



DEPARTMENT OF WATER RESOURCES
Hydropower License Planning and Compliance Office
P.O. Box 942836 Sacramento, CA 94236-0001



**Los Angeles
Department of
Water & Power** Regulatory Compliance
and Specifications
111 North Hope Street
Los Angeles, CA 90012

June 13, 2019

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, Northeast
Washington, D.C. 20426

FERC Project No. 2426-227 – South SWP
Hydropower Updated Study Report Meeting Summary

Dear Secretary Bose:

In accordance with 18 Code of Federal Regulations Section 5.15(c)(3), the California Department of Water Resources (DWR) and the Los Angeles Department of Water and Power (LADWP) (Licensees) are filing with the Federal Energy Regulatory Commission (FERC) this Updated Study Report (USR) meeting summary for relicensing of the Licensees' South SWP Hydropower (Project), FERC Project Number 2426-227. This summary is not a transcript of the meeting, nor is it intended to state the position of each individual who attended the meeting.

FERC's June 14, 2017, Study Plan Determination required the Licensees to perform 22 studies. On May 15, 2018, the Licensees filed our Initial Study Report (ISR) with FERC. The ISR covered the period from initiation of the various relicensing studies through April 30, 2018. On September 7, 2018, FERC approved the requested modifications to 7 of the 10 previously approved studies, and did not approve a request for a new study.

On May 15, 2019, the Licensees filed a USR with FERC and notified the Relicensing Participants of the filing via email. The USR covers the period from initiation of relicensing studies through April 30, 2019, and provides a description of the Licensees' progress in implementing the study plan and schedule, data collected, and an explanation of any variances to the FERC-approved study plans for each of the 22 studies. In addition, the USR stated the Licensees do not propose any modifications to ongoing studies or new studies, and that the Licensees plan to file with FERC a Draft License Application (DLA).

Updated Study Report Meeting Summary

On May 29, 2019, the Licensees met with the Relicensing Participants to discuss the USR for the Project. The meeting was held at the Hilton Garden Inn, 199 N 2nd Avenue in Arcadia, California. The meeting was scheduled in consultation with FERC and the

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Relicensing Participants through in-person and telephone conversations and the date was finalized on March 5, 2019. The meeting was scheduled for four hours, from 9 a.m. to 1 p.m. Pacific Daylight Time, and ended at approximately 1:15 p.m., after all Relicensing Participants had time and opportunity to ask questions of the Licensees.

Prior to the meeting, the meeting details were posted on the Project's relicensing website (<http://south-swp-hydropower-relicensing.com/>), along with the meeting agenda (Attachment 1) and the USR meeting presentation (Attachment 2). A teleconference number was provided for interested Relicensing Participants who could not attend in person. Participants who attended in person were provided hardcopies of the agenda upon their arrival to the meeting. Participants who attended the meeting by telephone were emailed the agenda and presentation prior to the meeting.

The meeting was attended by 48 people; 41 participated in person and 7 participated by telephone. A copy of the meeting sign-in sheet is attached (Attachment 3). Agencies and organizations represented at the meeting included (in alphabetical order):

- California Department of Fish and Wildlife (CDFW)
- California Department of Water Resources
- California State Water Resources Control Board
- Federal Energy Regulatory Commission
- HDR Engineering, Inc., on behalf of the Licensees
- Los Angeles Department of Water and Power
- Stantec Consulting Services Inc., on behalf of the Licensees
- United Water Conservation District
- U.S. Department of Agriculture, Forest Service (USFS)
- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)
- U.S. Department of the Interior, Fish and Wildlife Service (USFWS)
- U.S. Department of the Interior, National Parks Service
- Van Ness Feldman, on behalf of the Licensees

Overview of Meeting Presentation

The following is an overview of the Licensees' presentation:

- The Licensees thanked FERC and the Relicensing Participants for participating in the meeting.
- The Licensees discussed the purpose of the meeting and the Licensees' relicensing goals and objectives.

- After summarizing the meeting agenda, the Licensees reviewed the relicensing schedule, including the specific schedule regarding the USR process (e.g., filing of USR meeting summary, comments on the summary, responses to comments, and FERC's resolution of disagreements).
- In the overview of study progress, the Licensees stated that beginning May 10, 2018, per FERC's Determination and consistent with the Communication Guidelines and Goals in the Pre-Application Document (PAD), the Licensees posted to the relicensing website study plans, study results, field results and data summaries, and raw data. The Relicensing Participants were notified when new data were posted.
- The Licensees stated that when the USR was filed, 16 studies were complete, and six studies were nearly complete and would be completed before the DLA is filed. The Licensees stated that the results of all studies and other existing, relevant, and readily available information will be included in the DLA.
- The Licensees provided an overview of the variances from the FERC-approved study plans. Of the 22 studies, 8 have no variances to the FERC-approved study plan, 9 have minor variances to schedule, and 5 have minor variances to study methods. The Licensees stated these variances do not affect the overall information being developed by the studies.
- The Licensees reported on the findings of each of the 16 completed studies (see Attachment 2 for information regarding these findings).
- The Licensees provided an update on study progress for the six studies that are yet to be completed (see Attachment 2 for more information on the findings-to-date for each study).
- The Licensees advised the Relicensing Participants that, based on FERC's criteria for study modifications, the Licensees did not propose any study modifications in the USR. The Licensees said that we are performing the studies in conformance with the FERC-approved study plans; variances will have no effects on information developed by the studies; and no studies were conducted under anomalous environmental conditions that would affect the usefulness of the study information to inform license requirements.
- The Licensees advised the Relicensing Participants that based on FERC's criteria for new studies, the Licensees did not propose any new studies in the USR. The Licensees were not aware of material changes in laws or regulations, significant changes in the Project, or significant new information that would warrant a new study.

- The Licensees said that we planned to file the USR Meeting Summary with FERC within 15 days of the meeting (by June 13, 2019), and that Relicensing Participants may file comments on the summary by July 13, 2019, per FERC's Integrated Licensing Process requirements. FERC is expected to make its Study Determination by September 12, 2019. The Licensees encouraged Relicensing Participants to confirm these dates for the Relicensing Participants' filing purposes since changes to these dates can affect other filing dates.

Overview of Discussion Among Meeting Participants

While the Licensees summarized the findings on all relicensing studies, discussions occurred on some of the studies. A general summary of the discussions is provided below by study (i.e., not all studies are listed below because not all studies precipitated a substantive discussion).

Study 4.1.3, Pyramid Reach Fish Populations

The Licensees reported on the findings of the Pyramid Reach Fish Populations Study. With regard to suckers (i.e., fish), the Licensees reported that approximately 81 small suckers were collected in Pyramid reach during electrofishing, but due to the difficulty in definitively identifying the species of small suckers using morphological traits, the Licensees could not determine the species, and so they were identified in the electrofishing results as "sucker spp.". In compliance with the study plan and at the request of USFWS, in February 2019 the Licensees mailed tissue samples from each of the collected suckers to Jonathan Richmond, Ph.D., at the U.S. Geological Survey (USGS) in San Diego, California. In addition, the Licensees reported that environmental deoxyribonucleic acid (eDNA) sampling found positive eDNA detection for Santa Ana sucker (*Catostomus santaanae*), a Forest Service Sensitive (FSS) species and a species listed as Threatened under the federal Endangered Species Act (ESA) in the Los Angeles, San Gabriel, and Santa Ana river basins, but it is not listed in the Santa Clara River Basin that includes Piru Creek and Pyramid reach. The Licensees reported that because the eDNA analysis relies on developing a quantitative polymerase chain reaction (qPCR) assay using two regions in mitochondrial DNA (Cytochrome B and Cytochrome B Oxidase subunit 1) that is largely inherited from the maternal ancestor, the suckers were identified in the eDNA study results as "sucker spp.". Based on the eDNA analysis results, the Licensees could not say with certainty whether the fish(es) contributing the mitochondrial DNA in the water sample was a pure Santa Ana sucker (i.e., both the mother and father of the individual fish were Santa Ana suckers) or a hybrid (i.e., the mother was a Santa Ana sucker and the father was another sucker species, or the mother was a hybrid sucker that carried the mitochondrial DNA of Santa Ana sucker and the father was another sucker species or a hybrid itself).

CDFW expressed concern that the Licensees' study could not definitively state whether Santa Ana sucker is present in Pyramid reach. CDFW suggested that because Santa Ana sucker DNA is present in the samples, Santa Ana sucker must be in the reach. Additionally, CDFW commented that voucher Santa Ana sucker were available in Riverside and that the Licensees should have used primers for Owens sucker (*Catostomus fumeiventris*) as another step to confirm Santa Ana sucker in Pyramid reach. CDFW requested revising the eDNA results listing "sucker spp." characterization with a "Santa Ana sucker" identification. In addition, CDFW suggested that the Licensees fund Dr. Richmond to conduct genetic testing on the sucker tissue samples the Licensees provided to him¹.

The Licensees stated that the study results could not definitively determine that Santa Ana sucker occurs in the Pyramid reach, but can say that Santa Ana sucker mitochondrial DNA occurs, which may be from pure Santa Ana suckers or hybridized suckers. Regardless, Santa Ana sucker in Pyramid reach, if it occurs, is a FSS species and is not Endangered or Threatened under the ESA (i.e., Threatened status exists for the Santa Ana sucker populations in the Los Angeles, San Gabriel, and Santa Ana river basins, but not in the Santa Clara River Basin that includes Pyramid reach). Further, for the purpose of relicensing, it is not reasonably foreseeable that Santa Ana sucker in the Santa Clara River Basin will be listed or proposed for listing under the federal ESA.

Study 4.1.4, Special-Status Aquatic Amphibians and Semi-Aquatic Snakes

The Licensees reported on the findings of the Special-Status Aquatic Amphibians and Semi-Aquatic Snakes Study. With regard to foothill yellow-legged frog (*Rana boylei*, FYLF), the Licensees reported that the eDNA portion of the study did not identify any FYLF in Pyramid reach. CDFW commented that it was not clear where the eDNA results for FYLF could be found and inquired as to the laboratory methodology used for the analysis. USFS said the study's conclusions with regard to suitable habitat for FYLF in Pyramid reach are suspect because the study was performed under anomalous weather conditions (i.e., under very dry conditions) and that the study period was not long enough to capture relevant information. USFWS commented that it is important to know specific locations where there is available habitat for ESA-listed or sensitive

¹ Subsequent to the meeting, the Licensee's contacted Dr. Richmond who stated that he had extracted the DNA from tissue samples of the 81 suckers provided to him by the Licensees. He has funding in place to perform the analysis, and is waiting on the final approval to proceed. He expects to do the sequencing later in June or in early July 2019, and anticipates completing the analysis by October 2019. The Licensees will remain in contact with Dr. Richmond, and if the findings from his work are available (i.e., if his DNA analysis shows the tissue samples are from pure Santa Ana sucker, some other sucker species, or a hybrid), the Licensees will include those findings in the final license application (FLA) as existing, relevant, and readily available information. If available, the Licensees will consider the findings when proposing requirements for the new license.

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aquatic species (e.g., western spadefoot toad [*Spea hammondi*]) and that there might be more locations in a normal or wet water year. USFWS also commented that the Licensees need to take a more granular look at habitat availability during different water conditions for different life stages. Agencies expressed concern that limiting results to one year of data in a historically dry year precludes drawing conclusions about suitable habitat that could be available in years that were wetter.

The Licensees said we would review the relicensing website and if the FYLF eDNA results were not posted, we would correct this oversight. Upon later review, the Licensees found the FYLF eDNA results were inadvertently not posted and have corrected this oversight (a spreadsheet with these data results will be posted to the relicensing website in the Associated Data files folder with the file name *SSWP_SS_Amphibian_FINAL_PIRU_CREEK_FYLF_RESULTS_SUMMARY.xlsx* and a notification email will be sent to the relicensing participants when it is available.

With regard to hydrologic conditions, although drier conditions were occurring during the 2018 sampling, the Licensees stated that these conditions did not affect the value of the study results to help inform license conditions.

While not discussed during the meeting, drier conditions in 2018 had very little effect on Quail Lake and Pyramid Lake water surface elevations because the vast majority of the water in these impoundments is provided by the State Water Project, and not by local runoff. Flow in Pyramid reach in 2018 was lower than is typical, but was sufficient to support the occurrence and breeding of common amphibians, which were detected by the Licensees' surveys on Pyramid reach, as well as at other sites. Because FYLF is an aquatic and stream-associated species, lower flow is unlikely to have affected detection probability. Even under low flow conditions, FYLF would still be present. In fact, FYLF may be more easily detected under lower flow conditions that might concentrate frogs in areas of remaining aquatic habitat. The hydrologic conditions during the study could have affected detection of western spadefoot, a species that may not breed at all in a year when conditions are not suitable. Breeding sites may also dry prematurely in some years. However, the results of field work for this and other studies would have included observations of dried pools, if such pools occurred in the study area. The effects of dry conditions on special-status gartersnakes would have been to concentrate snakes in areas of suitable habitat. Drier conditions were evident in Castaic Creek upstream of Elderberry Forebay, but two-striped gartersnake is known to occur in this area when conditions are suitable. So, whether or not drier conditions occurred during the Licensees' fieldwork would not affect the known fact that the gartersnake occurs there.

Further, with regard to potential Project effects on FYLF in Pyramid reach, the Licensees do not perform now and do not propose to perform any Project operations or maintenance activities in the reach, except related to maintaining the tunnel adits. Based on review of the California Natural Diversity Database, this species has been extirpated from Pyramid reach and the Licensees' eDNA sampling did not detect FYLF in the reach. Additionally, no FYLF individuals have been observed during annual arroyo toad and sensitive species monitoring, which has occurred over a variety of hydrologic conditions, in the Pyramid reach segment between Blue Point Campground and Ruby Canyon. With regard to western spadefoot toad (e.g., in off-channel pools) in the reach, the species would not be affected by the Project in any way. No incidental observations of FYLF or western spadefoot toad were noted during the Licensees' relicensing field studies.

With regard to potential habitat in the Licensees' proposed Project boundary, as part of Study 4.1.5, Botanical Resources, consistent with the FERC-approved study plan, the Licensees performed field surveys between May 1, 2017, and May 23, 2017, an above average water year, to map and assess wetland and riparian habitats in the study area using the U.S. Department of the Interior, Bureau of Land Management's Properly Functioning Condition (PFC) assessment. The Reach Information Form and PFC Assessment Form for lotic areas and the Lentic Standard Checklist for lentic areas were completed for those areas surveyed. The Licensees developed Geographic Information System maps of lentic and lotic features and prepared maps summarizing field data. These data are available on the relicensing website.

For these reasons, the study results – even though some fieldwork occurred in drier conditions – are adequate to inform license requirements.

Study 4.1.7, Special-Status Terrestrial Wildlife Species – California Wildlife Habitat Relationships

The Licensees reported on the findings of the Special-Status Terrestrial Wildlife Species – California Wildlife Habitat Relationships (CWHR) Study. Eighteen habitat types were identified within the proposed FERC boundary, and these habitat types with other data suggested 55 special-status terrestrial wildlife species could occur within the boundary. The Licensees said the study found Lower Quail Canal and Castaic Penstocks may impede some, but not all, wildlife passage.

USFS expressed concern that the "Classification and Assessment with Landsat of Visible Ecological Groupings" (CalVeg) – rather than vegetation mapping – was used with the CWHR to determine the potential habitat for special-status terrestrial wildlife species. USFS said it believed the use of CalVeg was not appropriate to determine

project-level impacts, and that the Licensees' ground-truthing that found about 50 percent of the CWHR habitat types as inaccurate supports USFS's concern that CalVeg should not have been used. Additionally, USFS stated that CWHR was a predictive model used in large-scale planning and not appropriate for assessing project-level effects. USFS proposed that, for determining project-level effects on special-status terrestrial wildlife, the Licensees should have used agency-approved protocol level survey methods for each potential species or, if agency-approved protocol methods did not currently exist, Licensees should have developed, in consultation with agencies, protocol level methods for the survey methods. USFS asked the Licensees to confirm whether the goals and objectives of the various studies that made use of the vegetation maps could be met given the mapping issue encountered.

With regard to wildlife movement, USFS asked why Pyramid Lake and Quail Lake were not identified as barriers to wildlife, and expressed concern about the Licensees' conclusion regarding wildlife's ability to navigate. Meeting participants requested that the Licensees provide more discussion about how various types of wildlife might or might not be impeded by the Lower Quail Canal and the Castaic Penstocks, and the importance of maintaining existing passage routes, such as the culvert beneath the canal and the ditches beneath the penstocks. USFWS inquired as to which alternative corridors may be used. CDFW commented that culverts and passageways should be maintained to continue to provide passageways for wildlife.

With regard to the use of CalVeg rather than protocol level surveys, the Licensees said this was the method in the FERC-approved study plan. Specifically, FERC's June 14, 2017, Study Determination said "identification of the availability of suitable habitat for special-status species, as proposed by the co-licensees, would be sufficient to analyze potential effects and develop appropriate protective measures. Therefore, staff does not recommend modifying the co-licensees' RSP [Revised Study Plan] to include protocol level surveys..." The Licensees said the study results will be used in the DLA to identify special-status wildlife species that may be affected by the Project, and the DLA will discuss the potential Project effects on each of these species.

To provide contextual background, the objective of the study was to gather sufficient data within the proposed Project boundary to fill data gaps so that the potential presence of special-status wildlife species in areas of Project activities could be determined. In the PAD, the Licensees correlated the most current CalVeg map of the proposed Project boundary to CWHR, identifying 15 habitat types, with four primary CHWR types (i.e., Lacustrine, Coastal Scrub, Mixed Chaparral, and Urban) comprising almost 76 percent of the area within the proposed Project boundary. During the study, the Licensees examined the same area, with the addition of a 1.5-mile buffer exclusively

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for California condor (*Gymnogyps californianus*) nesting habitat, as directed by FERC's June 14, 2017, Study Determination.

As required by the study plan, the Licensees reviewed the CalVeg mapping, recent aerial photography and other source information to identify suspect areas on the CWHR map, selected areas to be ground-truthed, and then ground-truthed the CWHR map using CDFW's habitat assessment forms. Within the proposed Project boundary and up to 0.25-miles away, the Licensees ground-truthed 40 sampling areas for 19 CWHR types, including all 15 CWHR types in the proposed Project boundary. In general, the CWHR map as presented in the PAD and the study plan was then updated in a series of three phases: 1) correcting ground-truthed areas; 2) expanding to surrounding areas using information gathered during ground-truthing, fieldwork and aerial signatures; and 3) performing a thorough review of all remaining areas to fix obvious errors and update habitat types that could be corrected through ground-truthing information and aerial signatures. As a result, 571.5 acres inside the proposed Project boundary on the map were corrected, representing 23.5 percent of the total non-inundated area. The four primary land CWHR types within the proposed Project boundary were all confirmed or expanded during ground-truthing such that in the revised map Coastal Scrub, Mixed Chaparral, Urban, and Sagebrush comprise 22.1 percent, 17.9 percent, 16.9 percent, and 11.5 percent, respectively, for a total of 68.4 percent (1,676.0 acres) of the proposed Project boundary, excluding the inundated areas. Of the remaining 11 CWHR types in the proposed Project boundary in the CWHR map (presented in the PAD and study plan), four habitat types were not found during ground truthing: Montane Hardwood, which was mapped on less than 1 acre in the CWHR map (presented in the PAD and study plan); Montane Riparian, which was mapped on 39 acres in the CWHR map (presented in the PAD and study plan) and updated to Valley Riparian at all sites in the revised map; Desert Wash, which was mapped on 63 acres in the CWHR map (presented in the PAD and study plan) and determined to be Desert Riparian in the revised map; and Pinyon Juniper, which was mapped on 5 acres and updated to MCH and Black Oak- Foothill Pine in the revised map. These four habitat types represented 4.4 percent of the land area within the proposed Project boundary (108 acres). Of the remaining 27.2 percent, 9 percent was verified as Barren (222.6 acres), 8 percent was verified to be Annual Grassland (196.9 acres) and 5.5 percent was verified as Chamise-Redshank (135.2 acres) via ground-truthing and aerial signatures. The remaining 4.7 percent (135.2 acres) is spread over 6 additional CWHR types, some of which were not fully confirmed at all locations. However, the areas that could not be visually verified tended to be in remote or steep areas with no access, making them unlikely to be impacted by Project O&M or recreation activities. Attachment 4 to this letter includes maps which show how the CWHR map as presented in the PAD and study plan was updated during the study. The resulting maps and habitat information are adequate to inform license requirements.

Study 4.1.11, Recreation Facilities Demand Analysis and Condition Assessment

The Licensees reported on the findings of the Recreation Facilities Demand Analysis and Condition Assessment Study. USFS commented that the accessibility assessment included in the study was not thorough enough, that the USFS is the only U.S. agency with its own guidelines for accessibility, and that these guidelines are separate from Americans with Disabilities Act (ADA) standards. Specifically, USFS said the study shows that 3 of 93 picnic sites were found to be accessible, and noted that under USFS guidelines, 100 percent of its facilities should be accessible. USFS requested clarification as to whether ADA or USFS guidelines were used for the study to determine accessibility compliance, and that this clarification should be included in the DLA. In addition, USFS said the accessibility compliance portion of the study should be separate from the recreation facilities study.

The Licensees noted that using either ADA guidelines or the USFS guidelines on accessibility would result in less than 100 percent of the picnic sites meeting accessibility standards.

In study-related discussion, USFS indicated that the way in which accessibility requirements are addressed under the relicensing will play an important role in measures proposed by USFS; the Licensees should rely on and prioritize recreation user surveys over the recreation demand literature; an alternative to Hardluck Campground needs to be addressed; and that user survey data is more reliable than published study reports to indicate user trends (USFS said the Angeles National Forest data show the forest is overused, and Pyramid Lake data show low diversity, with most users being Hispanic).

CDFW said it was concerned regarding the proposal to no longer stock fish in non-Project Castaic Lake as a part of the new license. CDFW asked whether the Licensees analyzed how their decision to not propose fish stocking in Castaic Lake under the license could put pressure on recreational fishing in Pyramid Lake. CDFW requested that an assessment of impacts be performed should CDFW be unable to provide a sufficient quantity of hatchery fish and should Licensees be unable to stock Pyramid Lake through other opportunities.

The Licensees stated that we plan to continue stocking Castaic Lake outside of the FERC license, and are in discussions with CDFW regarding an off-license agreement to do so. The Licensees felt that such an agreement would provide more flexibility with respect to stocking quantities in case CDFW is unable to provide a sufficient supply of hatchery fish. The Licensees said that all relevant effects would be addressed in the DLA.

Study 4.1.14 - Indicators of Hydrologic Alteration

The Licensees reported on the findings of the Indicators of Hydrologic Alteration Study. USFS inquired why the With-Project median rise rate was an order of magnitude higher than the Without-Project median rise rate, and requested a better understanding of the hard copy data records used to fill in USGS data gaps. USFS also expressed concern regarding methodology and quality assurance/quality control (QA/QC) with regard to those hard copy data. While the data are referenced, the USR does not indicate if the reader should equate the QA/QC of the hard copy data with USGS data.

The Licensees said that we believed the difference was because the With-Project condition is under the Article 52 requirements that allow for a smoothing of very high and very low flows. Article 52 expressly acknowledges that "the stream release hydrograph of Pyramid reach may be attenuated." Under the low flow conditions that occur in Pyramid reach, the change in the median rise rate may be the result of very low values. With regard to the hardcopy flow data, the Licensees explained that they used the USGS published gage data, which is the official record for Project compliance, wherever those data were available. In instances where those data were not available (i.e., approximately 6 percent of the days in the hydrology period of record; and in most cases, the holes were only for a few days), the Licensees used our unpublished hydrologic data after confirming these data were consistent with the USGS record for the periods prior to and after the missing USGS data period. This is a standard practice in hydrology where holes in the USGS data occur and back-up data are available. In the DLA, the Licensees will make the back-up data available for the periods where they were used.

In a study-related discussion, USFS expressed concerns regarding the 10.8 percent multiplier for the ungauged portion of the upper Piru Creek and Cañada de Los Alamos watershed, which is part of the existing FERC license. Meeting participants requested a more thorough description of how the system is operated to meet the requirements in Article 52 of the existing license (i.e., how flow information is obtained, communicated, and operational changes made accordingly among staff in day-to-day operations). In addition, meeting participants requested information regarding how flow is calculated at the streamflow gage on Piru Creek upstream of Pyramid Lake.

The Licensees explained that the multiplier is derived from a 1974 agreement between DWR and the United Water Conservation District, and the only documentation the Licensees have regarding the 10.8 percent multiplier has been provided to the USFS. The Licensees said that if we discover additional relevant information regarding the method used to determine the multiplier, we will provide it to USFS. With regard to gage operations, the Licensees said we they explain that more clearly in the DLA.

Study 4.1.15, Scenic Integrity

The Licensees reported on the findings of the Scenic Integrity Study. USFS stated that the study was well done, but disagreed with the Licensees' key findings. USFS stated that the Licensees should consider rewriting their conclusions for the study because the results/findings are inaccurate. The Licensees explained that we are still developing our findings, that the findings are preliminary, and that we are currently drafting these conclusions for the DLA.

Study 4.1.16, Water Quality and Temperature

The Licensees reported on the findings of the Water Quality and Temperature Study. USFS requested more information describing data loggers and the sampling method for the study (e.g., sample locations, reading frequency, equipment used). USFS also inquired as to why only chlorpyrifos and diazinon were sampled and requested clarification on the sampling locations and process in Pyramid reach and Pyramid Lake.

The Licensees clarified the sampling locations and process in both Pyramid reach and Pyramid Lake. The temperature loggers used in the Pyramid reach were Model U22 Hobo Water Temperature Loggers that recorded water temperature at 15-minute intervals and were downloaded quarterly. They were installed at four locations consistent with the FERC-approved study plan: (1) near the base of Pyramid Dam; (2) about 1.5 miles downstream of Pyramid Dam; (3) about 3.0 miles downstream of Pyramid Dam near Frenchman's Flat; and (4) upstream of Lake Piru near Blue Point Campground. The loggers were installed in late September 2017 and removed in late October 2018, and were anchored and hidden from public view to avoid vandalism. GPS coordinates for the locations of the loggers will be included in the Licensees' DLA. The Licensees collected reservoir profiles in Pyramid Lake at three locations consistent with the FERC-approved study plan: (1) Pyramid Lake near the dam; (2) Pyramid Lake in the William E. Warne Powerplant arm; and (3) Pyramid Lake in the Piru Creek arm. Reservoir profiles were collected quarterly for one year beginning with the third and fourth quarters in 2017 (Quarter 3 in September 2017, and Quarter 4 in November 2017), and the first and second quarters in 2018 (Quarter 1 in February 2018, and Quarter 2 in May 2018). At each location, a Hydrolab MS5 (or similar) unit was used to collect depth, water temperature, dissolved oxygen (DO), pH, specific conductivity, and turbidity approximately every 10 feet from the surface to the bottom. Water temperature and dissolved oxygen were plotted against elevation in order to see variation over depth and season. The Licensees stated that chlorpyrifos and diazinon were not monitored under the existing water quality monitoring programs but reported that there were no detections of those two pesticides in laboratory results from the water quality sampling.

Study 4.1.19, Whitewater Boating

The Licensees reported on the findings of the Whitewater Boating Study. None of the meeting participants commented on the study, but in related comments USFWS and CDFW expressed concerns about whitewater boating and its potential adverse effect on arroyo toad (*Anaxyrus californicus*). USFWS stated that Blue Point Campground was an area of importance for arroyo toad in determining potential habitats. USFWS and CDFW stated that pulling kayaks to shore and increasing water flows for kayakers in channels where habitat for arroyo toad occurs could adversely affect tadpoles and juveniles, as well as arroyo toad breeding ground, which is very limited. USFWS requested more information and analysis with respect to Blue Point Campground if the Licensees' include a whitewater boating measure in their DLA. FERC requested further information from USFWS regarding arroyo toad sensitive habitat at Blue Point Campground.

Study 4.1.20, Special-Status Raptors

The Licensees reported on the findings of the Special-Status Raptors Study. CDFW commented that burrowing owl surveys were inadequate and were closer in nature to reconnaissance surveys, and suggested looking into critical habitat for all species, and specifically known nesting locations.

The Licensees noted that the surveys were conducted consistent with the FERC-approved study plan and produced the intended information for the study.

In related comments, USFS said that microtrash from recreation can affect California condors, and that USFS may seek to have this issue addressed in the new license. USFWS said it would be useful to have available California condor tracking information in the DLA.

Study 4.1.22, Pyramid Lake Tributaries Fish Passage Barriers

The Licensees reported on the findings of the Pyramid Lake Tributaries Fish Passage Barriers Study. NMFS asked how far north the bypass channel goes, and whether it connects with more natural portions of the creek. The Licensees said the channel intersects with the natural stream channel and that we would clarify where the two intersect.

As follow-up from the meeting, the Gorman Bypass Channel intersects the natural stream channel near where the Gorman Bypass Channel passes underneath Interstate 5. It then parallels Orwin Road and the natural stream channel to Pyramid Lake. The

Gorman Bypass Channel is on the east side of Gorman Creek until it crosses under Orwin Road, at which point the Gorman Bypass Channel is on the west side of Gorman Creek until reaching Pyramid Lake. The Gorman Bypass Channel bypasses local drainage inflow with a siphon crossing Gorman Creek and a siphon crossing Los Alamos Creek (i.e., Cañada de Los Alamos), a tributary to Gorman Creek.

Study 4.1.1, Aquatic Invasive Species

The Licensees reported on the findings of the Aquatic Invasive Species (AIS) Study. USFS inquired why the Licensees did not perform a study on New Zealand mud snails, and said they were concerned that the timing of the surveys may not have been appropriate to capture certain AIS.

The Licensees said New Zealand mud snails were included in the study and, with regard to timing, the fieldwork was performed consistent with the FERC-approved study plan. No New Zealand mud snails were detected during the surveys.

In a related comment, meeting participants pointed out that no study has been performed on Quagga mussel (*Dreissena bugensis*) in Pyramid reach. DWR stated that we monitor for Quagga mussel weekly in our facilities under an existing ongoing early detection monitoring program, and are in the process of developing with CDFW a Quagga Mussel Control Plan for Pyramid Lake and Angeles Tunnel, as required by State law, that will address monitoring and protective measures. DWR provides a report to CDFW on its annual monitoring and control measures for quagga mussel that are currently being undertaken at Pyramid Lake and near the dam including using a combination of settlement plates, plankton net sampling, remote operated vehicle surveys of substrate, and infrastructure inspections. There were no detections of adult mussels or veligers in 2018.

Study 4.1.18, ESA-Listed Terrestrial Wildlife Species – California Wildlife Habitat Relationships

The Licensees reported on the findings of the ESA-Listed Terrestrial Wildlife Species – California Wildlife Habitat Relationships Study. Many of the meeting participant comments and the Licensees responses for Study 4.1.18 were similar to those for Study 4.1.7 above.

In a related matter, meeting participants requested that the colonies of State candidate endangered tricolored blackbird (*Agelaius tricolor*) at Quail Lake be included in the appropriate wildlife section of the USR. The Licensees noted that the USR would not be revised and reissued, but the Licensees would include the information in the DLA.

Study 4.1.5, Botanical Resources

The Licensees reported on the findings of the Botanical Resources Study. Meeting participants asked whether the Licensees mapped riparian corridors, since they are used by the coastal California gnatcatcher (*Polioptila californica californica*), which is federally listed as Threatened. The Licensees said they confirmed during field surveys the location of all riparian habitat.

Study 4.1.10, ESA-Listed Riparian Bird Species, Southwestern Willow Flycatcher, Least Bell's Vireo, and Yellow-billed Cuckoo Riparian Habitat Evaluations

The Licensees reported on the findings of the ESA-Listed Riparian Bird Species, Southwestern Willow Flycatcher, Least Bell's Vireo, and Yellow-billed Cuckoo Riparian Habitat Evaluations Study. Meeting participants asked the Licensees to look at the timing of the series of willow flycatcher (*Empidonax traillii extimus*) audible detections, which could help indicate whether the calls were from southwestern willow flycatcher. USFWS expressed concerns with how the study was conducted for least Bell's vireo at the Elderberry Forebay, as the two reported occurrences may not be migrants of the same individual.

The Licensees note that the information regarding the timing of studies and detections are included in the Field Results and Data Summary for the study, and the timing was in conformance with the USFWS accepted protocols and guidelines for project-related presence/absence surveys, including interpretation of detection results. Specifically, surveys were performed five times at each site for Southwestern willow flycatcher: once during Period 1 (May 15 – May 31); twice during Period 2 (June 1 – June 24); and twice during Period 3 (June 25 – July 17). Survey visits to each site were timed at least five days apart. A Willow Flycatcher Survey and Detection Form was filled out for each southwestern willow flycatcher survey. All willow flycatcher detections occurred during Period 1 or early in Period 2, when birds cannot be assumed to be southwestern willow flycatcher. The protocols dictate that only willow flycatchers detected in the third survey Period provide evidence of breeding southwestern willow flycatchers. Southwestern willow flycatchers detected during migration cannot be differentiated from other subspecies of willow flycatcher in migration. With regard to the detections of least Bell's vireo, the Licensees pointed out that the USR states the detections may or may not be of the same bird: the Licensees are not ruling out that possibility, though this does not affect the overall use of the study information.

Additional Comments

Meeting participants requested that the incidental observations of plants or wildlife observed during the course of other studies be addressed in the relevant plant or wildlife section of the USR. The Licensees noted that incidental observations would be included in the appropriate sections of the Licensees' DLA.

Meeting participants asked whether the Licensees studied any downstream effects of Pyramid Lake algal blooms on biota in Pyramid reach. USFS commented that algal blooms and the corresponding treatment were not addressed. USFS also inquired about how algal bloom treatments affect the current wildlife. USFS expressed concern about downstream impacts of algal blooms, and bioaccumulation of aquatic algaecides downstream in Pyramid reach, as well as the potential for toxins and anoxic cyanobacteria from the bottom of the lake to be discharged downstream into Pyramid reach. The Licensees said they had not studied this, but informed the participants that the Pyramid Dam low-level outlet intake is about 200 feet below the lake's surface. The Licensees stated the Licensees application of algaecides in Pyramid Lake is consistent with their California State Water Resources Control Board-approved National Pollutant Discharge Elimination System (NPDES) permit. Annual monitoring is conducted by the Licensees to ensure the limits outlined in the NPDES permit are adhered to and the lake's beneficial uses are protected. The Licensees have noted no exceedances above the permitted levels.

FERC indicated that, based on FERC regulations, Relicensing Participants would have a higher bar to meet at this stage of the relicensing process if they would like FERC to require new studies or modifications to existing studies.

At the conclusion of the meeting, the Licensees thanked FERC and the Relicensing Participants for taking part in the meeting and for their continued participation in the relicensing.

Licensees' Proposed Study Modifications and New Studies in the Updated Study Report

The Licensees conclude the information developed by the 22 studies, together with other existing, relevant, and reasonably available information that will be included in the Licensees' DLA, is adequate for the Licensees, FERC, and interested parties to assess potential effects of the Licensees' Proposal and to inform requirements for inclusion in the new license. The Licensees do not propose any modifications to the FERC-approved studies or any new studies.

Ms. Kimberly D. Bose, Secretary
June 13, 2019
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If you have any questions about this USR meeting summary, please contact Gwen Knittweis, DWR's Chief of Hydropower License Planning and Compliance Office at (916) 557-4554, or Simon Zewdu, LADWP's Manager of Regulatory Compliance and Specifications at (213) 367-2525.

Sincerely,



Gwen Knittweis, Chief
Hydropower License Planning
and Compliance Office
Executive Division
California Department of Water Resources



Simon Zewdu
Manager of Regulatory Compliance and
Specifications
Los Angeles Department of Water and
Power

Attachments

Attachment 1

Updated Study Report Meeting Agenda

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South SWP Hydropower, FERC Project No. 2426-227

AGENDA

Updated Study Report Meeting

Date: May 29, 2019
Time: 9:00 am – 1:00 pm
Location: Hilton Garden Inn
199 N. 2nd Avenue
Arcadia, California 91006

Objectives: Discuss the results and status of the South SWP Hydropower Relicensing Studies as described in the Updated Study Report (USR) and discuss proposals, if any, to modify South SWP Hydropower FERC-approved studies or add new studies.

- Introductions
- Meeting Purpose
- Safety Moment
- Review of Relicensing Schedule
- Brief Overview of Study Progress
 - Data Availability
 - Study Status
 - Variances
 - Completed Studies:
 - *Fish Entrainment Risk Assessment*
 - *Quail Lake Fisheries Assessment*
 - *Pyramid Reach Fish Populations*
 - *Special-Status Aquatic Amphibians and Semi-Aquatic Snakes*
 - *Special-Status Terrestrial Wildlife Species–California Wildlife Habitat Relationships*

- *ESA-Listed Amphibians – California Red-legged Frog*
- *Recreation Facilities Demand Analysis and Condition Assessment*
- *Indicators of Hydrologic Alteration*
- *Scenic Integrity*
- *Water Quality and Temperature*
- *Whitewater Boating*
- *Special-Status Raptors*
- *Pyramid Lake Tributaries Fish Passage Barriers*
- *Aquatic Invasive Species*
- *ESA – Terrestrial Wildlife Species – California Wildlife Habitat Relationships*
- *Pyramid Reach Benthic Macroinvertebrates*
- Studies In-Progress:
 - *ESA-Listed Plants*
 - *ESA-Listed Riparian Bird Species, Southwestern Willow Flycatcher, Least Bell's Vireo, and Yellow-billed Cuckoo Riparian Habitat Evaluations*
 - *Botanical Resources*
 - *Non-Native Invasive Plants*
 - *Cultural Resources*
 - *Tribal Resources*
- Study Progress Questions
- Plan to Prepare and File a USR Meeting Summary
- Adjourn

Attachment 2

Updated Study Report Meeting Presentation

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UPDATED STUDY REPORT
MEETING

SOUTH SWP HYDROPOWER
RELICENSING



FERC Project No. 2426

Hilton Garden Inn
Arcadia, CA

May 29, 2019

9:00 AM – 1:00 PM

Meeting Purpose

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

For the Licensees to answer questions about the results and status of the South SWP Hydropower Relicensing Studies as described in the USR, and to discuss proposals, if any, to modify South SWP Hydropower FERC-approved studies or add new studies.

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Licensees' Goals and Objectives

- Obtain a new license for South SWP Hydropower operations to provide safe and cost-effective operation of licensed facilities
- Protect existing FERC Project No. 2426 water supply, power generation, and energy storage functions
- Address Project impacts in an accountable and responsive manner



Stop & Talk: Food-Related Allergies and Diseases

Health, Safety, Security, & Environment

Exposure to certain foods can pose a serious health hazard to people suffering from allergies or food-related autoimmune diseases.

- **Allergies** are defined as the immune system's response to a substance. Immune responses can range anywhere from coughing and a runny nose, escalating to a life-threatening reaction called anaphylaxis. The 8 most common food allergens as defined by the FDA include: milk, eggs, fish, crustacean shellfish, tree nuts, peanuts, soy and wheat.
 - **Autoimmune Diseases** are qualified by the immune system mistaking and attacking its own cells. There are currently over 100 autoimmune diseases recognized by the American Autoimmune Related Diseases Association, Inc. Celiac Disease, for example, is a food-related disease where the body attacks the villi of the small intestine if even a crumb of gluten were to be ingested. Reactions can range anywhere from digestive discomfort to cancer if ignored over time for this specific disease.
1. **Communicate** - If an event is scheduled, make sure to contact your office manager or administrative assistant to make them aware of your dietary needs in advance.
 2. **Educate** – It is likely that people will be curious about your specialized meal. This is the perfect opportunity to educate them about your story and ensure office safety.
 3. **Take Precautions** – Make sure to be prepared in the case of an accidental exposure. Examples of safety precautions may include notifying the local safety officer, wearing medical identification, and/or carrying an EpiPen prescribed by your physician.

For more information, visit: <https://www.foodallergy.org/>

If you have questions, please contact your supervisor, [Office Safety and Environment Coordinator \(OSEC\)](#), or [local HSSE representative](#)

HSSE Stop & Talk are written for educational purposes and are not intended to replace safe work practices or procedures.
ver. May 2019



SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Agenda

- Review Relicensing Schedule
- Brief Overview of Study Progress
 - Data Availability
 - Study Status
 - Variances
 - Completed and In-Progress Studies
- Study Program Progress Questions
- Plan to Prepare and File a USR Meeting Summary
- Adjourn

Relicensing Schedule

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Previous Milestones – FERC Study Plan Determinations

- June 14, 2017: To supplement existing, relevant, and reasonably available information, FERC approved without modification 10 of the 22 studies in the Licensees' Revised Study Plan, and approved with modification 12 of the studies.
- September 7, 2018: FERC approved requested modifications to 7 of the 10 previously approved studies.

SOUTH SWP HYDROPOWER RELICENSING

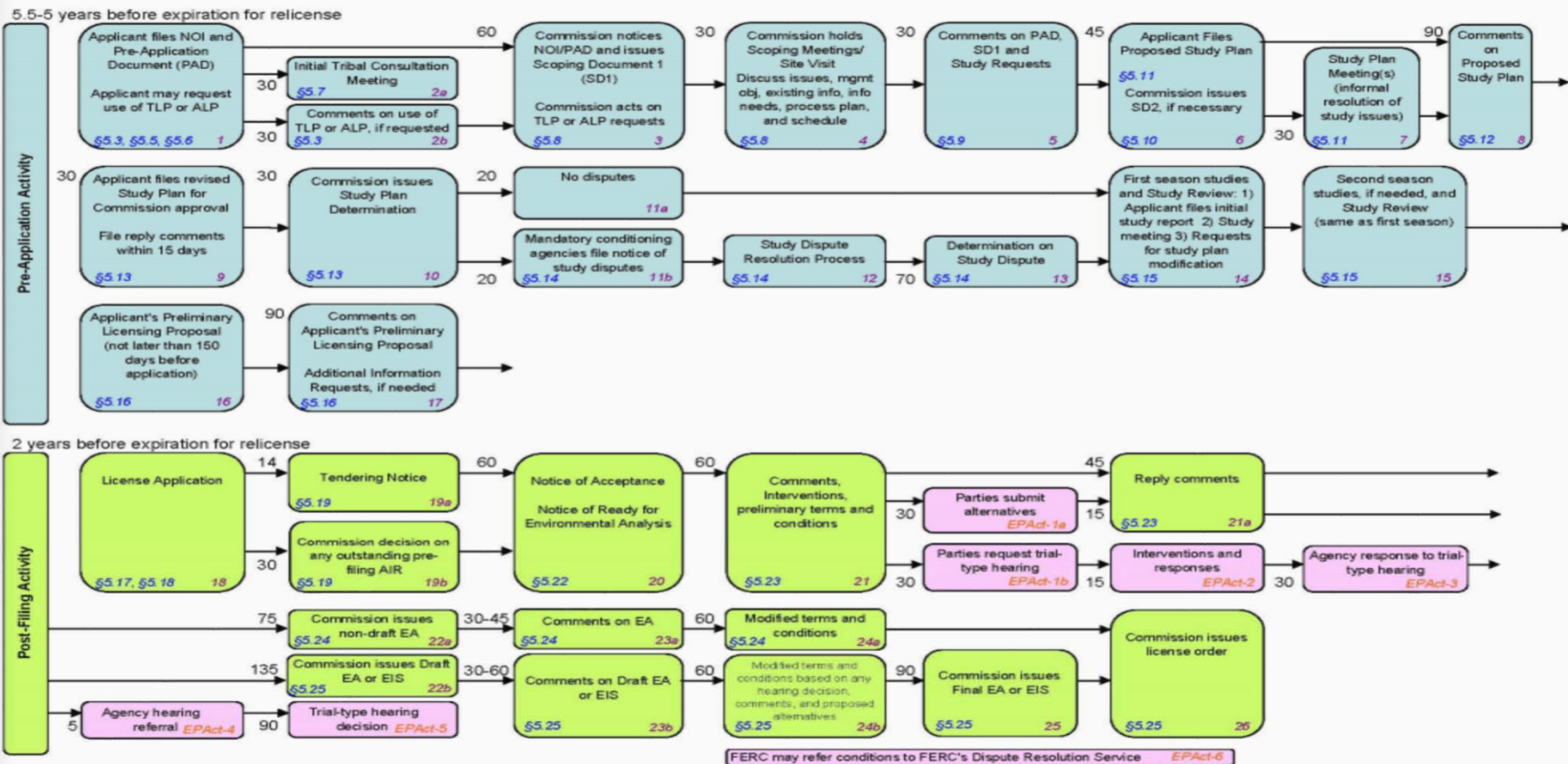


FERC Project No. 2426

FERC ILP

Where Are We In Relicensing?

Integrated Licensing Process (Section 241 of the Energy Policy Act of 2005)



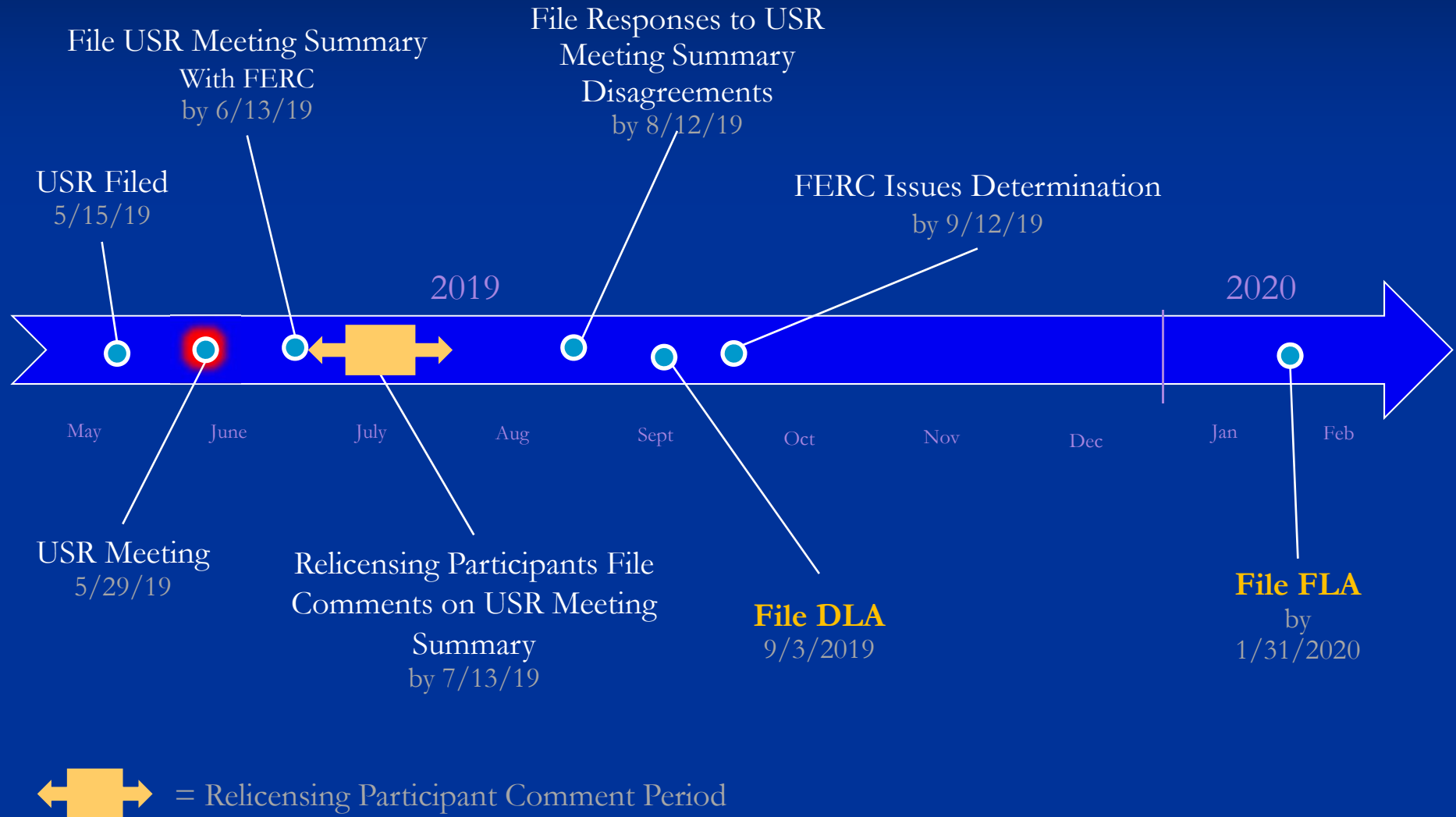
*Section 241 of the Energy Policy Act of 2005 in pink.

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Milestones Through FLA



Brief Overview of Study Progress

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Data Availability

- Beginning May 10, 2018, per FERC's Determination and consistent with the Communication Guidelines and Goals in the PAD, the Licensees have provided the following on the Relicensing Website (<http://south-swp-hydropower-relicensing.com/>):
 - Study Plans
 - Study Results
 - Field Results and Data Summaries
 - Raw Data
- Relicensing Participants were notified when new data was made available



Study Status

Study program includes 22 studies

- 16 studies are complete and final Field Results and Data Summaries were provided to Relicensing Participants
- 6 studies to be completed before DLA is filed (mostly completed)
 - Limited remaining scope represents a very small fraction of overall data
 - Field Results and Data Summaries for data collected to date were provided to Relicensing Participants
- Results of all studies and other existing and relevant information will be included in DLA



Variations

- The studies have been performed in substantial conformance with the FERC-approved study plans
- Of the 22 studies:
 - 8 have no variations to the FERC-approved study plan
 - 9 have minor variations to schedule
 - 5 have minor variations to study methods, but these variations do not affect the overall information to be developed by the study

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Completed Studies

1. Fish Entrainment Risk Assessment (Study 4.1.17)
2. Quail Lake Fisheries Assessment (Study 4.1.2)
3. Pyramid Reach Fish Populations (Study 4.1.3)
4. Special-Status Aquatic Amphibians and Semi-Aquatic Snakes (Study 4.1.4)
5. Special-Status Terrestrial Wildlife Species – California Wildlife Habitat Relationships (Study 4.1.7)
6. ESA-Listed Amphibians – California Red-legged Frog (Study 4.1.9)
7. Recreation Facilities Demand Analysis and Condition Assessment (Study 4.1.11)
8. Indicators of Hydrologic Alteration (Study 4.1.14)
9. Scenic Integrity (Study 4.1.15)
10. Water Quality and Temperature (Study 4.1.16)
11. Whitewater Boating (Study 4.1.19)
12. Special-Status Raptors (Study 4.1.20)
13. Pyramid Lake Tributaries Fish Passage Barriers (Study 4.1.22)
14. Aquatic Invasive Species (Study 4.1.1)
15. ESA-Listed Terrestrial Wildlife Species – California Wildlife Habitat Relationships (Study 4.1.18)
16. Pyramid Reach Benthic Macroinvertebrates (Study 4.1.21)



Study 4.1.17 - Fish Entrainment Risk Assessment

- Very low likelihood that rainbow trout or largemouth bass would be entrained into the Angeles Tunnel or Pyramid Dam low-level intake for three reasons:
 - Unlikely that fish would be present at the depths of the intakes
 - Unlikely that fish would be in the zone of the affected area of the intakes
 - These fish have swim speeds in excess of the intake velocities



Study 4.1.2 - Quail Lake Fisheries Assessment

- **Electrofishing**
 - 13 species captured – more abundant were largemouth bass, striped bass, and white catfish
 - Two species were found in large quantities, threadfin shad and inland silversides, indicating the presence of a large prey base for predatory game fish
 - Quail Lake can be characterized as a “big bass” fishery
 - The fish captured showed a wide range of weight relative to length (condition factor)
- **Creel Surveys**
 - 85 angler parties interviewed, representing 175 individual anglers
 - Fish caught by anglers include striped bass, black bass (largemouth bass), catfish (white catfish or channel catfish), and perch
 - Most angler parties from Los Angeles (72 percent); only a few traveled from counties outside of the greater Los Angeles area



Study 4.1.3 - Pyramid Reach Fish Populations

FERC Project No. 2426

- Sites selected in collaboration with agencies
- Mesohabitats typical of lower gradient streams
 - Pools, runs, glides, and low gradient riffles, were most common
- eDNA – (conducted throughout the reach)
 - Rainbow trout detected at 59 of 60 sampling locations
 - Undetermined suckers detected at 54 of 60 sampling locations
 - Arroyo chub detected in 13 of 60 sampling locations throughout Pyramid reach
- Fish Population
 - Four species captured
 - Site 1: Rainbow trout, largemouth bass, and prickly sculpin
 - Site 2: Rainbow trout and an undetermined sucker species
 - Site 3: No fish
 - Incidental observations of American bullfrogs at Site 1



Study 4.1.4 - Special-Status Aquatic Amphibians and Semi-Aquatic Snakes

- Foothill Yellow-Legged Frog (FYLF)
 - No observations during survey
 - eDNA analysis did not indicate the presence of FYLF DNA
- Western Spadefoot
 - No observations during survey
 - Potential western spadefoot breeding habitat identified at only 2 locations
 - Seasonal pools on each end of a culvert under Orwin Road
 - Depression w/in the former stream channel upstream of Frenchman's Flat
- Two-Striped Gartersnake and South Coast Gartersnake
 - No observations of South Coast gartersnakes
 - Four two-striped gartersnakes observed
 - Potentially suitable habitat identified at streams and riparian patches in Project reservoirs and open sections of lower Pyramid Reach
- Incidental observations of southern western pond turtles within Pyramid reach and Pyramid Lake north at the confluence with Piru Creek



Study 4.1.7 - Special-Status Terrestrial Wildlife Species – CWHR

FERC Project No. 2426

- California Wildlife Habitat Relationships (CWHR)
 - Mapping identified 26 habitat types in the Study Area (additional 1.5-mile buffer)
 - Of the 26 in the Study Area, 18 CWHR habitat types were identified within the Project boundary
 - Habitat mapping paired with CNDDDB, USFS Sensitive Animals Species Lists, and CWHR database resulted in 55 special-status terrestrial wildlife species with potential to occur within the Project boundary
 - 1 terrestrial invertebrate, 1 terrestrial amphibian, 10 reptiles, 27 birds, and 16 mammals
- Wildlife Movement
 - Lower Quail Canal and Castaic Penstocks may be local impediments to some wildlife, but surrounding open space provides alternative corridors
- Incidental Observations
 - Loggerhead shrike, adult northern harrier, golden eagles, and a western pond turtle



Study 4.1.9 - ESA-Listed Amphibians – California Red-Legged Frog

- 18 stream or pond locations within the Study Area were identified and assessed for potential CRLF breeding habitat
- 6 sites met the minimum criteria for potential CRLF habitat:
 - 4 sites within existing FERC Project boundary
 - 1 site within proposed Project boundary
 - 1 site found on private property (outside existing and proposed Project boundary)
- Predatory fish and American bullfrogs were observed at two of these sites (Gorman Bypass Channel and Pyramid reach)



Study 4.1.11 - Recreation Facilities Demand Analysis and Condition Assessment

- Condition assessments performed on all facilities
 - Found variety of conditions at recreation facilities and inventoried accessible features
- 107 interviews conducted at 9 sites during 9 survey visits
 - 92% indicated visit was for recreation
 - Most popular areas on weekends:
 - Emigrant Landing Boat Launch, Emigrant Landing Picnic Area, Emigrant Landing Fishing Area One, Emigrant Landing Swim and Picnic Area, Quail Lake, Vaquero Day Use Area, and Non-Project Frenchman's Flat
- Most popular activities
 - Fishing (from shore)
 - Picnicking
 - Swimming



Study 4.1.14 - Indicators of Hydrologic Alteration

FERC Project No. 2426

- With-Project flows are slightly higher than Without-Project flows
- Median low flow event:
 - Without-Project = August 3
 - With-Project = September 14
- Median high flow event:
 - Without-Project = February 6
 - With-Project = January 31
- Median rise rate:
 - Without-Project = 0.16 cfs (median reversals = 102)
 - With-Project = 2.0 cfs (median reversals = 32)



Study 4.1.15 - Scenic Integrity

The following were found to have varying levels of contrast with respect to current Forest Plan Scenic Integrity Objectives (SIOs):

- Pyramid Dam, Spillway, and Recreation Facilities
- Angeles Tunnel Intake, Adits, and Surge Chamber
- Sections of the Castaic Transmission Line



Study 4.1.16 - Water Quality and Temperature

FERC Project No. 2426

- Samples collected in Quail Lake
 - Consistent with Basin Plan Objectives
 - Showed little variation between location and depth
- Samples collected in Pyramid Lake
 - Mostly consistent with Basin Plan Objectives - 2 of 6 DO concentrations collected at the bottom of the lake inconsistent with objectives (typical)
 - Showed little variation between location and depth
- All Samples in Pyramid reach were consistent with Basin Plan Objectives
- *E. coli* / Coliform
 - *E. coli* measured under the laboratory reporting limit for 11 of 12 samples and at the reporting limit for 1
 - Coliform present in all samples

Study 4.1.19 - Whitewater Boating

- **December 2018** - Observation flow test with boaters
 - Boatable portions of the reach occur up to 3 miles below Pyramid Dam and near Frenchman's Flat
 - Potential boating opportunities at flows of 200 cfs or higher
- **January 2019** - Field reconnaissance from Frenchman's Flat to Blue Point Campground
 - One expert boater found reach to be suitable for expert level boating
 - It was identified that boating could be constrained by vegetation and other obstacles



Study 4.1.20 – Special Status Raptors

- Bald eagle wintering roost sites at Pyramid Lake and Quail Lake were identified
 - Pyramid Lake – 2 adult bald eagles and 1 juvenile bald eagle
 - Quail Lake – 1 bald eagle
- Golden eagle individuals observed at Pyramid Lake and Quail Lake
- Turkey vulture nest observed on Chumash Island
- 2 adult California condors observed flying over Pyramid Lake
- Special-status raptor species observed; prairie falcon, peregrine falcon, Northern harrier, and osprey
 - No nesting special-status raptor species were observed during the survey
- Incidental sighting of a burrowing owl near Elderberry Forebay
 - No suitably sized burrows for burrowing owl were identified in the areas surveyed



Study 4.1.22 - Pyramid Lake Tributaries Fish Passage Barriers

FERC Project No. 2426

- No barriers to upstream fish passage
 - Piru Creek
 - Carlos Canyon
- A single barrier to upstream fish
 - Gorman Creek



Study 4.1.1 - Aquatic Invasive Species

- 69 AIS invertebrate occurrences recorded and 2 types of AIS invertebrate species found:
 - Asian clam
 - Channeled apple snail
- 65 AIS plant occurrences recorded and 3 AIS plant species found:
 - Sago pondweed
 - Coontail
 - Small pondweed
- Two incidental sightings of red-eared slider recorded at Pyramid Lake

Study 4.1.18 - ESA – Terrestrial Wildlife Species – CWHR

- California Wildlife Habitat Relationships (CWHR)
 - Mapping identified 26 habitat types in the Study Area (additional 1.5-mile buffer)
 - Of the 26 in the Study Area, 18 CWHR habitat types were identified within the proposed Project boundary
 - Six ESA-listed terrestrial wildlife species were listed as having potential habitat in the entire Study Area and within the proposed Project boundary
 - Arroyo toad, California red-legged frog, California condor, Coastal California gnatcatcher, Least Bell's vireo, Yellow-billed cuckoo
 - No ESA-listed terrestrial wildlife species were incidentally observed as part of this study



- Sites selected in collaboration with agencies
- Sites scored based on California Stream Condition Index (CSCI)
- $CSCI > 1$ indicates more complex ecological functioning and taxonomic richness than predicted

Site 1: likely altered (0.75)

Site 2: likely intact (1.07)

Site 3: possibly altered (0.88)

SOUTH SWP HYDROPOWER RELICENSING



Studies In Progress – To Be Completed by DLA

FERC Project No. 2426

1. Botanical Resources (Study 4.1.5)
2. Non-Native Invasive Plants (Study 4.1.6)
3. ESA-Listed Plants (Study 4.1.8)
4. ESA-Listed Riparian Bird Species, Southwestern Willow Flycatcher, Least Bell's Vireo, and Yellow-billed Cuckoo Riparian Habitat Evaluations (Study 4.1.10)
5. Cultural Resources (Study 4.1.12)
6. Tribal Resources (Study 4.1.13)



Study 4.1.5 - Botanical Resources

FERC Project No. 2426

■ Special Status Plants

- 139 occurrences of 5 special-status species observed during field surveys
 - Slender mariposa- lily = 11 occurrences (Throughout)
 - Peirson's morning glory = 80 occurrences (Throughout)
 - Mt. Pinos larkspur = 1 occurrence (Castaic T-line)
 - Southern California black walnut = 1 occurrence (Castaic Creek)
 - Short-joint beavertail = 46 occurrences (Throughout)

■ Wetland and Riparian Assessment

- 9 Lotic (riparian) areas identified and assessed
- 22 Lentic (wetland) areas identified and assessed

■ An incidental observation of 5 California Condor 0.5 miles west of the Castaic Transmission Line

The Licensees expect to complete the Study in July 2019



Study 4.1.6 - Non-Native Invasive Plants

- 877 occurrences of 32 different NNIP species were observed during field surveys
- 23 occurred on NFS Lands

The Licensees expect to complete the Study in July 2019



Study 4.1.8 - ESA- Listed Plants

- No ESA-listed plant species were observed during study, or incidentally observed during other relicensing studies

The Licensees expect to complete the Study in July 2019



Study 4.1.10 – ESA- Listed Riparian Birds

- Detections of least Bell's vireo at 2 sites at Elderberry Forebay
- 26 willow flycatcher detections at Quail Lake, Pyramid Lake, Gorman Creek, and Elderberry Forebay
- No detections of yellow-billed cuckoo
- Incidental Observations
 - Yellow warbler, Cooper's hawk, Nuttall's woodpecker, and Lawrence's goldfinch

The Licensees expect to complete the Study in August 2019



Study 4.1.12 - Cultural Resources (Preliminary)

FERC Project No. 2426

- 36 archaeological sites identified
 - 20 could not be evaluated at survey level for NRHP eligibility
 - 14 considered not eligible for NRHP listing
 - 2 recommended as eligible for listing in NRHP
 - 1 site (roadway)
 - Previous survey determined partially eligible under Criteria A and C
 - Project relicensing surveys determined the remaining portions of the road within the APE were either destroyed, or buried and replaced
- 7 of 13 historical built environment resources are recommended as eligible under NRHP Criterion A for association with the SWP

The Licensees expect to complete the Study in July 2019

- Detailed Study findings are **PRIVILEGED** -

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Study 4.1.13 - Tribal Resources Study

- Archival and background research complete
- Initial interviews conducted
- Additional interviews are scheduled for May 2019
 - Detailed Study findings are **PRIVILEGED** -

The Licensees expect to complete the Study in September 2019

Study Program Progress Questions

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Study Modifications and New Studies

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

FERC's Criteria for Study Modification

FERC's criteria for proposing a modification to a FERC-approved study are provided at 18 CFR 5.15(d), which states:

(d) *Criteria for modification of approved study.* Any proposal to modify an ongoing study pursuant to paragraphs (c)(1)-(4) of this Section must be accompanied by a showing of good cause why the proposal should be approved, and must include, as appropriate to the facts of the case, a demonstration that:

- (1) Approved studies were not conducted as provided for in the approved study plan; or
- (2) The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.



Study Modifications Licensees

- Licensees are performing studies in conformance with FERC-approved study plans
- Variances will have no effects on information developed by the studies
- Licensees did not conduct studies under anomalous environmental conditions

As a result, the Licensees do not propose study modifications



FERC's Criteria for New Studies

FERC's criteria for proposing new studies are provided at 18 CFR 5.15(e), which states:

(e) Criteria for new study. Any proposal for new information gathering or studies pursuant to paragraphs (c)(1)-(4) of this Section must be accompanied by a showing of good cause why the proposal should be approved, and must include, as appropriate to the facts of the case, a statement explaining:

- (1) Any material changes in the law or regulations applicable to the information request;
- (2) Why the goals and objectives of any approved study could not be met with the approved study methodology;
- (3) Why the request was not made earlier;
- (4) Significant changes in the project proposal or that significant new information material to the study objectives has become available; and
- (5) Why the new study request satisfies the study criteria in § 5.9(b)

(f) Any proposal for new information gathering or studies is subject to paragraph (e) of this section except that the proponent must demonstrate extraordinary circumstances warranting approval.



New Studies Licensees

- Licensees are not aware of material changes in laws or regulations
- Licensees are not aware of significant changes in the Project
- Licensees are not aware of significant new information that has come to light since FERC issued its Study Plan Determination that would warrant a new study,

As a result, the Licensees do not propose any new studies

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Study Modifications and New Studies Relicensing Participants

Relicensing Participants Input

USR Meeting Summary

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426



- Licensees will File USR Meeting Summary with FERC - *Within 15 days of this USR meeting (by 6/13/19)*
 - The summary will highlight topics discussed at this meeting and identify changes, if any, to the Licensees' proposed modifications to the FERC-approved studies or new studies described in the USR
 - The Licensees' Meeting Summary is not intended to be a meeting transcript or to characterize each party's position on a topic

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

Next Steps

- Relicensing Participants may file comments on USR Meeting Summary - *Within 30 days from Meeting Summary file date (by 7/13/19)*
- Licensees may file responses on Relicensing Participants' comments – *Within 30 days (by 8/12/19)*
- FERC will make its Study Determination – *by 9/12, 2019 (will occur after the DLA is filed)*

Adjourn

SOUTH SWP HYDROPOWER RELICENSING



FERC Project No. 2426

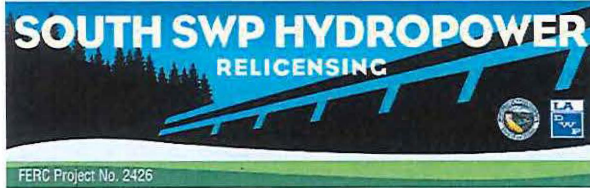
May 29, 2019

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Attachment 3

Updated Study Report Meeting Sign-In Sheet

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USR Meeting
Wednesday, 9:00 am – 1:00 pm / May 29, 2019
Hilton Garden Inn Arcadia, Ca
Sign-In Sheet

Name	Organization	Phone Number	E-mail	Initial
Pareti, Jennifer	CDFW	562-342-7173	Jennifer.pareti@wildlife.ca.gov	<i>J.P.</i>
Schmoker, Kelly	CDFW	949-581-1015	Kelly.Schmoker@wildlife.ca.gov	<i>KS</i>
Tang, Victoria	CDFW	916-445-0411	Victoria.Tang@wildlife.ca.gov	
Deaver, Katerina*	DWR	916-651-0819	katerina.deaver@water.ca.gov	
Killeen, Katharine*	DWR		Katharine.killeen@water.ca.gov	
Miller, Aaron*	DWR	916-557-4560	Aaron.S.Miller@water.ca.gov	<i>AM</i>
Hedrick, Robert*	DWR	916-653-5761	Robert.Hedrick@water.ca.gov	
Goebel, Scott	DWR	916-557-4561	scott.goebel@water.ca.gov	<i>SG</i>
Lee, Lisa	DWR	916-557-4557	lisa.lee@water.ca.gov	<i>LL</i>
Stoddard, Tera*	DWR	916-557-4553	tera.stoddard@water.ca.gov	
Torres, Ralph	DWR	916-798-9825	torresraphael13@yahoo.com	
McNeil, Jeremiah	DWR	916-563-0359	Jeremiah.McNeil@water.ca.gov	<i>JM</i>
Salazar, Joseph	DWR – SFD	661-944-8449	joseph.salazar@water.ca.gov	<i>JS</i>
Velazquez, Gabino	DWR – SFD	661-944-8555	gabino.velazquez@water.ca.gov	<i>GV</i>
Knittweis, Gwen	DWR	916-557-4554	Gwen.Knittweis@water.ca.gov	<i>GK</i>
Costanzo, Lorraine	DWR – SFD	661-944-8735	Lorraine.costanzo@water.ca.gov	
Williams, Victoria	DWR – SFD	661.944.8571	Victoria.Williams@water.ca.gov	
McElvain, Doug	DWR – SFD	661-944-8445	Doug.Mcelvain@water.ca.gov	<i>DM</i>

* Call in via Skype

Name	Organization	Phone Number	E-mail	Initial
Emmering, Quinn*	FERC		Quinn.Emmering@ferc.org	
Fargo, James*	FERC		James.Fargo@ferc.org	
Hogan, Kenneth*	FERC		Kenneth.Hogan@ferc.org	
Olcott, Kyle	FERC		Kyle.Olcott@ferc.org	KO
Ware, Raphaela	FWS	805-644-1766	raphaela_ware@fws.gov	RW
Lynch, Jim	HDR	916-679-8740	Jim.Lynch@hdrinc.com	JML
Likins, Zachary	LACO—DPR	626-588-5318	zlikins@parks.lacounty.gov	
Chang, Stanley	LADWP	213-367-1063	Stanley.chang@ladwp.com	
Chua, Pjoy	LADWP	213-367-1750	Pjoy.Chua@ladwp.com	PTC
Driscoll, Syndi	LADWP	213-367-4363	syndi.driscoll@ladwp.com	SD
Fick, Robert	LADWP	213-367-4373	Robert.Fick@ladwp.com	Rmf
Gamez, Ramon	LADWP	213-367-4853	Ramon.Gamez@ladwp.com	RDB
Gonzalez, Brian	LADWP	213-367-2612	Brian.gonzalez@ladwp.com	BG
Grison, Chloe	LADWP	213-367-1339	Chloe.grison@ladwp.com	
Hirashima, Scott	LADWP	213-367-0852	Scott.Hirashima@ladwp.com	SH
Westbrook, Aaron	LADWP	661-294-3221	Aaron.Westbrook@ladwp.com	AW
Gomez, Edgar	LADWP	213-367-4425	Edgar.Gomez@ladwp.com	
Rubin, Katherine	LADWP	213-367-0436	Katherine.rubin@ladwp.com	KR
Sy, Anton	LADWP	213-367-2332	Anton.Sy@ladwp.com	AS
Zewdu, Simon	LADWP	213-367-2525	Simon.zewdu@ladwp.com	SZ
Bartlett, Sarah	Metropolitan Water District	213-212-6166	sbartlett@mwdh20.com	
Bowes, Stephen	National Parks Service	415-623-2321	Stephen_bowes@nps.gov	SRB

* Call in via Skype

Name	Organization	Phone Number	E-mail	Initial
Foster, Bill	NOAA	916-930-6317	william.foster@noaa.gov	WF
Burr, Doug	Stantec	916-418-8356	douglas.burr@stantec.com	
Miller, Jill	Stantec	916-418-8439	jill.miller2@stantec.com	jm
Gilbert, Kirby	Stantec	425-896-6954	kirby.gilbert@stantec.com	✓
Padgett, Karmina	SWRCB	916-323-4642	karmina.padget@waterboards.ca.gov	KP
Purpus, Linda	United Water Conservation District	805-525-4431	Lindapeunitedwater.org	LP
Anderson, Kelsha	USDA	626-632-1709	Kelsha.anderson@usda.gov	
Alvarez, Dawn	USFS	707-562-9109	dalvarez@fs.fed.us	DA ✓
Butler, Jamahl	USFS	818-899-1900	njbutler@fs.fed.us	
Flores, Carlos	USFS		carlosflores@fs.fed.us	CF
Henriquez-Santos, Jose	USFS	626-574-5277	jhenriquezsantos@fs.fed.us	JH
Klose, Kristie	USFS	805-961-5745	Kristieaklose@fs.fed.us	✓
Simpson, Lloyd	USFS	805-646-4348 x.316	lsimpson@fs.fed.us	
Taylor, Robert	USFS	909-382-2660	rgtaylor@fs.fed.us	✓
Welch, Leslie	USFS	626-574-5332	lrwelch@fs.fed.us	lw
Swiger, Mike	VNF	202-298-1891	mas@vnf.com	✓
Wood, Julia	VNF	202-298-1938	JSW@vnf.com	✓
Moyle, Joanelyn	DWR-SFD	661-944-8537	joanelyn.moyle@water.ca.gov	JM
Stacie Smith	NOAA Fisheries	805-570-5766	stacie.smith@noaa.gov	SS
Joshua Travers	USFS	626-574-5374	joshua.travers@usda.gov	JT
Nadia Parker	LADWP - Env. Planning	213-367-1745	nadia.parker@ladwp.com	NP

* Call in via Skype

Name	Organization	Phone Number	E-mail	Initial
David Peebles	USFS - ANF	626-574-5273	david.peebles@usda.gov	

* Call in via Skype

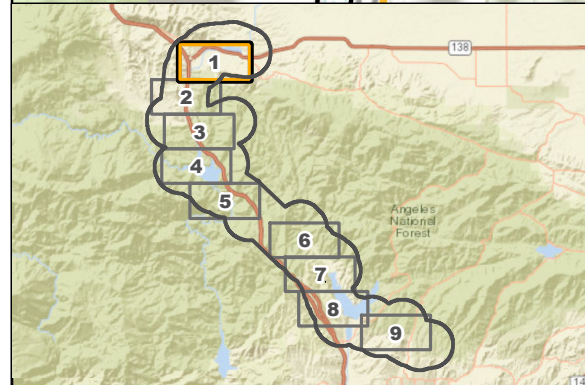
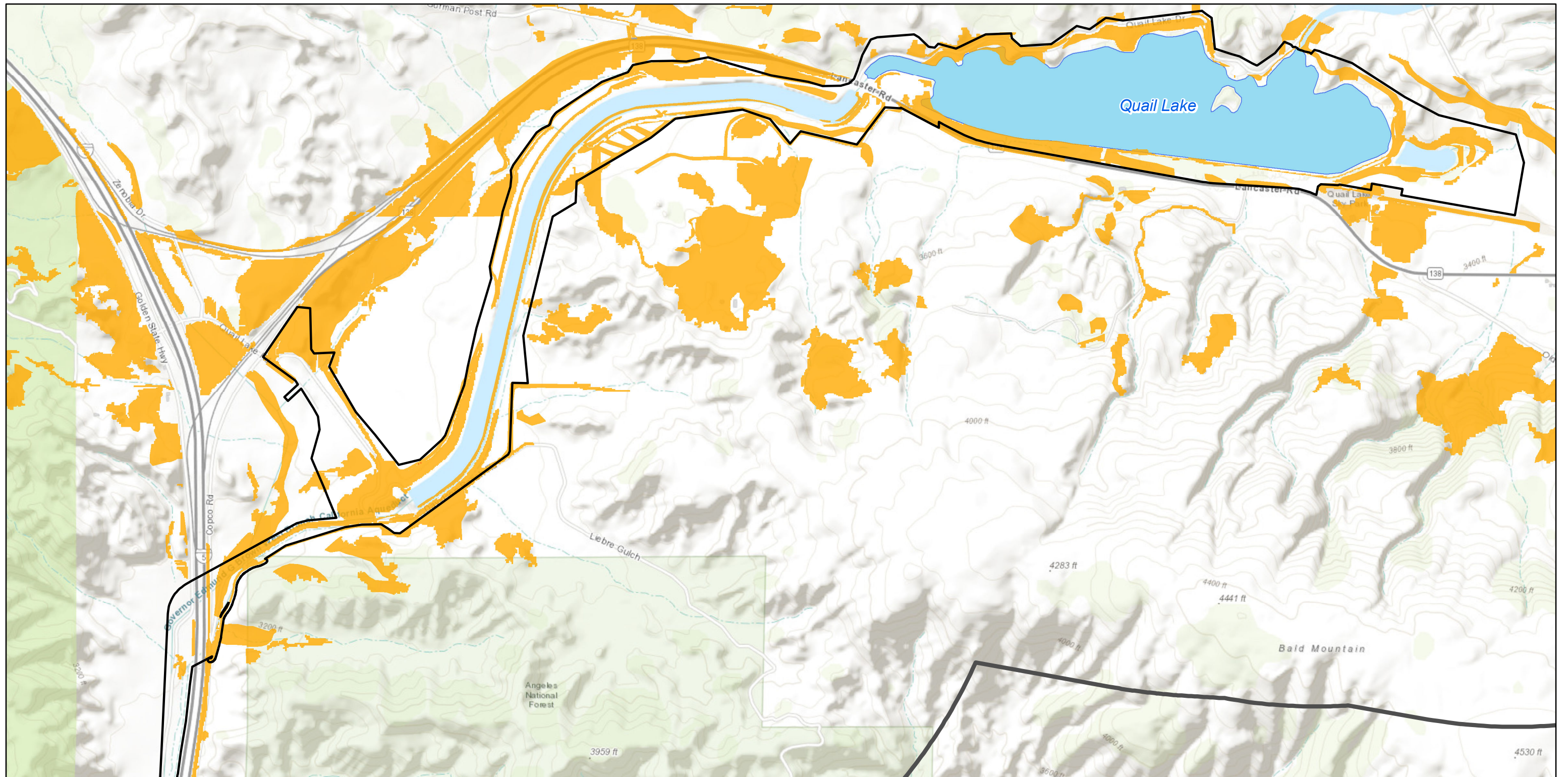
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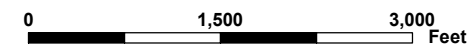
Attachment 4

***Study 4.1.7, Special-Status Terrestrial Wildlife Species
– California Wildlife Habitat Relationships
And
Study 4.1.18, ESA-Listed Terrestrial Wildlife Species
– California Wildlife Habitat Relationships
Updated Habitat Areas***

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-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY
-  LAKE/RESERVOIR

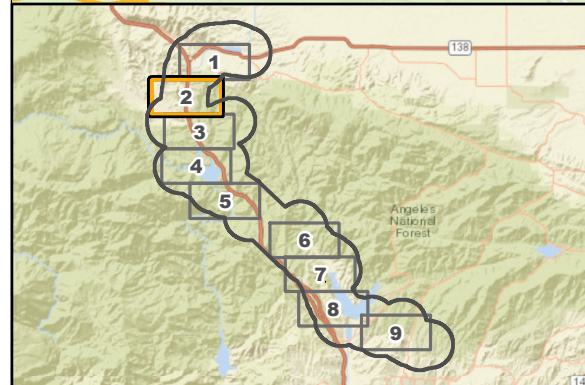
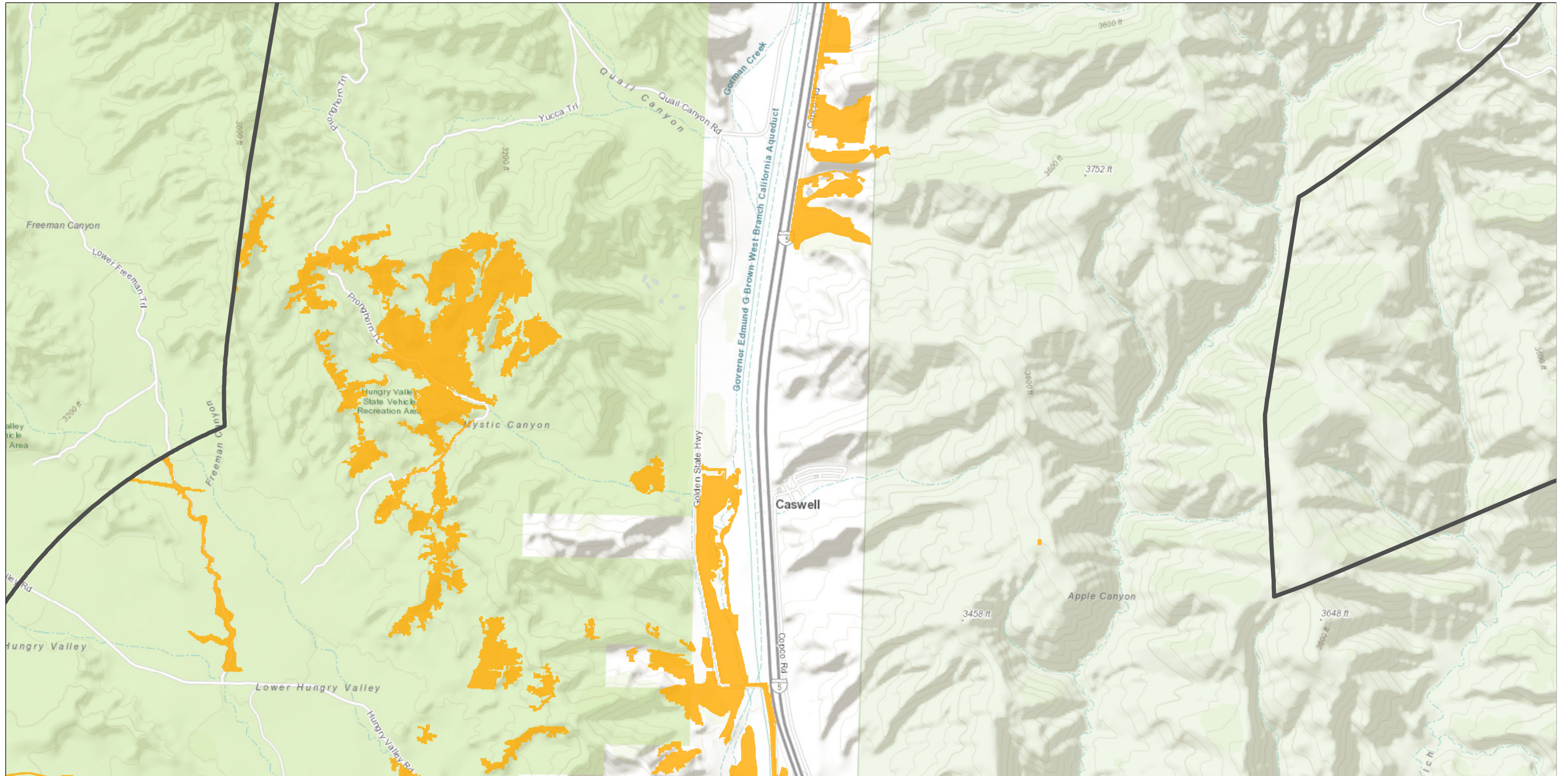






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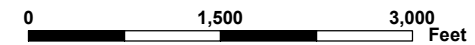
SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 1**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY

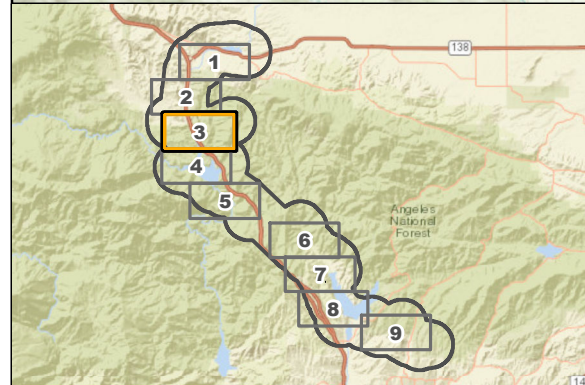
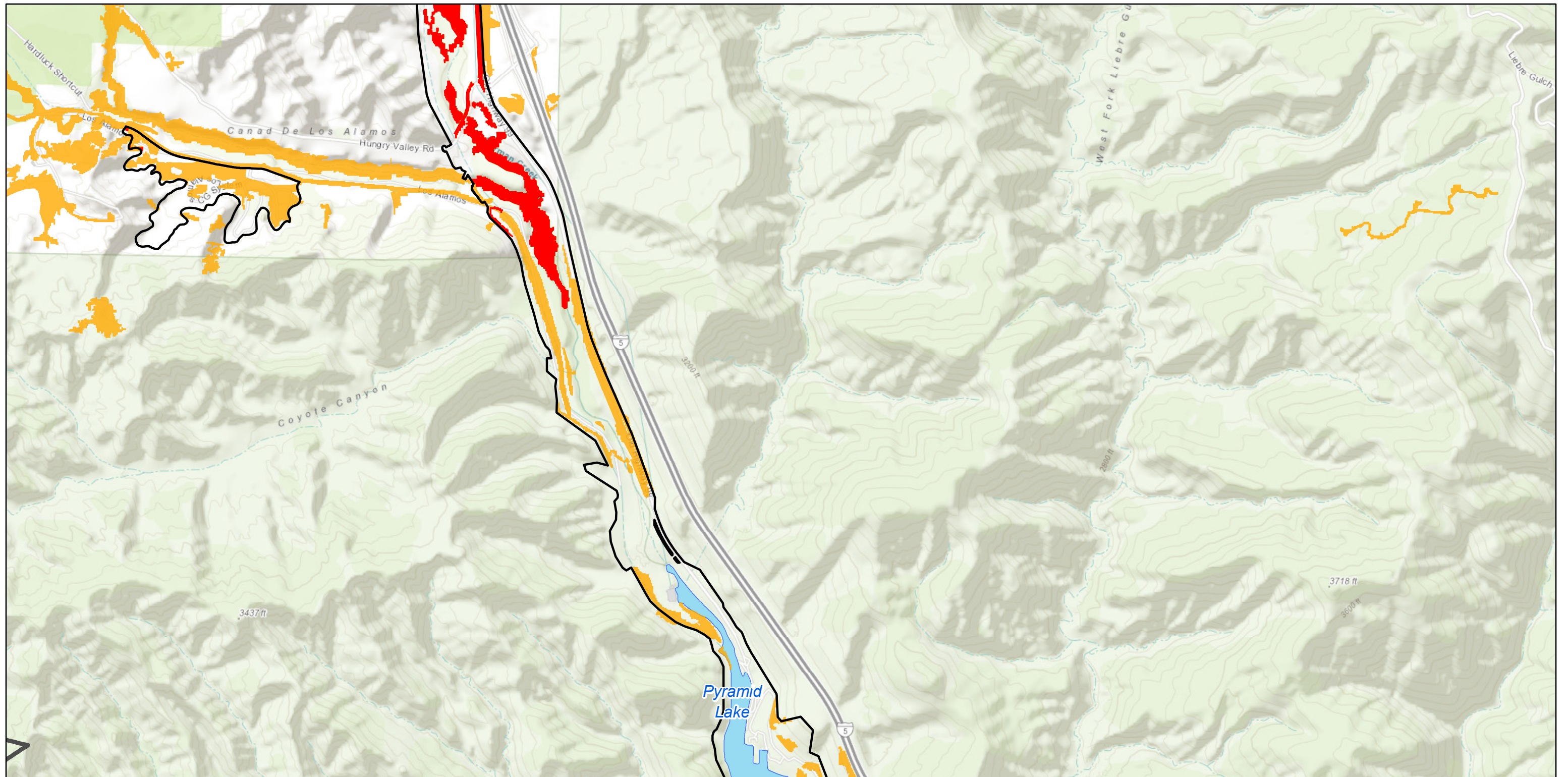







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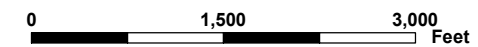
SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 2**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY
-  LAKE/RESERVOIR

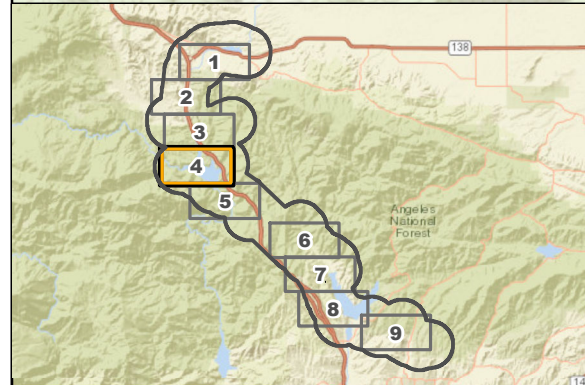
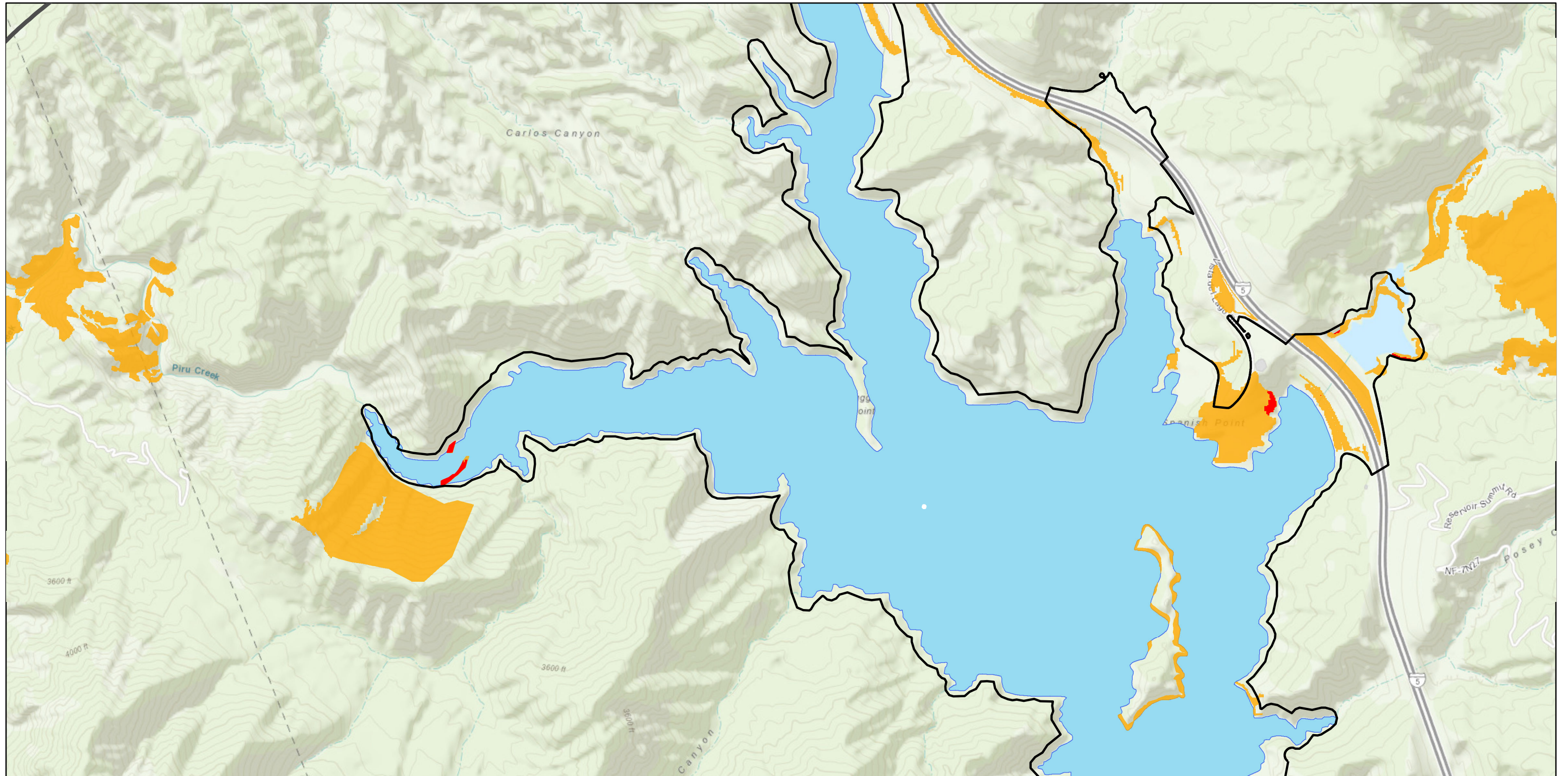







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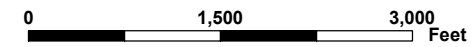
SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 3**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY
-  LAKE/RESERVOIR

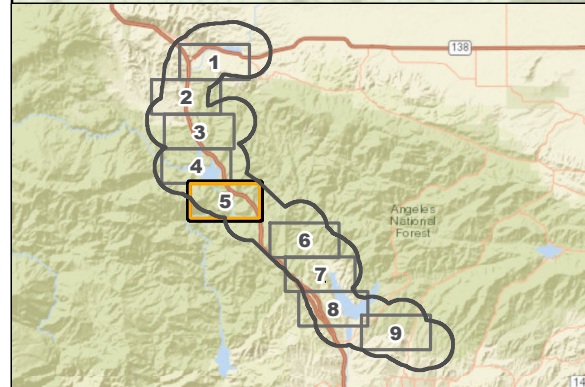
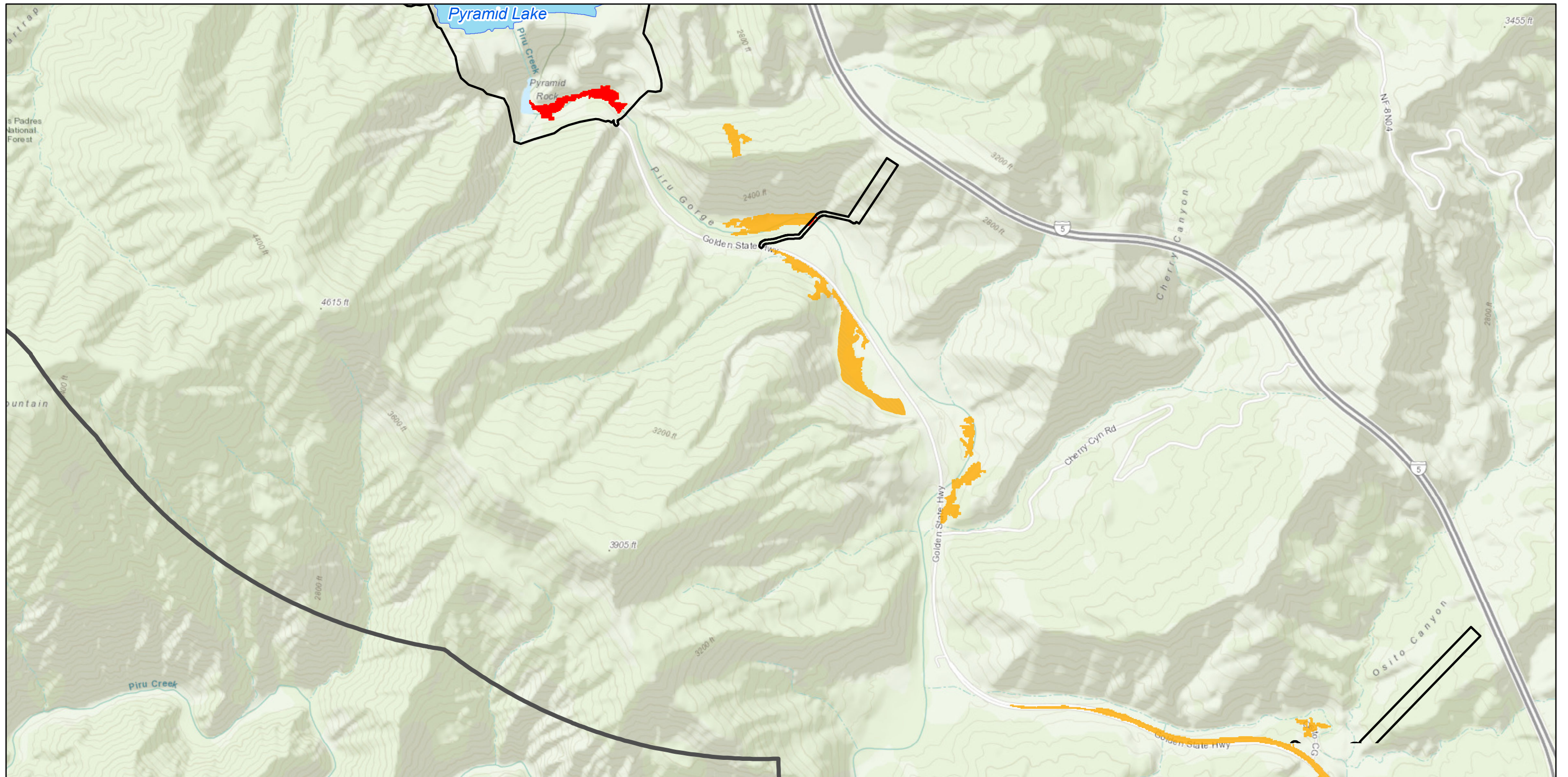







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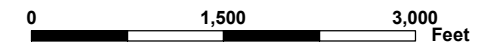
SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 4**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY
-  LAKE/RESERVOIR

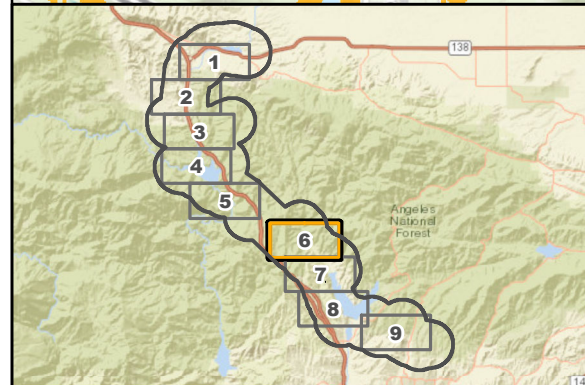
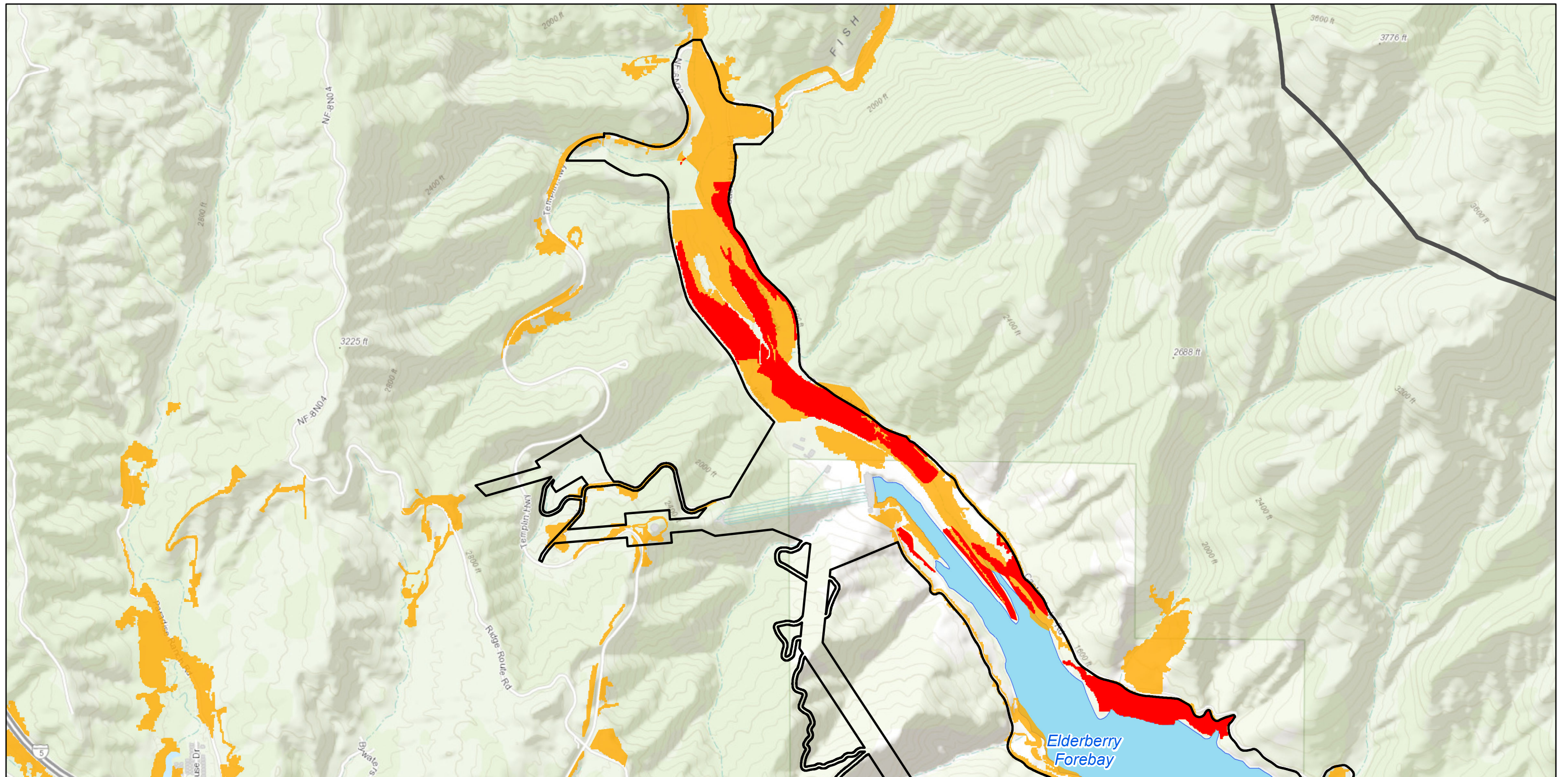







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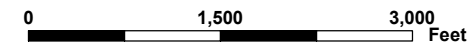
SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 5**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY
-  LAKE/RESERVOIR

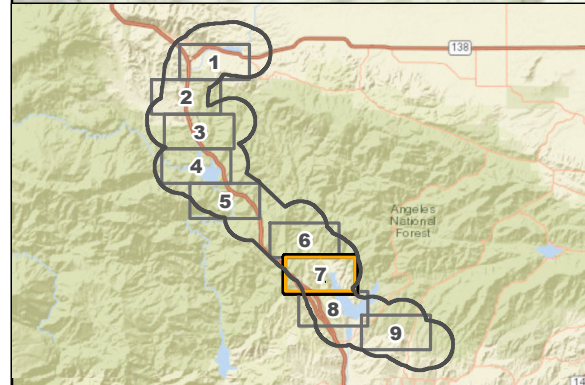
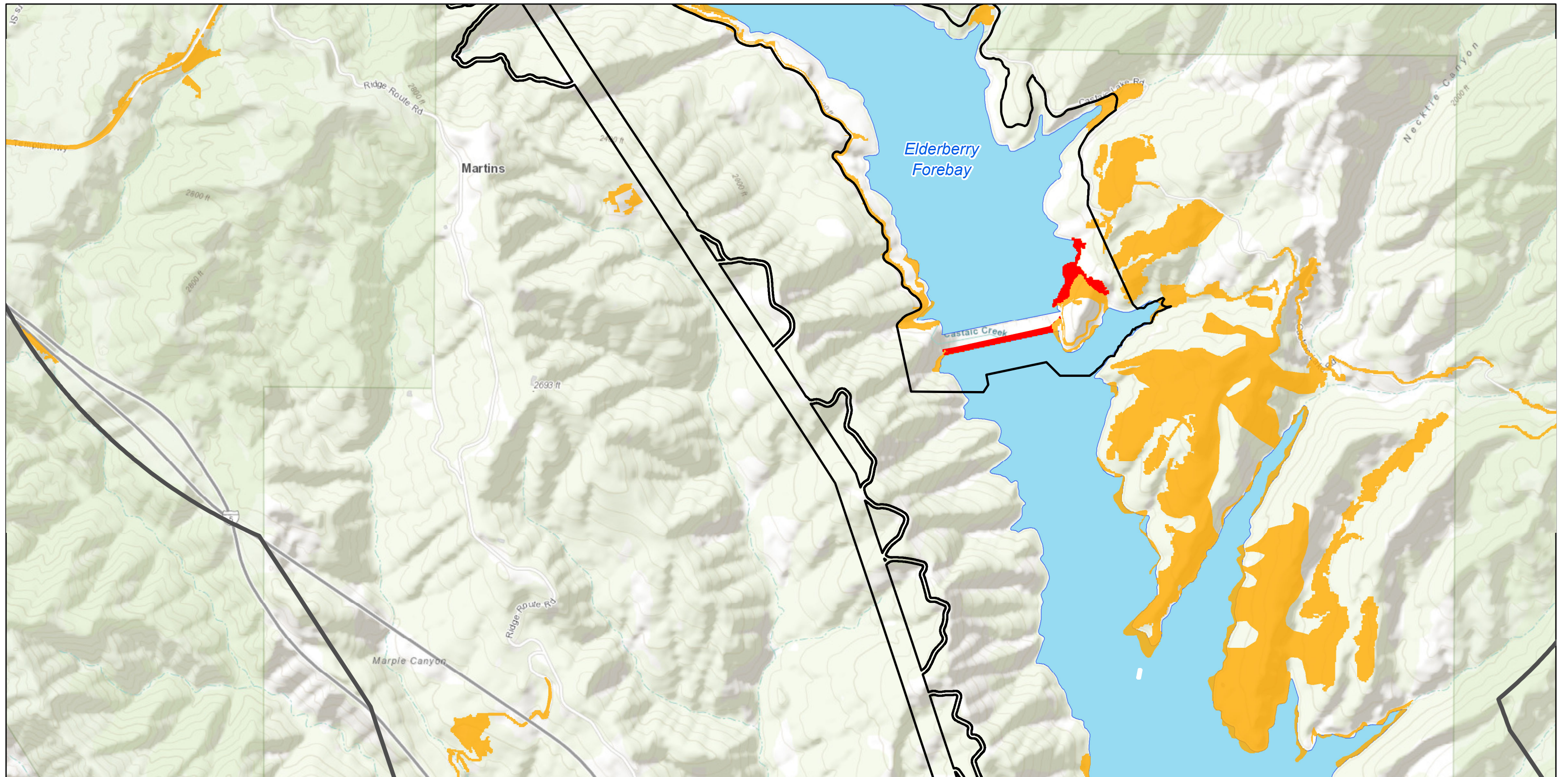







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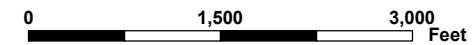
SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 6**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY
-  LAKE/RESERVOIR

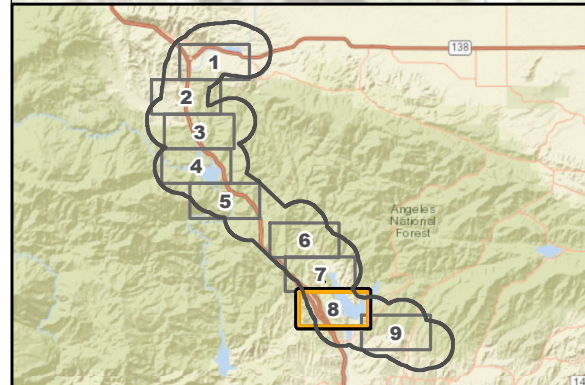







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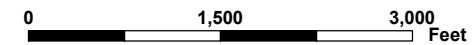
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FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 7**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY
-  LAKE/RESERVOIR

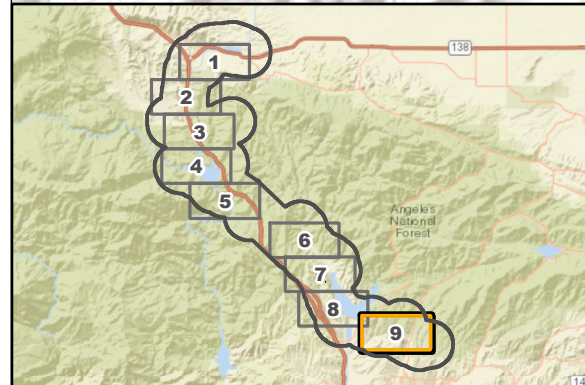
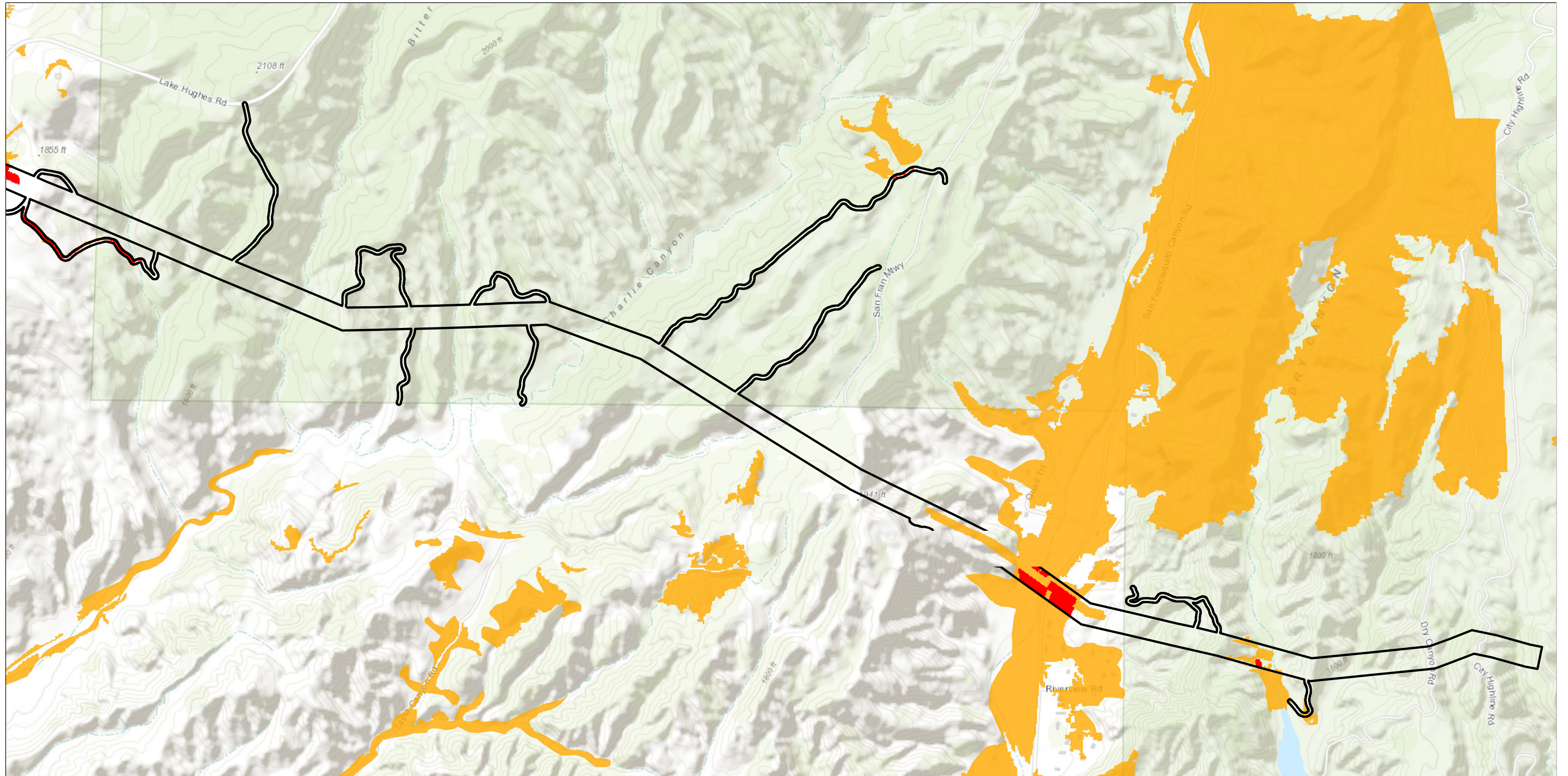






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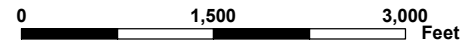
SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 8**





-  STUDY AREA BASED ON PROPOSED PROJECT BOUNDARY (v.20151214)
-  PROPOSED PROJECT BOUNDARY (v.20190326) - ANGELES TUNNEL REMOVED
-  UPDATED HABITAT AREA WITHIN PROPOSED PROJECT BOUNDARY
-  UPDATED HABITAT AREA OUTSIDE OF PROPOSED PROJECT BOUNDARY



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SOUTH SWP HYDROPOWER RELICENSING
FERC PROJECT NO. 2426

**UPDATED HABITAT AREAS
MAP 9**

