

Overview of the Central Valley Project and the State Water Project

Preamble: Monitoring for LTO Operation & Actions

National Academies Review of the Long-term Operations
of the Central Valley Project and State Water Project
Meeting 2
February 28, 2024



Purposes

Real-Time Operations

Weekly and daily information necessary to perform assessments that inform the scheduling of releases and diversions

Status and Trend

Long-term performance of the ecosystem in response to management regimes to inform quantitative models and tools

Special Study

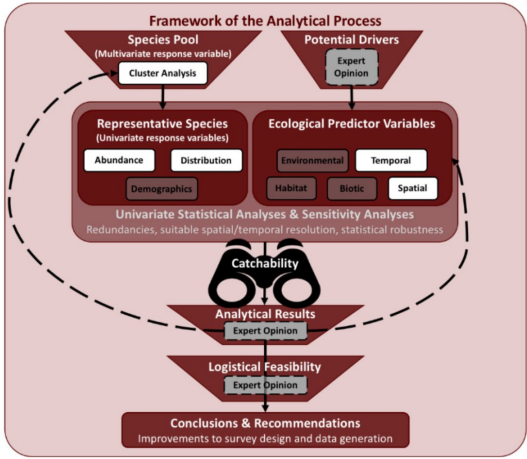
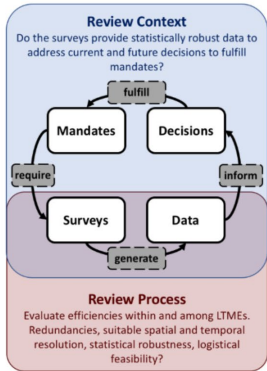
Limited-term focus on specific processes to inform hypotheses on conceptual models, efficacy of management actions, mechanisms, and tools

Reviews of Monitoring Programs

Historical Review Approach:
IEP Science Advisory Group.
 Subject Matter Experts Review.
 (2002: EMP; 2006: Delta Smelt Review; 2013: DJFMP)



IEP Technical Report 96:
 Long-term Monitoring Element Review:
 Pilot Approach and Methods
 Development (2020)



MARCH 2022

Review of the Monitoring Enterprise in the Sacramento-San Joaquin Delta

By the Delta Independent Science Board

SAN FRANCISCO

ESTUARY & WATERSHED

SCIENCE

Sponsored by the Delta Science Program and the UC Davis John Muir Institute of the Environment

SEPTEMBER 2017

RESEARCH

Science Advancements Key to Increasing Management Value of Life Stage Monitoring Networks for Endangered Sacramento River Winter-Run Chinook Salmon in California

Rachel C. Johnson^{1,2,*}, Sean Windell³, Patricia L. Brandes⁴, J. Louise Conrad⁵, John Ferguson⁶, Pascale A. L. Goertler⁵, Brett N. Harvey⁵, Joseph Heublein⁷, Joshua A. Israel⁸, Daniel W. Kratville⁹, Joseph E. Kirsch⁴, Russell W. Perry¹⁰, Joseph Pisciotto⁹, William R. Poytress¹¹, Kevin Reece⁵, and Brycen G. Swart⁷

CDFW/USBR/DWR/USFWS Monitoring Survey Design Team (2022, ongoing)

Evaluation and analysis of Five Long-term Biological Monitoring Studies

Surveys	Size Range	Jan				Feb				Mar				Apr				May				Jun			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
SLS	5-20mm																								
20mm	10-50mm																								
STN	20-55mm																								
FMWT	30-120mm																								
40-150mm																									
SKT	150mm																								
Zooplankton																									

Collaborative Science & Adaptive Management Program (CSAMP)

- Lessons Learned from Past Monitoring Reviews
- CSAMP Member Objectives for Monitoring

Longitudinal Record of Environmental Sampling

➤ SFE and 4 other
US Estuaries

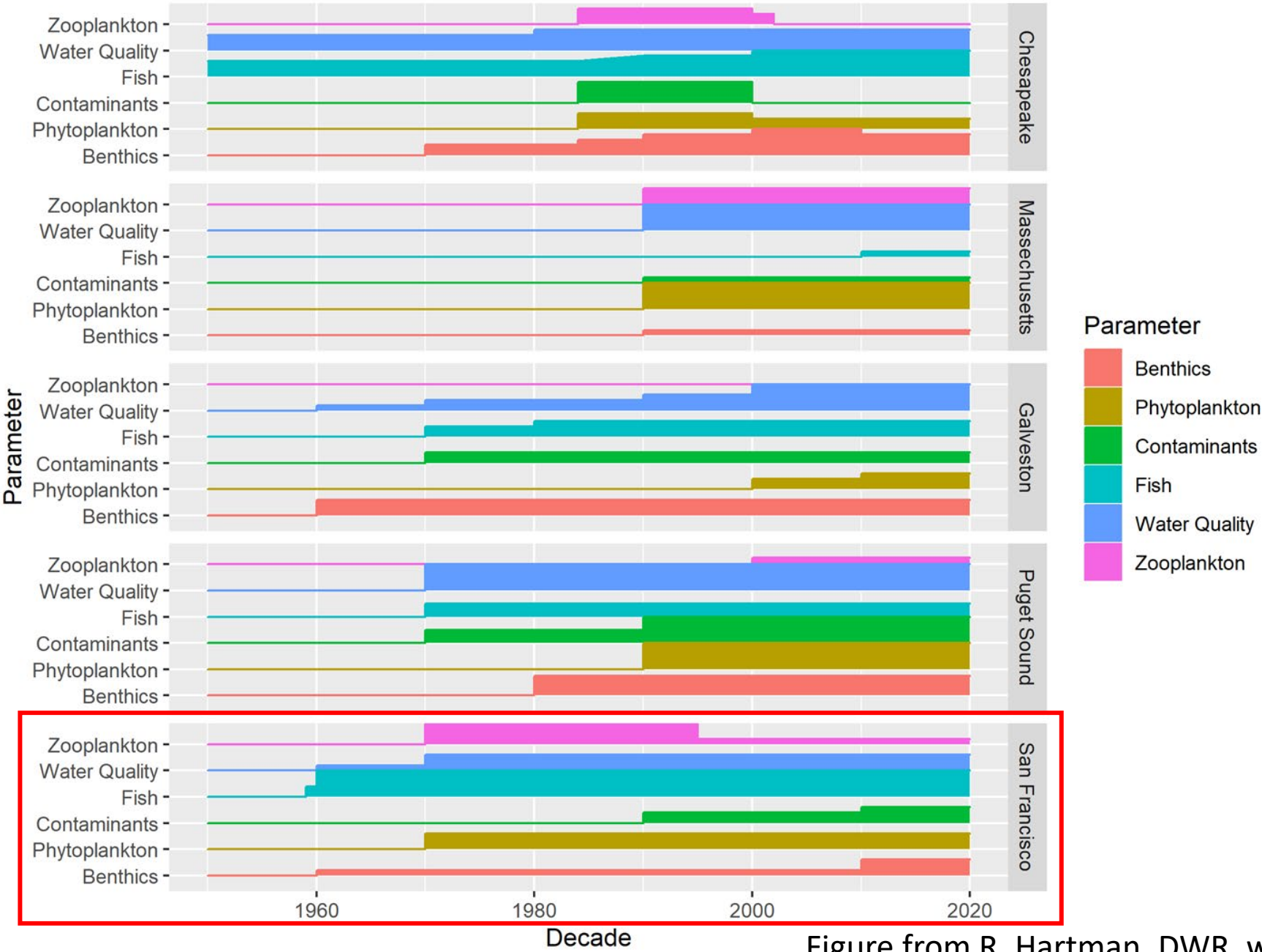
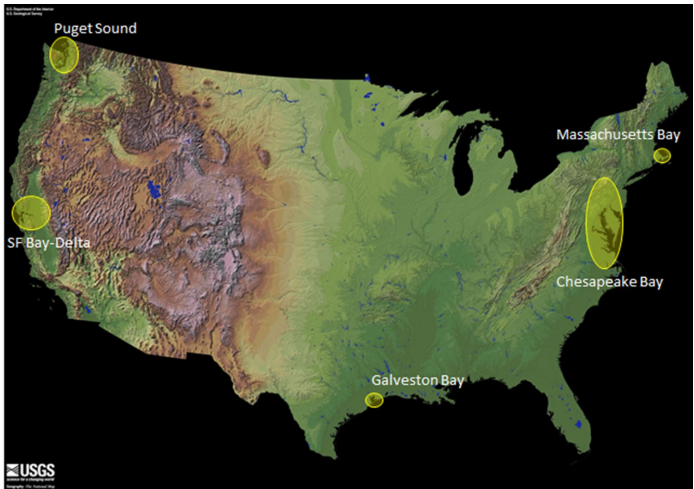
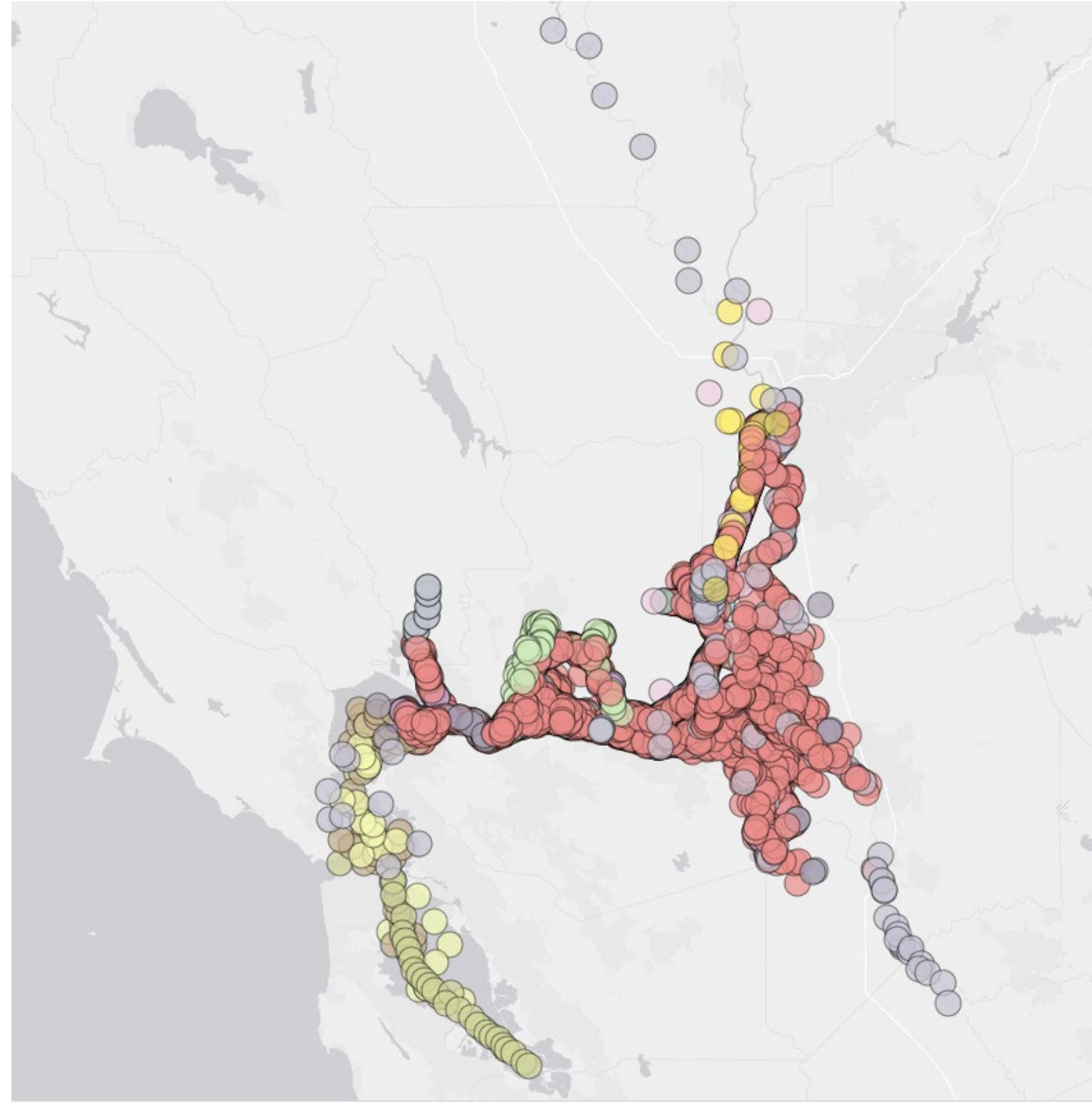


Figure from R. Hartman, DWR, with permission

Flow and water quality

- Stream Gages & Water Quality Sondes
 - CDEC and NWIS
- Discrete sampling
 - Environmental Monitoring Program
 - Fish surveys

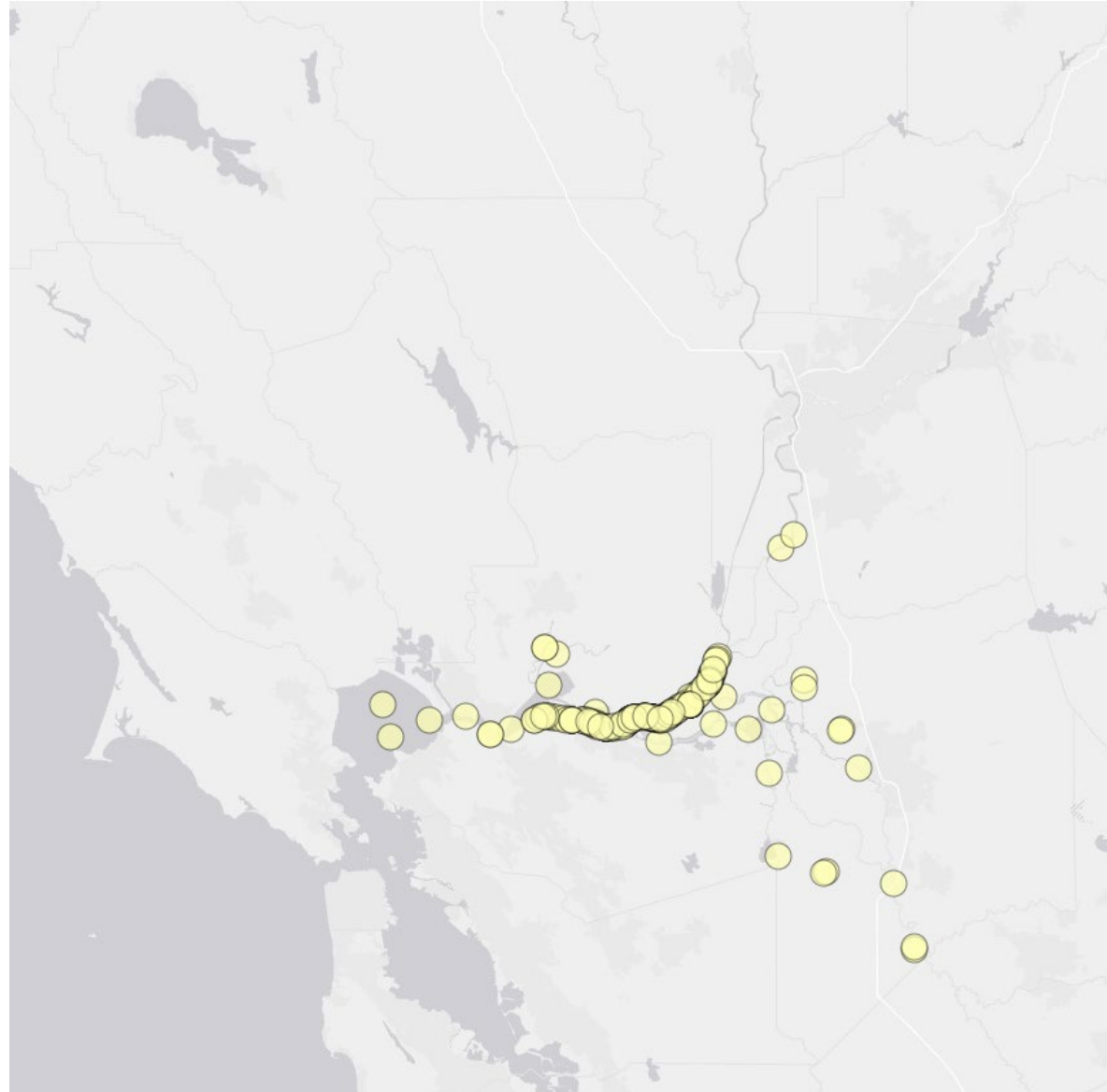


[Bay-Delta monitoring \(shinyapps.io\)](https://shinyapps.io)



Primary Productivity

- Water quality Sondes & Fluoroprobes
 - NWIS, CDEC
- Grab Samples
 - Environmental Monitoring Program
 - Fish surveys



[Bay-Delta monitoring \(shinyapps.io\)](https://shinyapps.io)



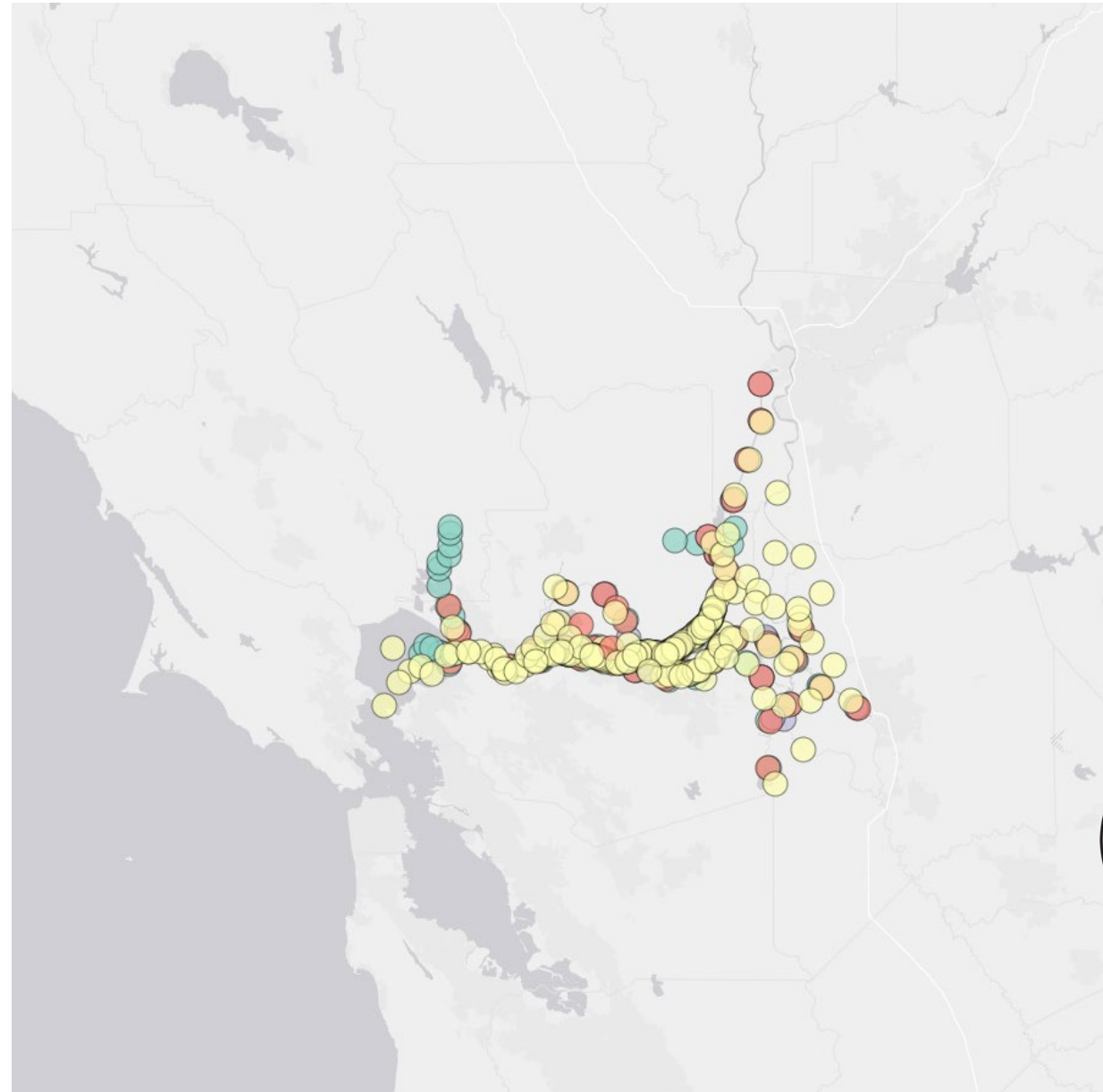
Secondary Productivity

- Nets
 - Environmental Monitoring Program
 - Fish surveys



R/V San Carlos
(1975 - 2016)

R/V Sentinel
(2016 - now)

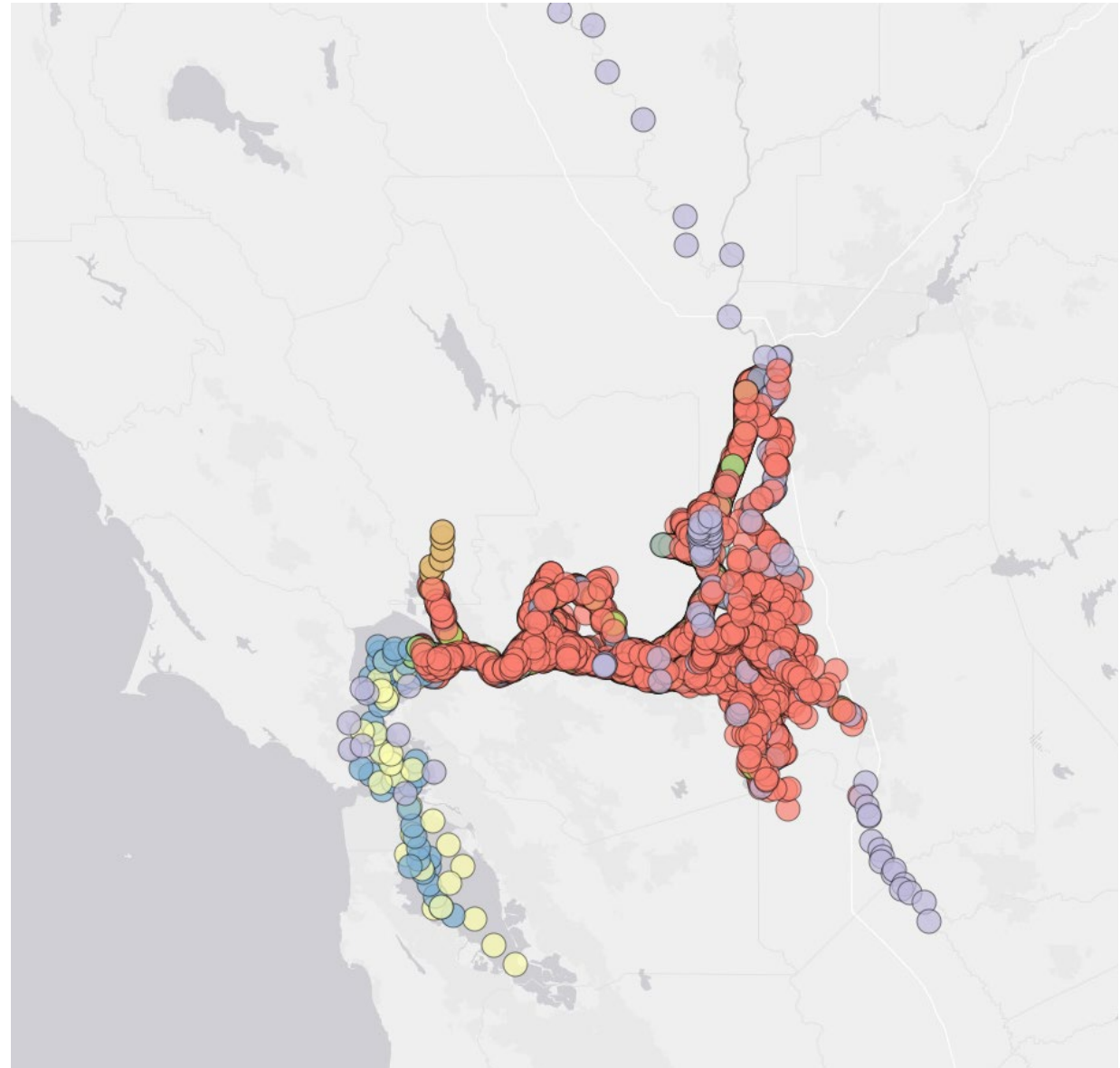


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Bay-Delta Fish Monitoring

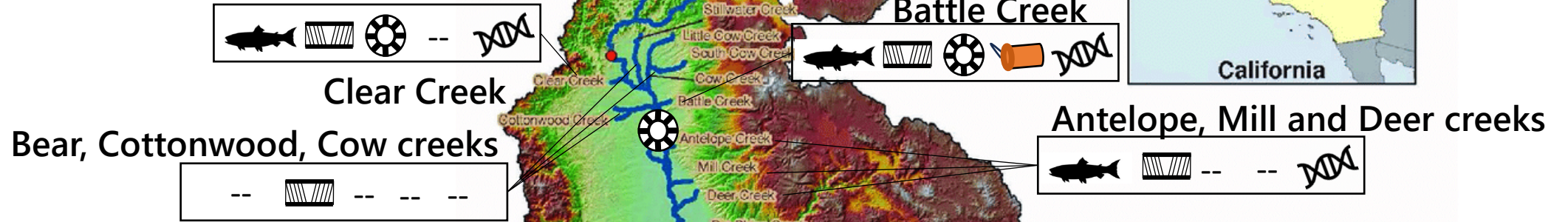
- Trawls
- Beach Seines
- Salvage



[Bay-Delta monitoring \(shinyapps.io\)](https://shinyapps.io)



Status and Trend Tributary Monitoring



- Adults
 - Redd surveys
 - Fishways/weirs
- Juveniles
 - Rotary screw traps
 - Trawls
 - Acoustic telemetry
 - Biological sampling

basemap from Lanman et al 2021



Summary

- Monitoring across regions of the Bay-Delta and tributaries
- Happening at various scales depending on objective
- Focus on real-time compliance criteria and long-term performance measures and viability metrics
- Documenting actions to include in the seasonal and annual reports and knowledge base papers
- Monitoring to test our model predictions and support decision analysis



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www.usbr.gov/mp/bdo



— BUREAU OF —
RECLAMATION



California
Department of Water
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