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Wu, Brandon J., R.C. Reyes, C.L. Hart, K.K. Kumagai, and J.B. Miranda. 2021. *Use of Predation Detection Acoustic Tags to Estimate Juvenile Chinook Salmon Salvage Efficiency and Loss*. Tracy Fish Collection Facility Studies, Tracy Series Volume 56. Bureau of Reclamation, California-Great Basin Region, 106 pp.

According to the 2009 National Marine Fisheries Service Biological Opinion on the Coordinated Long-Term Operations of the Central Valley Project and State Water Project (NMFS 2009), the Bureau of Reclamation shall improve salvage efficiency at the Tracy Fish Collection Facility (TFCF) so that overall survival is greater than 75.0%. To determine if the TFCF is meeting this requirement, as well as ascertain where fish loss is occurring, juvenile Chinook Salmon (Oncorhynchus tshawytscha) with surgically implanted Predation Detection Acoustic Tags (PDATs) were released and tracked at the TFCF during varying pumping operations at the C.W. “Bill” Jones Pumping Plant (JPP). Results suggest facility components (i.e., primary channel louvers and secondary channel screens) are effective enough to meet the NMFS (2009) efficiency requirement. Salvage efficiency at the TFCF appears to be heavily impacted by predation, and elimination of this source of loss could result in efficiencies that meet or exceed the NMFS (2009) mandate. In addition, higher pumping rates at the JPP appeared to result in increased TFCF salvage efficiencies for juvenile Chinook Salmon. To verify these trends, additional efficiency testing is recommended at the TFCF using PDATs, as well as a more extensive hydrophone array and/or mobile tracking technology.