CSAMP Delta Smelt Structured Decision Making Project: Round 1 Evaluation Report

Jul. 30, 2024, Policy Group Presentation

Presented by Sally Rudd & Brian Crawford,
Compass Resource Management

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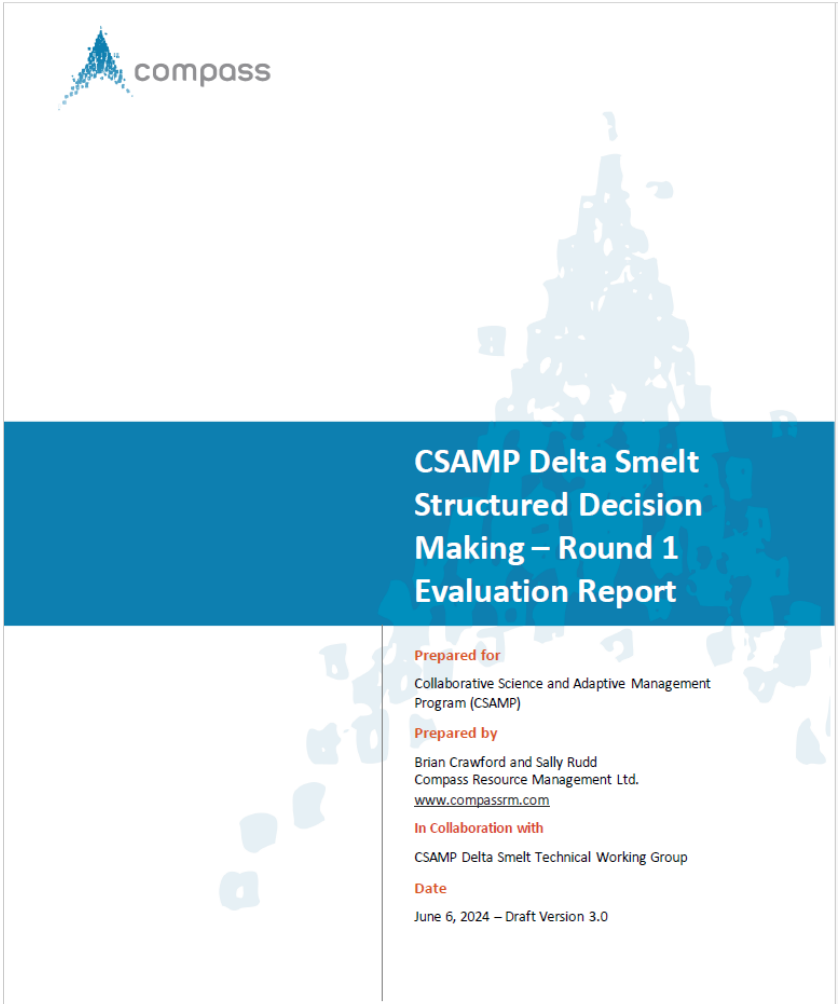


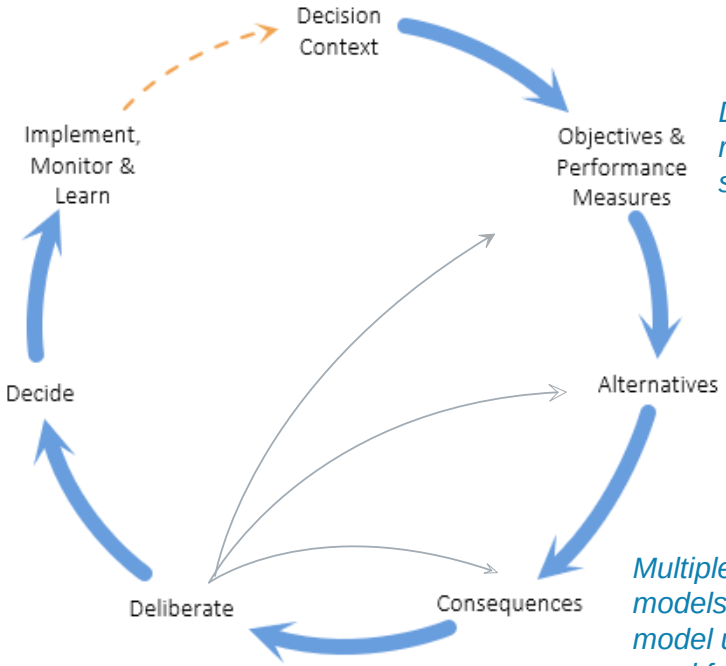
A collaborative effort:

- CSAMP Delta Smelt Technical Working Group
- Policy Group Steering Committee
- CAMT & Policy Group

Report documents technical analysis done to date to inform policy discussions on next steps.

Structured Decision Making for Delta Smelt (Round 1)

What are the best management and science actions to advance CSAMP's Delta Smelt management goal (self-sustaining population growth)?



Delta Smelt population growth, resource costs (water & financial), salmon effects

Round 1 was scoped to model 13 individual management actions and combinations of those actions

Multiple Delta Smelt population models used to better understand model uncertainty; coarse methods used for other objectives for comparative purposes

Policy Group deliberation:

1. *June 2023*
2. *December 2023*
3. *July 2024*

Round 1 Findings, Takeaways, and Next Steps in Report

Consequence Tables

Capture full results across multiple objectives for actions and portfolios

See page iv-vii in Executive Summary and Section 4

Seven "Takeaways"

Summarize evidence and interpretation of Round 1 evaluation

See Executive Summary Appendix and Section 5

Seven Possible Next Steps

Candidate Adaptive Management and Research, given potential benefits, uncertainties and roadblocks

See page ii in Executive Summary and Section 6

Key Takeaway: Growing the Delta Smelt population might be possible through management actions that increase combinations of food, turbidity, flows and or improve survival via contaminant reduction and further entrainment mitigation.

Management Actions in the Round 1 Evaluation

- **Tidal wetland restoration**
- **Managed wetlands food production**
- North Delta Food Subsidies
- Deepwater Ship Channel Food production

- **Aquatic weed control**
- **Sediment supplementation**

- **Outflow/X2** (current mgmt of fall X2 ≤ 80km; summer outflow; full-year flow)
- Summer/Fall Suisun Marsh Salinity Control Gates

- **Physical point-source contaminants reduction**
- **Engineered First Flush**
- Franks Tract Restoration (food, turbidity, and entrainment benefits)
- OMR management to mitigate entrainment

Bolded actions are included as candidate Adaptive Management & research next steps

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Managed Wetlands for Food Production

Photo: Estuary News Magazine

What: Implement AM for managed wetlands food production in Suisun Marsh, while investigating ways to scale up the action.

Why?

- Action already being implemented at small scales with cursory evidence of benefits
- More potential benefits if scaled up (and combined with turbidity actions)

See page ii in Executive Summary and Section 6 for full details

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Aquatic Weed Control

Photo: Budak, FISHBIO, 2024

What: Implement AM for different methods of aquatic weed control, and their effectiveness of enhancing turbidity and food.

Why?

- Pilot implementation in progress, but efficacy is uncertain
- Potential benefits, even at small-scale

See page ii in Executive Summary and Section 6 for full details

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Physical Point Source Contaminants Reduction

Photo: Water & Wastewater

What: Implement AM to test reduction in contamination by constructed wetlands at Ulatis Creek, which may reveal benefits from improving survival in a critical Delta Smelt habitat (Cache Slough).

Why?

- Action has been effective in other systems
- Potential benefits to Delta Smelt and broader ecosystem
- Piloting at small-scale informs whether and how to scale up

See page ii in Executive Summary and Section 6 for full details

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Outflow Action

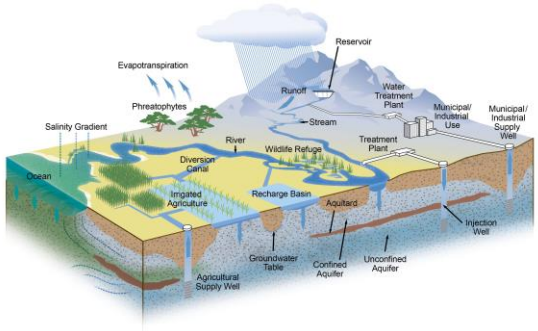


Photo: CDFW

What: Operations modeling to confirm the availability of water and the feasibility of operations to achieve various flow/X2 mgmt scenarios, with a focus on a summer flow action.

Why?

- Different timings of flow mgmt have potential benefits to Delta Smelt
- Substantial trade-offs with water costs and uncertainty around operations and effects

See page ii in Executive Summary and Section 6 for full details

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Sediment Supplementation

Photo: Water & Wastewater

What: Feasibility studies and hydrodynamic modeling of potential methods, reintroduction points, and timing/locations where smaller scale supplementation improves conditions for Delta Smelt.

Why?

- Highest potential benefits of actions tested
- Substantial uncertainty around feasibility / how to best add sediment to system
- Studies are prerequisite before considering small-scale pilot projects.

See page ii in Executive Summary and Section 6 for full details

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Engineered First Flush

Photo: USBR, 2024

What: Integrate existing and new climate forecasting tools to predict first flush conditions; begin development of a condition-dependent AM framework for testing the action through coordination with natural resource and water agencies.

Why?

- Potential benefits to Delta Smelt
- Potentially lower water cost than other flow mgmt actions; implementable in near-term
- Studies could inform efficiency of action

See page ii in Executive Summary and Section 6 for full details

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Tidal Habitat Restoration

Photo: Bruce Washburn, Maven's Notebook, 2022.

What: Research to quantify local and system-wide contributions of restored tidal wetlands to Delta Smelt diets, and the effects of tidal wetland restoration on water temperature.

Why?

- Action is being implemented, with more planned
- Currently no evidence of food benefits
- Studies can inform degree of food and other benefits (and whether and how the action is implemented in future)

See page ii in Executive Summary and Section 6 for full details

Candidate Adaptive Management (AM) & research next steps for Round 1 actions

Management Action	AM / research next step
Managed Wetlands for Food Production	Implement Adaptive Management for managed wetlands food production in Suisun Marsh, while investigating ways to scale up actions.
Aquatic Weed Control	Implement Adaptive Management for different methods of aquatic weed control, and their effectiveness of enhancing turbidity and food.
Physical Point Source Contaminants Reduction	Implement Adaptive Management to test reduction in contamination by constructed wetlands at Ulatis Creek, which may reveal benefits from improving survival in a critical Delta Smelt habitat (Cache Slough).
Outflow Action	Operations modeling to confirm the availability of water and the feasibility of operations to achieve various X2 management scenarios, with a focus on a summer flow action.
Sediment Supplementation	Feasibility studies are necessary to identify potential sources of sediment and transport methods to the reintroduction point; hydrodynamic modeling of different reintroduction points to inform implementation; and timing/locations where smaller scale supplementation improves conditions for Delta Smelt.
Engineered First Flush	Integrate existing and new climate forecasting tools to predict first flush conditions; begin development of a condition-dependent Adaptive Management framework for testing the action through coordination with natural resource and water agencies.
Tidal Habitat Restoration	Research to quantify local and system-wide contributions of restored tidal wetlands to Delta Smelt diets, and the effects of tidal wetland restoration on water temperature.

See page ii in Executive Summary and Section 6 for full details

Next steps for report

- Opportunity for comments/feedback following this Policy Group meeting – due by Aug 9th
- Final draft distributed by Aug 30th

THANK YOU

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