

FERC Project No. 2426
South SWP Hydropower
Aquatic Invasive Species Study

FIELD RESULTS AND DATA SUMMARY

April 25, 2019

Consistent with Section 5.0 of the South SWP Hydropower Revised Study Plan and as approved in the Federal Energy Regulatory Commission (FERC) Study Plan Determination dated June 14, 2017, the California Department of Water Resources (DWR) and Los Angeles Department of Water and Power (Licensees) provide the following Field Results and Data Summary update for Study 4.1.1, *Aquatic Invasive Species Study* (Study), which includes work completed to date, key findings, associated data files, variances, and remaining work. The Licensees consider these data to be public.

Completed Work to Date:

The Study is complete. The Licensees completed all portions of the FERC-approved Study Plan, which include Step 1 (Gather Data and Prepare for Field Effort) and Step 2 (Conduct Surveys). Pyramid Lake, Quail Lake and the Elderberry Forebay were surveyed for aquatic invasive species (AIS) targeting curly-leaf pondweed (*Potamogeton crispus*), Eurasian watermilfoil (*Myriophyllum spicatum*), hydrilla (*Hydrilla verticillata*), water hyacinth (*Eichhornia crassipes*), parrot's feather milfoil (*Myriophyllum aquaticum*), coontail (*Ceratophyllum demersum*), sago pondweed (*Stuckenia pectinata*), water primrose (*Ludwigia* spp.), European ear snail (*Radix auricularia*), Asian clam (*Corbicula fluminea*), New Zealand mudsnail (*Potamopyrgus antipodarum*), and red-eared slider (*Trachemys scripta elegans*), and incidental sightings of American bullfrog (*Lithobates catesbeianus*) and red swamp crayfish (*Procambarus clarkii*). Other AIS that were not specifically targeted were documented if present. Surveys for aquatic invasive snails and clams were performed at 10 locations in Pyramid Lake, two locations in Quail Lake, and one location in Elderberry Forebay

Key Accomplishments/Summary of Findings to Date:

Key Study findings are:

- AIS invertebrate surveys were conducted from July 30, 2018 to August 2, 2018; from August 6, 2018 to August 10, 2018; and from August 13, 2018 to August 17, 2018, at Quail Lake, at and below Pyramid Lake, and at Elderberry Forebay. A total of 69 AIS invertebrate occurrences were recorded and 2 types of AIS invertebrate species were found: Asian clam and channeled apple snail (*Pomacea canaliculata*). Asian clam was found in all three water bodies, and channeled apple snail was found in Pyramid Lake and Quail Lake. Asian clam was recorded at 6 focused survey sites in Pyramid Lake, both focused survey sites at Quail Lake, and the one focused survey site at Elderberry Forebay. Two occurrences were recorded on the small arm of Pyramid Lake just north of the Piru Creek arm and at the survey site on Quail Lake just across from the inlet structure. No Quagga mussels were incidentally found during AIS invertebrate surveys.
- AIS plant surveys were conducted on August 6, 2018, August 10, 2018, from

August 13, 2018 to August 17, 2018, and on October 9, 2018 at Quail Lake, at and below Pyramid Lake, and at Elderberry Forebay. A total of 65 AIS plant occurrences were recorded and three AIS plant species were found: sago pondweed, coontail, and small pondweed (*Potamogeton pusillus*). Sago pondweed was found in coves at Pyramid Lake and the coves of Elderberry Forebay. Coontail was found only at Pyramid Lake in areas near Chumash Island and other small coves. Small pondweed was found at all three reservoirs: in the western cove of Quail Lake; in areas near Chumash Island and other small coves at Pyramid Lake; and in areas near the dam at Elderberry Forebay.

Red-eared slider visual encounter/basking surveys were performed at Quail Lake on July 30, 2018; at Pyramid Lake on July 31, 2018 to August 2, 2018, from August 7, 2018 to August 10, 2018, and on August 14, 2018; and at Elderberry Forebay on August 16, 2018. No red-eared sliders occurrences were recorded during visual encounter/basking surveys; however, two incidental sightings of red-eared slider were recorded at Pyramid Lake during the study.

- Audible American bullfrog (*Lithobates catesbianus*) vocalizations were recorded in the reeds along the north banks of Pyramid Lake on July 31, 2018. On August 2, 2018 audible American bullfrog vocalizations, observations of American bullfrog tadpoles, and observations of red swamp crayfish (*Procambarus clarkii*) were recorded at Piru Creek, below Pyramid Dam.

Incidental Observations:

During other Licensees' relicensing studies, Licensees recorded no additional incidental observations of AIS.

During the AIS Study, the Licensees recorded the following incidental observations: a flock of tri-colored blackbird (a California Endangered Species Act-listed species) was briefly observed and recorded on July 30, 2018 at Quail Lake.

Associated Data Files (All associated data can be found in the folder with this summary form. Note: Confidential CEII/privileged information will not be posted publicly.):

File Name	Data Description	File Type	File Location
AIS Plant_Data Sheets	Scans of field data sheets	PDF	Project Website
AIS_SSWP 2018_Plant Data Summary	Summary of field data	PDF	Project Website
AIS Invert_Data Sheets	Scans of field data sheets	PDF	Project Website
AIS SSWP 2018_Invert Data Summary_P1	Summary of field data	PDF	Project Website

AIS SSWP 2018_Invert Data Summary_P2	Summary of field data	PDF	Project Website
2018 AIS SSWP Photos.zip	Photos	Zipped JPEG	Project Website
AIS_SSWP 2018_Photo Log	Photo log	PDF	Project Website
AIS_Elderberry_DataSummary	Map Summary	PDFs	Project Website
AIS_PyramidLake_DataSummary	Map Summary	PDFs	Project Website
AIS_QuailLake_DataSummary	Map Summary	PDFs	Project Website
2018_SSWP_AIS_Plant_Invert	Geodatabase Files	Zipped GDB	Project Website

Variations from Study Methods, Schedule, or Approach and Abnormalities in Expected Field Conditions:

The completed work referenced above resulted in the following variances:

- The original invertebrate sampling site located at Pyramid Dam was inaccessible and too deep for dredge samples off the side of the boat. Another nearby sampling site, located approximately 2,000 feet east of the original sampling site, was selected as an alternative sampling location.
- The original sampling site at Liebre Gulch (east of Interstate 5) was changed due to safety issues for accessing the site. Another nearby sampling site located near Serrano Day Use Area, approximately 3,000 feet southwest of the original sampling site, was selected as an alternative sampling site. The alternative sampling site near the Serrano Day Use Area is a more integral part of Pyramid Lake and could be safely accessed.
- The sampling site at Elderberry Forebay was modified for the AIS invertebrate survey. Upon arrival at the site, the field crew determined that the site had suitable basking surfaces for red-eared sliders, but no habitat for AIS invertebrate species due to the rocky substrate. An alternative AIS invertebrate sampling site with sandy substrate was chosen northwest of the turtle survey/original sampling site.

Remaining Work:

None; the Study is complete.