New lines of evidence have been developed by the U.S. Bureau of Reclamation and Contra Costa Water District to better understand hydrodynamic and population responses associated with entrainment risk of listed fishes due to CVP and SWP water operations. These new lines of evidence include literature reviews, particle tracking modeling, life cycle analyses, and entrainment analyses.

Objective: Suggest *new lines of evidence to **(1)** refine the understanding of the spatial and temporal extent of export-induced hydrodynamic conditions and **(2)** explore how associated fish mortality affects population-level responses.* I have pursued many lines of evidence towards these objectives over the past decade or more in the California Fisheries Blog (www.calsport.org). Some relevant post examples follow:

New Lines of Evidence

1. Salvage timing/delay - https://calsport.org/fisheriesblog/?p=3174
2. Export entrainment empirical assessment with real-time survey data - https://calsport.org/fisheriesblog/?p=3098
3. Salvage code-wire-tag salvage recovery to show vulnerable wild salmon smolts - https://calsport.org/fisheriesblog/?p=2574. Need for PBT of salvaged smolts.
4. Effect of Freeport flow rate on North Delta flow splits (e.g., at Hood Tunnel, DCC, and Georgianna Sl). Vulnerability of attraction to Central Delta diversion of Sac River smolt and fry salmon. https://calsport.org/fisheriesblog/?p=1793
5. How hydrology affects hatchery smolt survival and fishery yield and escapement - https://calsport.org/fisheriesblog/?p=1867&
6. The use of spawner-recruit relationships for population-level effects assessment – https://calsport.org/fisheriesblog/?p=3727 ; https://calsport.org/fisheriesblog/?p=4375 ; https://calsport.org/fisheriesblog/?p=4922 ; https://calsport.org/fisheriesblog/?p=4853 https://calsport.org/fisheriesblog/?p=2513
7. The use of fish survey distribution data in assessing risk factors related to environmental habitat conditions - https://calsport.org/fisheriesblog/?p=3727
8. Environmental habitat suitability and project operations relationships - https://calsport.org/fisheriesblog/?p=5023 ; https://calsport.org/fisheriesblog/?p=4986