

CALIFORNIA TROUT



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## MALIBU CREEK ECOSYSTEM RESTORATION PROJECT

# Hydrology, Hydraulics, and Sedimentation

FINAL INTEGRATED FEASIBILITY REPORT - APPENDIX B

Rindge Dam. Photo: Mike Wier

### MCERP PLANNING OBJECTIVE ONE:

*Establish a more natural sediment transport regime from the watershed to the southern California shoreline in the vicinity of Malibu Creek within the next several decades.*

#### The Challenge:

Rindge dam represents the primary obstacle to natural sediment flow in the Malibu Creek Watershed. In the nearly 100 years since its completion, in 1926, the obsolete 100 foot tall dam has been a largely impenetrable barrier for downstream sediment flows. The IFR analysis estimates that 780,000 cubic yards of sediment that was naturally destined for the coastline to support beach nourishment and prevent coastal erosion is now trapped behind Rindge Dam. The Malibu Creek Ecosystem Restoration Project seeks to remedy this century long disruption to counter beach erosion and open miles of aquatic and riparian habitat to numerous species, including the endangered Southern steelhead.



Downtown Malibu and surrounding neighborhoods, 2008. (Wikipedia)



#### The Proposed Solution:

*Alternative 2b2, the Locally Preferred Plan.*

After modeling a range of project options to most effectively and safely restore sediment flows, the IFR proposed Alternative 2b2, known as the Locally Preferred Plan, which would mechanically remove sediment from behind the dam while removing the dam face itself in increments paced with the sediment removal.

Sediment sampling indicates approximately 1/3 of the impounded sediment is suitable for beneficial reuse via near-shore placement along Malibu, in support of beach nourishment and erosion mitigation, while the remaining sediment is to be transferred to an appropriate landfill site to avoid downstream flooding and habitat destruction as a result of excess sediment release into the watershed.

## Restoring Natural Sediment Flow: Flood Risk Outlook and Mitigation

The IFR modeling projected increased flood risk to downstream communities in the years ahead, whether or not Rindge Dam is removed under the MCERP. Alternative 2b2, the Locally Preferred Plan, is structured to minimize increase in flood risk for downstream residential communities and commercial areas through a number of measures:

- Impounded sediment will be mined at a rate equal to removal of the dam concrete arch to prevent excess sediment flows downstream.
- Additional modeling will study potential for increase in creek bed and water surface elevation in downstream reaches as a result of the project.
- If this modeling shows a difference in bed elevation, project construction would include sediment removal during construction to address the increase in bed elevation

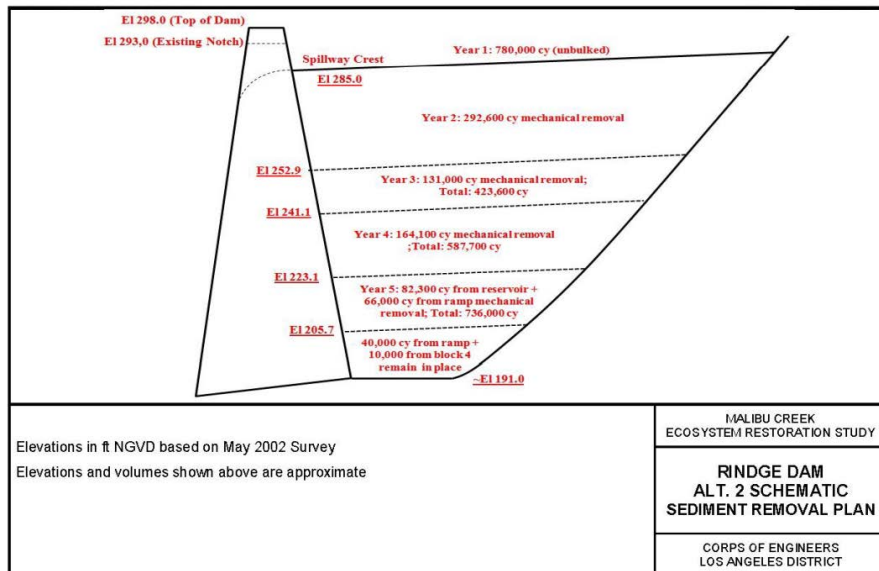


Plate 16-6 Rindge Dam - Alt. 2 Schematic Sediment Removal Plan

## Sediment Flow Restoration: Project Outcomes

Removal of sediment from behind Rindge Dam is projected to occur over a five-year period within the broader MCERP project, during which time the additional features of the project will be completed, including removal of Rindge Dam and eight additional upstream fish barriers, placement of 1/3 of the sediment from behind Rindge Dam off Malibu beaches in support of beach nourishment and curbing coastal erosion.

The result will be a nourished and protected shoreline, a return to natural sediment flows to maintain this shoreline, the opening up of 18 stream-miles of aquatic and riparian habitat throughout the Malibu Creek watershed, and the completion of a true Summit-to-Seabed restoration project that spans the headwaters of the Santa Monica Mountains to the offshore floor of Santa Monica Bay.

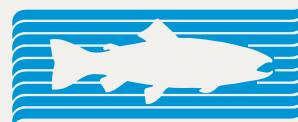


### Learn More

Final Integrated Feasibility Report: [spl.usace.army.mil/Missions/Civil-Works/Projects-Studies/Malbu-Creek-Study/](http://spl.usace.army.mil/Missions/Civil-Works/Projects-Studies/Malbu-Creek-Study/).

California Trout's Rindge Dam webpage: [caltrout.org/campaigns/rindge-dam](http://caltrout.org/campaigns/rindge-dam).

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