

**DEPARTMENT OF WATER RESOURCES**

1416 NINTH STREET, P.O. BOX 942836  
SACRAMENTO, CA 94236-0001  
(916) 653-5791



September 22, 2015

Kelly Souza  
Delta Stewardship Council  
980 Ninth Street, Suite 1500  
Sacramento, CA 95814

Re: Comments on Draft Adaptive Management Report

Ms. Souza:

The Department of Water Resources' FloodSAFE Environmental Stewardship and Statewide Resources Office and Division of Environmental Services have reviewed the draft report entitled *Adaptive Management in the Sacramento-San Joaquin Delta: How is it Used and How can it be Improved?* Below, we offer our compiled comments on the draft report.

In summary, our comments suggest that adaptive management is an important aspect of managing restoration projects. We concur with the gestalt of the draft report, which encourages increased adaptive management in the Delta by directing additional resources to the issue. Where we take issue is with the make-up and intent of the recommended Adaptive Management Team (AMT): we feel that the team should be focused on providing increased funding and capacity to the issue of implementing adaptive management; it should be staffed by project leads and other technical experts with experience implementing projects within the Delta. The AMT should *not* create any additional hurdles or burdens for a project to clear; this could lead to the further suppression of project implementation in a landscape that is in dire need of immediate, tangible action on the ground. Further, we encourage you to recognize various approaches to adaptive management outside of the 9-step framework, and to allow for flexibility when applying adaptive management to a site or program. We commend your recommendations for enhanced flexibility in the funding of adaptive management. We believe you can go further in your exploration and explanation about how to integrate flexibility into the adaptive management process, and how to move adaptive management in the Delta toward a more securely-funded future.

Thank you for the opportunity to provide comments on this draft report. If you have any questions, or if you would like to discuss our comments further, please do not hesitate to reach out to Laura Jensen, Sr. Scientist, [laura.jensen@water.ca.gov](mailto:laura.jensen@water.ca.gov) or 916-653-9295.

Sincerely,

A handwritten signature in blue ink, appearing to read "Ted Frink".

Ted Frink  
Branch Chief, Environmental Restoration and Enhancement

## Comments

- **Page 1: Executive Summary**

A clear and concise definition of Adaptive Management is needed to set the understanding of and intent in this application. The definition of adaptive management should be included in the Executive Summary.

- **Page 2, line 47-48: "Perceptions about monitoring."**

Perceptions about monitoring can go both ways. There is sometimes a perception that monitoring, or specific types of monitoring, is always necessary to make adaptive management decisions, and the conclusion is made that because such monitoring does not exist that adaptive management cannot be done. However, there are instances where monitoring is not always needed in order to make an adaptive management decision.

- **Page 2, line 63: Suggestion to add another item to the list: Lack of Incentives.**

Projects are often implemented to fulfill some regulatory requirement (e.g., a restoration site mitigating for a future action). Most of the time there is a point where a "box is checked," and the regulatory requirement is considered to have been met, thus the project lead is left with very little reason/motivation, particularly when it comes to funding, to do any more. However, the solution to this is not necessarily to require or impose an adaptive management action as that can cause a whole other burden on projects that can hinder the project from being done in the first place.

- **Page 2, line 71: "Create a Delta Adaptive Management Team."**

Adaptive management is not being performed in the Delta largely because there are few restoration projects on which to perform adaptive management, or because of funding constraints. Having a team of experts trained in the general field of adaptive management is not going to change these realities. Having more generalized adaptive management meetings is not likely to help program managers get these projects on the ground, something that is urgently needed. Adaptive management is a process, and experts should be brought in to perform the various steps in the process that pertain to their expertise. There are experts in riparian, non-tidal, and tidal freshwater marsh restoration, fish passage improvements, etc. Further, there are experts in experimental design, restoration planning, monitoring, assessment and interpretation, and, ultimately, land management. To augment adaptive management within the Delta, institutions implementing projects need to commit to the adaptive management process (or at least adaptive management concepts), and should have the funding to support adaptive management by hiring the appropriate experts, either in-house or consultants, as they are needed. Project leads and technical teams performing restoration know their sites, and are likely the best people to figure out the sites' needs. With that said, the adaptive management process should be incorporated into all projects and funded appropriately.

A major challenge preventing adaptive management from occurring more routinely is the inability to actually implement an action, not to necessarily determine the action. The recommended AMT seems to be all about identifying potential actions and synthesizing data, etc. Is another team of people recommending actions in this system really necessary?

A team whose mission is to help implement identified actions (be they actions identified by the project lead or a third-party) would be much more useful. For example, if this team recommended an adaptive management action, and a recommendation from this group had some regulatory ability to streamline permitting processes, or provide funding, or actually implement the action themselves, then there is a better chance that such a team can be effective.

Additionally, full-time individuals on this team will not work. Instead, project leads (or designated representatives) need to form this type of team. Sub-teams could be formed as appropriate for the different types of projects (e.g., tidal restoration, riparian, etc.). Appropriate adaptive management actions are often guided by intricate details, of which only the project leads may be aware. Moreover, there is little chance that full-time individuals would be aware of "management needs" of a particular site, and again, the project leads would be best to speak to that need. Finally, project leads are often well versed in various aspects of other similar projects and would be well positioned to advise on other similar projects (e.g., while a particular project lead may be focused upon tidal restoration projects in Suisun Marsh, they often have insight into other projects throughout the Delta).

- **Page 3, line 79:** "...advise the Delta Stewardship Council and other regulators on compliance issues"

Compliance issues do affect what can be accomplished at a site, and hence the options for adaptive management, but compliance and adaptive management are separate issues. An expert in compliance may not necessarily be an expert in adaptive resource management.

- **Page 3, line 92:** "Monitor."

This system has a great deal of ongoing monitoring in general. Monitoring can be resource intensive effort (both in terms of money and impact to sensitive species), and care needs to be taken before recommending additional monitoring without first looking at existing programs (i.e., don't monitor just to monitor). Emphasis should be placed on utilizing existing monitoring programs and/or modifying existing monitoring programs, where appropriate.

- **Page 3, line 98:** "To make adaptive management anticipatory rather than reactive, modeling of potential future conditions should be incorporated into the process, and the process should be flexible."

This statement is unclear as it is intended to relate to the "capitalization on unplanned experiments." How is one expected to model something that is unplanned? We suggest separating these concepts into two separate bullets or improving the explanation to better connect the concepts.

- **Page 7, line 214:** "Adaptive management is most powerful in reducing uncertainty when management actions are thought of as experiments."

The report makes several references to the experimental nature of management actions. While many restoration actions and habitat management activities are inherently experimental due to ever-changing systems, the over-emphasis on the word "experiment" belies the huge amount of

data that does exist to guide management actions. Establishing credibility with stakeholders, funders, and decision-makers is a critical component of advancing important projects; for many entities, stressing the experimental nature of management actions undermines the credibility of the project. We suggest a stronger acknowledgement of the data that does exist, the historical efforts that have been undertaken, and the knowledge and expertise that these have yielded, all of which are being used to inform sound management actions.

- **Page 7, line 223:** Zedler and Callaway 2003 citation

This review would be improved with more examples, and examples explained in more detail. For example, how were the results of Zedler and Callaway 2003 used in subsequent efforts? Was there a formal process for communicating results to others, or was the author a restoration practitioner that went on to perform new projects?

- **Page 7, line 224:** “The South Bay Salt Pond Restoration 223 Project described in Box 1 provides another example.”

The example in Box 1 does not appear to be present in the document.

- **Page 8, line 252:** “The system is complex and non-linear.”

In this case, employing adaptive management may still not yield the results expected. In some cases, the result of a project or restoration action may not be what was expected. There are times when it is appropriate to revisit the goals and objectives and reassess expectations, instead of prescribing management that may not yield expected results.

- **Page 8, line 286:** San Diego Bay and Kissimmee River references

The examples presented, San Diego Bay/Zedler and Callaway 2003 and Kissimmee River, are not presented in a way that is clear enough to draw conclusions about what can be done differently in the Delta. The synopsis provide in Appendix B seems to indicate that in the Everglades adaptive management has not really been implemented. An improved summary of these efforts would better inform the reader about their successes and failures and how to apply lessons learned to the Delta.

- **Page 10, line 347:** “Regulations (e.g., restrictions under the Endangered Species Act) are often perceived as limiting experiments or data gathering.”

This is not a "perceived" limitation, it is a limitation. It is unclear if including an adaptive management action in advance actually helps to limit a regulatory concern later. It is often very difficult to foresee alternative actions in advance and/or difficult to analyze the effects of an alternative action in advance, especially if numerous years are anticipated to elapse between the initial action and the alternative action. Moreover, saying that alternative actions just need to be identified up-front goes against the basic concept of adaptive management, which typically addresses the unseen/unknown/changing conditions at some point in the future.

- **Page 10, line 357:** “Communication among all parties, especially among scientists, managers, decision-makers, and stakeholders, is not accorded a high priority.”

Communication is also complicated due to the sheer number of different stakeholders, managers, and scientists involved. Miscommunication and misinformation (whether intentional or unintentional) spread by various means (e.g., word-of-mouth, print media, social media, special interest groups, etc.) also presents many challenges. Simply affording this issue a "high priority" doesn't necessarily ensure a fix to what is largely a problem reflective of the Delta's very diverse stakeholders, interests, and history.

- **Page 30, line 1110:** "In many situations, however, the nine-step process might better be regarded as aspirational rather than prescriptive."

We agree with this statement, and the paragraph that follows. However, this seems to conflict with previous text (e.g., page 15, lines 508-516: "the divergence of approaches and interpretations can impede the communication and collaboration that is needed to achieve adaptive management of the Delta") that asserts the need for a more systematic approach to adaptive management. This bears clarification: how are some entities divergent in their approach? How far can the 9-step process of adaptive management itself be adapted to meet a specific situational context without diminishing the integrity of the process entirely?

- **Page 32, line 1199:** "Best available science" may not always be best

This point highlights an important aspect that constrains not only adaptive management from getting done but also constrains projects in general from getting done. Is there a way to summarize it and include it up-front in the report?

Additionally, it would be helpful to try to adopt a standard of what is meant by best available science and include it here. Best available science could just simply mean whatever is available on date certain in peer-reviewed science publications, for example. It probably should not be defined by what new information or technology is still being developed ahead of a decision point to take some action.

One important point that should be made in this context is that the need to use the gold standard does not give us an excuse not to act.

- **Page 35, line 1307:** Recommendation 1 – Create a Delta Adaptive Management Team (AMT)

There may be value in creating an entity specifically tasked with overseeing adaptive management in the Delta. As noted, the devil is in the details. Critical details include: How will AMT collaborate without stepping on the toes of project leadership? How will AMT guide management decisions without taking ownership? How will AMT wield its influence and authority without creating another burdensome, bureaucratic hoop to jump through? One suggestion is to reconsider the primary intent of the AMT. Page 36, line 1343 states: "The AMT will provide guidance, expertise, and support to enhance the application of adaptive management in the Delta and integrate agencies' efforts." We suggest that a more important role for AMT would be to provide funding and resources to facilitate adaptive management in the Delta.

Per the comment above, if this team really needs to be formed, the team members need to consist of people who can help clear some of the hurdles you have mentioned throughout this report; simply forming a team to advise on adaptive management actions does not help to clear

any of those hurdles. This team would function better if it were made up of folks such as the CAMT/CSAMP teams (i.e., collections of individuals with other duties). People who are intimately involved in the projects on which adaptive management is to be carried out need to be part of this team – they are likely the only ones with sufficient knowledge of the project and understand how best a particular adaptive management action could be implemented (i.e., they understand the funding hurdles, regulations, etc.). Furthermore, if this team had access to funds (such as you identify in Item 2) or had some sway with regulators (Item 6), then it is a team who could help with the actual implementation of adaptive management.

AMTs should be formed where they are needed on an ad-hoc basis to have practitioners/scientists share lessons learned. Conferences are good avenues for this. Monitoring and management techniques depend on the type of project being implemented, so appropriate teams should be centered on project types, not on the adaptive management process itself. DSC's role should be to ensure that adaptive management does take place through the Delta Consistency process, but be open to alternative methods to employ the adaptive management. Many large scale projects have an adaptive management plan in place or in the works.

- **Page 37, line 1403:** Recommendation 2 – Support adaptive management with funding that is dependable yet flexible

This recommendation recommends setting aside 10-20% of budgeted funds for adaptive management. Which budgets are being referenced here? What is the mechanism for finding “newly dedicated funds” to cover this amount? Adaptive management funding, along with long term management and stewardship funding, is not easy to identify, secure, or manage. The two are intertwined – dependent upon one another if management actions are to be properly adapted and implemented in perpetuity. It is important to recognize the need for a massive cultural shift away from thinking a natural resource management project can ever be “complete” to thinking that recognizes the truly interminable nature of stewardship responsibilities. Adaptive management and stewardship should be considered and funded together through an endowment system that is well-managed.

- **Page 38, line 1426:** “Monitor.”

It may be worth keeping in mind that IEP is a good framework to look into how this monitoring could be conducted on a larger scale. And per an earlier comment, the level of additional monitoring suggested needs to be weighed against the existing monitoring and available resources (i.e., money and species take). Certainly there would need to be some changes to IEP in order to accommodate playing some role in advising/conducting/synthesizing the additional information generated, but the goal here should not be to recreate the wheel.

- **Page 39, line 1453:** Recommendation 6 - Integrate science and regulations to enhance flexibility.

An improved permitting process that recognizes the pitfalls of rigidity would benefit all phases of a project's lifecycle.

- **Page 39, line 1476:** Suggestion to add another item

Suggestion to add another item that builds off of the earlier point about "best available science" (lines 1199-1250): **Recognize when the "best available knowledge" has been achieved.** (Follow with some summarized text about how in order for many projects and adaptive management approaches to move forward, there will be a point where the 'analysis' phase needs to turn into action).