

Los Padres Dam Feasibility Study and Related Supporting Studies

Acronyms

BESMo - Bedload Scenario Model. A sediment transport model for the Carmel River that simulates fluvial responses to changes in sediment delivery below Los Padres Dam

Cal-Am – California America Water. The water purveyor for most of the Monterey Peninsula region. Los Padres Dam owner.

AECOM – A global consultant firm providing services on a wide variety of projects. Lead consultant on Los Padres Dam alternatives study.

CDFW – California Department of Fish and Wildlife. Regulates activities within the Carmel River riparian corridor. First agency to intervene concerning Carmel River water rights and protection of steelhead (1948, Application 11674 to the State Water Resources Control Board to appropriate water at Los Padres Dam).

CRBHM – Carmel River Basin Hydrologic Model. The U. S. Geological Survey developed GSFLOW in 2008 as a coupled Groundwater and Surface-water flow model based on the integration of the USGS Precipitation-Runoff Modeling System (PRMS) and the USGS Modular Groundwater Flow Model (MODFLOW and MODFLOW-NWT). The model is calibrated to a 25-year period with daily records of rainfall, temperature, evapotranspiration, runoff, groundwater elevations, and diversions in the basin.

HDR – global consultant firm founded in 1917. Lead firm on a fish passage study at Los Padres Dam.

IFIM – Instream Flow Incremental Method. A series of computer-based models which calculate how much fish habitat you gain or lose as you increase or decrease stream flow. Initially developed in the 1970s by the US Fish and Wildlife Service.

LPD – Los Padres Dam. A 120-foot high earthen dam owned by Cal-Am and located 25 river miles upstream of the Pacific Ocean. It was built in 1948 with an initial reservoir storage of

2,700 acre-feet (AF). A 2017 bathymetric survey shows the reservoir storage at about 1,700 acre-feet. Cal-Am's water right associated with this dam is 2,179 AF/year.

MPWMD – Monterey Peninsula Water Management District. A local district formed in 1978 to manage the integrated water resources of the Monterey Peninsula. Currently taking the lead in conducting studies that will inform a long-term management plan for Los Padres Dam.

NMFS – National Marine Fisheries Service. The federal agency charged with protecting steelhead in the Carmel River. NMFS listed the species as threatened under the federal Endangered Species Act in 1997.

Normandeau – Normandeau Associates, Inc. Normandeau was founded in 1970 and is a national leader in providing science-based environmental consulting services, research and technological innovation across a biological spectrum.

RFP – request for proposals

SWRCB – State Water Resources Control Board. The state agency that oversees allocation of California's water resources.

TRC – technical review committee. Formed to guide the development of a long-term management plan for Los Padres Dam. Members include staff from Cal-Am, CDFW, MPWMD, NMFS, State Coastal Conservancy, USFWS, Normandeau, AECOM, and HDR.

USFWS - U.S. Fish and Wildlife. The federal agency charged with protecting California red-legged frogs. The agency listed the species as threatened under the federal Endangered Species Act in 1996.

USGS – U.S. Geologic Survey. Scientific agency that studies natural resources. Operates two stream gages in the Carmel River. Has worked jointly with MPWMD since the late 1970s on a variety of planning studies, surface, and groundwater models of the Carmel River watershed.

Current status of studies (September 2018)

- CRBHM – calibrated against historical data. Ready to be reviewed by TRC before modeling various scenarios.
- IFIM study – 1-D and 2-D models are complete. Normandeau addressing NMFS most recent comments concerning constraints to using for LPD alternatives.
- Fish passage study – final TRC meeting to refine alternatives on September 26, 2018. Final report to come out in November 2018.
- Sediment transport modeling – all scenarios have been modeled. Question remains as to whether to model a “blow and go” scenario (complete evacuation in a short period under the wettest of conditions).
- Technical memorandum on effects to steelhead – will be under development in November 2018.
- In general, the review turn-arounds by agency staff for draft technical papers, RFPs, agreements, and other deliverables has varied between 2012 and 2018 from as little as 24 working days to more than five months. Participation in the development of the BESMo sediment transport model has improved after discussion with NMFS management about meeting milestones.
- For most tasks, feedback from agencies is required before completing a task and moving on.
- The schedule for completing the alternatives analysis has been delayed by: 1) the discovery of inaccurate information critical to understanding historic sedimentation of the reservoir (1947 topography of Los Padres Reservoir); 2) expansion in the scope of work; 3) extended review periods by agency staff.
- Scope expansion has generally improved the quality of studies, but comes at a cost of both time and money. Examples include incorporation of recent data from river surveys, additional field investigation, and additional sediment transport model work.
- Recent recommendations from NMFS concerning the need for additional studies and the clear rejection of using the Carmel River IFIM study and steelhead habitat model means that the Los Padres Dam Alternatives Study that was initially conceived in 2013 will likely remain incomplete until additional studies can be carried out.
- MPWMD recommends that Cal-Am, NMFS, and SCC discuss funding additional studies with Settlement Agreement funds.
- MPWMD is ready to assist with administration and coordination of consultants for other studies.

Chronology

August 2008	Carmel River put on CDFW priority streams list for instream flow assessment.
August 2011	MPWMD develops scope of work with USGS for a new Carmel River Basin Hydrologic Model.
January 2012	Cal-Am sends letter to MPWMD strongly supporting update of Carmel River instream flow recommendations.
March 2012	MPWMD initiates contract with USGS for assistance with development of the CRBHM.
September 2012	MPWMD holds a teleconference with NMFS to discuss development of an IFIM study. Action item for MPWMD is to develop a study scope of work in cooperation with NMFS, Cal-Am, and CDFW.
April 2013	NMFS "... strongly encourages CAW to resolve the fish passage and other potential take issues at LPD by completing a thorough feasibility study on the merits of either: 1) entirely removing the dam and restoring the reservoir area to its original environs; or 2) improving the dam with appropriate permanent fish passage modifications that allow for unimpeded, safe and effective, upstream and downstream migration of all life stages of S-CCC steelhead."
April 2013	Cal-Am proposes comprehensive alternatives study for LPD in 2015-17 General Rate Case application to California Public Utilities Commission.
July 2013	MPWMD enters into consultant agreement with Normandeau Associates, Inc. for development of Carmel River Instream Flow Incremental Method study.
September 2013	MPWMD completes assessment of flow models for use in the Carmel River Basin.
January 2014	MPWMD circulates scope of work for IFIM study to Technical Review Committee (TRC) comprised of staff from Cal-Am, NMFS, CDFW, State Coastal Conservancy, and MPWMD.
April 2014	MPWMD holds workshop with agencies, Trout Unlimited, and Carmel River Steelhead Association on developing IFIM study.

May 2014	MPWMD files testimony with CPUC stating MPWMD should take the lead in developing a long-term management plan for LPD.
July 2014	Cal-Am and MPWMD enter into a Settlement Agreement on GRC issues that includes MPWMD taking lead on LPD alternatives study with Cal-Am co-funding a portion.
February 2015	Teleconference with TRC on study plan to transfer Big Sur River habitat suitability curves (HSC) to Carmel River for use in IFIM model. Memo re: study plan for HSC testing.
April 2015	CPUC Decision 15-04-007 entered on 2015-17 GRC rate case.
November 2015	MPWMD and Cal-Am execute reimbursement agreement for LPD alternatives study. MPWMD circulates draft fish passage study plan to Technical Review Committee comprised of staff from Cal-Am, NMFS, CDFW, State Coastal Conservancy, and MPWMD.
February 2016	MPWMD circulates Request for Proposals for fish passage study.
February 2016	NMFS, CDFW, SWRCB, MPWMD, and Normandeau staff select IFIM model transect locations in field.
February 2016	MPWMD contracts with USGS to calibrate CRBHM.
April 2016	TRC reviews fish passage study proposals, selects HDR, Inc.
May 2016	MPWMD and HDR execute agreement for fish passage study.
August 2016	TRC coordination call on fish passage study.
October 2016	MPWMD circulates draft RFP for dam alternatives and sediment management.
November 2016	MPWMD advertises RFP for dam alternatives and sediment management.
November 2016	TRC meeting No. 1 to introduce the fish passage alternatives study.
January 2017	TRC selects AECOM, Inc. for dam alternatives and sediment management study. TRC recommends change in scope of work concerning number of samples to be obtained from LP Reservoir sediments. Cal-Am & MPWMD agree to expand scope.

February 2017	MPWMD and AECOM execute an agreement for dam alternatives and sediment management study.
March 2017	Draft Carmel River IFIM report circulated to TRC, SWRCB.
May 2017	Comments on draft IFIM study received from CDFW.
June 2017	Comments on draft IFIM study received from NMFS. TRC meeting No. 2 on fish passage alternatives.
July 2017	TRC meeting No. 2 on setting scoring criteria for fish passage alternatives.
September 2017	Comments received from CDFW and NMFS re: scoring criteria for fish passage alternatives.
August 2017	TRC meeting No. 1 - LPD and Reservoir Alternatives and Sediment Management Study
September 2017	AECOM discovers error in 1947 LP Reservoir topography after completion of draft sediment characterization memo. Requires several weeks of additional work to resolve.
November 2017	Final Draft IFIM study completed. Fish passage TRC progress meeting. Comments received from NMFS on use of biological performance tool to assess downstream migration and alternatives for fish passage improvement.
December 2017	Teleconference on Carmel River IFIM and CRBHM with CDFW and NMFS staff. NMFS requests additional review of IFIM study.
January 2018	TRC meeting No. 3 on fish passage alternatives, meeting No. 2 on LPD alternatives. TRC recommends change in process for completing studies to allow for sequential completion of technical components. Additional sediment transport scenario requested to calibrate model to changes in the Carmel River between 2016 and 2017.
January 2018	Cal-Am, NMFS, SCC sign Memorandum of Agreement concerning LPD operations.
March 2018	USGS completes calibration of CRBHM. Begins testing historic data against modeled data.

April 2018	MPWMD receives additional set of comments on Carmel River IFIM study from NMFS.
May 2018	MPWMD develops pump files for CRBHM to simulate LPD alternatives. Carmel Valley well field simulated with Cal-Am proposed post-Cease-and-Desist Order operations (i.e., concentrating diversions into the wet season). Dam removal, reservoir dredging, and status quo scenarios developed.
June 2018	MPWMD sends responses on IFIM study to TRC and conducts teleconference to resolve issues.
August 2018	NMFS conveys letter to Cal-Am and MPWMD with concerns about using IFIM with the LP Dam Alternatives study.
September 2018	USGS & MPWMD will complete testing of historic data against model data in the CRBHM