999, 831 sea lions were observed on K dock at Pier 39. The trend in annual movement is for sea lions to first appear at the site after returning from the Channel Islands breeding area (over 483 km or 300 mi to the southwest) at the beginning of August (Bauer, 1999). Around late winter, the sea lions travel south to the breeding grounds, and numbers at the Bay haul-out site decline. The lowest numbers of sea lions at the Pier 39 haul-out are usually observed from May through July. However, the number of sea lions at the haul-out site fluctuates quite a bit throughout the year and even from one week to the next. For example, in June of 1998, a maximum of 574 sea lions was observed on June 7th while a low count of 63 was observed on June 25th (Lander pers. comm. to CALTRANS, 1999).

While little information is available on the foraging patterns of California sea lions in the Bay, individual sea lions have been observed feeding in the shipping channel to the south of YBI on a fairly regular basis (Grigg pers. comm. to CALTRANS, 1999). Foraging by sea lions that utilize the Pier 39 haul-out site primarily occurs in the Bay, where they feed on prey items such as Pacific herring, northern anchovy and sardines (Hanni, 1995).

Pacific Harbor Seals

Pacific harbor seals are the only species of marine mammal that breed and bear young in the Bay (Howorth and Abbott, 1999). There are 12 haul-out sites and rookeries in the Bay and of those, only eight are used by more than a few animals at a time. Only three sites in the Bay are regularly used by more than 40 harbor seals at any one time; these are Mowry Slough, located in the South Bay, YBI, and Castro Rocks, located in the Central Bay (Spencer, 1997). The three closest haul-out sites to the project location are at YBI, Angel Island, and Castro Rocks. A recent aerial harbor seal count, conducted by D. Hanan of the California Department of Fish and Game, found 477 individuals in the Bay (Greene, pers. comm. to CALTRANS, 1999). It is important to note that not all harbor seals were counted, as some may have been under water during the survey.

Harbor seals are present in the Bay year-round and use it for foraging, resting and reproduction. Peak numbers of hauled-out harbor seals vary by haul-out site depending on the season. Results of a study of 39 radio-tagged harbor seals in the Bay found that most active diving occurred at night and a majority of the diving time was spent in seven feeding areas in the Bay. The two feeding areas located closest to the project site are just to the south of YBI and north of Treasure Island. This study also found that the seals dove for a mean time of 0.50 minutes to 3.33 minutes. Mean surface intervals or the mean time the seals spent at the surface between dives ranged from 0.33 minutes to 1.04 minutes. Mean haul-out periods ranged from 80 minutes to 24 hours (Harvey and Torok, 1994).

Pupping season in the Bay begins in mid-March and continues until about mid-May. Pups nurse for only 4 weeks and mating begins after pups are weaned. In the Bay, mating occurs from April to July and molting season is from June until August (Schoenherr, 1995; Kopec and Harvey, 1995).

Pacific Harbor Seal Haul-Out Sites in the Vicinity of the East Span Project

YBI is located in the Central Bay, adjacent to man-made Treasure Island. The SF-OBB passes through a tunnel on YBI. An important harbor seal haul-out is located on a rocky beach on the southwest side of YBI (Kopec and Harvey, 1995). Harbor seal re-sightings at the YBI haul-out site indicate long-term usage of the site (Spencer, 1997). Pile driving activity for the East Span Project will be performed on the northeast side of YBI and in the San Francisco Bay, between the northeast side of the island to the Oakland Touchdown area. The harbor seal haul-out site is located about 450 m (1,476 ft) from the closest planned pile driving activity on land and about 950 m (3,117 ft) from the closest planned pile driving activity in the Bay.

Harbor seals haul out year-round on YBI, but it is not considered a pupping site as no births have been observed there. Occasionally, pups have been seen at an average of 1 pup per year, though more recently, 7 pups were observed at one time in May, 1999 (San Francisco State University unpublished records, 1998–9). In a study of the haul-out site conducted between 1989 and 1992, males comprised 83.1 percent of the seals whose gender could be determined (Spencer, 1997). Peak numbers of harbor seals at this haul-out site have been observed from November to February. The maximum reported number of seals hauled out at one time is 344, counted in January 1992 (Kopec and Harvey, 1995). More recently, the number of seals counted at YBI ranged from 0 to 296 for the period May 1998

to January 1999. Mean monthly counts for the same period range from approximately 15 in September 1998 to 107 in June 1999 (San Francisco State University, unpublished records 1998–1999). The abundance of harbor seals at this site during the winter months likely coincides with the presence of spawning Pacific herring near the island.

Angel Island is a small haul-out site located approximately 7.4 km (4.6 mi) from the project site. A maximum count of 15 seals was observed in the 1980s and most recently, six harbor seals were seen in 1989. No pupping has been observed at the site.

The next closest haul-out site in the Bay is approximately 14 km (8.7 mi) away at Castro Rocks, near the Richmond end of the Richmond-San Rafael Bridge. The Castro Rocks haul-out site is a recognized pupping site. A maximum of 176 harbor seals were observed at Castro Rocks in October 1999 (San Francisco State University unpublished records, 1998–9).

Gray Whales

The vast majority of all gray whales are found in the Pacific Ocean along the western coastline of North America. Here, they spend their winters in the waters off Baja California and migrate more than 9,000 kilometers (5,600 miles) north to spend their summers north of Alaska. They are typically seen off the California coastline from December through May as they migrate northward to the Bering and Chukchi Seas, and again in the return trip to Baja California.

Gray whales have been sighted more frequently in recent years in San Francisco Bay. Reduced food supply in the Bering Sea has been suspected as the most probable cause. Gray whales have been sighted in the Bay in areas off Sausalito in Richardson Bay and the tip of the Tiburon Peninsula (approximately 11 km or 7 mi northwest of the project area) and as far south as the San Bruno Shoals area (approximately 23 km or 14 mi southwest of the project area). Gray whales have been observed foraging in these areas. Sightings in the Bay have typically been made from December through May, during the whales' coastal migration. Calves may be expected during the migration north with mothers in March and May. Most recently, in February 2001, a pod of gray whales was observed near the Dumbarton Bridge in the South Bay.

Gray whales heading to the San Bruno Shoals area would pass beneath the SF-OBB. It is likely that some of the whales that enter the Bay would swim through the two deep-water shipping channels beneath the West Spans of the bridge. Though the number of sightings of gray whales to the east of YBI and in the immediate vicinity of the SF-OBB is low, they are not precluded from swimming there to reach the San Bruno Shoals area or foraging near or in these areas.

Potential Effects on Marine Mammals and Their Habitat

At this time, NMFS considers that underwater SPLs above 190 dB re 1 micro-Pa RMS (impulse) could cause hearing injury to harbor seals and sea lions and SPLs above 180 dB re 1 micro-Pa RMS (impulse) could cause hearing injury to whales. In addition, the effects of elevated SPLs on marine mammals have the potential to cause annoyance, disruption of echolocation, masking, avoidance of an area, habitat abandonment, aggression, pup/calf abandonment, tissue rupture and hearing loss. Therefore, CALTRANS has determined that in-water pile driving outlined in the project description has the potential to harass California sea lions, Pacific harbor seals, and gray whales that may be swimming, foraging, or resting in the project vicinity.

As indicated by monitoring elsewhere, the use of vibratory hammers for installing sheet-pile sections for the dam and the vibratory driver/extractor used to install and remove temporary piles are not expected to produce noise levels sufficient to result in a significant behavioral response in pinnipeds.

During the 2–month PIDP construction period, sound measurements were taken during pile driving of three piles, and marine mammals were monitored at the project site and at the harbor seal haul-out site on YBI. Results of observable effects of the PIDP on marine mammals have been summarized previously in this document and also provided in the Marine Mammal Impact Assessment Report prepared by CALTRANS in August 2001 (CALTRANS 2001). More specifically, the demonstration provided CALTRANS an opportunity to measure resulting SPLs both in air and under water, record impacts to marine mammals and experiment with measures to reduce harm to marine mammals. Sixty-eight pinnipeds (55 harbor seals and 13 sea lions) were sighted during monitoring activities. Of this total, 57 pinnipeds (47 harbor seals and 10 sea lions) were seen during non-pile driving activities. Only eight harbor seals and three sea lions were observed near the PIDP site during actual pile driving, which totaled 12 hours and 51 minutes. In addition, up to 85 harbor seals per monitoring period hauled out at the semi-protected cove on the southwestern side of YBI, approximately 1,500 m (4,920 ft) from the pile-driving area. No gray whales were observed.

The East Span Project is not expected to result in any significant impacts to marine mammal habitat. Short-term impacts will include the minimal disturbance of the sediment where the channels are dredged for barge access and where individual bridge piers are constructed. Long-term impacts to marine mammal habitat will be limited to the footprint of the piles and the obstruction they will create following installation. However, this impact is not considered significant as the marine mammals can easily swim around the piles of the new bridge, as they currently swim around the existing bridge piers.

California Sea Lions

Of the 13 total sea lions observed during the PIDP construction period, three individual sea lions were observed in the PIDP construction site within and beyond the 500–m (1,640–ft) safety zone during the actual driving of piles. The three sea lions rapidly swam and porpoised out of the area when pile driving began, indicating possibly: (1) increased sensitivity to the pile driving noise in air and/or water, (2) less conditioning to anthropogenic noise, or (3) a difference of the level of sound received by the sea lions resulting from varying human, environmental (ambient) and hammer magnitude or conditions at the time of pile driving. Alternatively, since the three sea lions were present at the start of pile driving, their response could indicate that they were startled by the noise (SRS Technologies, 2001). The frequency and duration of the noise and whether underwater or airborne sounds start suddenly or gradually, creating a ramping effect (as usually performed for the PIDP), may also influence the behavior of these mammals. However, none of these factors could be explored in detail within the scope of the demonstration project.

Noise levels from the East Span project are not expected to result in harassment of the sea lions hauled out at Pier 39 as airborne and waterborne SPLs would attenuate to below harassment levels by the time they reach the haul-out site, 5.7 kilometers (3.5 miles) from the project site.

Pacific Harbor Seals

The Richmond Bridge Harbor Seal Survey continues to gather data on harbor seals at the Castro Rocks and YBI

haul-out sites as part of the San Rafael-Richmond Bridge Seismic Retrofit Project monitoring program (see 66 FR 49165, September 26, 2001, 67 FR 61323, September 30, 2002). A total of 55 harbor seals were observed in the vicinity of the PIDP site during the 2 1/2–month construction period. Of this total, 47 were observed during non-pile driving activities and eight harbor seals were observed during actual pile driving. The eight harbor seals, which were sighted within the 500 m (1,640 ft) safety zone, seemed to observe the activities around the barge during pile driving while swimming in and out of the safety zone, but did not show any avoidance response during pile driving. Additional observations during the PIDP showed that harbor seals at YBI increased in number during low tide, and responded to activities unrelated to pile driving activities such as helicopter noise, boat traffic and kayakers, with head alerts or flushing of the site when startled or disturbed.

Pile driving could potentially harass those harbor seals that are in the water close to the project site, whether their heads are above or below the surface. Since no response was observed from harbor seals in the water at YBI during the PIDP except for initial reaction from airborne noise during driving of unattenuated Segment A of Pile 1, it is likely that underwater SPLs resulting from pile driving activity at a distance of about 1,500 m (4,920 ft) or greater would be sufficiently attenuated at the haul-out site. It is estimated that only a fraction of the seals hauled out at YBI would potentially be in the water and close to the project site during pile driving activities.

The impact of land-based pile-driving activities have been evaluated with respect to airborne noise generated by the PIDP. During the PIDP, driving Pile 1D generated an SPL of 97 dBA (Lmax-fast) at a distance of 100 m (328 ft). The noise level at 30.5 m (100 ft) for this pile was calculated to be 110 dBA. This was assumed to be the loudest section of the entire pile and similar results were obtained for other piles at similar distances. Measurements at Treasure Island (about 1,400 m (4593 ft) from pile driving) and the YBI Coast Guard Station (about 1,350 m (4429 ft), indicated the loudest noise levels were about 68 to 69 dBA. Modeling indicates that noise levels at the YBI haulout from the PIDP would have amaximum A-weighted noise level of 63 dBA (Lmax-fast). CALTRANS measured ambient noise conditions near the haulout and found typical noise levels to be about 60 to 65 dBA, due to existing traffic on the West Span of the Bridge. Therefore, noise levels generated by the PIDP would have been audible to harbor seals, but would be significantly less than the 90 dBA SPL presumed to cause harbor seal beach flushing as recorded on San Nicolas Island, CA (see 68 FR 52132, September 2, 2003).

Typical land-based pile driving are expected to produce a noise level of 100 dBA at 31 m (100 ft). Land-based piles could be driven at distances of 300 to 700 m (984 to 2296 ft) from the haul-out site. However, there is not a direct acoustic path from the site to the haulout. As a result, modeling indicates that noise levels from the land-based pile driving would be 60 dBA or less (i.e., lower than typical ambient) and therefore would not result in incidental harassment.

As a result, potential harassment would be expected only during those times when in-Bay piles are being hammered, which will be a total of approximately 1,300 hours over the 9–year construction period. The number of harbor seals that could potentially be harassed during the East Span Project therefore would vary based on the location of pile driving activity and the proximity of the in-water seals to the pile driving site.

Finally, it should be noted that harbor seals on the YBI haul-out site are commonly subjected to high levels of disturbance, primarily from water craft. This is particularly true during the summer, when the numbers of small boats, jet skis, kayaks, etc., in the Bay increase (San Francisco State University, 1999b). Abandonment or disturbance of the YBI haul-out site is not anticipated as low-energy sound levels from pile driving, both in water and in air, are expected to attenuate sufficiently by the time they reach the site. Although harbor seal pups have been observed at the YBI haul-out site, it is not a recognized pupping site. Therefore, no impact on species recruitment or survival are anticipated.

Gray Whales

No gray whales were observed during the PIDP. However, gray whales can be expected in the Bay in increasing numbers from December through May during their winter migration to and from Alaska. Noise from the pile driving activities therefore may affect gray whales swimming toward the southern San Bruno Shoals region.

Behavioral responses of gray whales to noise can include avoidance, startle response, and complete abandonment of an area. Noise may elicit short-term disruptions of normal activities similar to seals, such as startle response, agitation, stress, and cessation of foraging activities. Most evidence suggests that whales will avoid loud noises, which may result in a temporary displacement of the animal from typical foraging or traveling areas. Although it is uncertain whether gray whales will be affected by SPLs generated by pile driving during the East Span Project, observations and research from the past 3 years (1999–2001) indicate that fewer than 10 gray whales have been sighted in the Bay on any particular day (Oliver personal communication, 2001). The number of gray whales present in the Bay may increase in the future, since in recent years there have been more frequent sightings of gray whales in the Bay during their migration period. Whether these whales will be in close proximity to the construction area for any period of time is unknown at this time. The primary concern is for whales passing by YBI on the west or east sides while traveling to San Bruno Shoals.

Mitigation

Barrier Systems

A bubble curtain system is required to be used only when driving the permanent in-Bay piles. While the bubble curtain is required specifically as a method to reduce impacts to endangered and threatened fish species in SFB, it may also provide some benefit for marine mammals. The NMFS' Biological Opinion and the California Department of Fish and Game's (CDFG) 2001 Incidental Take Permit also allow for the use of other equally effective methods, such as cofferdams, as an alternative to the air bubble curtain system to attenuate the effects of sound pressure waves on fish during driving of permanent in-Bay piles (NMFS 2001; CDFG, 2001). Piers E–16 through E–7 for both the eastbound and westbound structures of the Skyway will be surrounded by sheet-pile cofferdams, which will be dewatered before the start of pile-driving. De-watered cofferdams are effective sound attenuation devices. For Piers E3 through E6 of the Skyway and Piers 1 and E2 of the Self-Anchored Suspension span, it is anticipated that cofferdams will not be used: therefore, a bubble curtain will surround the piles.

Sound Attenuation

As a result of the determinations made during the PIDP restrike and the investigation at the Benicia-Martinez Bridge, NMFS has determined that CALTRANS must install an air bubble curtain for pile driving for the in-Bay piles without cofferdams located at the SF-OBB. This air bubble curtain system will consist of concentric layers of perforated aeration pipes stacked

vertically and spaced no more than five vertical meters apart in all tide conditions. The minimum number of layers must be in accordance with water depth at the subject pile: 0-<5 m = 2 layers (1263 cfm); 5-<10 m = 4 layers (2526 cfm), 10-<15 m = 7 layers (4420 cfm); 15-<20 m = 10 layers (6314 cfm); 20-<25 m= 13 layers (8208 cfm). The lowest layer of perforated aeration pipes must be designed to ensure contact at all times and tidal conditions with the mudline without sinking into the bay mud. Pipes in any layer must be arranged in a geometric pattern, which will allow for the pile driving operation to be completely enclosed by bubbles for the full depth of the water column.

To provide a uniform bubble flux, each aeration pipe must have four adjacent rows of air holes along the pipe. Air holes must be 1.6–mm diameter air holes spaced approximately 20 mm apart. The bubble curtain system will provide a bubble flux of at least two cubic meters per minute, per linear meter of pipeline in each layer. Air holes must be placed in 4 adjacent rows.

The air bubble curtain system must be composed of the following: (1) an air compressor(s), (2) supply lines to deliver the air, (3) distribution manifolds or headers, (4) perforated aeration pipes, and (5) a frame. The frame facilitates transport and placement of the system, keeps the aeration pipes stable, and provides ballast to counteract the buoyancy of the aeration pipes in operation. Meters are required to monitor the operation of the bubble curtain system. Pressure meters will be installed at all inlets to aeration pipelines and at points of lowest pressure in each branch of the aeration pipeline. Flow meters will be installed in the main line at each compressor and at each branch of the aeration pipelines at each inlet. Gauges will be installed above the water line at the supply barge for engineer's access. A manual recording device will be used to plot variations in meter readings every 30 minutes. If the pressure or flow rate in any meter falls below 90 percent of its operating value, the contractor will cease pile-driving operations until the problem is corrected and the system is tested to the satisfaction of the CALTRANS resident engineer.

Establishment of Safety/Buffer Zones

A safety zone is to be established and monitored to include all areas where the underwater SPLs are anticipated to equal or exceed 190 dB re 1 µPa RMS (impulse) for pinnipeds. Also, a 180–dB re 1 µPa RMS (impulse) safety zone for gray whales must be established for pile driving occurring during the gray whale migration season from December through May. Prior to commencement of any pile driving, a preliminary 500–m (1,640–ft) radius safety zone for pinnipeds (California sea lions and Pacific harbor seals) will be established around the pile driving site, as it was for the PIDP. Once pile driving begins, either new safety zones can be established for the 500 kJ and 1700 kJ hammers or the 500 m (1,640 ft) safety zone can be retained. If new safety zones are established based on SPL measurements, NMFS requires that each new safety zone be based on the most conservative measurement (i.e., the largest safety zone configuration). SPLs will be recorded at the 500–m (1,640–ft) contour. The safety zone radius for pinnipeds will then be enlarged or reduced, depending on the actual recorded SPLs.

Observers on boats will survey the safety zone to ensure that no marine mammals are seen within the zone before pile driving of a pile segment begins. If marine mammals are found within the safety zone, pile driving of the segment will be delayed until they move out of the area. If a marine mammal is seen above water and then dives below, the contractor will wait 15 minutes and if no marine mammals are seen by the observer in that time it will be assumed that the animal has moved beyond the safety zone. This 15–minute criterion is based on scientific evidence that harbor seals in San Francisco Bay dive for a mean time of 0.50 minutes to 3.33 minutes (Harvey and Torok, 1994). However, due to the limitations of monitoring from a boat, there can be no assurance that the zone will be devoid of all marine mammals at all times.

Once the pile driving of a segment begins it cannot be stopped until that segment has reached its predetermined depth due to the nature of the sediments underlying San Francisco Bay. If pile driving stops and then resumes, it would potentially have to occur for a longer time and at increased energy levels. In sum, this would simply amplify impacts to marine mammals, as they would endure potentially higher SPLs for longer periods of time. Pile segment lengths and wall thickness have been specially designed so that when work is stopped between segments (but not during a single segment), the pile tip is never resting in highly resistant sediment layers. Therefore, because of this operational situation, if seals or sea lions enter the safety zone after pile driving of a segment has begun, pile driving will continue and marine mammal observers will monitor and record marine mammal numbers and behavior.

Compliance with Equipment Noise Standards

To mitigate noise levels and, therefore, impacts to California sea lions, Pacific harbor seals, and gray whales, all construction equipment will comply as much as possible with applicable equipment noise standards of the U.S. Environmental Protection Agency, and all construction equipment will have noise control devices no less effective than those provided on the original equipment.

Soft Start

It should be recognized that although marine mammals will be protected from Level A harassment by establishment of an air-bubble curtain and marine mammal observers monitoring a 190–dB safety zone for pinipeds and 180–dB safety zone for gray whales, mitigation may not be 100 percent effective at all times in locating marine mammals. Therefore, in order to provide additional protection to marine mammals near the project area by allowing marine mammals to vacate the area prior to receiving a potential injury, CALTRANS will also ''soft start'' the hammer prior to operating at full capacity. A ''soft start'' occurs when the hammer's initial single strikes occur at 10 second intervals for 3–5 minutes, an action which produces approximately 50 percent of the maximum in-air noise level, or 45–55 dB (re 20 microPascal-m). Similar levels of noise reduction is expected underwater. Therefore, contractor will initiate hammering of both the 500–kJ and the 1,700–kJ hammers with this procedure in order to allow pinnipeds in the area to voluntarily move from the area and should expose fewer animals to loud sounds both underwater and above water noise. This would also ensure that, although not expected, any pinnipeds that are missed during safety zone monitoring will not be injured.

Monitoring

Visual Observations

Safety zone monitoring will be conducted during driving of all in-Bay, permanent piles without cofferdams. In addition, area-wide baseline monitoring will be conducted prior to commencement of work that has a potential to result in marine mammal harassment. Monitoring of the pinniped and cetacean safety zones will be conducted by a minimum of three qualified NMFS-approved observers for each safety zone. One three-observer team will be required for the safety zones around each pile-driving site, so that multiple teams will be required if

pile-driving is occurring at multiple locations at the same time. The observers will begin monitoring at least 30 minutes prior to startup of the pile driving. Observers will likely conduct the monitoring from small boats, as observations from a higher vantage point (such as the SF-OBB) may not be practical. Pile driving will not begin until the safety zone is clear of marine mammals. However, as described in the Mitigation section, once pile driving of a segment begins, operations will continue uninterrupted until the segment has reached its predetermined depth. Monitoring will continue through the pile-driving period and will end approximately 30 minutes after pile-driving has been completed.

Biological observations will be made using binoculars during daylight hours. In addition to monitoring from boats, monitoring of the YBI haul-out may be conducted during open-water pile driving activity, in coordination with the Richmond Bridge Harbor Seal survey team. At least one control site (harbor seal haul-out sites and the waters surrounding such sites not impacted by the East Span Project's pile driving activities, i.e. Mowry Slough) will be designated and monitored for comparison. Monitoring will be conducted twice a week at both YBI and the control site. Data on all observations will be recorded and will include items such as species, numbers, behavior, details of any observed disturbances, time of observation, location, and weather. The reactions of marine mammals will be recorded based on the following classifications (consistent with the Richmond Bridge Harbor Seal survey methodology): (1) no response, (2) head alert (looks toward the source of disturbance), (3) approach water (but not leave), and (4) flush (leaves haul-out site). The number of marine mammals under each disturbance reaction will be recorded, as well as the time when seal re-haul after a flush.

Baseline monitoring will be conducted for a period of 14 days prior to the beginning of in-Bay work for the Skyway contract. Baseline monitoring will be conducted in the general project area (before pile driving begins) and at the YBI haul-out site. The 14–day monitoring period is expected to be an appropriate time frame to assess baseline conditions in the project area and to account for the potential variability in environmental factors that may influence the presence and activity of marine mammals. The information collected from baseline monitoring will be compared with results from monitoring during pile-driving activities.

Aerial surveys will be conducted during the baseline monitoring to help determine if the boat observers are missing any marine mammals within a simulated safety zone. A fixed-wing airplane equipped with a high-resolution camera will take five photos of the safety zone (about 1 km^2 or 0.3 mi^2) and the surrounding area (about 4 km^2 or 1.5 mi^2) from each of three aircraft elevations (610 m/2000 ft, 305 m/1000 ft and 152 m/500 ft).

It is anticipated that installation of small, temporary piles for the temporary structures at each of the piers and for the temporary trestles near the Oakland Touchdown area will not affect marine mammals in the area, since a vibratory hammer will be used with energy levels less than 100 kJ. To verify this assumption, marine mammal monitoring will be conducted when driving the temporary in-Bay piles at Pier E16E, during the start of the Skyway contract. Based on the results of these initial observations, CALTRANS will consult with NMFS to confirm that further monitoring when driving temporary piles will not be needed or to develop an appropriate program for further monitoring temporary piles.

Acoustical Observations

Both airborne and underwater environmental noise levels will be measured as part of the East Span Project.

The purpose of the underwater sound monitoring is to establish the safety zone of 190 dB re 1 micro-Pa RMS (impulse) for pinnipeds and the safety zone of 180 dB re 1 micro-Pa RMS (impulse) for gray whales. Monitoring will be conducted during the driving of the last half (deepest pile segment) for any given in-Bay pile. One pile in every other pair of pier groups will be monitored. One reference location will be established at a distance of 100 m (328 ft) from the pile driving. Sound measurements will be taken at the reference location at two depths (a depth near the mid-water column and a depth near the bottom of the water column but at least 1 m (3 ft) above the bottom) during the driving of the last half (deepest pile segment) for any given pile. Two additional in-water spot measurements will be conducted at appropriate depths (near mid water column), generally 500 m (1,640 ft) in two directions either west, east, south or north of the pile-driving site will be conducted at the same two depths as the reference location measurements. In cases where such measurements cannot be obtained due to obstruction by land mass, structures or navigational hazards, measurements will be conducted at alternate spot measurement locations. Measurements will be made at other locations either nearer or farther as necessary to establish the approximate distance for the safety zones. Each measuring system shall consist of a hydrophone with an appropriate signal conditioning connected to a sound level meter and an instrument grade digital audiotape recorder (DAT). Overall SPLs shall be measured and reported in the field in dB re 1 micro-Pa RMS (impulse). An infrared range finder will be used to determine distance from the monitoring location to the pile. The recorded data will be analyzed to determine the amplitude, time history and frequency content of the impulse.

Airborne sound levels will be measured at times and locations that are coincidental to the underwater measurement sites. Each system will consist of a type 1 integrating sound level meter connected to a DAT. In addition, airborne sound will also be measured at the YBI haul-out site. Real time amplitude measurement of airborne sound levels will be reported. Linear Peak and RMS impulse SPLs will be reported. Microphones will be fitted with windscreens and calibration will be verified before and after each measurement session. The recorded data will be analyzed to determine the amplitude, time history and frequency content of the impulse.

Reporting

NMFS' Southwest Regional Administrator will be notified prior to the initiation of the East Span Project, and coordination with NMFS will occur on a weekly basis, or more often as necessary. NMFS will be informed of the initial SPL measurements taken at the 500–m (1,640–ft) contour and the final safety-zone radius established. Monitoring reports will be faxed to NMFS on a monthly basis during open-water pile driving activity. The monthly report will include a summary of the previous month's monitoring activities and an estimate of the number of seals and sea lions that may have been disturbed as a result of pile driving activities.

Because the East Span Project is expected to continue beyond the date of expiration of this IHA (under a new IHA or under regulations pursuant to section 101(a)(5)(A) of the MMPA), CALTRANS will provide NMFS' Southwest Regional Administrator with a draft final report before 90 days after expiration of this IHA. This report should detail the monitoring protocol, summarize the data recorded during monitoring, and estimate the number of marine mammals that may have been harassed

due to pile driving. If comments are received from the Regional Administrator on the draft final report, a final report must be submitted to NMFS within 30 days thereafter. If no comments are received from NMFS, the draft final report will be considered to be the final report.

National Environmental Policy Act (NEPA)

NMFS has prepared an EA and made a Finding of No Significant Impact (FONSI). Therefore, preparation of an environmental impact statement on this action is not required by section 102(2) of the NEPA or its implementing regulations. A copy of the EA and FONSI are available upon request (see **ADDRESSES**).

Endangered Species Act (ESA)

On October 30, 2001, NMFS completed consultation under section 7 of the ESA with the FHWA on the CALTRANS' construction of a replacement bridge for the East Span of the SF-OBB in California. The finding contained in the Biological Opinion was that the proposed action at the East Span of the SF-OBB is not likely to jeopardize the continued existence of listed anadromous salmonids, or result in the destruction or adverse modification of designated critical habitat for these species. Listed marine mammals are not expected to be in the area of the action and thus would not be affected. However, issuance of this IHA to CALTRANS constitutes an agency action that authorizes an activity that may affect ESA-listed species and, therefore, is subject to section 7 of the ESA. However, as the effects of the activities on listed salmonids were analyzed during a formal consultation between the FHWA and NMFS, and as the underlying action has not changed from that considered in the consultation, the discussion of effects that are contained in the Biological Opinion issued to the FHWA on October 30, 2001, pertains also to this action. In conclusion, NMFS has determined that issuance of an IHA does not lead to any effects to listed species apart from those that were considered in the consultation on FHWA's action.

Determinations

For the reasons discussed in detail in this document, NMFS has determined that the impact of pile driving and other activities associated with construction of the East Span Project, (described in this document), should result, at worst, in the Level B harassment of small numbers of California sea lions, Pacific harbor seals and potentially gray whales that inhabit or visit SFB in general and the vicinity of the SF-OBB in particular. While behavioral modifications, including temporarily vacating the area around the construction site, may be made by these species to avoid the resultant visual and acoustic disturbance, the availability of alternate areas within SFB and its haul-out sites (including pupping sites) and feeding areas within the Bay has led NMFS to determine that this action will have a negligible impact on California sea lion, Pacific harbor seal, and gray whale populations along the California coast.

In addition, no take by level A harassment (injury) or death is anticipated and harassment takes should be at the lowest level practicable due to incorporation of the mitigation measures mentioned previously in this document.

Authorization

For the reasons previously discussed, NMFS has issued an IHA for a 1–year period, for the incidental harassment of harbor seals, California sea lions and California gray whales by the construction of a replacement bridge for the East Span of the San Francisco-Oakland Bay Bridge in California, provided the previously mentioned mitigation, monitoring and reporting requirements are incorporated.

November 4, 2003.

Laurie K. Allen,

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

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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[I.D. 110603A]

Magnuson-Stevens Act Provisions; General Provisions for Domestic Fisheries; Application for Exempted Fishing Permits (EFPs)

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

ACTION: Notification of a proposal for EFPs to conduct experimental fishing; request for comments.

SUMMARY: The Assistant Regional Administrator for Sustainable Fisheries, Northeast Region, NMFS (Assistant Regional Administrator) has made a preliminary determination that the subject EFP application contains all the required information and warrants further consideration. The Assistant Regional Administrator has also made a preliminary determination that the activitiesauthorized under the EFP would be consistent with the goals and objectives of the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP). However, further review and consultation may be necessary before a final determination is made to issue the EFP. Therefore, NMFS announces that the Assistant Regional Administrator proposes to recommend that an EFP be issued that would allow two vessels to conduct fishing operations that areotherwise restricted by the regulations governing the fisheries of the Northeastern United States. The EFP would allow for exemptions from the FMP as follows: Minimum mesh size in the southern Gear Restricted Area (GRA) for fishing for Loligo squid with a 1 7/8–inch (4.8–cm) diamond mesh codend net; and scup landing limits for Winter I period.

Regulations under the Magnuson-Stevens Fishery Conservation and Management Act require publication of this notification to provide interested parties the opportunity to comment on applications for proposed EFPs.

DATES: Comments on this document must be received on or before December 1, 2003.

ADDRESSES: Written comments should be sent to Patricia A. Kurkul, Regional Administrator, NMFS, Northeast Regional Office, 1 Blackburn Drive, Gloucester, MA 01930. Mark the outside of the envelope ''Comments on Loligo Gear Modification Study EFP Proposal.'' Comments may also besent via facsimile (fax) to (978) 281–9135.

FOR FURTHER INFORMATION CONTACT: Brian Hooker, Fishery Management Specialist, phone 978–281–9220.

SUPPLEMENTARY INFORMATION: The NMFS Northeast Fisheries Science Center submitted a complete application for an EFP on October 23, 2003. The experimental fishing application requests authorization to allow the quantitative assessment of the effectiveness of a 5 3/4–inch (14.6–cm) square mesh cylinder, installed as an extension of a Loligo squid net, in reducing scup bycatch and in retaining commercial quantities of Loligo squid. The study would be conducted during the month of January 2004. Sampling would be conducted in the northern portion of the Southern GRA, approximately between 39° 20′ N lat. and 38° 00' N lat., at locations where scup and Loligo co-occur. The depth range within the GRA sampling area is approximately 40 to 100 fathoms (73 to 183 m). Stations would be located