



January 18, 2007

TO: Conservancy Members

FROM: Sam Schuchat, Executive Officer  
Trish Chapman, Project Manager

**RE: San Clemente Dam Removal Project**

As discussed on the November 8, 2006, Board tour, the Coastal Conservancy is serving as the lead State agency to help develop a project to remove San Clemente Dam on the Carmel River. This memo provides a general overview of the project, objectives, partners, key issues, and a summary of the Conservancy's current activities.

## **Introduction**

The Carmel River in Monterey County represents one of the best opportunities for river restoration on the Central Coast. Flowing through the Ventana Wilderness and the Los Padres National Forest, the Carmel River provides essential habitat for federally-threatened steelhead trout and California red-legged frog, and other important species.

Since 1921, however, the Carmel River and its wildlife resources have been impacted by San Clemente Dam. As a result of the dam, the Carmel River suffers accelerated erosion, the once vibrant steelhead run has dramatically decreased, and lives and property below the dam are threatened with dam collapse and the potential for inundation by sediment currently trapped behind the dam. Today, there is an extraordinary opportunity to remove the antiquated dam and initiate a watershed restoration process that will bring this river back to life.

## **Objective and Benefits**

The objective of the San Clemente Dam Removal Project is to collaborate with California American Water (CalAm), the owner of the dam, to remove the dam and restore the watershed processes. Key public benefits of the project include:

- *Expedite removal of a significant risk to public safety.* San Clemente Dam, which has been found to be structurally unsafe, threatens 1500 homes and other buildings in the downstream flood plain.

- *Promote recovery of the Carmel River steelhead run and significantly contribute to the recovery of South-Central California Coast steelhead population by removing a barrier to significant upstream spawning and rearing habitat.*
- *Re-establish a natural sediment regime, reducing channel incision, improving habitat for steelhead trout and other aquatic species, and reducing beach erosion that now contributes to destabilization of homes, roads and infrastructure.*

## **Project Partners**

A team of organizations has begun working together to make the dam removal project a reality. These partners include:

- California American Water, and its parent company American Water
- State of California, currently represented by the State Coastal Conservancy
- NOAA's National Marine Fisheries Service
- Planning and Conservation League Foundation

## **Project Description**

San Clemente Dam is a 106 foot-high dam located approximately 18.5 miles from the Pacific Ocean on the Carmel River in Monterey County. The confluence of the Carmel River and San Clemente Creek is located just upstream of the dam (Figure 1). When the dam was constructed in 1921, it had a reservoir storage capacity of approximately 1,425 acre-feet. Today the reservoir has been filled by more than 2.5 million cubic yards of sediment, leaving a reservoir storage capacity of approximately 125 acre-feet. At this point, the sole function of the dam is to provide a diversion point for water withdrawals from the river. The dam is owned and operated by California American Water, an investor-owned water utility that is regulated by the California Public Utilities Commission (PUC). CalAm provides public water service to the Monterey Peninsula.

In the early 1990s the California Department of Water Resources (DWR) Division of the Safety of Dams (DSOD) determined San Clemente Dam could potentially fail in the event of either the maximum credible earthquake or probable maximum flood. As a result, DSOD instructed CalAm to develop a project to address this safety issue. CalAm funded multiple studies which evaluated options for strengthening, notching, or removing the dam. In addition, the Coastal Conservancy also funded a study to evaluate dam removal options. Ultimately, CalAm submitted a proposal to buttress the dam in place, a decision that was driven by two main facts: 1) CalAm's regulatory responsibility extends only to addressing the public safety issue; and 2) as a public utility, CalAm has an obligation to not burden its ratepayers with undue costs.

*Why is a public participation needed?*

Removing the San Clemente Dam would permanently solve the public safety issues, while also realizing additional public benefits such as increasing access to significant amounts of spawning and rearing habitat for Federally-listed steelhead trout and restoring the natural sediment supply to the downstream watershed and beach. There is also an opportunity to protect several hundred

acres of watershed lands. In order to achieve these public benefits, several organizations have been working with CalAm with the objective of elevating the project to dam removal.

The concept, in its simplest form, is that CalAm would contribute, at a minimum, an amount equivalent to what it would cost to buttress the dam, and the project partners would work together to secure the additional funding needed to remove the dam. In this way, CalAm would meet its regulatory responsibilities without undue cost to its ratepayers, and the public would achieve the additional benefits of dam removal. The least cost approach to removing the dam involves rerouting a 0.5 mile portion of the Carmel River, stabilizing the accumulated sediment within the abandoned 0.5 mile section of river, and then removing the dam. The river reroute and dam removal project is described in greater detail in Attachment 1. The difference in cost between buttressing the dam and this approach to removing the dam is currently estimated at \$20-30 million.

### *Getting the Project Done: IRT and the Need for Public Agency/Nonprofit Ownership*

One option for reducing the project costs is to use the assistance of the U.S. Department of Defense's Innovative Readiness Training Program (IRT). Through this program, members of the military reserves achieve their training objectives through participation in civilian projects. Civilian partners must pay for equipment and materials, but the military pays for the labor costs. IRT troops could potentially undertake many elements of the dam removal project including construction of roads, pipelines, and the river diversion dike, blasting of the new river channel, and removal of the dam. IRT staff has expressed significant interest in participating in the project.

In order to receive IRT assistance, however, the project applicant and landowner must be either a public agency or charitable nonprofit organization. Therefore, in order to achieve the significant cost savings of IRT participation, the property would need to be transferred from CalAm to a suitable entity. The project team has been working to identify either a public agency or charitable nonprofit that would be capable and willing to take on this role. The project team will work with potential partners to identify the key issues and concerns and find appropriate ways to deal with them.

### **Current Conservancy Activities**

1. **Cost Estimates.** As stated above, the estimated cost difference between buttressing the dam and removing it is \$20-30 million. These are rough cost estimates and additional work is needed to determine more precisely both the total cost of the removal project and the differential cost from the buttressing project. The Conservancy has hired a consultant team to help refine these cost estimates.
2. **IRT/Land Ownership.** As discussed above, in order to secure IRT involvement in the project, either a public agency or charitable nonprofit organization must take over ownership of the property. The Conservancy is investigating the feasibility of a State agency taking on this role, while other project partners investigate options for nonprofit ownership.

3. **Liability.** Because the dam removal project would involve additional funders and perhaps the IRT and a new landowner, there are significant liability concerns that need to be addressed. It is a high priority for the project team to identify the potential liabilities, as well as appropriate approaches to protecting the project partners from those liabilities. The project team is working to identify liabilities associated with dam removal and evaluate liability protections, including insurance, to address these risks.

Figure 1: San Clemente Dam Removal Project



## **CARMEL RIVER REROUTE AND DAM REMOVAL<sup>1</sup>**

The Carmel River Reroute and Dam Removal project would remove San Clemente Dam to resolve the seismic safety issue, improve access to spawning and rearing habitat for steelhead trout, and restore the natural sediment supply. A portion of the Carmel River would be permanently bypassed by cutting a 450-foot-long channel connecting the Carmel River to San Clemente Creek, approximately 2500 feet upstream of the dam. The dam and fish ladder would be demolished and removed from the site.

During the first year of construction, access roads will be improved and/or constructed. During the active construction seasons, the flows in the Carmel River and San Clemente Creek would be diverted around the reservoir and dam site, and the reservoir would be dewatered. The dredging spoils from the bypass channel construction would be used for construction of a diversion dike at the upstream end of the bypassed reservoir arm. The bypassed portion of the Carmel River would be used as a sediment disposal site for the accumulated sediment. Sediment would be removed from behind the dam to the bypassed portion of the reservoir over one season by excavation with heavy earthmoving equipment. Approximately 380,000 cubic yards of sediment in the San Clemente Creek arm of the reservoir would be relocated to the Carmel River arm, where the bulk of accumulated sediment already has been deposited. The sediments at the downstream end of the bypassed reservoir arm would be stabilized and protected from erosion. The San Clemente Creek channel would be reconstructed through its historic inundation zone from the exit of the diversion channel to the dam site.

The project would also involve improving fish passage at the Old Carmel River Dam (OCRD), which is about 1800-feet downstream of San Clemente Dam. The dam would either be removed or notched.

This project is expected to take four to five years to complete (three years of actual construction), including environmental review, permitting, design, infrastructure improvements, sediment removal, bypass channel excavation, diversion dike construction, dam demolition, and creek channel reconstruction.

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<sup>1</sup> Information excerpted and/or summarized from the San Clemente Dam Seismic Safety Project Draft Environmental Report/Environmental Impact Statement, California Department of Water Resources and U.S. Army Corps of Engineers, April 2006.