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Looking to an Uncertain Future

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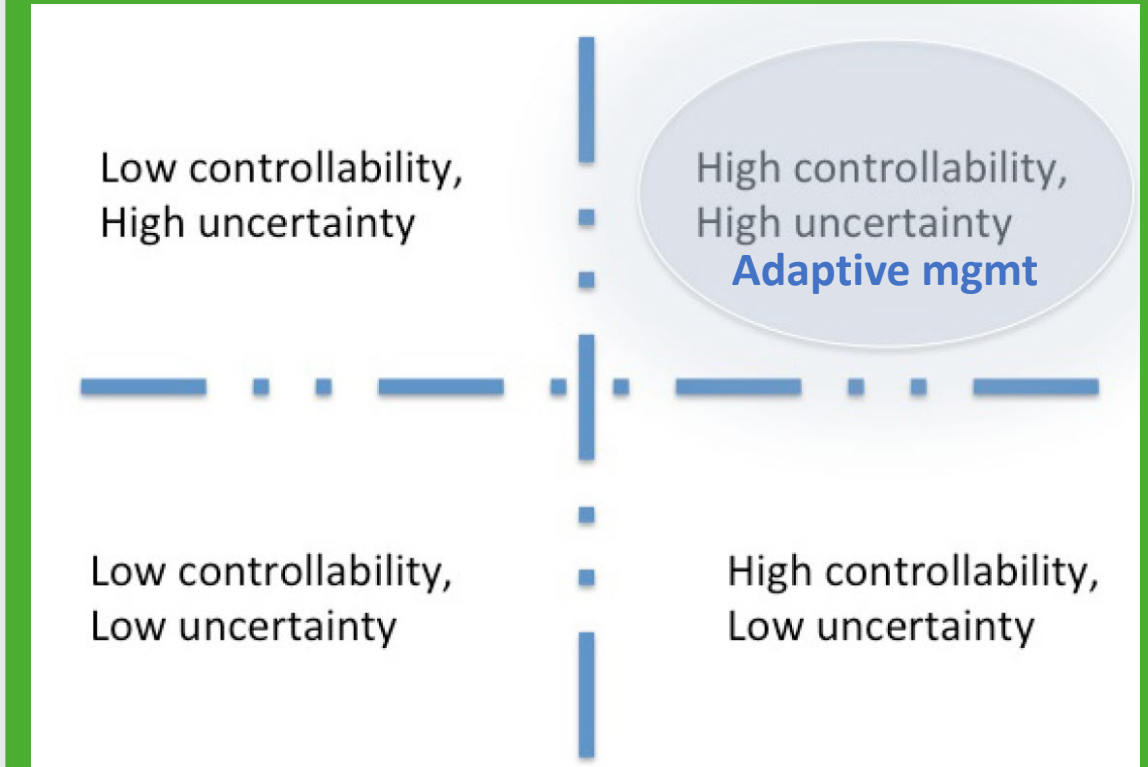
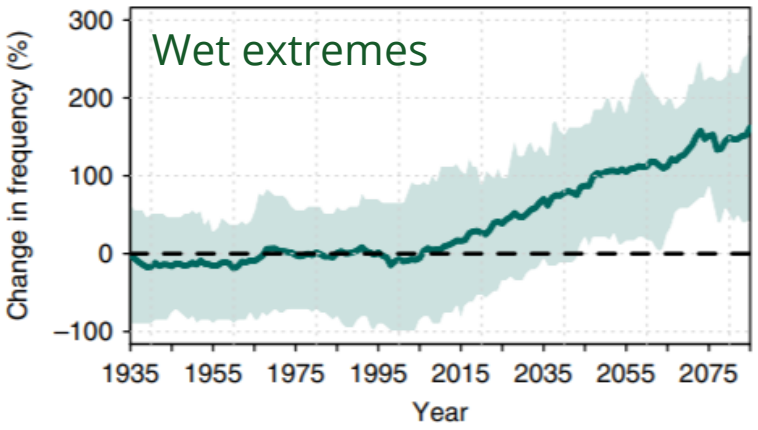
DELTA STEWARDSHIP COUNCIL

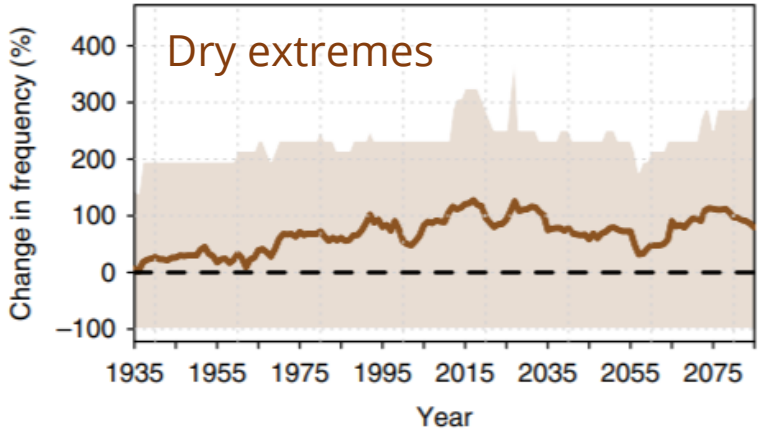


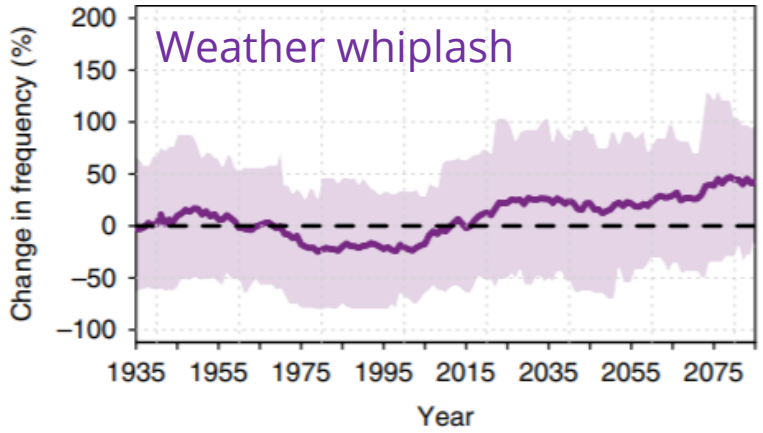
Modified from Wiens et al., *SFEWS*, 2017

We are certain that the future is more uncertain

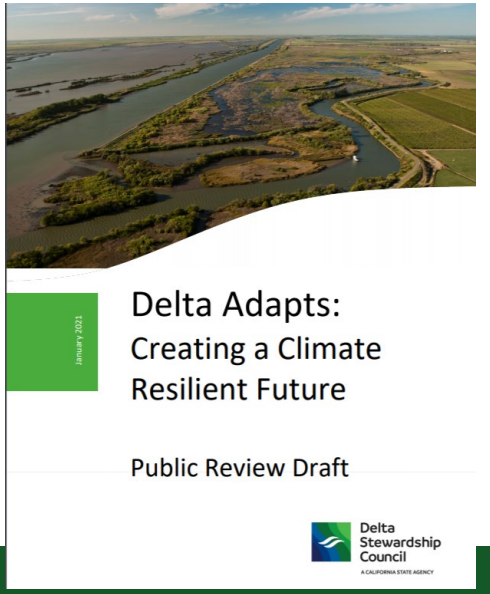
Projected change in frequency of precipitation extremes for northern California (Swain et al., *Nat. Climate Change*, 2018)





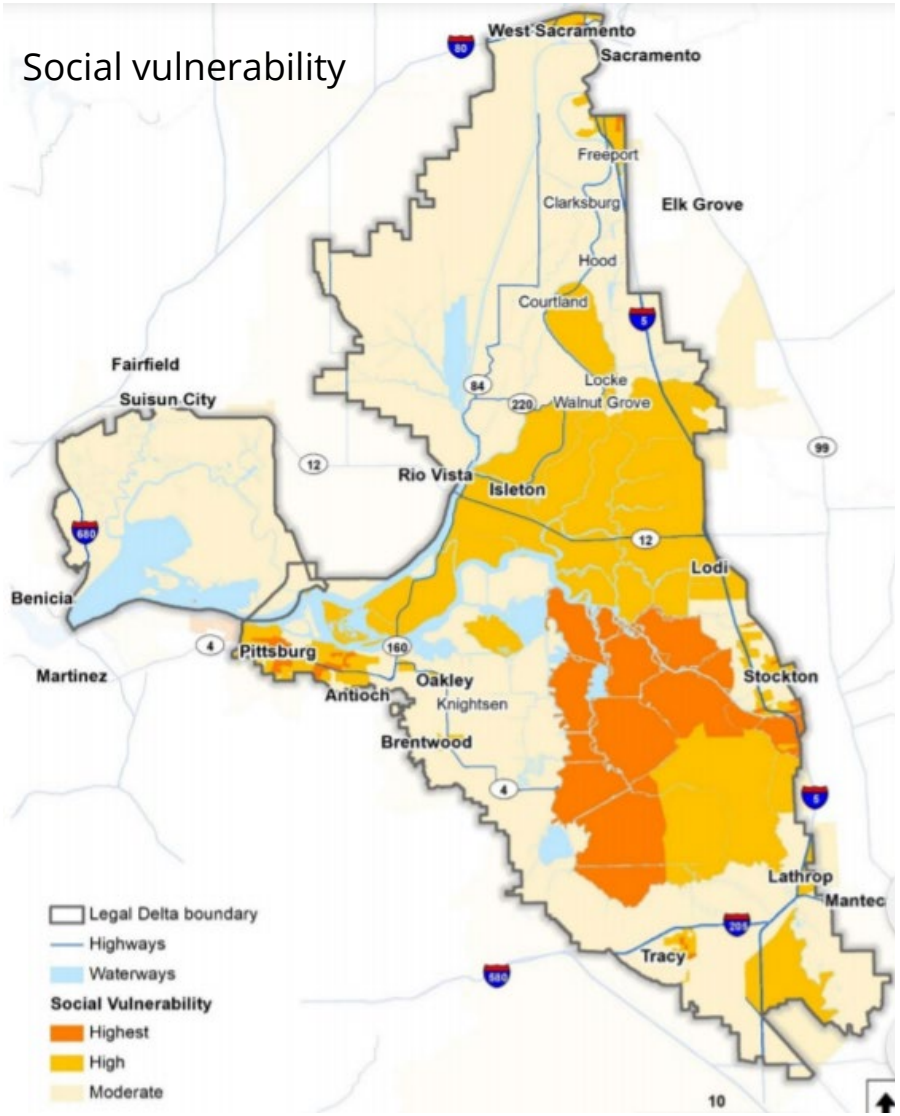


- >50% chance of 1.8 (RCP 4.5) - 2.5 (RCP 8.5) feet of sea level rise by end of century
- 3.6-9.6°F increase in mean temperature by end of century
- -2.8-4.5 inch change in annual precipitation totals



Other key takeaways from the Vulnerability Assessment

- Flooding will continue to get worse.
- Climate change will not impact Delta residents equally.
- Delta water exports will be less reliable in the future.
- The existing water supply system does not provide enough storage to capture anticipated increases in runoff due to more variable precipitation.
- In-Delta water uses may be threatened by episodic water quality declines.
- Delta ecosystems are vulnerable to climate change.
- Agricultural production trends will shift with climate change.



The good nev

- Habitats within Delt
- Appropriately manag
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- Heterogeneity of the
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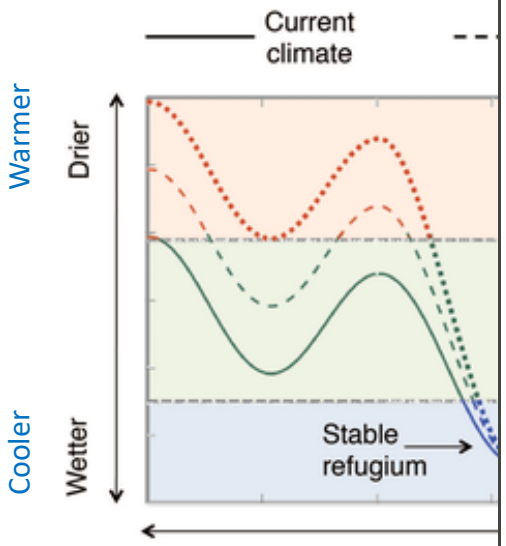
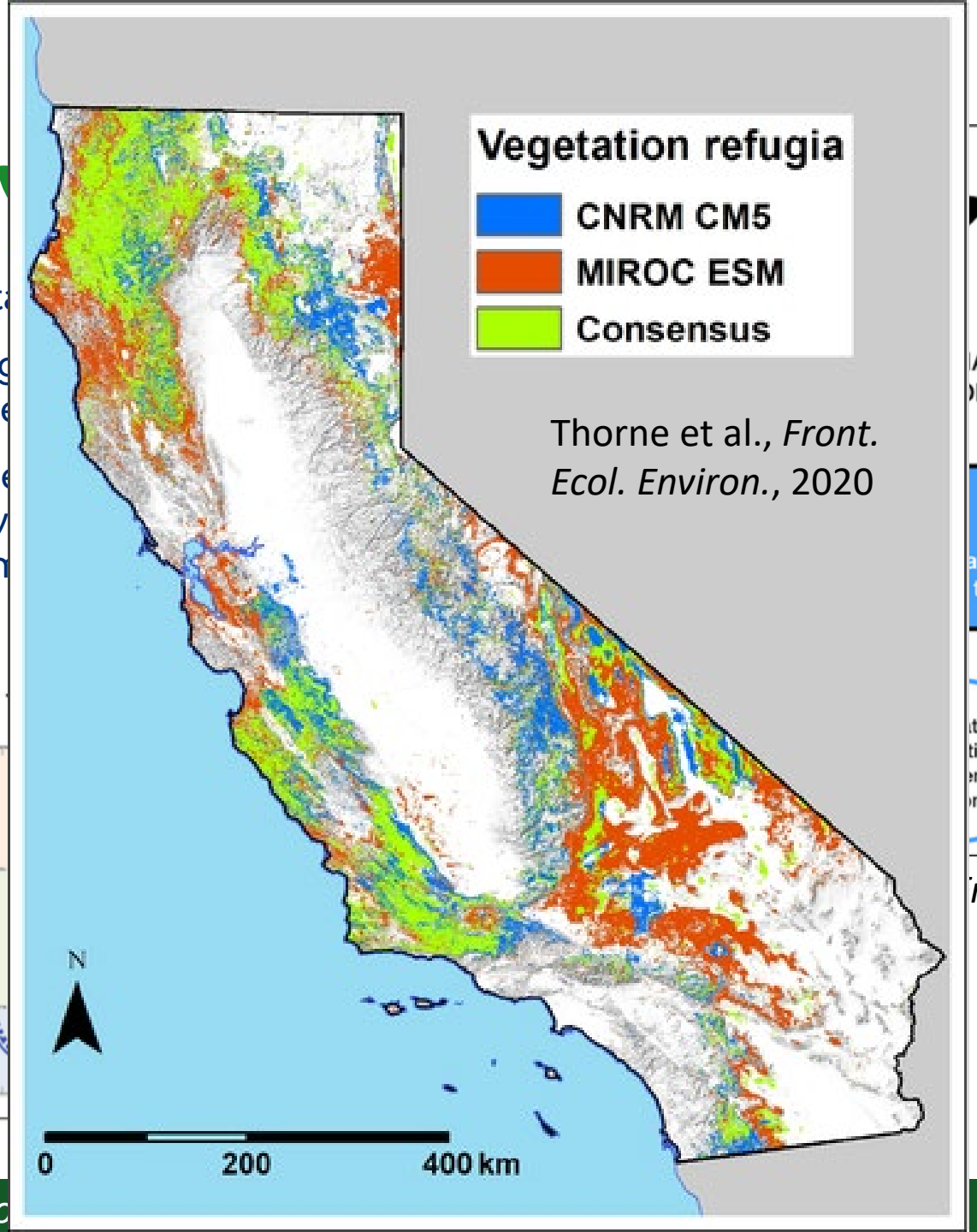
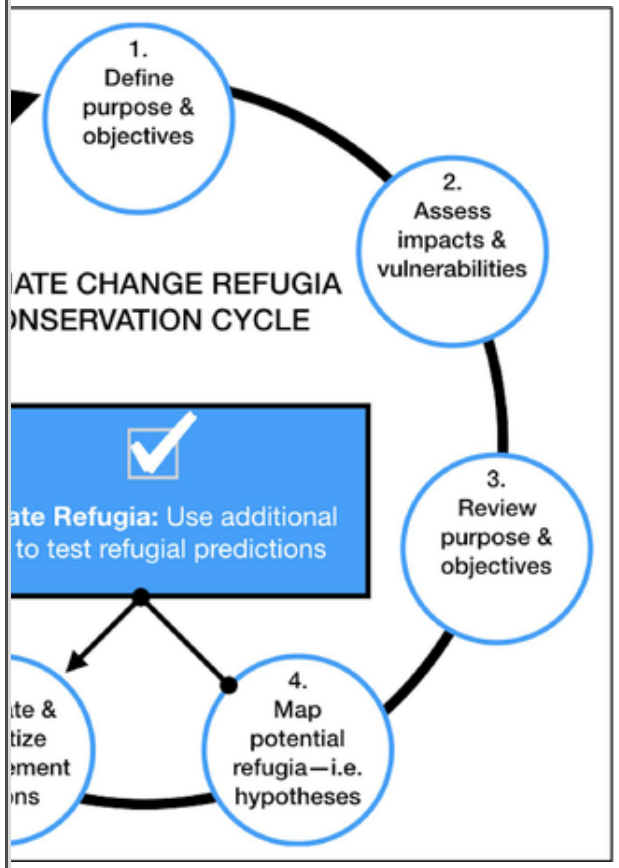




Thorne et al., *Front. Ecol. Environ.*, 2020

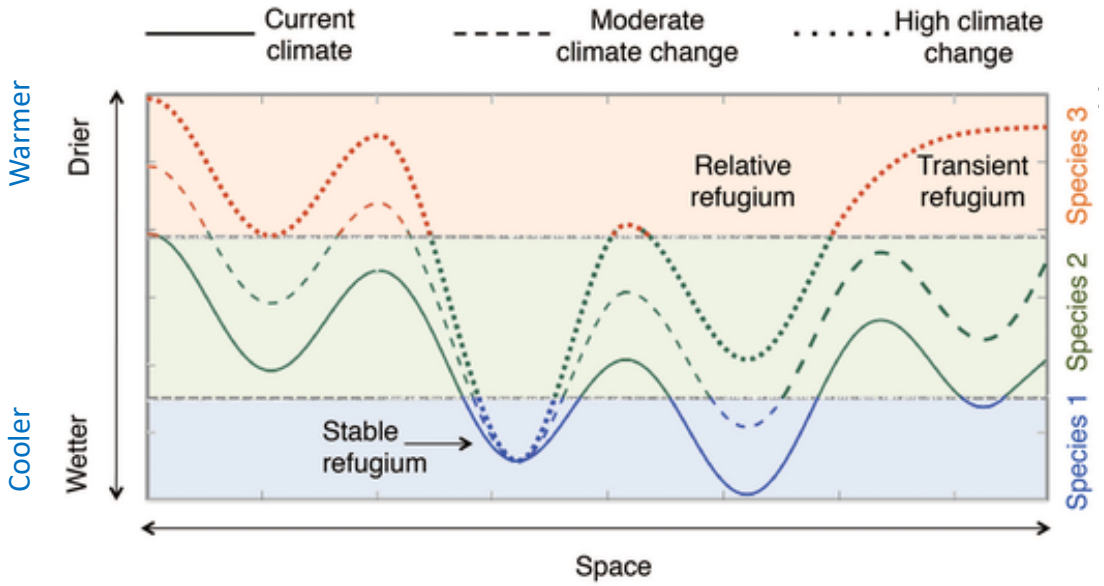


ront. Ecol. Environ., 2020

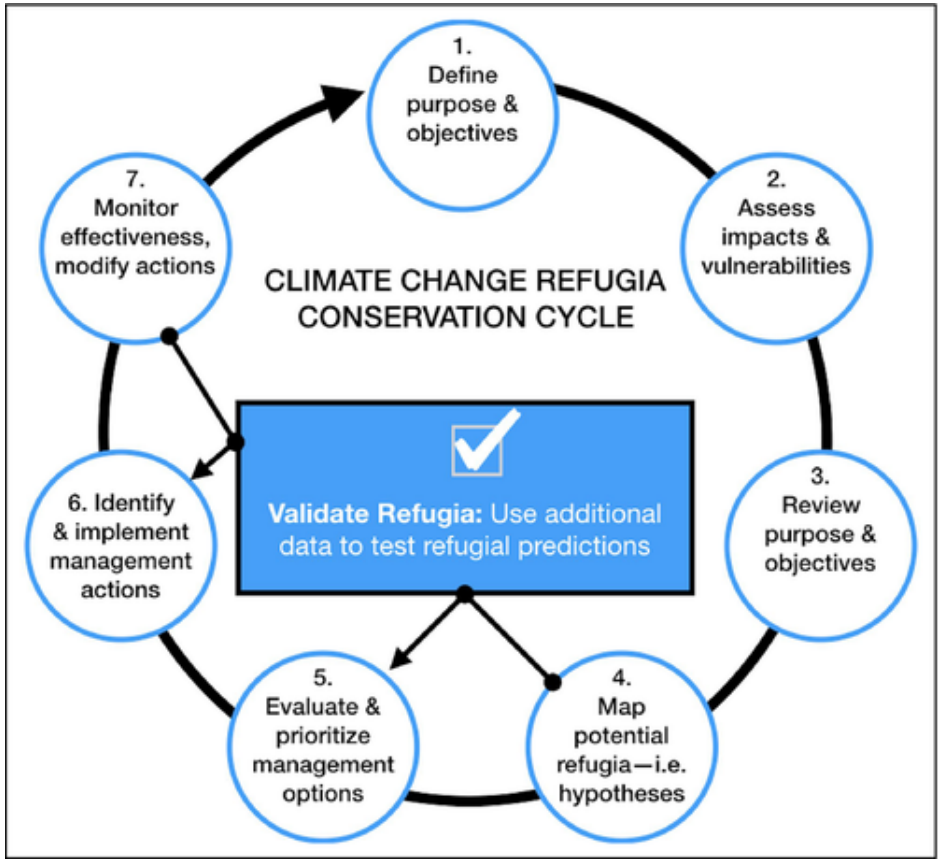
McLaughlin et al., *Glo*

The good news

- Habitats within Delta have some room to migrate
- Appropriately managed wetlands can reduce local relative sea-level rise
- Heterogeneity of the Delta likely results in climate refugia and can provide opportunities for strategic spatial tradeoffs in meeting coequal goals



McLaughlin et al., *Global Change Biology,* 2017



Barrows et al., *Front. Ecol. Environ.*, 2020

Requires system-scale (i.e., landscape-scale) approach to adaptive management, supported by integrated modeling


THANK YOU!

More good news: We are making progress toward more flexible adaptive-management governance

Summary of Independent Science Board Recommendations (Weins et al., SFEWS, 2017):

1. Convene a workshop or review panel to determine how to coordinate and assist adaptive management in the Delta
2. Support adaptive management with funding that is dependable and flexible
3. Design and support monitoring
4. Integrate science and regulations to enhance flexibility
5. Develop a framework for setting decision points or threshold that will trigger a management response
6. Use restoration sites to test adaptive-management and monitoring protocols
7. Capitalize on unplanned experiments
8. Recognize when and where adaptive management is not appropriate

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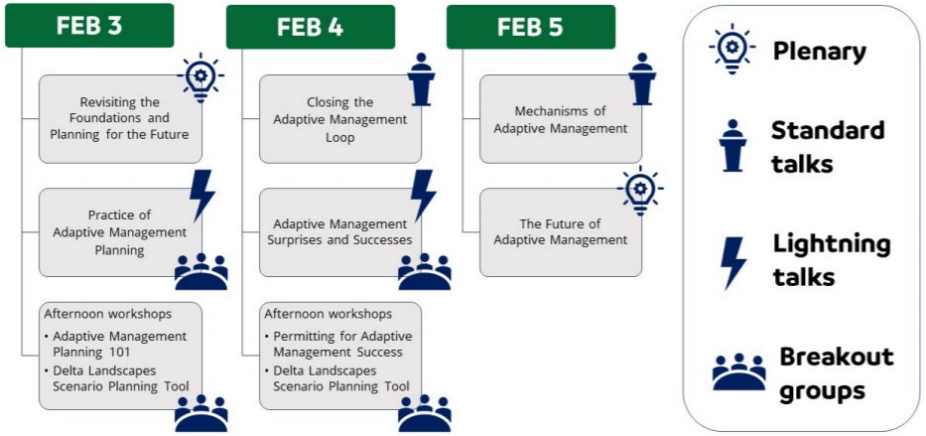

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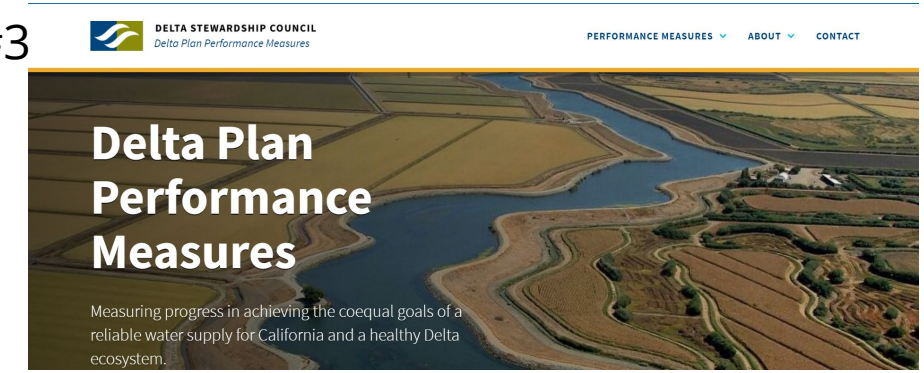

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