

**Long Range Adaptive Management Plan  
(Adapted From the Matilija Dam Ecosystem Restoration Feasibility Study Final  
Report of 2004)**

The Monitoring and Adaptive Management Plan provides an essential element in the overall implementation of the proposed habitat restoration plan. The plan provides an opportunity to review and evaluate the performance of the implemented restoration measures during and after the project, and to make adaptive changes, if required, to obtain project objectives. Early identification of ways to improve project performance often results in implementation of necessary revisions to the project. Adaptive management measures may be taken to address project performance problems such as additional removal of exotic species and revegetation.

Considerable uncertainty exists regarding removal of dams and sediment impacts as related to achieving restoration objectives and minimizing adverse impacts. This is because limited projects involving dam removal, especially large projects of the magnitude of Matilija Dam removal, have been completed to date. Given the lack of precedent and scarcity of empirical data, there is uncertainty regarding a number of aspects of the design, construction, and operation of the recommended alternative.

For the recommended plan, there is uncertainty regarding the volumes and frequency of sediment transport from flow events and resulting impacts on the ecosystem, flooding, water quality, and water supply. Monitoring with respect to project performance and achieving output objectives will be required. The effectiveness of revegetation efforts and control of exotic species are also uncertainties that need to be monitored. The monitoring of sediment transport and revegetation and exotic species control shall be accomplished through periodic surveys of sediment deposits and quantities to assure unforeseen performance results do not degrade the restored ecosystem or increase flooding or water supply impacts. Adaptive management measures to address unforeseen sediment transport impacts include partial or complete removal of deposits as well as further stabilizing sediment sources in the reservoir areas. Additional removal of exotics and revegetation efforts may also be necessary to achieve project performance objectives.

The Monitoring and Adaptive Management Plan for the recommended plan has been developed by the Environmental Working Group, with input from the Technical Studies Working Group. The goal of this effort is to restore the pre-dam natural ecology of Matilija Creek and allow species to have unobstructed access to and from the upper watershed habitat and achieve other natural habitat and ecosystem improvements. It is expected that the habitat value of the restored natural river regime will have good to above average quality. It is also expected that the restored habitat will be suitable for native wildlife. The quality of the habitats (i.e., average or high) is expected to dictate the abundance or density of wildlife. Additional goals of the Monitoring and Adaptive Management Plan include, but are not limited to, the following actions: 1) monitor deposition and erosion in the riverine system and at the estuary and take necessary actions to reduce any adverse impacts including blockage to fish passage and increase

to flooding risks; 2) monitor erosion of trapped sediment from the reservoir basin and performance of the soil cement protection, and plan and execute staged removal of soil cement; 3) monitor turbidity levels and suspended sediment concentrations with the intent to minimize impacts to water supply; 4) monitor water quality for regulated substances potentially transferred to the water by trapped sediments associated with Matilija Dam, and negotiate any necessary mitigation measures in accordance with consultations with the Regional Water Quality Control Board; and 5) monitor effects of sediment bypass to sediment deposition and diversion operations at the Robles Facility, as well as the effects to the fish passage facility function and operation, with the intent to minimize any impacts to current operating criteria of the diversion facility.

The Monitoring and Adaptive Management Plan will provide a description of: the habitats to be restored, surveys to monitor the expected natural re-introduction of native wildlife into the restored habitats, the monitoring protocols, and the performance or criteria and monitoring protocol to evaluate success of the restoration effort. The plan will also present adaptive management actions (or maintenance activities) that may be performed to ensure a successful restoration effort and reporting requirements.

The Monitoring and Adaptive Management Plan covers monitoring and adaptive management actions during the first 10 years after construction. Construction of project elements is currently scheduled through 2013. After the first 10 years, monitoring and/or adaptive management becomes the responsibility of the WPD. WPD plans to coordinate these activities with land owners in the restored areas and local stakeholders. The WPD is currently working with landowners in the project areas through outreach efforts. The most effective outreach is the knowledge of the improvements in the project areas with the exotic plants removed. Landowners are aware of the improvements in view, water quality and quantity, and, perhaps of greatest interest, reduction in fire dangers. Because giant reed is highly flammable even when green, having large stands of giant reed on a property increases the danger of fire both and is on the list of fire-risk plants to be avoided. Homeowners will be asked to work with the WPD to identify any regrowth

The United States Army Corps of Engineers (Corps) and WPD will be responsible for collecting monitoring data and preparing annual Monitoring Reports. A Technical Committee consisting of, at least, U.S. Fish and Wildlife Service, National Marine Fisheries, California State Department of Fish and Game, and possibly other agencies or organizations, will assist in collection of monitoring data, review monitoring data results, and provide recommendations of possible adaptive management measures. The Technical Committee will recommend adaptive management measures to the existing project's design should habitat not achieve the identified goal and objectives. If designed vegetation species composition are not achieved: replanting, additional irrigation, and/or removal of vegetation (especially exotics) may be necessary. Annual Monitoring Reports and any adaptive management measures recommended by the Technical Committee will be forwarded to an Executive Committee that will consist of, at least, a representative of the WPD and the Corps. The Executive Committee will decide

whether to adopt adaptive management measures recommended by the Technical Committee.

The restoration of habitat is expected to result in significant benefits to riparian and aquatic habitat. The riparian habitat is expected to benefit mainly from eradicating giant reed from the riparian zone. Giant reed will be removed from the riparian zone in the initial five years of project construction and occur systematically from the upper portion of the Matilija Creek working downstream. Four common methods are used as required:

1. cut and remove biomass with cut-stump application of herbicide
2. cut and remove biomass
3. cut and remove biomass and remove below ground rhizomes
4. aerial application of herbicides.

Initial treatment may employ any or all of these methods depending on location and density of plants, while retreatment will use only the first three methods. The contractor is required to cut and daub within 200 feet of structures, 50 feet of orchards, 15 feet of water, and 10 feet of roads. The treated giant reed was shredded about 30 days following application of foliar treatment to decrease fire danger.

All areas where giant reed and other exotic plants are retreated will require at least five years of retreatment. Since reinfestation of the Ventura River by giant reed may occur following completion of dam deconstruction activities, areas of giant reed control will be monitored and retreated annually until 2019. The last ten years will be devoted to adaptive management. Areas of reinfestation will be re-treated. Upland and tributary sources of giant reed may also be identified and controlled from the watershed under other projects, funded separately, as part of a County-wide program.

Success or failure of the habitat restoration will be based on whether giant reed is effectively controlled in the area such that riparian habitat is improved/restored.