

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 a maximum 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-OB. This air bubble curtain system will consist of concentric layers of perforated aeration pipes stacked