

BACKSCATTER DISCUSSION

The Caldor Fire was ignited on August 14, 2021, and burned almost 222,000 acres (898 square kilometers) in forested terrain of the central and western Sierra Nevada, California (California Department of Forestry and Fire Protection, 2023). During the subsequent two months, the fire burned nearly all of Sly Park Creek watershed in El Dorado County. The El Dorado Irrigation District manages the water supply for the area using storage in Jenkinson Lake, a 1.6-kilometer- (1.0-mile-) wide and 3.6-kilometer- (2.2-mile-) long reservoir, located south of the town of Pollock Pines. Several weeks after the fire, the U.S. Geological Survey (USGS) began investigations into post-fire landscape responses, including sediment yield, by measuring new sediment deposition in Jenkinson Lake. This study focused on the collection and processing of bathymetric and acoustic-backscatter data, as well as onshore aerial imagery in and around Jenkinson Lake, to support wildfire science after the Caldor Fire. A related publication by East and others (2025) presented post-fire sediment deposition measured in Jenkinson Lake over the two years following the fire, along with calculations of sediment yield.

Bathymetric and acoustic-backscatter data were collected in July 2023 (Dartnell and others, 2024), and aerial images used to generate the orthomosaics and digital terrain models in the Sly Park Creek and Hazel Creek area were collected in November 2023 (Logan and East, 2024). This two-map series displays the results of this mapping campaign. A colored shaded-relief bathymetry map (sheet 1) and an acoustic backscatter map (sheet 2) show the lake floor morphology and backscatter intensities. The acoustic-backscatter intensities on this sheet give an indication of the geological material on the lake floor, where lighter tones indicate possible harder or coarser material and darker tones indicate softer material. Data collection and processing artifacts are apparent in the backscatter intensity map, including long, linear lines and ripple patterns. The orthomosaic is shown in true visible colors. Some areas near shore were not mapped because of shallow water depths precluding boat access. Other gaps in the data are due to data-collection or -processing artifacts.

ACKNOWLEDGEMENTS

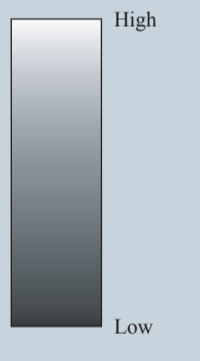
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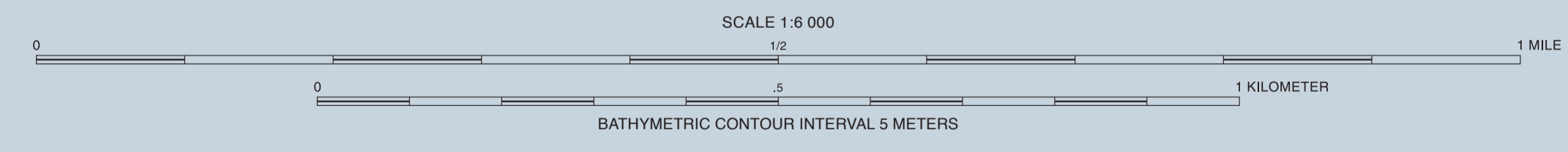
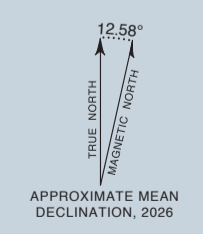
EXPLANATION

Backscatter intensity



10m Bathymetric contours—Elevation in meters relative to North American Vertical Datum of 1988. Derived and smoothed from 2-meter resolution bathymetric surface

Base-map image from U.S. Department of Agriculture National Agricultural Imagery Program 4-band 8 bit imagery, 2021 (available from NOAA's Digital Coast, <https://coast.noaa.gov/digitalviewer/>) and 2023 digital elevation model, 2023 (available from USGS National Map, <https://apps.nationalmap.gov/viewer/>)
Universal Transverse Mercator, zone 10 north
North American Datum of 1983
NOT INTENDED FOR NAVIGATIONAL USE



Jenkinson Lake acoustic-backscatter data collected by the U.S. Geological Survey in July 2023
Shoreline orthomosaic imagery of the Sly Park Creek and Hazel Creek area collected by the U.S. Geological Survey in November 2023
GIS Database and digital cartography by Peter Dartnell
Edited by Crystal Czarniecki; digital cartographic production by Katie Sullivan
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Colored Shaded-Relief Bathymetric and Acoustic-Backscatter Maps of Jenkinson Lake with Orthomosaic of the Sly Park Creek and Hazel Creek Area, California

By
Peter Dartnell, Joshua B. Logan, Amy E. East, Gerry A. Hatcher, Jackson E. Currie, Rachel K. Marcussen, Daniel C. Powers, Peter Dal Ferro, and Jennifer A. McKee
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Associated data for this publication: Dartnell, P., East, A.E., Logan, J., Hatcher, G.A., Currie, J.E., Marcussen, R.K., Powers, D.C., Dal Ferro, P., and McKee, J.A., 2024, Bathymetry and acoustic backscatter data for Jenkinson Lake, California collected during three USGS field activities, 2022-604-FA, 2022-649-FA, and 2023-634-FA: U.S. Geological Survey data release, <https://doi.org/10.5066/P13BSSDY>.
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