

Adaptive
Management
Forum
2.4.21

Workshop: Adaptive Management Planning 101

Planning Committee: Karen Kayfetz & Dylan Chapple (DSP), Kate Spear (NOAA), Erin Cole (USFWS)

- Please mute yourself
- Change your Teams display name
- Type questions into the chat (say hello!)
- *Teams technical issues? Contact (916) 798-9817 or engage@deltacouncil.ca.gov



**Delta
Science
Program**

DELTA STEWARDSHIP COUNCIL

Agenda

1:30-1:50 Introduction and Overview

1:50-2:00 Questions

2:00-3:00 Breakout groups: AM Table

3:00-3:30 Discussion

3:30 Adjourn



From this morning's Mural Board:

“When I talk to folks about AM, the discussion becomes more reactive, e.g. managing adaptively. I think AM is more proactive in that it is a structured way to manage uncertainties with a clearer pathway through an AM framework.”




From this morning's Mural Board:

“Mike encouraged progress over perfection with integrated management models and experiments and noted that failure also is a key way of learning. There was an encouragement to not try to wait for models to be ‘perfect’.”



Workshop Goals



Discuss the background of adaptive management planning as it relates to the Delta Plan



Learn about available resources to support Adaptive Management Planning



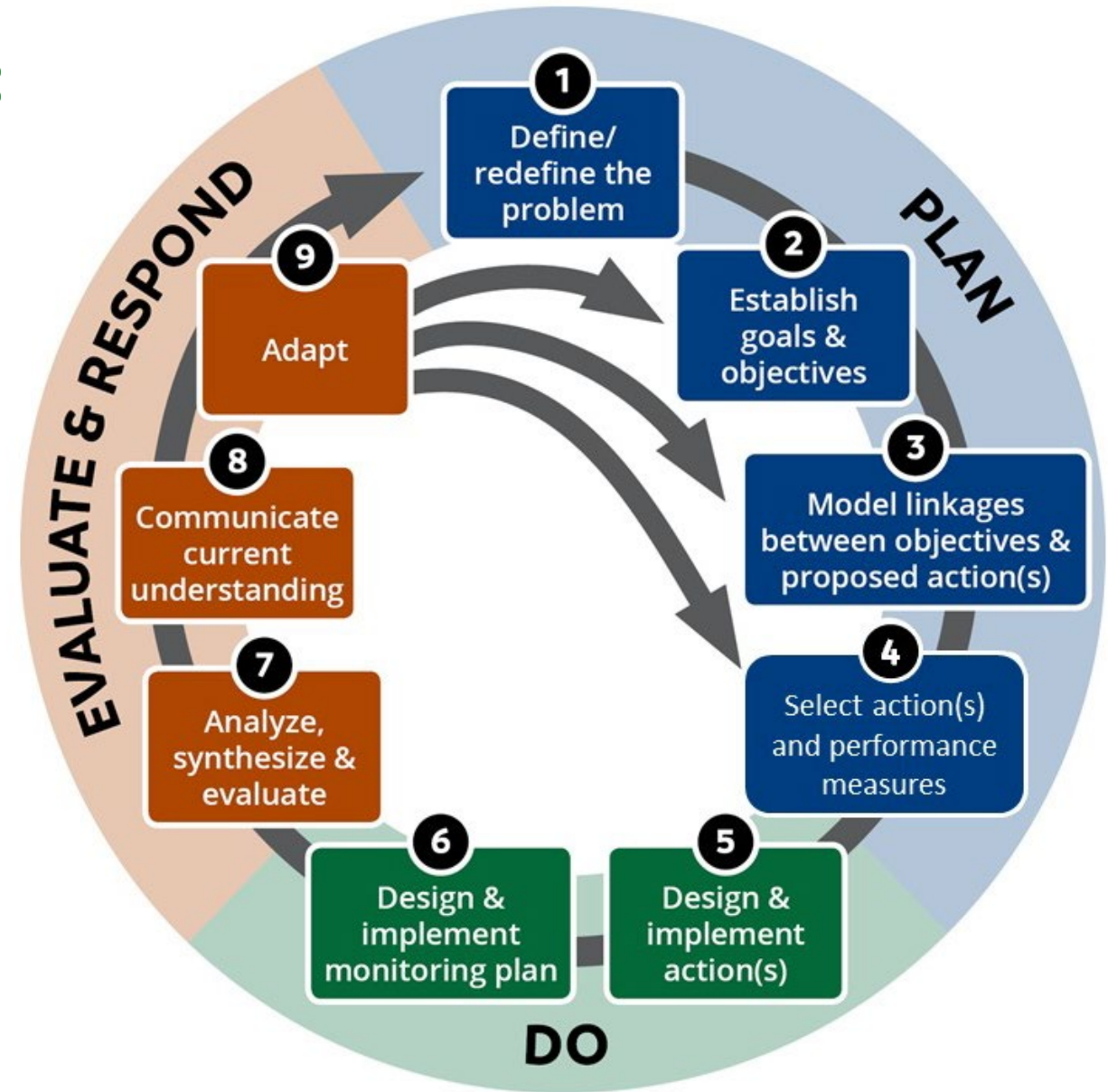
Work in breakout groups to develop elements of an Adaptive Management Plan

Delta Plan Appendices C and 1B: Adaptive Management

3 Phases/9 Steps

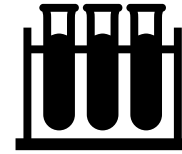
Applies to *Ecosystem Restoration and Water Management*

Document access to resources and authority for implementation



Why is Adaptive Management Required by the Delta Plan?

Support the application of best available science



Relevance

Inclusiveness

Objectivity

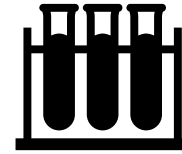
Transparency

Timeliness

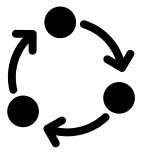
Peer Review

Why is Adaptive Management Required by the Delta Plan?

Support the application of best available science

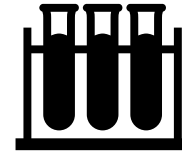


Develop contingency plans for unexpected outcomes

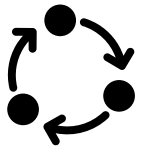


Why is Adaptive Management Required by the Delta Plan?

Support the application of best available science



Develop contingency plans for unexpected outcomes

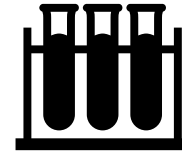


Inform future efforts

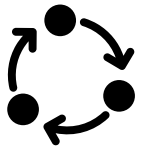


Why is Adaptive Management Required by the Delta Plan?

Support the application of best available science



Develop contingency plans for unexpected outcomes



Inform future efforts



Take action despite uncertainty



Adaptive management support



**Interagency
Adaptive
Management
Integration Team
(IAMIT)**



**Suisun Adaptive
Management
Advisory Team
(AMAT)**



**Delta Plan Early
Consultation/
Adaptive
Management
Liaisons**

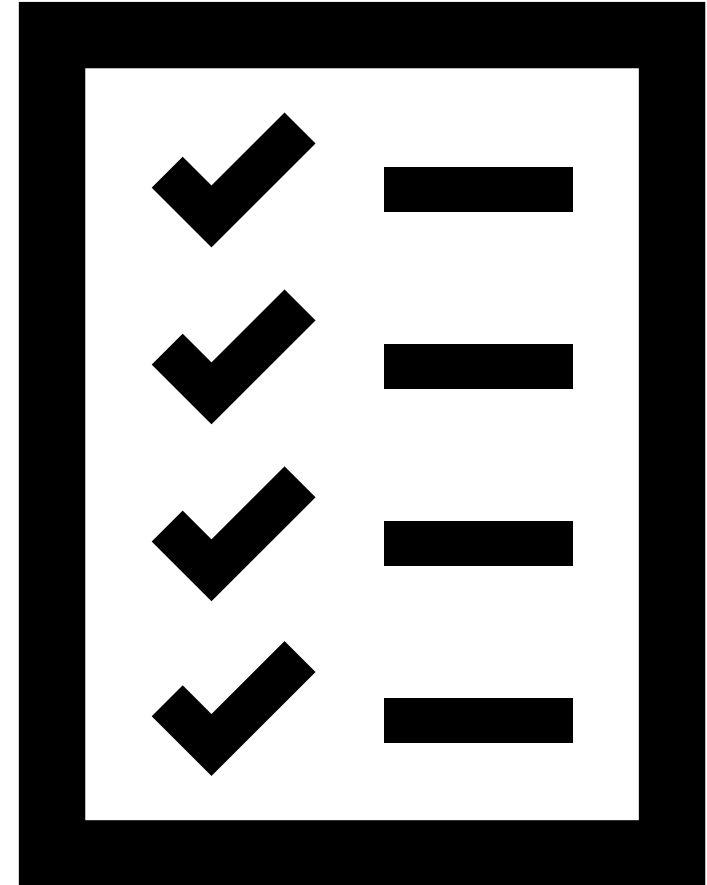
Contact adaptivemanagement@deltacouncil.ca.gov

IAMIT: Elements of Adaptive Management and Monitoring Plans

**Developed by Interagency
Adaptive Management
Integration Team**

**Details potential approaches to
AM Plan development**

**Select examples from past Delta
Plan certifications**





Interagency Adaptive Management Coordination

Convened by the Delta Science Program, the Interagency Adaptive Management Integration Team (IAMIT) discusses and coordinates strategies for implementing adaptive management for conservation efforts in the Sacramento-San Joaquin Delta and related areas.

The IAMIT serves as a technical team - made up of scientific and technical staff from local, state, and federal agencies, and key stakeholder groups - that crosscuts individual agency missions and provides high-level input and guidance on current and future adaptive management. Its activities are guided by the [April 2019 Delta Conservation Adaptive Management Action Strategy](#). For more information on the group, [view the IAMIT's information sheet](#).

To learn more about the history of adaptive management in California's Delta, see the 2016 Delta Independent Science Board Review, "[Improving Adaptive Management in the Sacramento San-Joaquin Delta](#)," or contact adaptivemanagement@deltacouncil.ca.gov.

[Adaptive Management Plan 101](#)

[Conceptual Models](#)

[Monitoring Resources](#)

[Environmental Data Resources](#)

[Example AM Plans](#)

Adaptive Management Plan Development 101

These resources are intended to assist project proponents with Adaptive Management Plan (AMP) preparation for consistency with the Delta Plan and other regulatory processes. Use of these resources does not guarantee consistency with any regulatory decision-making process.

Unlinked documents in the table below are available upon request via archives@deltacouncil.ca.gov.

Problem Statements:

- 1. Seasonal Floodplain:** This project aims to restore aquatic species habitat by reconnecting upland stream to seasonal floodplain. The project will intentionally degrade 500 meters of an earthen berm to allow for seasonal inundation of a former floodplain area during storm events. This project will produce aquatic food web resources, create seasonal habitat for avian species, restore native plants through planting and reduce high flows downstream from the created floodplain, reducing the risk of urban flooding.
- 2. Subsidence Reversal:** This project will create managed freshwater wetlands to increase surface elevations on a subsided area and provide seasonal habitat for migratory bird species. The project will construct an interior levee on a former corn field, engineer the surface elevations to support target wetland plant species and flood with water year-round. The project will include multiple elevations (shallow water wading habitat, meso-water freshwater marsh, and deep open water) to target multiple species of birds. The project will also reverse subsidence through the accumulation of wetland peat soil.
- 3. Setback Levee:** This project will create off-channel habitats for fish species off the main stem of a river. The project will construct 200m of setback levee to address structural issues, leave remnant levee with connections open on both sides to create off channel habitat, and plant native riparian species to provide cover. The project will slow water speeds, allow for the accumulation of detritus, shade water to reduce temperatures, and increase food resources for native fish species.

Adaptive Management Table

| Goals | Objectives | Expected Outputs and Outcomes | Monitoring Category | Monitoring Metrics | Trigger level (related to metrics) | Potential Management Response |
|-------|------------|----------------------------------|------------------------|-----------------------|--|-------------------------------------|
|-------|------------|----------------------------------|------------------------|-----------------------|--|-------------------------------------|

Broad
statements
that
propose
general
solutions

**Increase
habitat for
juvenile
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Adaptive Management Table

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| Broad statements that propose general solutions | Quantitative, specific narrative statements of desired outcomes Allow for evaluation | | | | | |
| Increase habitat for juvenile fish | Create shaded, off channel habitat to reduce flow velocities and reduce water temperature | | | | | |

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| Increase habitat for juvenile fish | Create shaded, off channel habitat to reduce flow velocities and reduce water temperature | <u>Outcome:</u> Ecosystem responses to management actions Slower flow and lower temperature and higher juvenile fish density compared to main channel | | | | |

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| Increase habitat for juvenile fish | Create shaded, off channel habitat to reduce flow velocities and reduce water temperature | <u>Outcome:</u> Ecosystem responses to management actions Slower flow and lower temperature and higher juvenile fish density compared to main channel | <u>Hydrologic</u> Water temperature | Water temperature | | |
| | | | Flow | Flow (compared to channel) | | |
| | | | <u>Other?</u> | | | |

Adaptive Management Table

| Goals | Objectives | Expected Outputs and Outcomes | Monitoring Category | Monitoring Metrics | Trigger level (related to metrics) | Potential Management Response |
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| Broad statements that propose general solutions | Quantitative, specific narrative statements of desired outcomes Allow for evaluation | <u>Output</u> : On-the-ground implementation and management actions | <u>Physical</u> | Side channel morphology | Side channel width narrows to 10ft | Widen side channel to at least 20ft and monitor |
| | | Construction and connection of off-channel riparian habitat | <u>Biotic</u> | Juvenile fish | Fish abundance (compared to channel) | Fish abundance decreases >10% from baseline |
| Increase habitat for juvenile fish | Create shaded, off channel habitat to reduce flow velocities and reduce water temperature | <u>Outcome</u> : Ecosystem responses to management actions | <u>Hydrologic</u> | Water temperature | Water temperature within 1.5 °C of channel | Increase shading by planting native riparian species |
| | | Slower flow and lower temperature and higher juvenile fish density compared to main channel | <u>Flow</u> | Flow (compared to channel) | Flow rate >90% of channel flow | Install large woody debris |
| | | | <u>Other?</u> | | | |

Adaptive Management Table: Yolo Flyway Farms Example (ICF 2017)

| Goals | Objectives | Expected Outputs and Outcomes | Monitoring Category | Metrics | Trigger level | Potential Management Response |
|---|--|---|------------------------|--|--|---|
| 1. Enhance regional food web productivity and export to Delta in support of delta smelt and longfin smelt recovery. | No tidal muting occurs within the site. | <p><u>Output:</u> Construction of breaches and new channels.</p> <p><u>Outcome:</u> Increased tidal exchange and excursion, leading to increased export of primary and secondary productivity from the site</p> | Physical and Hydrology | <ul style="list-style-type: none"> Elevation and topography including channel morphology and pond depths Changes in tidal regime Residence time in ponds and other habitats | Channel cross-section declines in area for 2 or more years in a row resulting in tidal muting within the site. An obstruction (tree, derelict vessel) lodged in the breach, resulting in tidal muting within the site. | The <u>Land Owner</u> will coordinate with the FAST on appropriate action(s) to take including, but not limited to, dredging to appropriate dimensions to maintain tidal exchange. Remove obstruction from channel. |
| | Food web contributions from the Project site are higher than from boundary conditions (Toe Drain). Food web contributions from the various habitat components within the site are maximized to the extent possible | | | Food Web | <ul style="list-style-type: none"> Chlorophyll a concentration Phytoplankton abundance and community composition Zooplankton abundance and community composition | Food web exports are lower in concentration than those found in the Toe Drain channel. |

Identify the at least one:

Interagency Adaptive Management Coordination

Adaptive Management Plan 101

Conceptual Models

Monitoring Resources

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Example AM Plans

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How would you communicate your project findings?



Building an Adaptive Management Table

- **DON'T** click “Join” button
- Review Problem Statements
- Select **one** example project
- Assign scribe to fill table and share screen
- Choose **one goal** to begin



BREAKOUT DISCUSSIONS: RECONVENE AT 3:00

What were some of the challenges you encountered translating the project to the adaptive management framework?

What are possible issues with developing trigger levels and potential management responses?

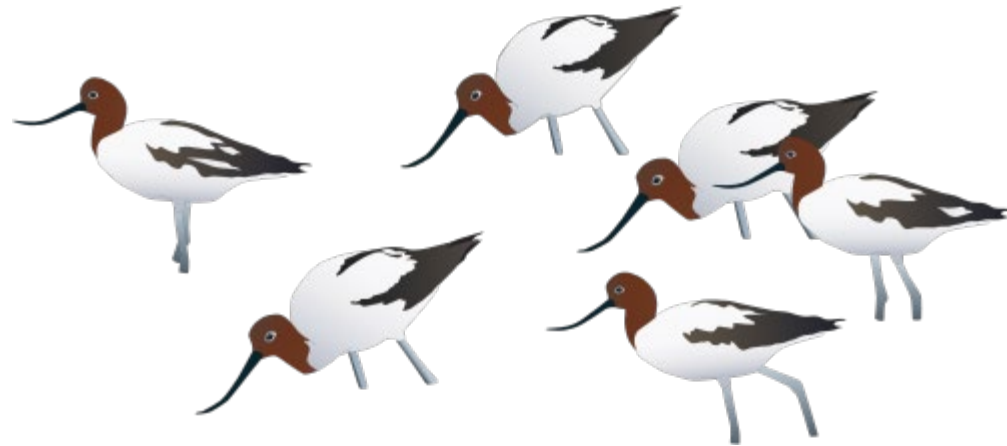
Do you have suggestions for additional resources could be added to the webpage?

Are there any other thoughts, reflections or questions?

First--meet each other!

In 30 Seconds...

- 👤 Name**
- 👤 Affiliation**
- 👤 Why did you choose this session today?**



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Contact us! AdaptiveManagement@deltacouncil.ca.gov



Annika Keeley



Karen Kayfetz



Dylan Chapple

A large concrete bridge with multiple pillars spans across a wide body of water. The sky is filled with heavy, grey clouds, and the water reflects the overcast light. In the foreground, there is a patch of dry, brownish grass. The text "THANK YOU!" is centered in the image in a large, white, bold, sans-serif font.

THANK YOU!