

Revised Attachment 1 to Self-Monitoring Plan:

Table 4-2. Monitoring of Indicators for Ecological Functions and Habitat Values Required to Assess Mitigation Success for the Guadalupe River Project. Although specific periods are indicated for "Duration of Monitoring," the need for monitoring of each indicator will be reassessed by the AMT throughout the life of the Project.

Indicator	Monitoring Plan				
	Monitoring Activity	Location of Monitoring	Begin Monitoring	Frequency of Monitoring	Duration of Monitoring
Riparian Vegetation					
Survival	Counts of planted trees and shrubs with minimum health and vigor rating of fair	Permanent plots in Project area	August/September following planting	Annual	3 years from planting
Health and vigor	Visual assessment of foliage, wood, and root crown	Permanent plots in Project area and reference sites	August/September following planting	Annual	5 years from planting
Natural recruitment	Visual counts of naturally recruited native woody species	Permanent plots in Project area and reference sites	August/September in year 5 after planting	Once	5 years from planting
Cover	Percentage cover along a line intercept transect, aerial photographs	Permanent transects in Project area and reference sites	August/September in year 4 after planting	Annual for years 4 and 5, then every 6th year	40 years from planting
Nonnative species	Percentage cover by nonnative species along a line intercept transect, aerial photographs	Project area	August/September following planting	Annual for first 5 years after planting, then every 6th year	40 years from planting
Tree height	Stadia rod measurement of young trees, then measurement by clinometer	Permanent plots in Project area and reference sites	5 years after planting	Every 5th year	40 years from planting
Tree basal area	Tree diameter measured at breast height	Permanent plots in Project area and reference sites	5 years after planting	Every 5th year	40 years from planting
Shaded Riverine Aquatic (SRA) Cover					
Survival	Counts of planted trees and shrubs	Project area, Guadalupe Creek, Reach A	August/September following planting	Annual	3 years from planting
Health and vigor	Visual assessment of foliage, wood, and root crown	Permanent plots in Project area, Guadalupe Creek, Reach A, and reference sites	August/September following planting	Annual	5 years from planting
Natural recruitment	Visual counts of naturally recruited native woody species	Permanent plots in Project area, Guadalupe Creek, Reach A, and reference sites	August/September in year 5 after planting	Once	5 years from planting

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Nonnative species	Percentage cover by nonnative species along a line intercept transect, aerial photographs	Project area, Guadalupe Creek, Reach A	August/September following planting	Annual for first 5 years after planting, then every 6th year	40 years from planting
Shaded stream surface	Evaluation of aerial photographs; field verified	Adjacent to permanent plots in Project area, Guadalupe Creek, Reach A	August/September following planting	Every 3rd year	40 years from planting
Bank Stability	Field surveys; evaluation of aerial photographs	Project area, Guadalupe Creek, Reach A	Between April-October following planting	Annual for four years, then every 3rd year	10 years from construction
Instream cover	Measured within 10-foot wide transect bands perpendicular to the stream channel	Project area, Guadalupe Creek, Reach A	Between April-October immediately after construction	Every 3rd year	10 years from construction
Channel bed stability	Measure channel depth at permanent cross sections	Project area	Between April-July for preproject and immediately after construction	Annual	10 years from construction
Water Temperature					
Monthly thermal suitability	Hourly water temperature simulation	Project area, Guadalupe Creek, Reach A	Preproject	Annual	40 years from construction
	Hourly water temperature	Project area, Guadalupe Creek, Reach A	Preproject	Hourly	40 years from construction
	Measure heat transfer	Project area, Guadalupe Creek, Reach A	Preproject	Pre- and Post-project then every 5th year for March, June, and September	40 years from construction
	Measure stream channel geometry	Project area, Guadalupe Creek, Reach A	Preproject	Pre- and post-project, then every 5th year for normal winter and summer flow conditions	40 years from construction
Short-term thermal suitability	Hourly water temperature simulation	Project area, Guadalupe Creek, Reach A	Preproject	Monthly	10 years from construction
	Hourly water temperature	Project area, Guadalupe Creek, Reach A	Preproject	Hourly	40 years from construction

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	Monitoring Activity	Location of Monitoring	Begin Monitoring	Frequency of Monitoring	Duration of Monitoring
	Measure heat transfer	Project area, Guadalupe Creek, Reach A	Preproject	Pre- and post-project, then every 5th year for March, June, and September	40 years from construction
	Measure stream channel geometry	Project area, Guadalupe Creek, Reach A	Preproject	Pre- and post-project, then every 5th year for normal winter and summer flow conditions	40 years from construction
Anadromous Fish Spawning Habitat					
Spawning gravel abundance	Measure gravel patches	Project area, Guadalupe Creek, Reach A	Between March - October	Annual for 5 years, then every 5th year	10 years from construction
Spawning gravel quality	Visual assessment of particle size and fine sediment occurrence	Project area, Guadalupe Creek, Reach A	Between March - October	Annual for 5 years, then every 5th year	10 years from construction
Anadromous Fish Passage and Rearing Habitat					
Depth and velocity	Visual assessment of critical stream reaches	Project area, Guadalupe Creek, Reach A	October; immediately after construction	Every 2 weeks and within 3 days of major storm events through March	Throughout the life of the Project
	Measure depth and velocity	Project area, Guadalupe Creek, Reach A	October	Annual; October and when needed	10 years from construction
Vertical barrier	Visual assessment of critical stream reaches	Project area, Guadalupe Creek, Reach A	October, immediately after construction	Every 2 weeks and within 3 days of major storm events through March	Throughout the life of the Project
	Measure barrier; height, length, and staging pool depth	Project area, Guadalupe Creek, Reach A	October	Annual; October and when needed	10 years from construction
Rearing habitat diversity	Enumerate and measure length of riffles, pools, runs, and backwater areas	Project area, Guadalupe Creek, Reach A	Between May - September for preproject	Annual during first 5 years following construction, then every 5th year	10 years from construction
Anadromous Fish Occurrence					
Adult migration and spawning	Visual observation of adult fish and spawning activity	Project area, Guadalupe Creek, Reach A	October for preproject	Four times each year; October, November, February, and March	10 years from construction

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Juvenile rearing	Method developed cooperatively by NMFS, SCVWD, the Corps, and CDFG	Project area, Guadalupe Creek, Reach A	September/October for preproject	Three times each year; September/October, March/April, and June/July	10 years from construction
Juvenile migration	Method developed cooperatively by NMFS, SCVWD, the Corps, and CDFG	Downstream from Interstate 101	March for preproject	Continuous from March to May, may be extended into June	10 years from construction
Mercury Transport and Potential for Methylation					
Segments 1, 2, and 3 and Reach A: methyl mercury concentrations in riverbed and suspended sediments	Specific monitoring activities will be developed by the RWQCB in coordination with the Corps and SCVWD	In freshwater, wetland, and riparian environments in Segments 1, 2, and 3 and Reach A at sites approved by the RWQCB	2001	In accordance with RWQCB requirements	5 years
Guadalupe River Watershed: Total suspended solids, total and bioavailable mercury, and methyl mercury concentrations in riverbed and suspended solids	Specific monitoring activities will be developed by the RWQCB in coordination with SCVWD	In freshwater, seasonal wetland, and riparian environments in the Guadalupe River Watershed at site approved by the RWQCB	2001	In accordance with RWQCB requirements	One year

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<u>Guadalupe River Watershed: total (unfiltered) mercury in water; dissolved (filtered) mercury in water; total (unfiltered) methylmercury in water; dissolved (filtered) methylmercury in water; general water quality parameters (including but not limited to dissolved oxygen, pH, temperature, nutrients (on occasion as required by Water Board)); suspended sediment concentrations (or total suspended solids); and continuous flow.</u>	<u>Water (grab) samples will be collected at the sampling stations during the period of October 1st to April 30th.</u>	<u>Two guage stations: 1.) 23b 2.) USGS gage 1169025 (downstream gage at Highway 101).</u>	<u>2009</u>	<u>Water (grab) samples will be collected at the sampling stations during: 1.) Peak storms in 4 out of 5 years, and both small and peak storms in at least 1 out of 5 years, 2.) First seasonal flush runoff (runoff from first storm event of the season), 3.) Both rising and falling flow stages, 4.) 1-2 hours before an expected rise, 5.) Peak flow, 6.) After base flow is reached, and</u>	<u>Five years</u>