Since 1995, the rotary screw traps (RSTs) at Knights Landing have provided water management agencies an early warning of emigrating juvenile Chinook salmon (Oncorhynchus tshawytscha) and steelhead trout (O. mykiss) making their way to the Sacramento-San Joaquin Delta (Delta). Due to the proximity of the site to other major tributaries of the Sacramento River, such as the Feather and American Rivers, it is assumed that salmonids captured at the Knights Landing RSTs originate from the upper Sacramento River and its tributaries, a stretch of river that provides spawning and rearing habitat for all four runs of natural origin Chinook salmon: winter-run (State and federally listed as endangered), spring-run (State and federally listed as threatened), late fall-run and fall-run, as well as steelhead trout (federally listed as threatened).

The near real-time information RST monitoring data provides on emigration timing and relative abundance for protected runs of juvenile Chinook salmon and steelhead improves the ability for resource agencies and water managers to implement protective measures that help them navigate through the maze of waterways in the Delta. By utilizing emigration data in adaptive management, reservoir releases, export rates, water transfers, and Delta Cross Channel Gate operations can be modified to minimize the risk of predation, entrainment, and take, thereby maximizing juvenile salmonid survival through the Delta.

The primary goals of the Knights Landing Monitoring Program are to (1) Provide early warning of listed salmonids emigrating toward the Delta, (2) Document passage of emigrating salmonids including timing, relative abundance, and environmental conditions, (3) Develop passage estimates of salmonids emigrating through the lower Sacramento River above the Delta, and (4) Develop a long-term dataset on juvenile salmonid emigration to compare changes over time.

The California Department of Fish and Wildlife (CDFW) issued ITP 2081-2019-066-00 to DWR on March 31, 2020, for the long-term operation of the State Water Project (SWP) in the Delta. Condition 7.5.2 of the ITP requires the development and establishment of a spring-run Chinook salmon juvenile production estimate (JPE) to increase understanding of the impacts water operations have on the spring-run Chinook salmon population in the Sacramento River watershed and inform the development of minimization measures to reduce take of spring-run Chinook salmon at Delta fish salvage facilities. Data from the Knights Landing RST will be used along with other datasets from juvenile salmonid monitoring programs in the Sacramento River Watershed to inform the development of JPE modeling approaches.

Salmonid data collected from the Knights Landing RST, among other datasets, is also used by the Salmon Monitoring Team (SaMT) to understand the movement of juvenile salmon in the Sacramento River Watershed to estimate the number of winter-run and spring-run Chinook salmon that have entered the Delta. SaMT is a real-time operations monitoring team required by Condition of Approval 8.1.2 of the ITP which meets weekly from October through June, to provide advice for real-time management of SWP operations to DWR, CDFW, and the Water Operation Management Team (WOMT) to minimize take of winter-run and spring-run Chinook salmon in the Delta.

Note: data within the current year’s monitoring season are considered provisional.