

Hydropower Project Summary

PIRU CREEK, CALIFORNIA

SANTA FELICIA PROJECT (P-2153)



Photo: Candice Meneghin, California Trout

This summary was produced by the

Hydropower Reform Coalition

and

River Management Society

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SANTA FELICIA HYDROELECTRIC PROJECT (P-2153)

The project is located on Piru Creek, a tributary of the Santa Clara River, in Ventura County, California. Piru Creek originates in the Los Padres National Forest and is the largest tributary of the Santa Clara River providing about half of the river's flow.

Piru Creek has a drainage area of 437 square miles and flows into Pyramid Lake, formed by Pyramid Dam approximately 15 river miles (RM) upstream of the Santa Felicia hydroelectric project. Upon exiting Pyramid Lake, Piru Creek flows to Piru Lake, where it is impounded by the Santa Felicia dam. Lower Piru Creek, downstream of the Santa Felicia dam, continues for another six miles to its confluence with the Santa Clara River approximately 30 river miles from the Pacific Ocean.

The Piru Creek is popular for opportunities for fly fishing as well as whitewater activities with Class IV rapids between Pyramid Lake and Piru Lake. Historically, the creek was host to Southern California steelhead and today only a few fish return to spawn.

A. SUMMARY

1. License Issued: September 12, 2008.
2. Expiration: August 31, 2048.
3. Waterway: Piru Creek.
4. Capacity: 1.42 MW.
5. Licensee: United Water Conservation District (UWCD or United).
6. Counties: Ventura.
7. Federal lands: The project occupies 174.5 acres of federal lands within Los Padres and Angeles National Forests, administered by the U.S. Department of Agriculture, Forest Service (Forest Service.)
8. Project Website: <http://www.unitedwater.org/santa-felicia-dam.html>.
9. Project Facilities:
 - a. Santa Felicia Dam
 - Earth-filled dam 200-foot-high and 1,260-foot-long
 - an 87,187 acre-foot reservoir, with a useable storage capacity of 67,669 acre-feet and a surface area of 1,213 acres at elevation 1,055 feet mean sea level (msl);
 - a powerhouse located at the base of the dam and containing two generating units, with a total installed capacity of 1,420 kW;
 - Power is conveyed by transmission lines owned and operated by the Southern California Edison Company.

B. THREATENED AND ENDANGERED SPECIES IN THE PROJECT VICINITY

There are seven federally listed aquatic and wildlife species that could occur in the project vicinity: Southern California steelhead, Arroyo toad, California red-legged frog, mountain yellow-legged frog, California condor, Southwestern willow flycatcher, and least Bell's vireo. Although there are four federally listed plant species that could occur in the project vicinity: Nevin's barberry, slender-horned spineflower, California orcutt grass, and Lyon's pentachaeta, they were not located during rare plant surveys that United conducted in 2004.

The final Biological Opinion (BO) provided by National Marine Fisheries Service (NMFS) in May 2008 after Endangered Species Act (ESA) stated that the FERC's recommended alternative was likely to jeopardize the continued existence of the Southern California steelhead Distinct Population Segment (DPS) and was likely to destroy or adversely modify its critical habitat. The BO consisted of the following three Reasonable and Prudent Alternative (RPA) measures which the Federal Energy Regulatory Commission (FERC) included in the license:

- a. assessing the feasibility of fish passage at Santa Felicia dam;
- b. a geomorphic effects minimization plan to determine the geomorphic effects of the project downstream of the dam as a result of downstream sediment transport blockage and to identify habitat improvements to minimize those effects; and
- c. a water release schedule to provide unimpeded migration of adult and juvenile steelhead in Piru Creek downstream of Santa Felicia dam and in the Santa Clara River, and to preserve and form freshwater spawning and rearing sites for steelhead.

C. IMPORTANT PROVISIONS AND REQUIREMENTS IN LICENSE

1. *Flows* [Reference: License Article 403]

As part of the California Aqueduct Project, CA Department of Water Resources (DWR) regulates the flows. A complex formula (see page 37 of license in the appendix) is used to determine the flow from the Santa Felicia Dam depending on whether the DWR is operating the Aqueduct Project in a manner in which the inflow to Pyramid Lake is equal to or not equal to the outflow.

2. *Arroyo Toad Protection* [Reference: License Article 404]

United is required to file a herpetological monitoring plan after consultation with the US Fish and Wildlife Service (USFWS), California Department of Fish and Game (CA DFG), US Forest Service (UFFS), and NMFS. Among other things, the plan is required to include:

- a. a provision of annual monitoring for Arroyo toad, California red-legged frog, and southwest pond turtle, and mapping of their habitats in lower Piru Creek, for an initial 5 year period, followed by monitoring at 3 year intervals (unless a species is found, in which case monitoring shall continue on an annual basis).

- b. an aquatic exotic species management program for the removal or eradication of aquatic exotic species (i.e., bullfrog) in the Santa Felicia dam spillway pool and in the upper 1 mile of lower Piru Creek;
 - c. a protocol for measuring the abundance of bullfrogs and other non-gamefish aquatic exotic species;
 - d. effectiveness evaluation and report of the aquatic exotic species management program after three years of its implementation; and
 - e. (e) a detailed schedule for implementation of the plan's components, and for reporting monitoring results and the effectiveness evaluation. All monitoring results, reports, and the effectiveness evaluation shall be provided to the FWS, CA DFG, USFS, NMFS and FERC.
3. *Vegetation and Noxious Weed Management Plan* [Reference: License Article 405]
United is required to file a Vegetation and Noxious Weed Management Plan by August 2010 after consultation with the USFS, the California Department of Food and Agriculture, and the Ventura County Agricultural Commissioner.
4. *Whitewater Boating Access Plan* [Reference: License Article 410]
By August 2011, United is required to file a plan for providing a whitewater boating portage around Santa Felicia dam and providing permanent whitewater boating access downstream of Santa Felicia dam at a location near the upstream Piru Canyon bridge crossing. The plan should be developed after consultation with the USFS, the California Department of Parks and Recreation, American Whitewater, and the Sierra Club.
5. *Recreation Trail Plan* [Reference: License Article 411]
By August 2013 and in consultation with USFS and the CA Department of Parks and Recreation, United is required to file a recreation trail plan for providing trail access to the east side of Lake Piru. The trail plan shall identify:
 - a. the location of the existing trail sections to be formalized along the east side of the lake;
 - b. the location and route for providing the missing 1.5-mile trail link between the Forest Service roads and other existing trails; and
 - c. a schedule for implementing and completing trail construction by August 2018.

D. OTHER PROVISIONS

1. *Water Quality Certification by CA Water Board*
The water quality certification for this project as required by section 401 of the Clean Water Act was deemed to be waived because the Water Board did not act on the application by United within a one year time frame.

2. *4(e) conditions by US Forest Service:*
USFS filed 20 section 4(e) conditions in January 2006 which required United to:
- a. obtain written approval from the USFS prior to making changes on or affecting National Forest System lands;
 - b. consult with the USFS between January 10 and March 15 of each year in regard to measures needed to ensure protection and utilization of National Forest System lands;
 - c. maintain all of its improvements and premises on or affecting National Forest System lands to standards of repair, orderliness, neatness, sanitation, and safety acceptable to the USFS;
 - d. be subjected to all valid rights and claims of third parties and the United States is not liable to United for the exercise of any such right or claim;
 - e. comply with the regulations of the Department of Agriculture for activities on National Forest System lands, as well as all applicable federal, state, county, and municipal laws in regard to the area or operations affecting National Forest System lands, to the extent federal law does not preempt ordinances or regulations;
 - f. exercise diligence in protecting from damage the land and property of the United States covered by and used in connection with this license;
 - g. prior to any surrender or transfer of this license restore National Forest System lands to a condition satisfactory to the USFS;
 - h. indemnify, defend, and hold the United States harmless for any violations incurred under any applicable laws and regulations or for judgments, claims, or demands assessed against the United States in connection with the construction, maintenance, or operation of the project;
 - i. protect the land, property, and interests of the United States from damage arising from United's construction, maintenance, or operation of the project;
 - j. identify and report all known or observed hazardous conditions on or affecting National Forest System lands;
 - k. obtain written approval for the use of any pesticides on Forest Service land;
 - l. give the United States unrestricted use of any road over which United has control, constructed within the project area for all purposes deemed necessary or desirable in connection with the protection, administration, management, and utilization of federal lands or resources;
 - m. reserve the right of the Forest Service to modify final section 4(e) conditions submitted to the Commission for inclusion in the new license for the Santa Felicia Hydroelectric Project;
 - n. before taking actions to construct new project features on National Forest System lands that may affect Forest Service special status species or their habitat, prepare a biological evaluation evaluating the potential impact of the action on the species or its habitat and submit it to the Forest Service for approval;

- o. prepare a plan to address sediment management activities affecting National Forest System lands;
- p. file with the Commission an Arroyo Toad Protection Plan that is approved by the Forest Service, and developed in consultation with appropriate federal and state resource agencies;
- q. in consultation with applicable federal and state agencies, file with the Commission Land Resource Plans that are approved by the Forest Service, as they relate to resource management on the National Forest;
- r. prepare and file a terrestrial wildlife mitigation and monitoring plan and a vegetation and noxious weed management plan;
- s. prepare and file a Cultural Resources Management Plan for the purpose of protecting and interpreting heritage resources; and
- t. prepare and file a Roads and Transportation Facilities Management Plan incorporating Forest Service standards for design, construction, operation, and maintenance.

E. MAP

There are two convenient ways to become familiar with the location of this project on the Hydropower Reform Coalition website, www.hyroreform.org.

1. Go directly to the project page Santa Felicia Project [P-2153](#).
2. To understand the geographical context of the project, visit [this link](#) which will take you to the section for rivers in California. Locate Los Angeles and find the Santa Felicia project to the northwest of the city.

Piru Creek Flow Calculation

To use this spreadsheet, enter yellow highlighted cells only.

<u>Location</u>	<u>Symbol</u>	<u>USGS Gage #</u>	<u>Flow</u>
Piru Creek inflow into Lake Piru	Q_1	11109600	15
Piru Creek below Buck Creek	Q_{BC}	11109375	5
Piru Creek above Lake Piru near Blue Point	Q_{BP}	11109600	5
Pyramid Release	Q_{FF}		7
Natural flow at Santa Felicia	Q_N		

If the Calif DWR is operating the Calif Aqueduct Project with inflow = outflow:

Then the natural flow at Santa Felicia should be: 15.3

If the Calif DWR is operating the Calif Aqueduct Project so inflow \neq outflow:

Then the natural flow at Santa Felicia should be: 3.51005

The natural inflow to Lake Piru shall be calculated utilizing the appropriate following flow formula:

(a) If the California Department of Water Resources (California DWR) is operating the California Aqueduct Project on an inflow equal outflow basis the following formula shall be used:

Natural flow at Santa Felicia, $Q_N =$

$0.6Q_1 + 0.4$; $Q_1 < 2$ cfs
$1.02Q_1$; $2 \leq Q_1 \leq 20$ cfs
20.4 cfs	; $Q_1 > 20$ cfs

Where Q_1 represents either gaged inflow or the calculated natural Piru Creek inflow to Lake Piru as measured at USGS gage no. 11109600, Piru Creek above Lake Piru near Blue Point

(b) If the California DWR is operating the California Aqueduct Project in a manner in which the inflow to Pyramid Lake **does not** equal outflow, the following formula shall be used:

$$Q_1 = (Q_{BC} + 0.5 \text{ cfs}^*) + (Q_{BP}) - (Q_{FF}) + 0.0067[Q_{FF} - (Q_{BC} + .5\text{cfs})]**$$

* Canada de Los Alamos inflow to Pyramid

** ET loss Correction term

Where: Q_{BC} = Piru Creek below Buck Creek (USGS gage no 11109375); Q_{BP} = Piru Creek above Lake Piru near Blue Point (USGS gage no. 11109600); and Q_{FF} = Pyramid Release

The interim minimum flow may be temporarily modified if required by operating emergencies beyond the control of the licensee, or for short periods upon agreement between the licensee, the California Department of Fish and Game (California Fish and Game), National Marine Fisheries Service (NMFS), and the Fish and Wildlife Service (FWS). If the required minimum flow is so modified, the licensee shall notify the Commission, California Fish and Game, NMFS, and the FWS as soon as possible, but not later than 10 days, after each such occurrence.

Article 404. Herpetological Monitoring Plan. Within 1 year of license issuance, the licensee shall file with the Commission for approval, a herpetological monitoring plan (plan). In addition to incorporating the provisions of final 4(e) condition 16 in