Hatchery Salmon Releases into the Sacramento River in April 2025[1]

By Tom Cannon

Beginning in mid-April millions of hatchery salmon smolts 3-4 inches long have been released into the Sacramento River from near Red Bluff downstream to near Colusa (see map). These hatchery smolts along with wild smolts gradually move downstream through the lower river, Delta, and into San Francisco Bay through the spring.

During their journey, the young salmon need adequate streamflow to provide healthy water temperatures in the 12-17°C (54-64°F) range to maximize their growth, survival, feeding, and movement.[2] Higher temperatures cause stress, poor growth, disease, higher susceptibility to predation, and hinder smoltification (ability to enter saltwater).

Reclamation supported the salmon releases with two pulse flow releases from Shasta Dam – one in late April and one in early May (Figure 1). However, streamflows were insufficient to maintain water temperatures below the stress level of 17°C (Figures 2 and 3). Juvenile salmon continue to emigrate downstream in the lower Sacramento River, through the Delta, and into the Bay (Figures 4 and 5) and will do so through spring. **Despite 2025 being a wet year and millions of "extra" salmon smolts being released into the Sacramento River, flows as of May 10 have been reduced and water temperatures increased to highly stressful levels (20°C, Figure 6) with over a month to go before the end of spring.**

I recommend Shasta releases be increased to maintain Wilkins Slough flow at least at 10,000 cfs and water temperatures below 18°C (65°F) through the spring salmon smolt emigration season. In addition, daily average Freeport flows should be a minimum 20,000 cfs and Delta outflow should not fall below 10,000 cfs. If these minimum conditions are not met, smolt salmon survival to the ocean will suffer in this otherwise wet water year further limiting salmon recovery.

[1] https://filelib.wildlife.ca.gov/Public/OCEO/Main%20Stem%20Sacramento%20River%20Chinook%20Salmon%20Release/Video/Main-Stem-Sacramento-River-Chinook-Salmon-Release.mp4

[2] https://www.noaa.gov/sites/default/files/legacy/document/2020/Oct/07354626288.pdf

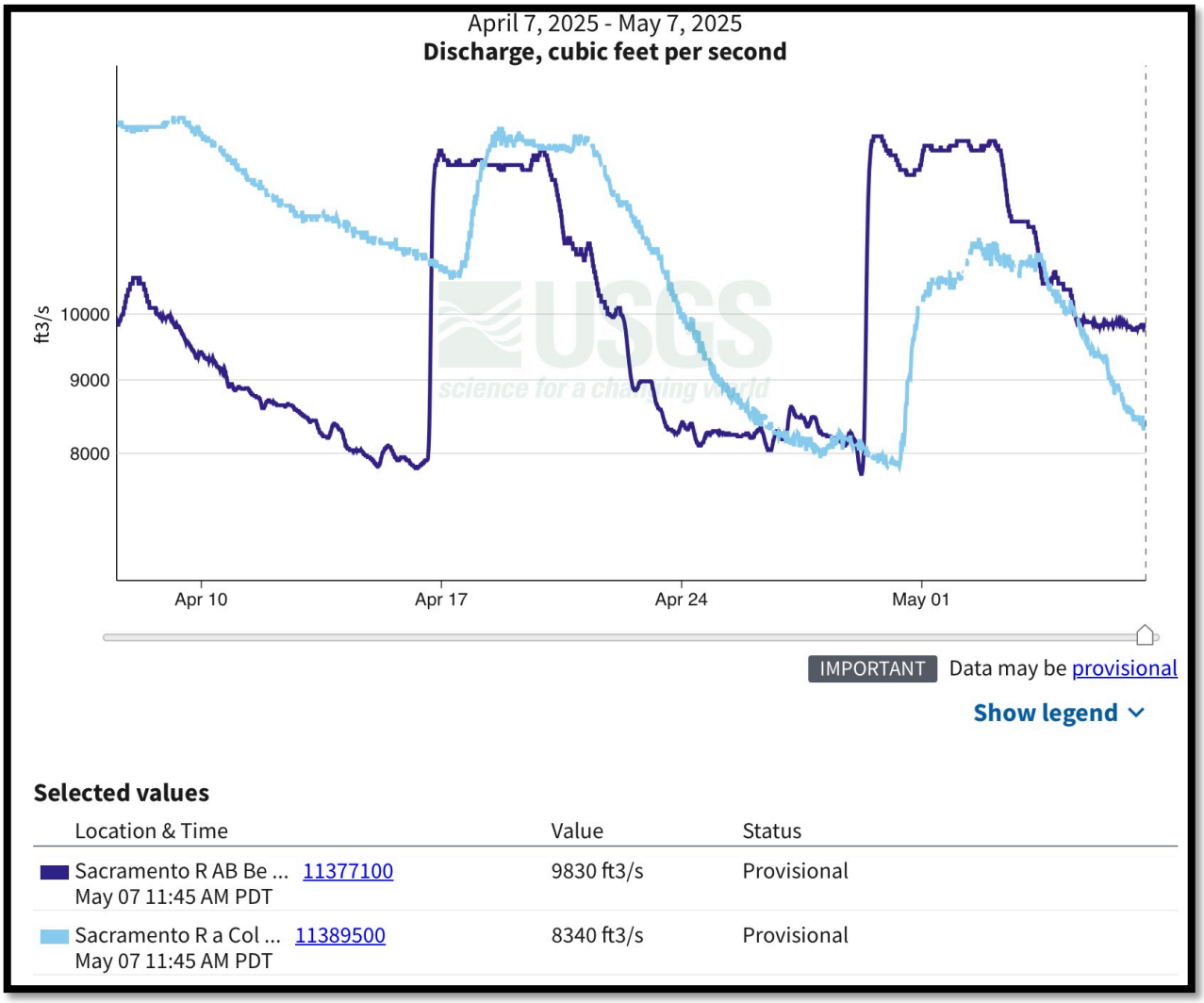


Figure 1. Sacramento River streamflow near Red Bluff (Bend gage) and Colusa 4/7-5/7 2025. Colusa streamflow declines with lower tributary inflows and increasing agricultural diversions.

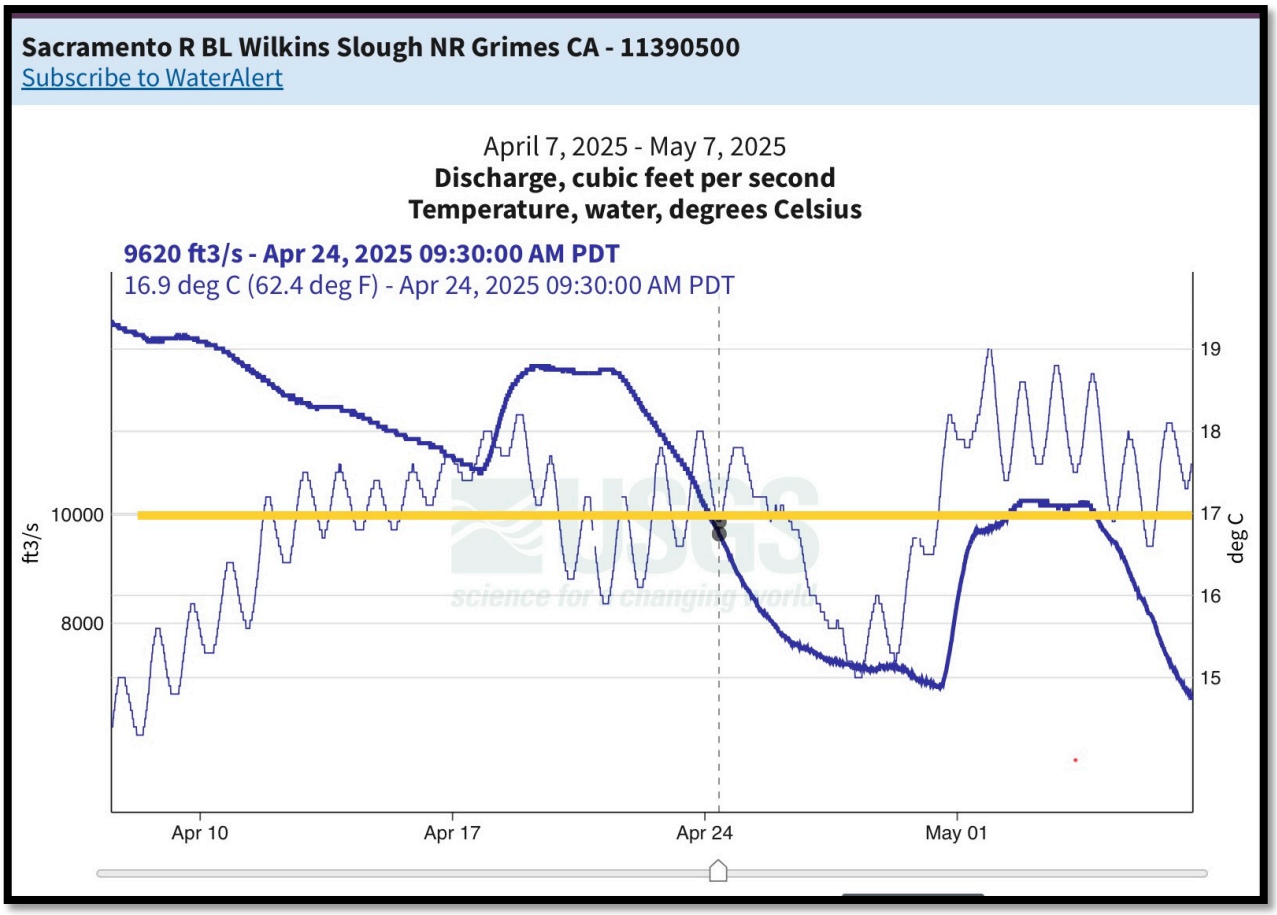


Figure 2. Streamflow and water temperature at Wilkins Slough 4/4-5/7 2025. Upper limit of optimal range is yellow line.

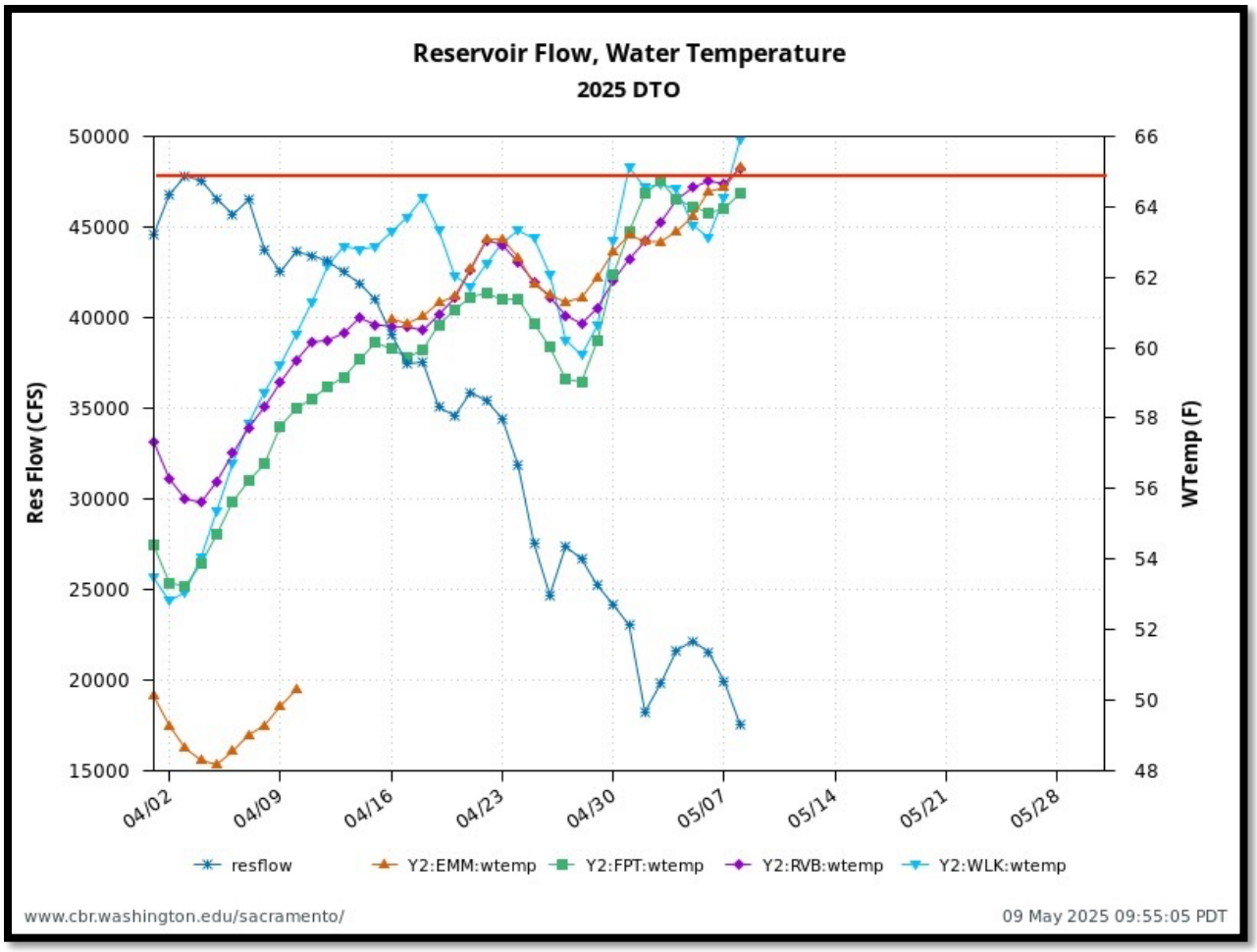


Figure 3. Delta outflow and water temperature at Wilkins Slough, Freeport, Rio Vista, and Emmaton (see map). Red line denotes 65°F – the water temperature level above which juvenile salmon stress occurs.

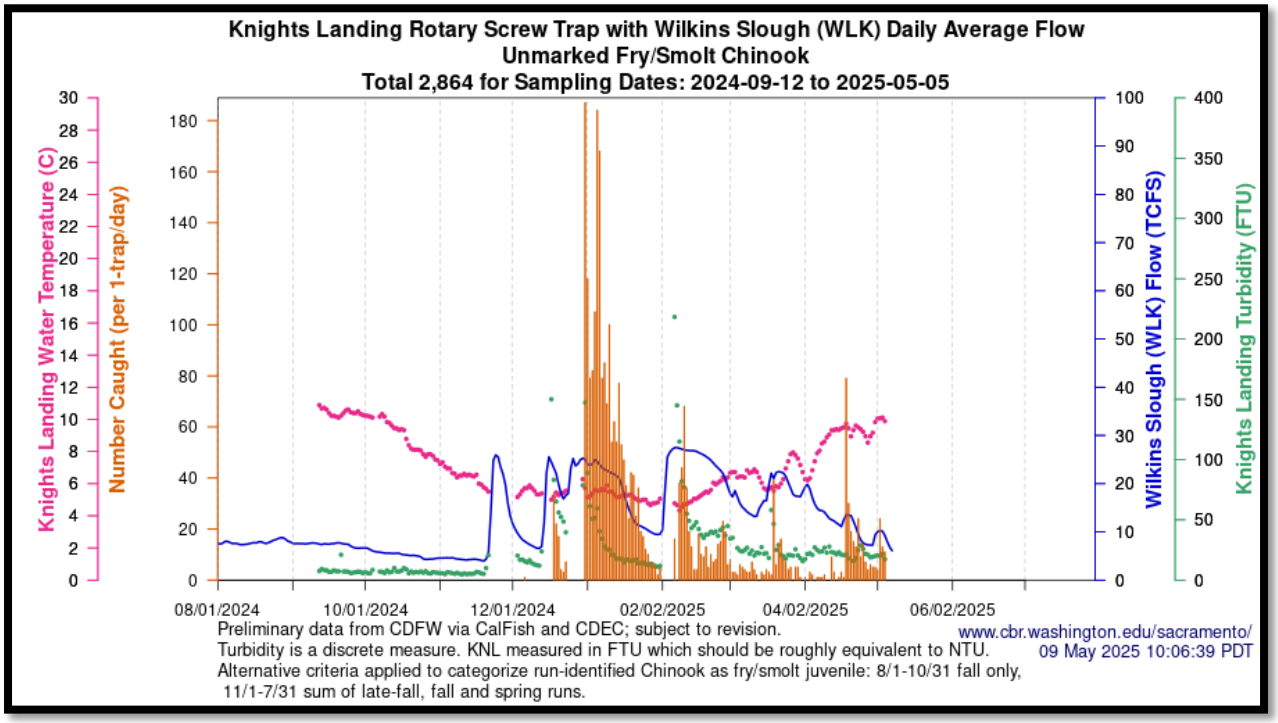


Figure 4. Knights Landing screw trap catch of unmarked juvenile salmon in 2025.

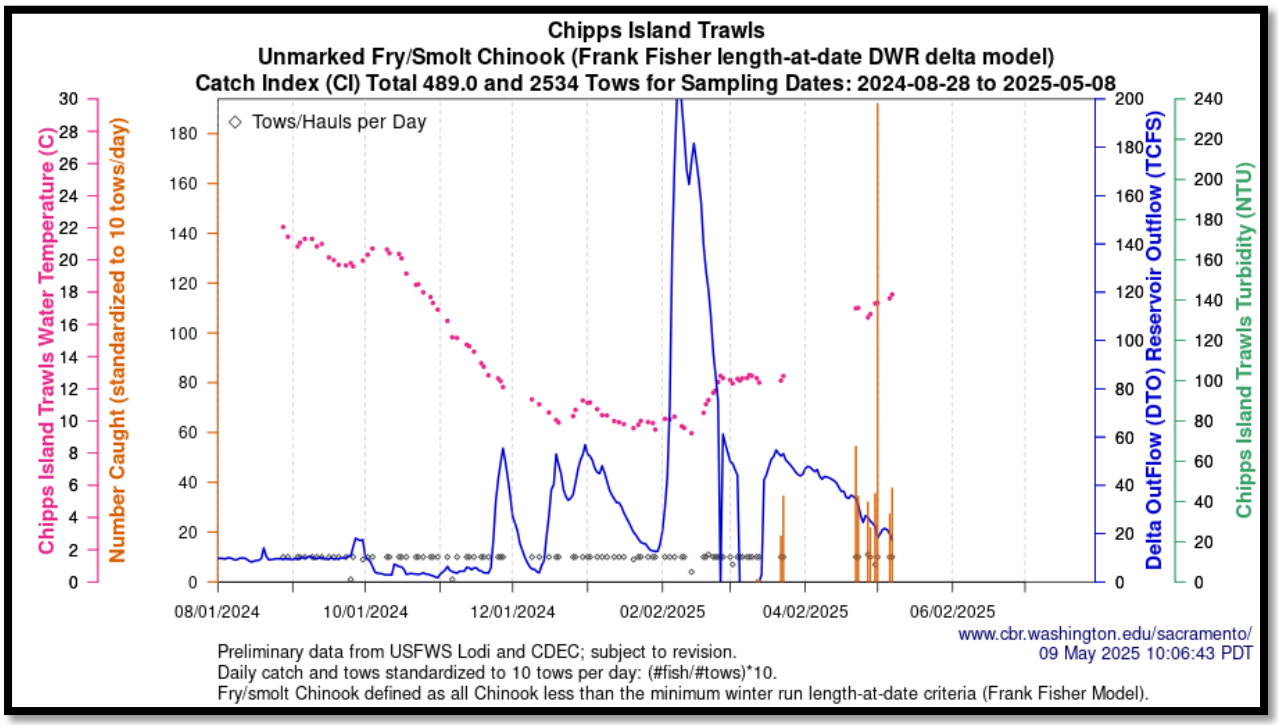


Figure 5. Chipps Island trawl catch of unmarked juvenile salmon in eastern Bay in 2025.

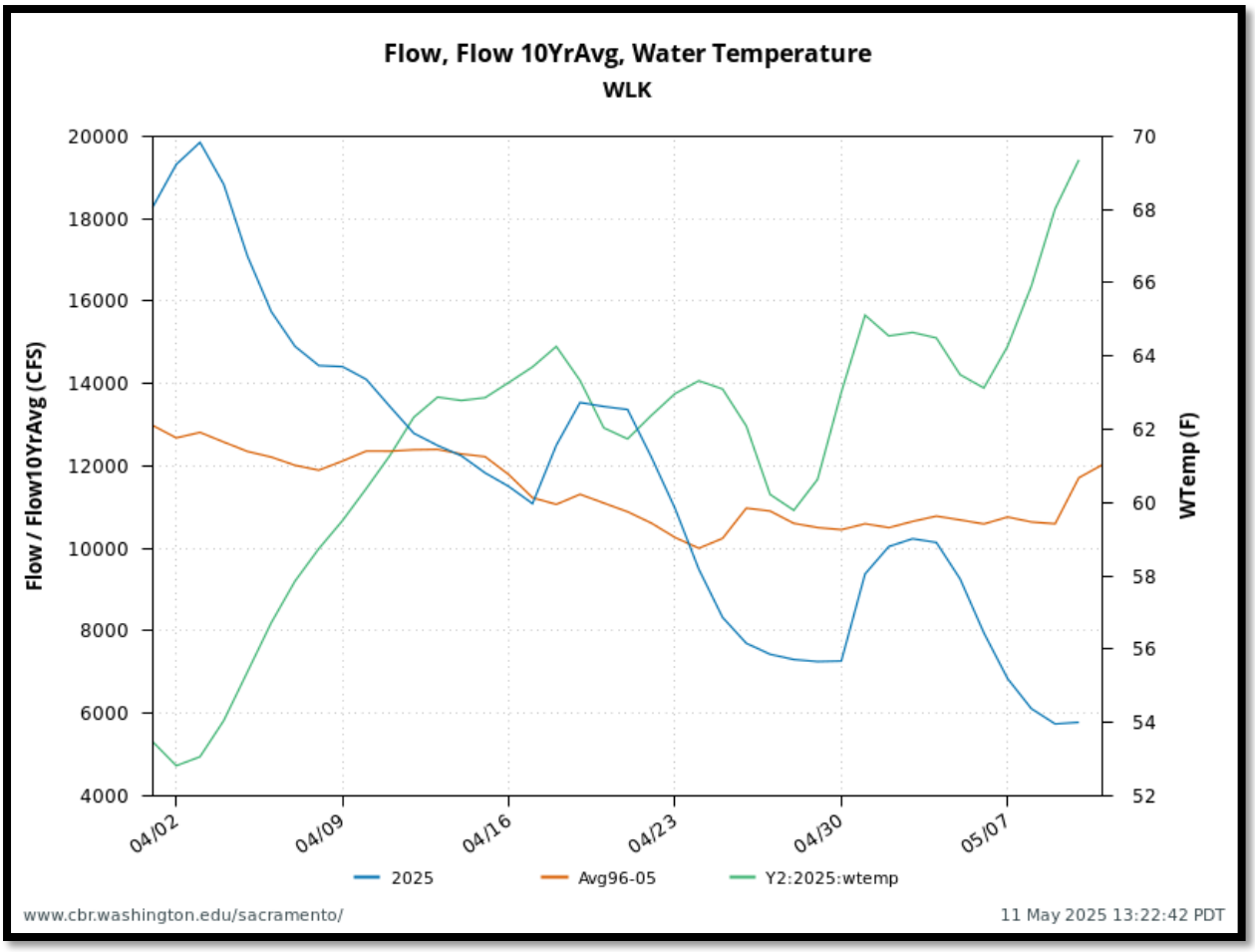
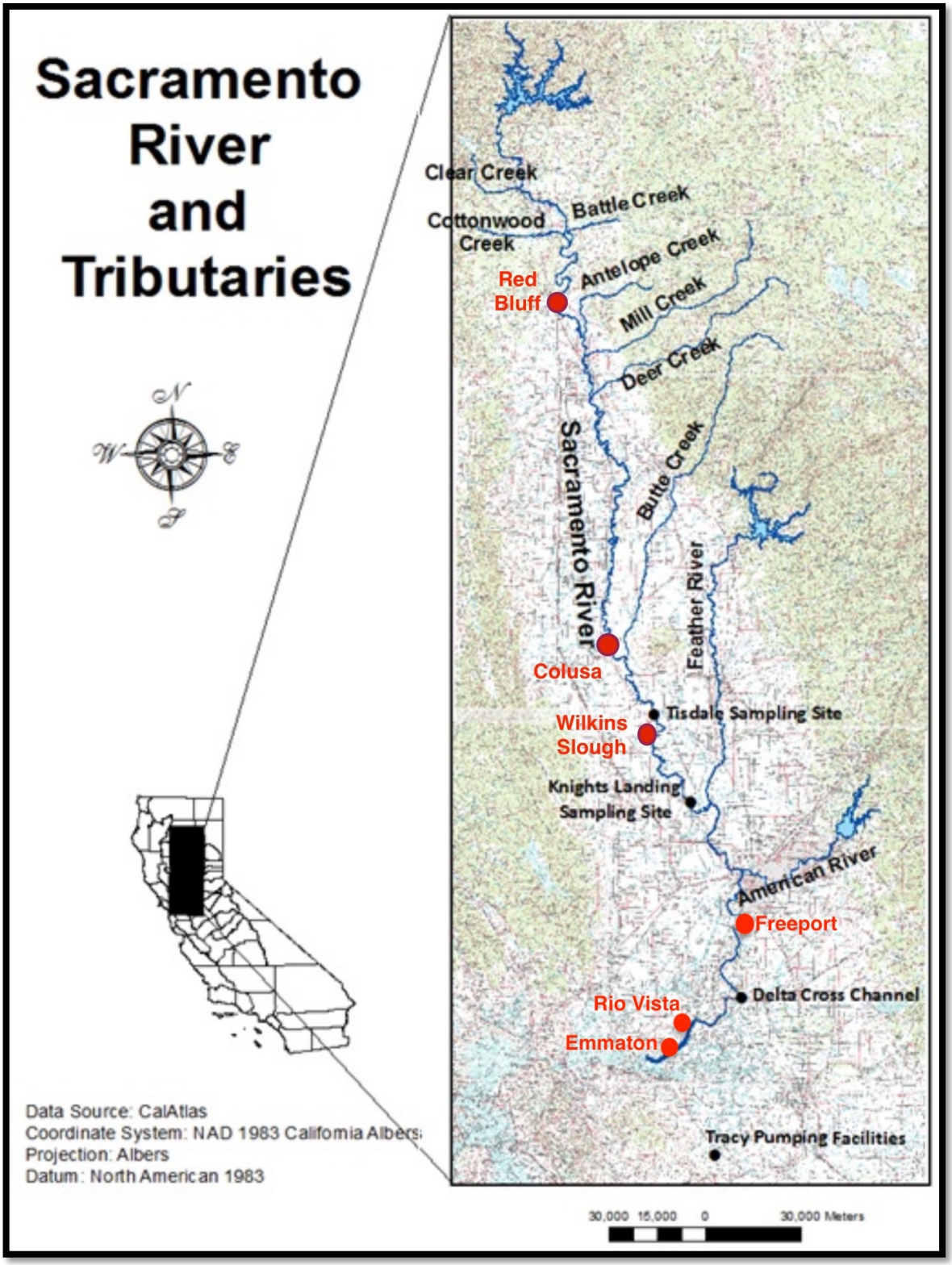


Figure 6. Sacramento River at Wilkins Slough daily average flow 4/1-5/11 2025 with daily average for years 1996-to-2005. Also shown is daily average water temperature for same period at Wilkins Slough in 2025.


Sacramento River and Tributaries
Clear Creek
Battle Creek
Cottonwood Creek
Red Bluff
Antelope Creek
Mill Creek
Deer Creek
Sacramento River
Butte Creek
Feather River
Colusa
Tisdale Sampling Site
Wilkins Slough
Knights Landing Sampling Site
American River
Freeport
Delta Cross Channel
Rio Vista
Emmaton
Tracy Pumping Facilities
Data Source: CalAtlas
Coordinate System: NAD 1983 California Albers
Projection: Albers
Datum: North American 1983
30,000 15,000 0 30,000 Meters