

Memorandum

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Date: December 17, 2003

File:

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Subject: SFOBB East Span Project Monitoring Update

MARINE MAMMAL MONITORING

On December 8, 10 and 13, NOAA-Fisheries-approved marine mammal monitors conducted monitoring in the vicinity of Piers E5 and E6. Surveys were conducted by the Richmond Bridge Harbor Seal Survey Team at the Yerba Buena Island (YBI) and Point Bonita (used as the control site) harbor seal haul-out sites on December 8 and 10. No monitoring occurred at the YBI haul-out on December 13 (Saturday) because access to the U.S. Coast Guard property is not allowed on weekends. A marine mammal safety zone (MMSZ) of 100 meters around the pile-driving site was used for the small hammer (Menck 500 kilojoules (kJ)) based on acoustic data that had been collected during previous pile driving. A MMSZ of 500 meters around the pile-driving site was used for the large hammer (Menck 1,700 kJ) because no acoustic data had been analyzed and verified prior to the pile driving.

On December 22, NOAA-Fisheries-approved marine mammal monitors conducted monitoring in the vicinity of Pier E5. No monitoring occurred at the YBI haul-out site because access to the U.S. Coast Guard property was not allowed during Christmas week. A MMSZ of 100 meters around the pile-driving site was used for both the small (Menck 500 kJ) and large (Menck 1,700 kJ) hammers based on acoustic data that had been collected during previous pile driving.

On January 5 and 6, NOAA-Fisheries-approved marine mammal monitors conducted monitoring in the vicinity of Pier E4 and at the Point Bonita harbor seal haul-out site on January 5. A survey was conducted by the Richmond Bridge Harbor Seal Survey Team at the YBI harbor seal haul-out site on

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January 5. A MMSZ of 100 meters around the pile-driving site was used for the small hammer (Menck 500 kJ) based on acoustic data that had been collected during previous pile driving.

The marine mammal monitors did not observe any indications that marine mammals at any of the locations were disturbed due to East Span construction activities.

Weekly Marine Mammal Monitoring Reports are posted on our website: www.biomitigation.org.

HYDROACOUSTIC RESULTS

December 10, 2003, hydroacoustic measurements at Pier 6E (Top Piles-Group B): The bubble curtain was operating continuously throughout this driving event. All sound pressures reported are in decibels (dB) referenced to a pressure of one micro Pascal (re 1 μ Pa). Please note that these sound pressures should be considered DRAFT at this time. Some observations to note: 1. As with previous measurement observations for this pier, the area encompassed by RMS sound pressure levels of 190 dB or greater was within 100m of the piles driven, regardless of the hammer used. These measurements indicate that it may be closer to 50m from the pile, but previous measurements have found RMS levels up to 195 dB at 50m. 2. Sound pressures were 1 to 2 dB higher when the Menck 1,700 kJ hammer was used in comparison to the Menck 500 kJ hammer. This difference is based on sound pressures measured for the north pile at 55m east and 1000m south when each hammer was used. 3. Sound pressures measured near 50m and 100m were similar to the sound pressures measured previously. The sound pressures at 500m south were much lower than those previously measured for the Group A tops. 4. As previously reported, measurements to the south of the pier appeared to be lower than those measured for Pier E10, indicating that the bottom flanking that was clearly present for the cofferdam measurements appears to be less substantial at Pier E6. However, sound pressures were greater at 1000m southeast than 500m south or 1000m south. This indicates that there may still be some flanking path to the southeast. If present, that flanking path does not appear to produce the higher sound pressures measured at Pier E10.

A final report will be posted on the web at www.biomitigation.org within 90 days after completion of the eastbound piers on the Skyway Contract.

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CAGED FISH STUDIES

December 22, 2003: The fourth caged fish monitoring trip was conducted at Pier E5, Group B tops with the large hammer. The bubble curtain was on throughout the monitoring period. Six batches each of shiner surfperch and rainbow/steelhead were brought along. Shiner surf perch and rainbow trout were exposed to pile driving approximately 28 meters from the pile driving, which was originally thought to be in the near-term mortality zone. Cages were exposed for 1, 3, 5 and 10 minutes for each species. There were no near-term mortalities (< 1 hour). There were delayed mortalities; however it appears that all mortalities were associated with disease, smoltification and handling stress and none due to barotrauma.

More detailed results of this monitoring event will be presented once the sound pressure levels are verified and the necropsies are completed.

The preliminary results indicate, to date for all of the caged fish studies, there is zero percent mortality due to barotrauma. Thus far it appears that all mortalities are due to handling stress, smoltification stress, transport problems, disease and parasites, but all the necropsies have not been completed.

Once all of the caged fish studies are complete, a final report will be posted on the web at www.biomitigation.org by June 1, 2004.

BIRD MONITORING

Done on a weekly basis and reports are posted on the web: www.biomitigation.org.

I hope you find this information useful. If you have any questions regarding the data collected thus far, please contact me at 510-622-5160.