

Managing a flow pulse for food support

Adaptive Planning for the North Delta Flow Action



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Adaptive Management Forum

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Problems

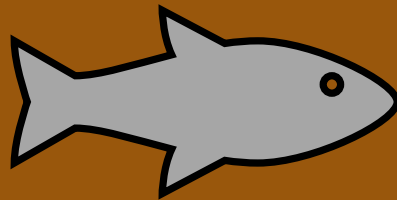
01

FOOD
LIMITATION



02

DELTA SMELT



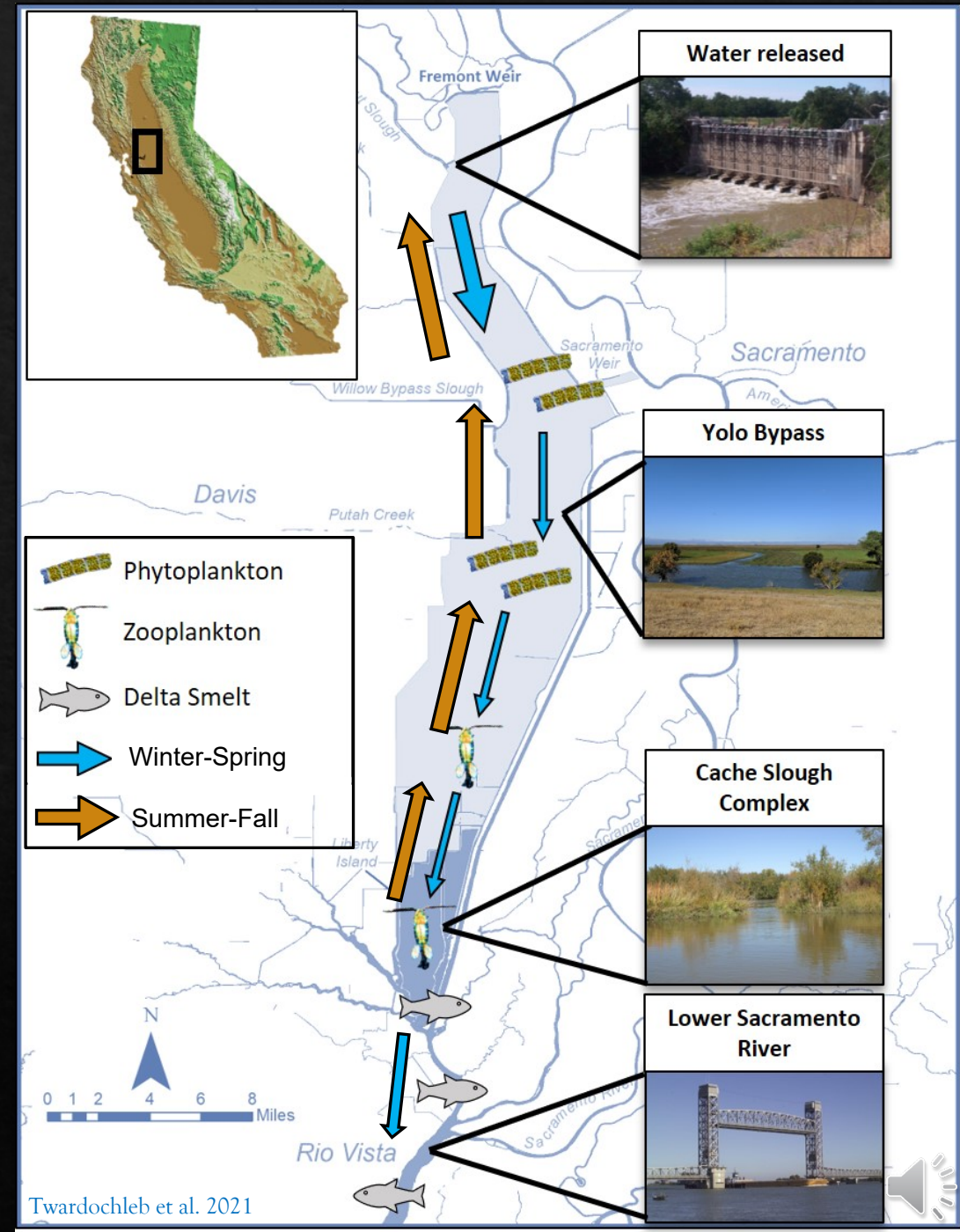
03

SUMMER-FALL
HABITAT



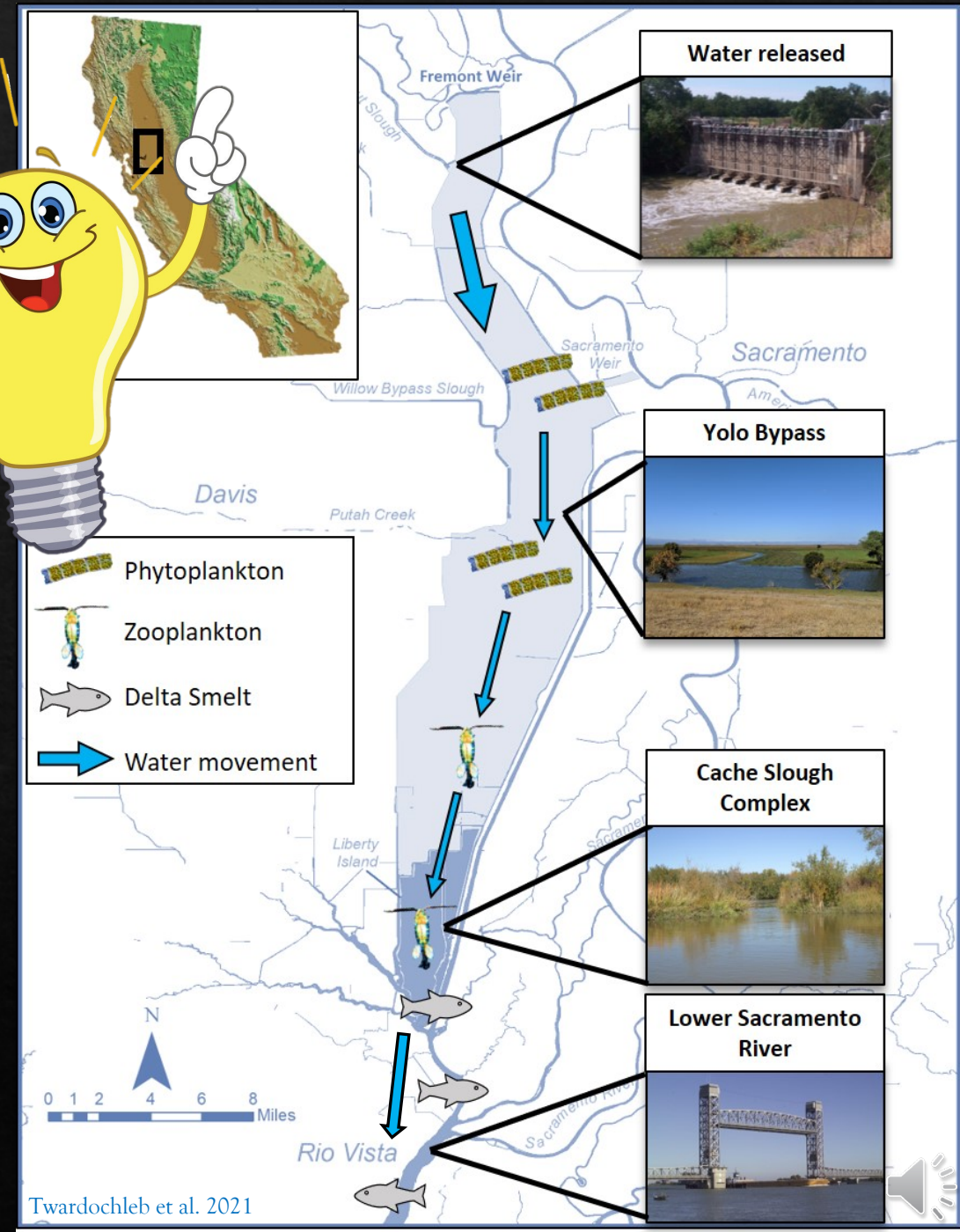
Observations: The start of planning

- ◇ Positive Winter-Spring outflow
- ◇ Negative Summer-Fall flows

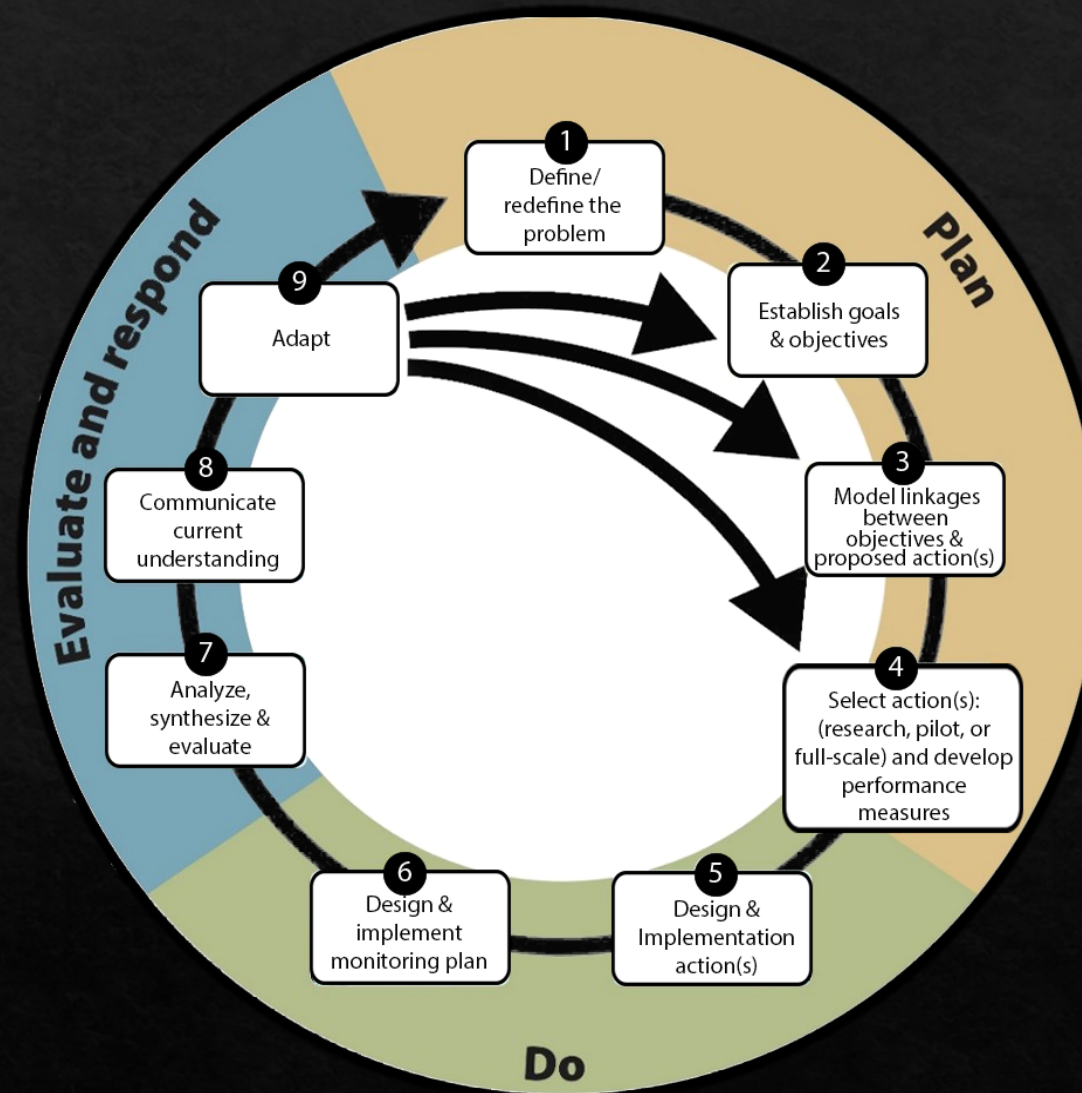


Observations: The start of planning

- ◆ Use existing infrastructure to re-direct agricultural drainage or Sacramento River water through the Yolo Bypass Toe Drain and downstream.
- ◆ Generate a flow-pulse to increase food web productivity and transport of food to downstream regions to benefit Delta Smelt

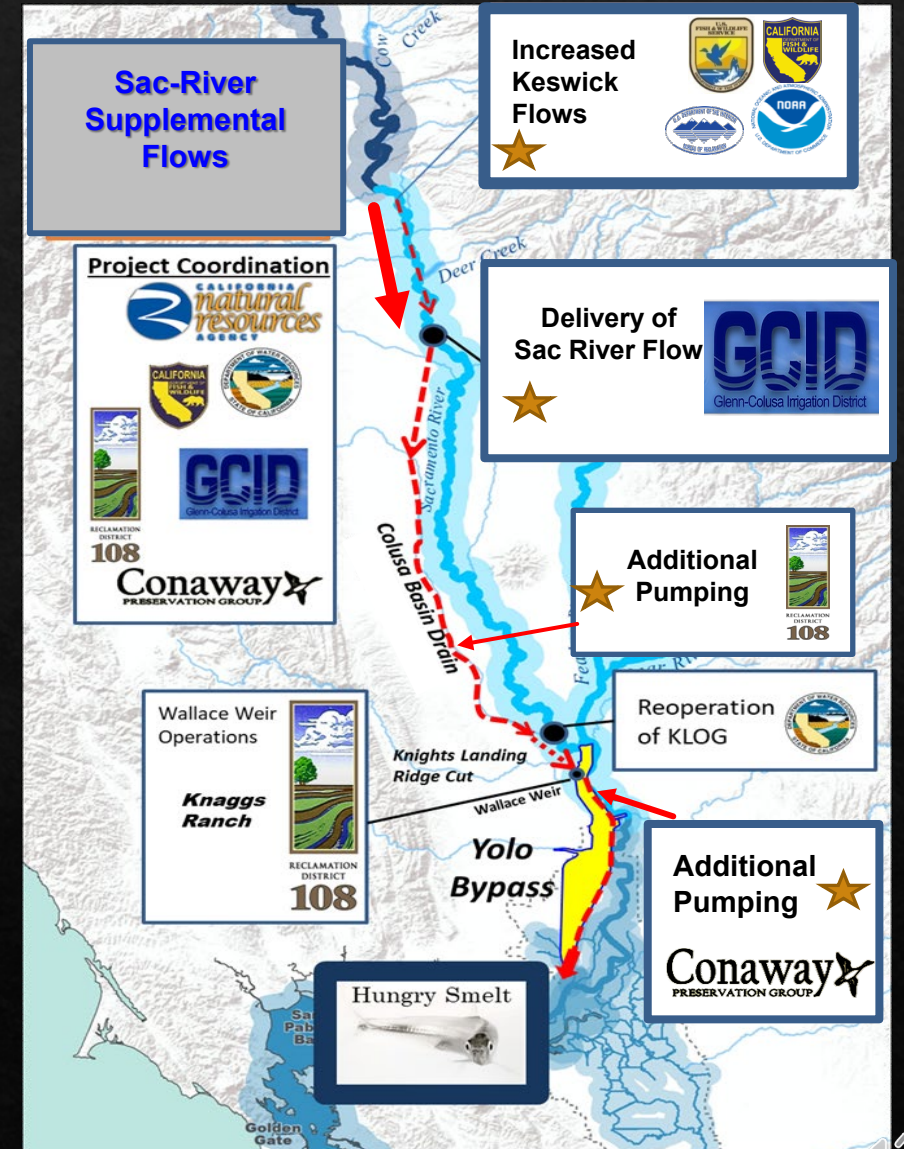
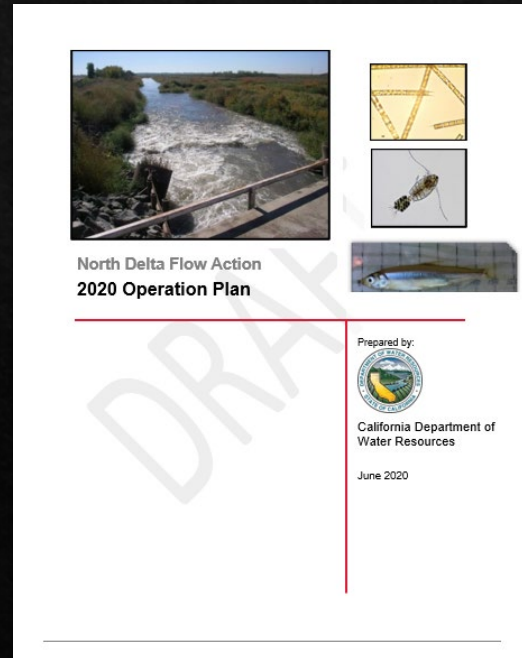


Adaptive Management Strategy



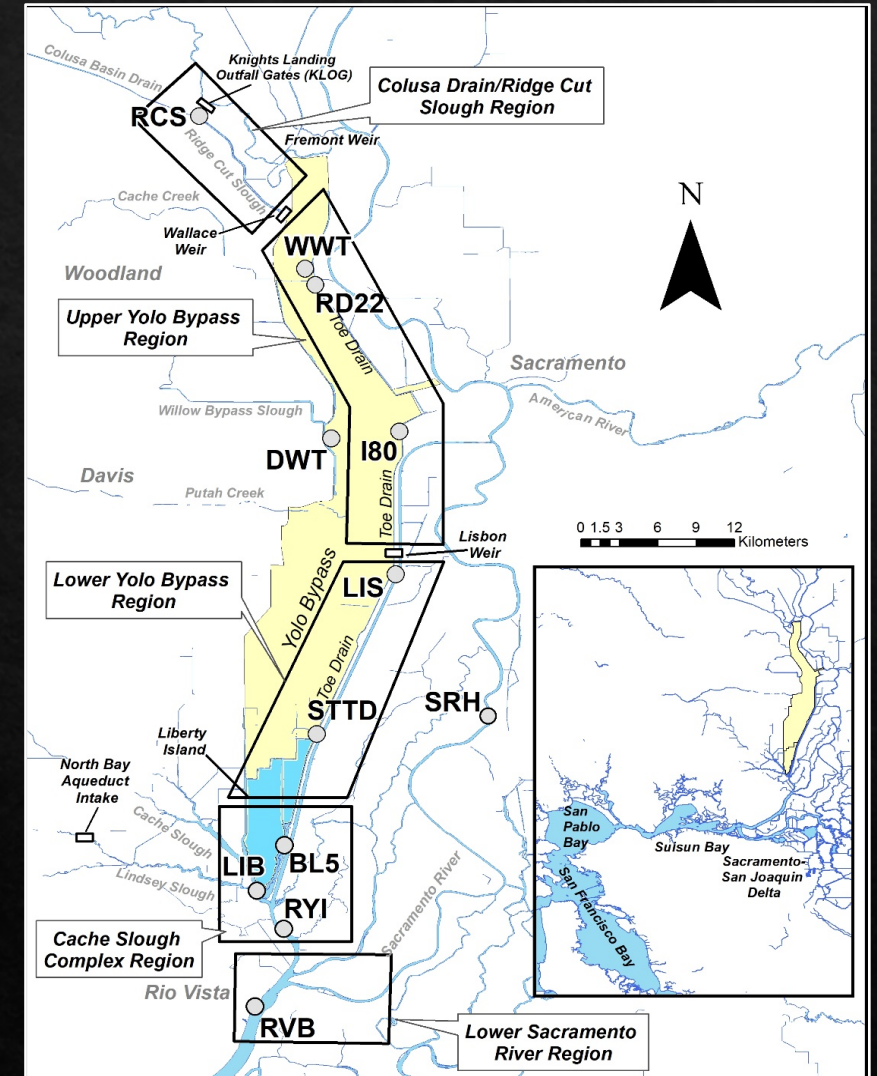
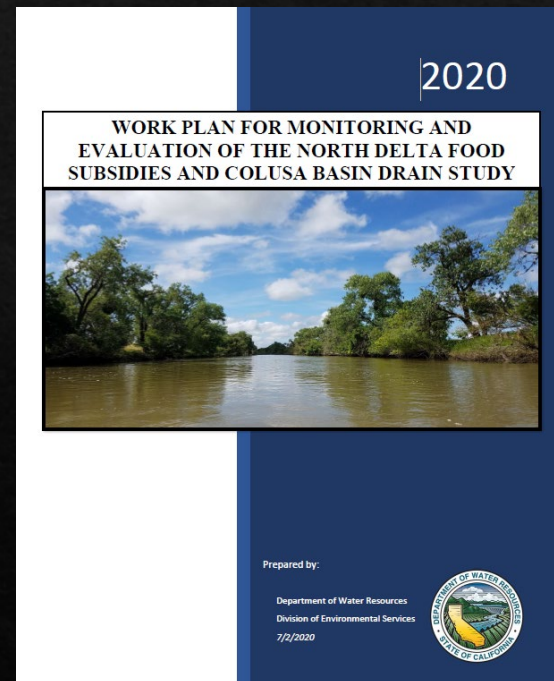
PLAN: Operations and Stakeholder Coordination

- ◆ Identify all stakeholders
- ◆ Action Planning Meetings
 - ◆ Hydrologic Forecasts
 - ◆ Land and Water Use
 - ◆ Construction & Restoration
 - ◆ Options & Risks



PLAN: Science & Monitoring Workplans

- ◇ Study Objectives, Predictions, Design
 - ◇ Special/pilot investigations
- ◇ Stakeholder meetings planning and feedback



DO: Action, Science & Monitoring

- ◆ Implement coordinated operations to generate flow pulse
- ◆ Monitor water quality and biota across regions



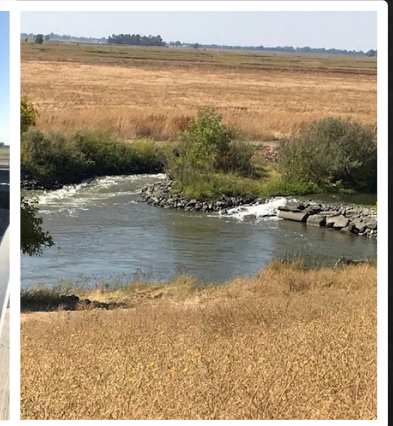
Colusa Basin Rice Fields



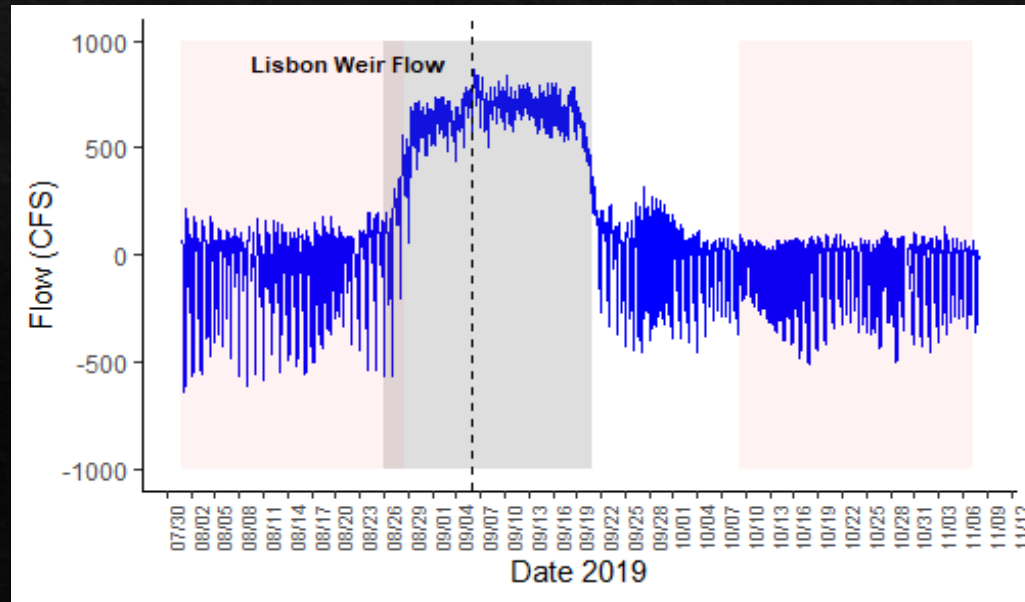
Knights Landing Outfall Gates



Wallace Weir



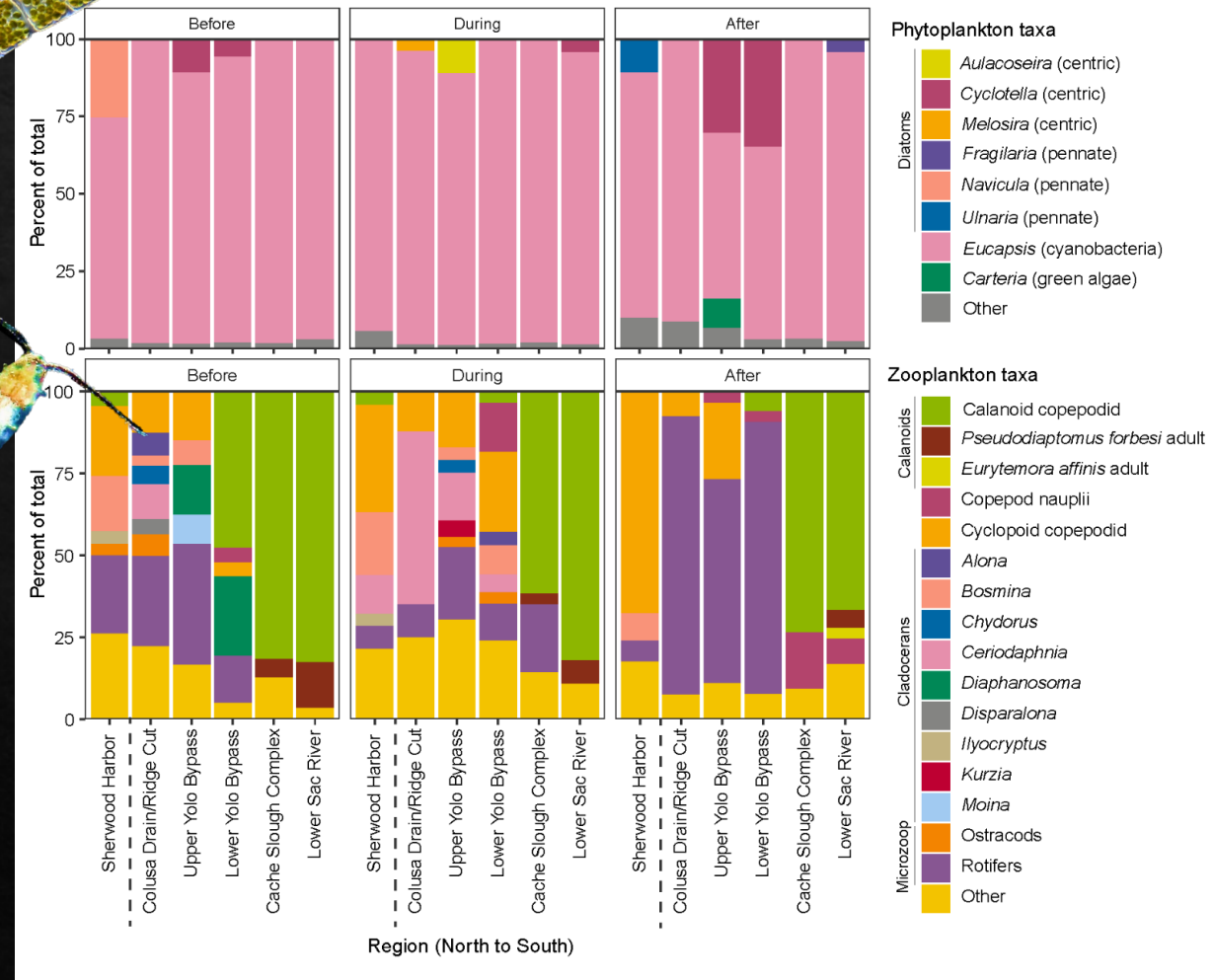
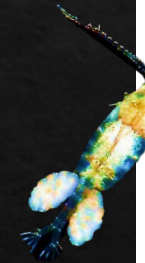
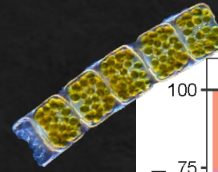
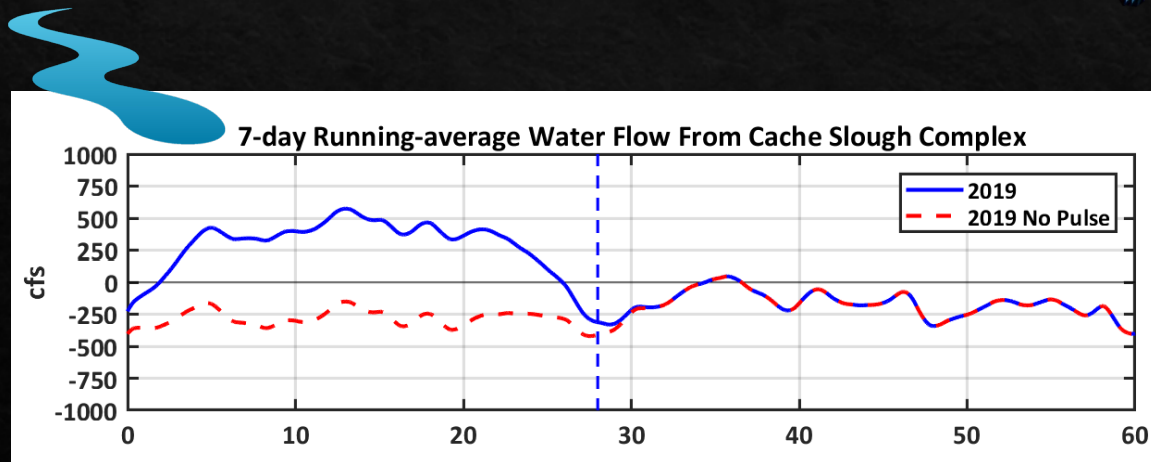
Lisbon Weir in Yolo Bypass



EVALUATE: Analysis, Evaluate, Adapt

Comparative Approach:

1. Before, During, After Flow Pulse
2. Regional and historical flow type comparisons
3. With and without pulse modeling



Challenges in planning

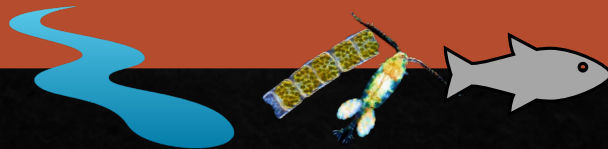
- ◇ Annual cycle is extremely tight
- ◇ Uncertainty in water year type & water availability
- ◇ Management for other species
- ◇ Infrastructure and logistic coordination



Lessons Learned

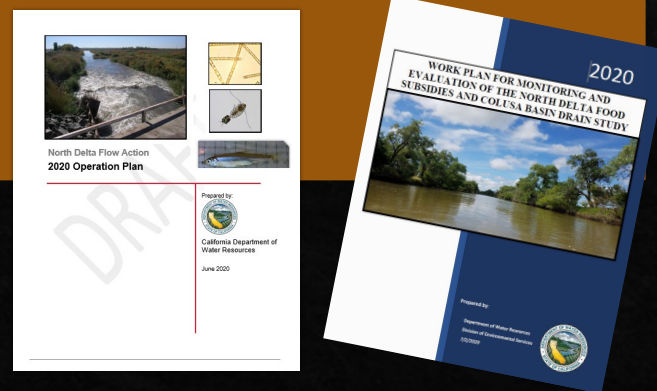
01

FOCUS ON
WHAT WENT
WELL?



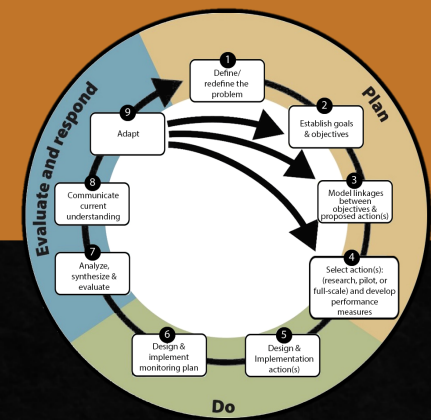
02

IDENTIFY WHAT
COULD BE
IMPROVED?



03

GO WITH THE
FLOW!



Acknowledgements



Knaggs Ranch



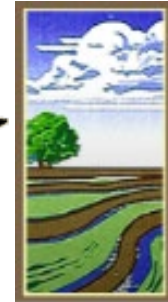
Rominger Ranch



BUREAU OF RECLAMATION



Swanston Ranch



SAN FRANCISCO STATE UNIVERSITY

