



Western States Water

Addressing Water Needs and Strategies for a Sustainable Future

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WATER RESOURCES

California/FIRO

On October 22, California state, federal, and regional partners celebrated the signing of an updated Water Control Manual for Coyote Valley Dam and Lake Mendocino, marking the integration of Forecast-Informed Reservoir Operations (FIRO). This update, the first major revision to the dam's flood control rules in 66 years, culminates more than a decade of collaboration among the U.S. Army Corps of Engineers, California Department of Water Resources, Sonoma County Water Agency, UC San Diego's Scripps Institution of Oceanography, and other local, state, and federal partners. See WSW #2680.

The revised manual allows up to 11,650 additional acre-feet of water to be stored in the flood control space when forecasts indicate it is safe to do so. FIRO has proven effective at Lake Mendocino since 2017, increasing water storage by 19% in 2020 and saving nearly 30,000 acre-feet over the past three years. The update is seen as a model for future reservoir operations across California.

"Before this update, we would inevitably be required to release water to give airspace to the dam for the next storm regardless of the upcoming weather," said Nick Malasavage, Operations & Readiness Division chief for the USACE San Francisco District. "FIRO allows us to be informed by the forecast and make better decisions."

Cary Talbot, FIRO Program National Lead and USACE Research and Development said: "Beyond the greater flexibility in operations that has been realized at Lakes Mendocino and Sonoma, FIRO has also achieved an important improvement in interaction and cooperation that has been purposefully and carefully cultivated between the various federal, state and local agencies and our academic partners. This research and operations partnership has not only yielded a ground-breaking updated water control manual that codifies flexibility, enabling Corps water managers to exercise a wider degree of autonomy for public benefit, but it has also built bridges of institutional trust between the stakeholders engaged in this effort."

He continued: "This trust will endure well beyond the effort to update these water control manuals. It is a trust that will continue to provide benefits in how these various agencies execute their respective missions going forward. They now have a foundation of understanding and collaboration, and a pattern of cooperation upon which additional mutually beneficial solutions can be researched, tested and applied as science continues to inform public policy for the betterment of all. Replicating this experience at additional FIRO-suitable sites across the west and throughout the country is now the challenge and opportunity for the Corps and our stakeholder partners going forward. Let's keep the FIRO train rolling!"

Karla Nemeth, CDWR director, underscored the importance of modern forecasting for California. "Our ability to accurately forecast incoming storms has improved dramatically in recent years. Using this new capability to improve how to efficiently protect communities from flooding and save water for droughts is critical to preparing for California's hotter and drier future." <https://www.sonomawater.org/news/post/21866/>

On October 8, the WSWC sent a letter congratulating the Corps and Sonoma Water on the successful completion of the pilot project. The letter highlighted the significance of the achievement, the collaboration it required, and its contribution to the broader momentum of FIRO application. "The FIRO effort is growing exponentially from its initial implementation at Lake Mendocino. Subsequent FIRO pilot projects are underway in California and Washington; a FIRO viability assessment is in planning for Oregon dams. USACE recently completed its initial stage of a nationwide screening process for USACE-owned and regulated (Section 7) dams, including an assessment of nationwide precipitation forecasting skill needed for FIRO implementation. The Water Resources Development Act of 2024 has directed USACE to incorporate use of FIRO in its WCM updates. The WSWC looks forward to encouraging use of FIRO in member states where feasible, to foster improved water supply resiliency and flood risk reduction, recognizing that lack of precipitation forecasting skill is presently a limiting factor in many of our states."

Data Centers/Aquifer Recharge

On October 22, Google completed construction of a new aquifer storage and recovery (ASR) system in The Dalles, Oregon, located along the Columbia River. The project transfers ownership and 100 million gallons of annual storage capacity to the city. Google's data centers sit on the former Martin Marietta Aluminum site, a former Superfund smelter location that includes two wells. The company invested \$28 million in building the ASR facility and has transferred the wells' water rights to the city. A second data center is slated to open in 2026. https://www.thedalles.org/business/google_data_centers

On October 7, Governor Mike Gordon (R-WY) joined Cheyenne Mayor Patrick Collins, Related Digital, Clayco, and other local business leaders at a groundbreaking ceremony for a new \$1.2B data center. The data center will use high-efficiency air-cooled chillers, consuming less water than "six bathrooms," which will be primarily used for domestic use. "That's what's so exciting about this particular project: to talk about a data center that does not use water," Gordon said. "Let me repeat that: This is a data center that will not be using water, demonstrating that we can innovate rather than regulate our way into the future." (*Oil City News*, 2025)

Idaho/Landsat Data

On October 20, WSWC and WestFAST hosted a webinar discussing the Idaho Department of Water Resources (IDWR) use of Landsat data for water resource decisions. Phil Blankenau, evapotranspiration analyst and remote sensing group supervisor at IDWR, outlined Idaho's remote sensing history, beginning with a 1970s pilot study which investigated remote sensing for groundwater modeling, specifically mapping irrigated lands on the Snake River Plain for analysis and adjudication of water rights.

The Idaho Image Analysis Facility (IIAF) later became the Idaho Geographic Information Center in the 1990s, shifting emphasis to GIS, but Landsat continued to be used for water rights adjudication. After 2000, IDWR's focus shifted to mapping evapotranspiration using the Mapping EvapoTranspiration using high Resolution and Internalized Calibration (METRIC) model. IDWR and the Western States Water Council successfully advocated for the return of the thermal band to Landsat 8. OpenET, a project providing open satellite-based ET data, also began during this period.

Blankenau noted several key features that make Landsat data useful for water management: (1) the 30-meter spatial resolution allows for detailed field-scale analysis; (2) Landsat 5-9 data are comparable, allowing for trend analysis from 1984-present; (3) the TIR band on Landsat is essential for evapotranspiration (ET) models

that operate at a field scale, as surface temperature is a key variable in the energy balance; and (4) Landsat 8 and 9 provide a coupled revisit frequency of eight days, with the individual satellites having a 16-day frequency. He noted that Landsat Next was projected to reduce this to 6 days with three satellites.

Applications of Landsat at IDWR today include groundwater modeling, supporting the Eastern Snake Plain Aquifer model, water budgets, and identifying unauthorized irrigation for further investigation. Additionally, widely used datasets like the Cropland Data Layer and the National Land Cover Dataset heavily rely on Landsat data. He discussed their ongoing ET ground-truthing project, a million-dollar initiative to install three stations for three years to improve ET modeling capabilities and determine which OpenET models are most accurate. The goal is to confirm Landsat ET estimates and narrow the range of calibration for groundwater models. He demonstrated tools IDWR uses to access Landsat data. For a full recording see: <https://westernstateswater.org/topical-resources/data/landsat/>

WATER RIGHTS

California

On October 23, the California State Water Resources Control Board introduced their online water rights data system, which will make the State's 40,000 water rights records easily accessible to the public, while streamlining reporting for water rights holders. The California Water Accounting, Tracking, and Reporting System (CalWATRS) aims to reduce administrative burden and improve diversion and use data quality. The system includes new features to prevent errors and simplify the reporting process.

CalWATRS replaces the board's Electronic Water Rights Information System (eWRIMS). It incorporates enhanced mapping functions which allow the public to view water rights by stream, watershed, water district and individual property parcel. On November 12, Water Board staff will host a virtual workshop to demonstrate the systems features.

"Our information systems at the California Water Boards are vital to water decision making in the state. This significant advancement in our ability to manage our state's water rights will improve our capacity to navigate climate extremes," said State Water Board chair E. Joaquin Esquivel. "From drought to flood, and all conditions in between, CalWATRS brings California water management into the 21st century and ensures a strong foundation for the future." https://www.waterboards.ca.gov/press_room/press_releases/2025/pr20251023-a1-calwtrs.html

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