



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southwest Region
501 West Ocean Boulevard, Suite 4200
Long Beach, California 90802- 4213

SEP 15 2005

In Response Refer To:
151422SWR2005SR00623:KAS

Lieutenant Colonel Philip T. Feir
District Engineer
U.S. Department of the Army
San Francisco District, Corps of Engineers
333 Market Street 8th Floor
San Francisco, California 94105-2197

Dear Colonel Feir:

Thank you for your letters dated June 30, 2005, July 25, 2005, and August 3, 2005, requesting initiation of consultation pursuant to section 7 of the Endangered Species Act (ESA) and the Essential Fish Habitat (EFH) provisions of the Magnuson Stevens Fishery Conservation and Management Act (MSFCMA). This consultation pertains to the proposed Monterey Bay Aquarium Research Institute (MBARI) Monterey Accelerated Research System (MARS) project. The project location extends from an onshore area in Moss Landing, California, to the upper slope of the submarine canyon within Monterey Bay. The U.S. Army Corps of Engineers (Corps) proposes to authorize the project (Corps No. 28786S) pursuant to the provisions of section 10 of the Rivers and Harbors Act of 1899 (33 USC §403) and section 404 of the Clean Water Act (33 USC §1344).

The MARS project involves installation and operation of an undersea cabled observatory. The observatory consists of 31.7 miles of a 28-millimeter-diameter cable connecting an onshore station to a research node located approximately 20 miles offshore at a water depth of 891 meters. The research node is approximately 4.6-meters long by 3.7-meters wide by 1.2-meters high and would be housed in a trawl-resistant frame. Prior to cable installation, a grapnel hook will be towed along the length of the cable route to remove any trash or debris. The cable will then be installed through a directionally-drilled bore hole from the onshore station to a point approximately 1 mile offshore at a water depth of approximately 15 meters. Beginning at the offshore end of the bore hole and extending across the continental shelf, the cable will be installed using a mechanical plow system that simultaneously positions and buries the cable to a depth of approximately 1.1 meters beneath the seafloor surface. A remotely-operated vehicle will be used to identify soft bottom areas where the cable is not buried by the plow. In these areas, post-lay burial will be achieved using jetting. Between the continental shelf break and upper slope (roughly 90 meters - 450 meters water depth) in areas of exposed rocks, carbonate outcrops, and cemented sediment, the cable will lie directly on the seafloor surface. From the upper slope to the research node, the cable will again be buried using a mechanical plow.



MBARI estimates that approximately 24.4 miles of cable (76%) will be fully buried, 1.9 miles of cable will be partially buried (to a depth less than 1.1 m; 6%), and 5.6 miles (18%) will remain unburied on the seafloor surface. In areas of no burial, MBARI will conduct post-lay inspections and adjustments of the cable to ensure the cable has appropriate amount of slack and follows the bottom contours to minimize movement and abrading on the seafloor during times of high currents or storm activity.

Cable and research node installation is planned to occur between September 1 and November 15, 2005. Directional drilling will take 2 weeks to complete. Cable burial will take from 5 days to 2 weeks to complete. MBARI will inspect the "highest risk" areas of the cable route 2 years after installation and every 5 years thereafter. MBARI anticipates the MARS project will have a life span of approximately 25 years. Once the project has ended, the cable and research node will be removed.

The Corps has determined the proposed project is not likely to adversely affect ESA-listed salmonids, sea turtles, or marine mammals; is not likely to adversely affect marine mammals protected under the Marine Mammal Protection Act; and will not result in substantial adverse effects to EFH.

Endangered Species Act (ESA)

Section 7 of the ESA (16 U.S.C. § 1536(a)(2)) requires Federal agencies consult with the Secretary of Commerce (delegated to NOAA's National Marine Fisheries Service (NMFS)) to ensure that "any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species . . ." See also 50 C.F.R. part 400.

NMFS has reviewed the letter dated July 25, 2005, and the documentation provided, and concurs that the project may affect, but is not likely to adversely affect ESA-listed salmonids. ESA-listed South-Central California Coast steelhead (*Oncorhynchus mykiss*) and Central California Coast coho salmon (*O. kisutch*) may be present in the action area during project implementation. If these salmonids are present during construction, the potential for adverse effects from the MARS project is considered negligible because the action will occur at the bottom of the ocean, away from shore, where salmonids are less likely to be located.

NMFS has reviewed the letter dated August 3, 2005, and received in our office on August 8, 2005, and the documentation provided, and concurs that the project may affect, but is not likely to adversely affect the Steller sea lion (*Eumetopias jubatus*), blue whale (*Balaenoptera musculus*), fin whale (*B. physalus*), sei whale (*B. borealis*), humpback whale (*Megaptera novaeangliae*), northern right whale (*Eubalaena glacialis*), sperm whale (*Physeter macrocephalus*), leatherback sea turtle (*Dermochelys coriacea*), olive ridley sea turtle (*Lepidochelys olivacea*), and green sea turtle (*Chelonia mydas*). If marine mammals or sea turtles are present during construction, the potential for adverse effects from the MARS project are considered negligible for the following reason: Marine mammal monitors will be present and

will have the authority to stop work, should marine mammals or sea turtles enter the established safety zone, until there is no longer a threat to animals transiting through the area (See discussion under the Marine Mammal Protection Act regarding the marine mammal safety zone). Should additional information on listed or proposed species become available, this determination may be reconsidered. Please be advised that this letter does not authorize take of any ESA-listed salmonids, marine mammals, or sea turtles.

This concludes consultation in accordance with 50 CFR §402.14(b)(1) for the proposed MBARI MARS project. However, further consultation may be required if: (1) new information becomes available indicating that listed species or critical habitat may be adversely affected by the project in a manner not previously considered, (2) current project plans change in a manner that affects listed species or critical habitat, or (3) a new species is listed or critical habitat designated that may be affected by the action.

Marine Mammal Protection Act (MMPA)

Whales, dolphins, seals and sea lions are protected under the MMPA and managed under the jurisdiction of NMFS (*See* 16 U.S.C. § 1361 *et seq.*). According to the MMPA, it is illegal to "take" a marine mammal without prior authorization from NMFS. "Take" is defined as harassing, hunting, capturing, or killing, or attempting to harass, hunt, capture, or kill any marine mammal. Under the MMPA, "take" of a small number of marine mammals is permitted by NMFS under an Incidental Harassment Authorization (IHA) when the specified activity is incidental, but not intentional. "Harassment" is defined as any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal in the wild, or has the potential to disturb a marine mammal in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. Based on the information provided at this time for the proposed project, NMFS does not recommend that the Corps apply for an IHA.

In an e-mail message to Adrienne Fink dated June 22, 2004, Monica DeAngelis, of my staff, provided initial comments based on information provided with the permit application submitted to the California State Lands Commission. In March 2005, NMFS received the Draft Environmental Impact Report/Environmental Impact Statement for the MARS cabled observatory. The document had incorporated all of NMFS' comments from the June 22, 2004, e-mail message. In addition, NMFS has also reviewed the Draft Marine Mammal Monitoring Plan (Plan) dated July 11, 2005. In several areas of the Plan, the marine mammal safety zone is either listed as 500 feet or 500 meters. Ms. Fink indicated in an e-mail message dated July 12, 2005, to Ms. DeAngelis, that the proposed marine mammal safety zone is 500 feet, not 500 meters.

NMFS is concerned that sounds introduced into the sea by man-made devices could have a deleterious effect on marine mammals by causing stress, interfering with communication and predator/prey detection, and changing behavior. More significantly, acoustic overexposure to loud sounds can lead to a temporary or permanent loss of hearing (termed a temporary or permanent threshold shift). NMFS is currently in the process of determining safety criteria for marine species exposed to underwater sound. Based on past projects involving sonar,

consultations with experts, and on published studies, we have preliminarily determined that pinnipeds can be safely exposed to impulse sound pressure levels not greater than 190 decibels referenced to 1 microPascal root mean square (dB re 1 $\mu\text{Pa}_{\text{RMS}}$). However, marine mammals have shown behavioral changes when exposed to impulse sound pressure levels of 160 dB re 1 $\mu\text{Pa}_{\text{RMS}}$.

The Plan indicates that the minimum safety zone during project installation would include all areas where underwater sound pressure levels are anticipated to equal or exceed 160 dB re 1 $\mu\text{Pa}_{\text{RMS}}$. On September 8, 2005, Ms. Fink provided the Staff Report: Coastal Development Permit Application & Consistency Certification (Report), submitted to the California Coastal Commission (CCC). MBARI estimates that at 100 feet from the sound source (hydraulic plow), sound will attenuate to 160dB re 1 $\mu\text{Pa}_{\text{RMS}}$, however Ms. Fink indicated that she was not able to verify the 100 foot estimate referenced in the Report at the time this letter was written. Within the proposed safety zone, two marine mammal monitors will be stationed on a vessel at all times to monitor for the presence of marine mammals. Special Condition 11 requires that prior to issuance of the CCC permit, MBARI must verify, in the field, the 500 foot marine mammal safety zone. MBARI shall adjust the safety zone outward, if necessary, if the distance to a received sound level of 160 dB re 1 $\mu\text{Pa}_{\text{RMS}}$ is greater than 500 feet. In general, when there are acoustic unknowns associated with a proposed project, NMFS recommends that acoustic levels are modeled and then verified by field measurements. A 500 meter safety zone is recommended until field measurements are taken, not a 500 foot safety zone. During a phone call between Ms. Fink and Ms. DeAngelis on September 14, 2005, Ms. Fink agreed that MBARI would begin with a 500 meter safety zone and reduce the distance, if the distance to a received sound level of 160 dB re 1 $\mu\text{Pa}_{\text{RMS}}$ is less than a 500 meter marine mammal safety zone.

Please be advised that this letter does not authorize take of marine mammals as defined under the MMPA.

For questions related to marine mammals, please contact Monica DeAngelis at (562) 980-3232. Although vessels associated with this project will travel slowly, in the unlikely event of a collision with a marine mammal or sea turtle, officials must immediately contact the NMFS Stranding Coordinator, Mr. Joseph Cordaro at (562) 980-4017.

Essential Fish Habitat (EFH)

The project is located within an area identified as EFH for various life stages of fish species managed with the Pacific Groundfish Fishery Management Plan (FMP), Coastal Pelagics FMP, and Pacific Coast Salmon FMP. NMFS has evaluated the proposed project for adverse effects to EFH pursuant to section 305(b)(2) of the MSFCMA. NMFS anticipates the following adverse effects will occur as a result of project activities: temporary loss of areas for feeding and growth due to turbidity increase and benthic disturbance from cable burial and pre-burial grapnel run; and degradation of areas for feeding, rearing, growth, and reproduction due to removal of biotic community from hard bottom habitat during cable movement.

Increases in turbidity and benthic disturbance are unavoidable during cable burial. The mechanical plow typically will disturb a 6-foot swath of benthic habitat along the cable route. While this disturbance will occur along the entire 24.4 mile length of buried cable, the area disturbed represents a small percentage of similar habitat available along the continental shelf within Monterey Bay. Furthermore, effects will be temporary; turbidity is expected to dissipate quickly as the plow moves along the route, and benthic invertebrates should fully re-establish within the plow footprint with colonization from surrounding areas.

Cable movement across hard bottom communities could result in long-term degradation of EFH if movement is severe enough and frequent enough to remove and prevent recolonization of biotic communities. MBARI surveys document that rock outcrops on the continental shelf break and upper slope along the cable route "house a variety of sessile invertebrates that serve as physical structure favored by various mobile fishes and invertebrates" (MBARI 2005). MBARI has attempted to minimize the area of impact to hard bottom habitat through the cable route chosen and by conducting post-lay inspections and adjustments. Ensuring appropriate cable slack will lessen the likelihood that the cable will swing back and forth with water movement.

NMFS concludes the proposed MBARI MARS project will result in less than substantial but more than minimal adverse effects to EFH. To avoid and minimize these effects, NMFS provides the following EFH conservation recommendations pursuant to section 305(b)(4)(A) of the MSFCMA.

EFH Conservation Recommendations

1. To avoid degradation of hard bottom communities, during the pre-lay grapnel run, MBARI should avoid areas where rock outcrops, escarpments, carbonated substrate, or other hard-bottom habitats are present.
2. Should inspections of high risk areas indicate that cable movement is disturbing hard bottom biotic communities, MBARI should implement measures to reduce these impacts and notify NMFS in writing of measures being implemented. Possible measures may include adjusting cable slack or anchoring the cable to the seafloor.

Please be advised that regulations (50 CFR Section 600.920) to implement the EFH provisions of the MSFCMA require your office to provide a written response to this letter within 30 days of its receipt and prior to the final action. A preliminary response is acceptable if final response cannot be completed within 30 days. Your final response must include a description of how the EFH Conservation Recommendations will be implemented and any other measures that will be required to avoid, mitigate, or offset the adverse impacts of the activity. If your response is inconsistent with our EFH Conservation Recommendations, you must provide an explanation for not implementing those recommendations at least 10 days prior to final approval of the action.

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If the proposed project changes in a manner that results in new adverse impacts to EFH, or if new information indicates there may be adverse impacts not previously considered, the Corps should reinitiate EFH consultation with NMFS. For questions related to EFH or the MSFCMA, please contact Korie Schaeffer at (707) 575-6087.

We appreciate your efforts to comply with Federal regulations and to conserve and protect marine resources. Please contact Korie Schaeffer at (707) 575-6087 or at Korie.Schaeffer@noaa.gov if you have any questions concerning this letter or if you require additional information.

Sincerely,



Rodney R. McInnis
Regional Administrator

cc: Philip S. Hill, NMFS, Long Beach, California
Jane Hicks, Corps, San Francisco, California
Adrienne R. Fink, Ecology and Environment, Inc.

Literature Cited

Monterey Bay Aquarium Research Institute (MBARI). 2005. Final Application for Project Authorization; Monterey Accelerated Research System (MARS). Prepared by Ecology and Environment, Inc. for U.S. Army Corps of Engineers File #28786S.