



Bethel Island Bridge replacement Oakley, CA

Underwater noise monitoring

Owner
Contra Costa County
Public Works Department

Contractor
CC Meyers

New Structure Length
870 feet

Project Value / Duration
\$14M / 2009 ~ 2010

VACC Project Scope
Underwater Noise Monitoring
(Hydroacoustic Monitoring)

The existing timber-structure Bethel Island Bridge was outdated, to be replaced by a new nine-span structure supported by cast-in-steel-shell concrete piles.

The bridge is in a delicate part of the Delta Region of the San Francisco Bay. Several species of endangered fish, turtle, and waterfowl are present, therefore requiring environmental monitoring of construction activities.

We were asked to monitor underwater noise levels due to pile driving. NOAA established an underwater noise (hydroacoustic) criterion for the project, at 192dB@10m for temporary piles and 202dB@10m for permanent piles. Based on temporary piling, our monitoring revealed typical underwater noise levels of about 186dB, six decibels below the limit.

Exceedances were anticipated when permanent piling started, so the contractor planned to implement a “bubble curtain” mitigation, with a fallback plan of dewatering, if the bubble curtain failed to provide sufficient attenuation.

Our semi-attended hydrophone monitoring allowed immediate feedback for the Engineer and daily reporting to the County for recordkeeping and compliance with NOAA regulations.

