Hydroacoustic Project Information Checklist

This checklist indicates project information needed for preparation of the hydroacoustic biological analysis. This information will assist the project biologist in evaluating effects of anticipated actions that produce underwater sound pressure levels, as well as impacts to fish and other in-water species. Certain items may not be applicable, and/or additional items may be requested, during consultation with state and federal resource agencies. For additional information on hydroacoustics and biological assessment guidance see the Caltrans Hydroacoustics web page.

Project Information Description	Needed	Completed
Project Description: Describe the location, purpose, need, and basic design and construction methods.		
Environmental Setting: Describe the drainage, indicate the width, depth, approximate flow, whether tidally influenced, fresh, salt, or estuarine conditions, and the habitat types present.		
Special-Status Species: Identify special-status species that have the potential to occur in the project action area. Review the Standard Environmental Reference for guidance on acquiring state and federal-listed species lists with the potential to occur in the project action area. Document any designated critical habitat within the project action area.		
Essential Fish Habitat (EFH): Identify EFH within the project action area. The EFH analysis is included within the Biological Assessment. The Pacific Salmon EFH in California includes only Chinook and Coho salmon habitats.		
Agency Consultation: Provide information regarding consultations (e.g., meetings, phone discussion, decisions, prior written documentation), and include any changes made to the project description.		

Pile and Driving Activities Description	Needed	Completed
Type(s) and number of piles: Specify the number of permanent and temporary piles; include the size and locations of piles (e.g., 24-inch steel shell piles, in approximately 2 meters of water).		
Location of piles in the channel: Provide plans that include the water depth and channel width in design plan view. Illustrate the approximate locations of temporary and permanent piles. Indicate the location of piles not driven in the water to ordinary high water.		
Type(s) of Pile Driver(s) to be used: Identify whether impact hammer, vibratory, or other type of hammer would be used.		
Project Phasing for Pile Driving: Indicate the duration of the project, (e.g., work proposed during which years and/or work windows).		
Number of Pile Strikes per Day: Estimate the number of strikes per pile to final elevation, based on the pile type and project substrate (engineers estimate).		
Number of piles Driven Per Day and Total Pile Driving Days: Estimate of the number of piles anticipated to be driven in a day and how many hours of pile driving expected per working day (a 12-hour rest period is required between driving events).		

Attenuation Description	Needed	Completed
Cofferdams: Are cofferdams proposed for foundations construction? If yes, will the cofferdams be excavated and dewatered for footing construction? If proposed, provide information on size, location, placement methods, and when they will be installed and removed.		
Sound Pressure Attenuation: For pile driving proposed within the wet channel with an estimated peak elevation of 206 dB or greater (i.e., 24-inch CISS piles or larger), identify the attenuation proposed for use (e.g., bubble curtain, isolation casing, dewatered cofferdam), and indicate which piles will be used for attenuation. Estimate the decrease in sound pressure due to the attenuation device.		
Methods of Evaluation: Describe the methods used to evaluate the potential effects on fish of pile driving noise (e.g., NMFS calculator, etc.).		

Results – Reporting the Outcome of the Analysis	Needed	Completed
Project Action Area: Define the project action area for pile driving. The distance at which the generated underwater sound pressure attenuates to the background level is considered the project action area for pile driving sound pressure. The injury threshold is generally a much smaller area.		
Acoustic Impact Area: Use the calculator tool and compendium data to estimate transmission loss of underwater sound pressure for the dual metric injury threshold (Peak and cSEL), as well as the distance to the estimated default for sub-injurious impacts (currently 150 dB RMS). Include, in the appendix of the application, the XL calculator tool for each pile type/size.		
Impact Assessment: Estimate the number of individual listed species and/or area of critical or species habitat potentially affected by project generated underwater sound pressure.		

Avoidance, Minimization, and Mitigation	Needed	Completed
Project Timing: List work windows for aquatic, or other species.		
Best Management Practices: Include designs that purposely span the channel, which increase project cost but minimize in-channel work needed. Include any proposed temporary trestles, barges, or other access that minimizes impacts to avoid fill within the channel. Include water bladders or coffer dams that isolate work areas for water quality.		
Attenuation: Include any attenuation devices that minimize the isopleth areas of peak and accumulative underwater sound pressure (e.g., bubble curtains, coffer dams, isolation casing, etc.)		
Mitigation for take of Listed Species: Identify the potential mitigation for take of state-listed species. Under CESA, the State requires mitigation for take. The mitigation must offset the loss of individuals due to the project. Use the best available science, surveys, and population estimate models.		
Performance Measures: Identify performance measures and proposed underwater noise monitoring to verify project underwater sound pressure estimates during construction actions. *Note:* Projects often propose to monitor a cross section of piles types/sizes, and then discontinue if estimates are at, or below, the estimated levels. Large, complicated projects may need to propose continuous monitoring.		