

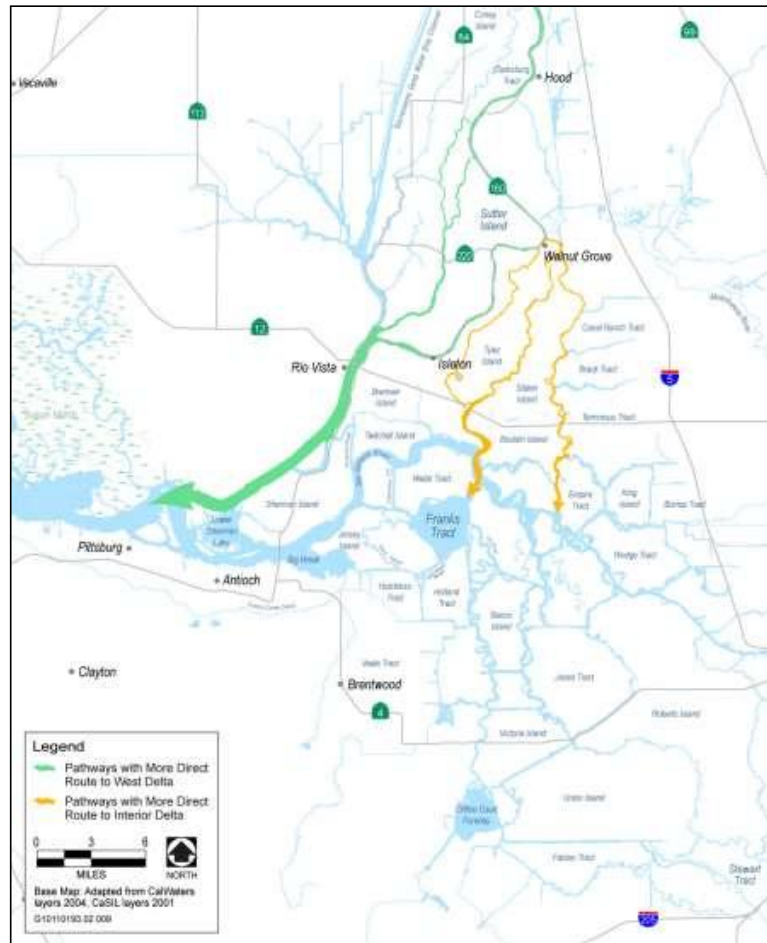


Salmon Protection Technology Study PROJECT STATUS

DWR, Bay-Delta Office
March 2019



Background-Overview





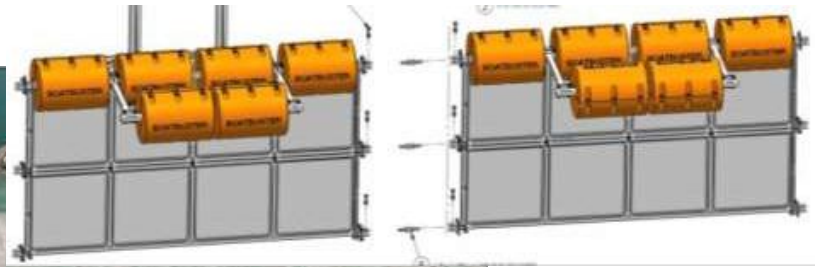
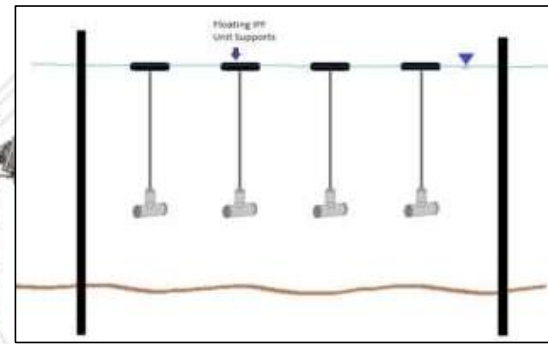
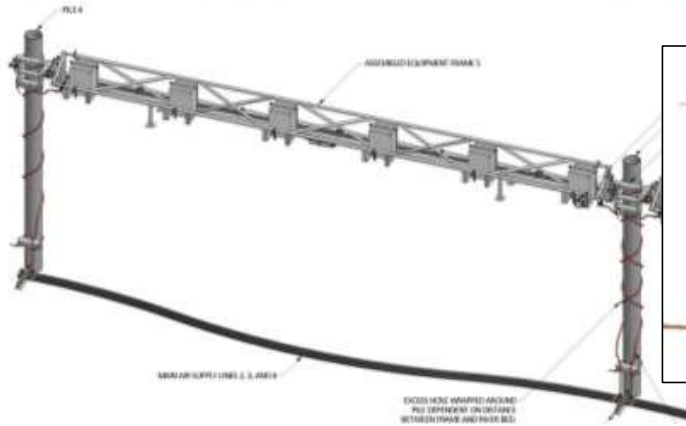
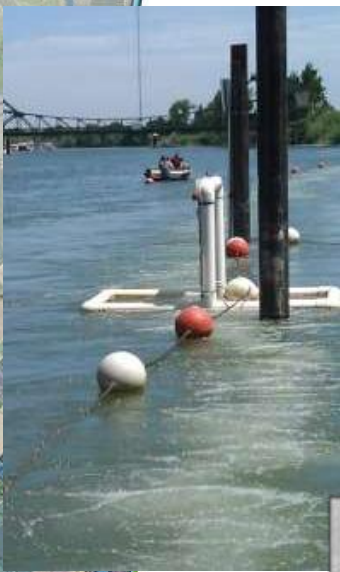
Background

2009 NMFS BiOp RPA IV.1.3 “Engineering Solutions” Compliance Action Status

- Phase I
 - 2013 Initial Findings Report
- Phase II
 - 2011 and 2012 BAFF Study
 - 2014 FFGS Study
 - 2015 Recommended Solutions Report
- Phase III
 - Implement



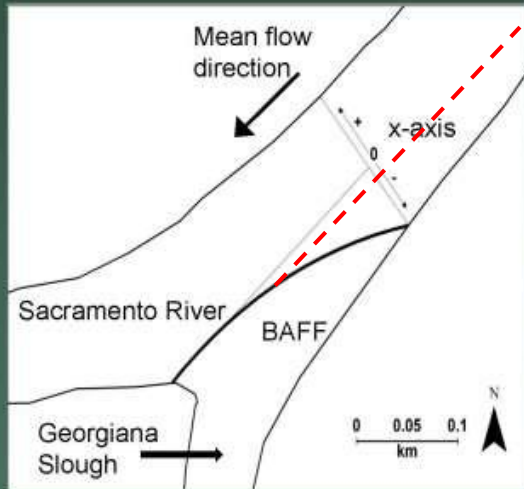
Behavioral Barrier Technologies





2011 and 2012 Study Results

Bioacoustic Fish Fence (BAFF)



Entrainment into Georgiana Slough:

2011: $\frac{2}{3}$ Entrainment Reduction (22.3% Off \rightarrow 7.7% On)

2012: $\frac{1}{2}$ Entrainment Reduction (24.1% Off \rightarrow 11.4% On)

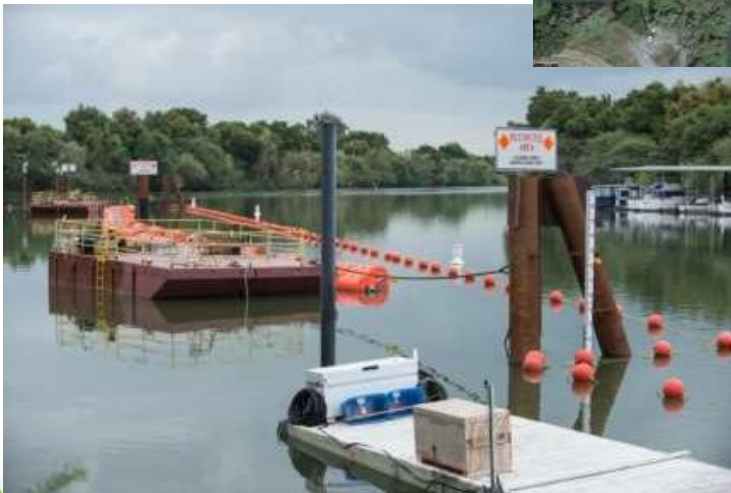




2014 Results

Floating Fish Guidance System (FFGS)

- 2014: 1/5 Entrainment Reduction
 - (23.9% off → 19.1% on)
 - At ~7,000-14,000 CFS
- 2014 Sacramento River was abnormally low -4,350 CFS to 21,090 CFS

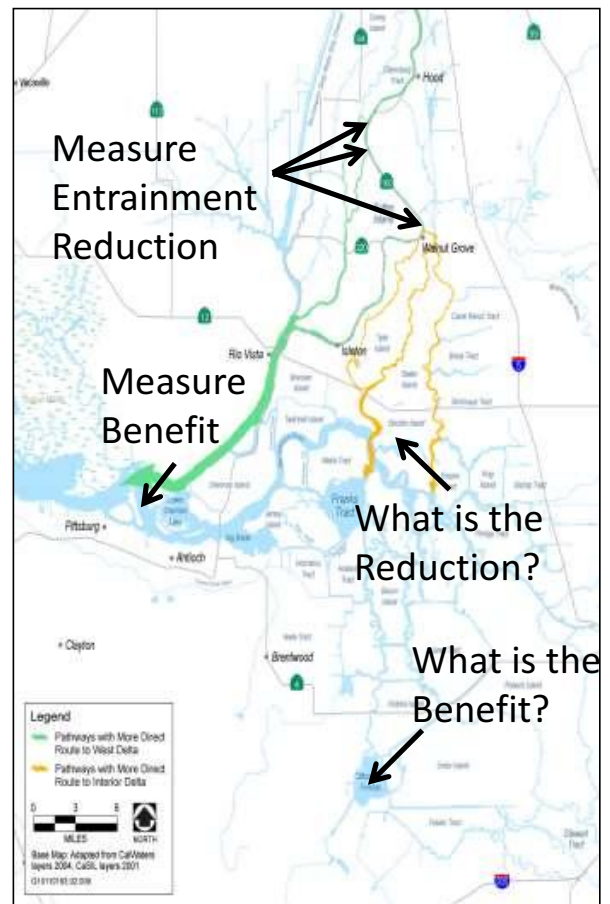




2016 Project Concept Proposal

Salmon Protection Technology Study (SPTS)

- Operate behavioral barriers
 - 3 Sac River Junctions
 - Sutter Slough
 - Steamboat Slough
 - Georgiana Slough
- Minimize salmonid entrainment into the south Delta and:
 - Maximize salmonid survival to Chipps Island
 - Increase potential for SWP operational flexibility
- Project on hold 2016-2017





What has changed since 2017

- Significant improvements in salmonid behavior and survival modeling
 - Provides better:
 - Project design
 - Operation optimization
 - Benefit quantification
 - Cost justification
- USBR/NMFS began planning effort in response to Delta-WIIN
 - Only at Georgiana Slough and Delta Cross Channel (as specified by Delta-WIIN)



Status

- DWR BDO reinitiated planning activities
 - Regular team meetings with USBR staff, and updates provided to NMFS staff
 - Completed water quality modeling to assess benefit of DCC “reoperation”
 - Not feasible with current facility
 - Benefits and reoperation strategy’s should be reassessed if replacement/upgrade considered
 - Completed salmon survival modeling
 - Steamboat and Georgiana Slough salmon entrainment modification offer highest probability of increased overall survival
 - Sutter Slough-no longer considered for barrier operation without additional survival understanding/information
 - Draft Project Description
 - 5 year seasonal operation of non-physical barrier at Georgiana Slough
 - 2-4 seasonal testing periods of alternate non-physical barrier tests at Steamboat Slough (optional)



Status

- Project Cost
 - \$4M Planning, Permitting, Design (Through 2019)
 - \$13M Procurement, Construction (2020)
 - \$8-15M/Year (installation, operation, and monitoring-range of cost depends on final/approved project design details and required adaptive management modification)



Next Steps

- Coordinate with NMFS staff to define RPA compliance activities: On-going
- Complete Draft-Final Project Description: May 2019
- Complete DWR Project Charter (Implementation): June 2019
- Initiate Project Permitting/Design Activities: June/July 2019
- Construct as early as Summer/Fall 2020
- Operate as early as January 2021



Implementation Challenges

- Permitting?
 - Pilot studies previously permitted
- Funding?
 - On-going parallel discussions between DWR/USBR on compliance cost share
- Scientific disagreements?
 - Carefully planning and analyzing implementation of non-physical barriers as long-term solution
 - Evaluating this project potential for success with overall goal for salmon survival improvement with water supply reliability benefits
 - Open to input
- Property Access Easement



Questions