

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-OB, in San Francisco Bay (SFB, or the Bay), California.

Project Description

The SF-OB 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-OB, 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