

**Long-Term Restoration Planning for Baylands in Alameda, Santa Clara, and San
Mateo Counties, California
South Bay Salt Pond Restoration Project¹
National Science Panel Meeting
June 13 - 14, 2005**

Observations and Recommendations

1.0 INTRODUCTION

This report summarizes recommendations made by the National Science Panel (NSP) resulting from the fourth NSP meeting held on June 13 – 14, 2005. All seven members of the NSP (see Appendix A) were present. In addition, members of the Project Management Team (PMT), the Science Team, the consultant team, and other stakeholders were present. A complete list of attendees is provided in Appendix A.

The main objectives of this NSP meeting were to:

- Review and comment on efficacy of current monitoring conducted under the Interim Stewardship Plan (ISP);
- Review and comment on Landscape Scale Geomorphic Assessment and Habitat Conversion Models
- Discuss with PMT and the Science Team how the February 2005 Charette results could be further used to benefit project planning
- Provide more specific ideas regarding the incorporation of human landscape issues into project planning
- Review and comment on draft Adaptive Management Plan

In addition, the meeting included a presentation on mercury dynamics in the South Bay by Mark Marvin-DiPasquale of USGS. A list of materials provided to the NSP in advance of the meeting is included in Appendix B.

The project has clearly progressed to the point where decisions are being made that will greatly influence the outcome of the restoration effort. The NSP was pleased to discuss some substantive issues with the PMT and Science Team members present. We believe that in many instances the constructive dialog which ensued illuminated many areas of concern and we hope our comments provided those working on the project with ideas and concepts that can be of assistance as their work goes forward. The intent of this report is not to reiterate or amplify those discussions. Rather, our intent is to draw attention to specific promising areas of work and provide specific recommendations on approaches which we believe will assist the project as it enters the critical final stages of planning and early implementation.

¹ The South Bay Salt Pond Restoration Project is that described in the Memorandum of Understanding of May 27, 2003 among the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the State Coastal Conservancy.

Thus, the following observations and recommendations are made by the NSP to the Executive Leadership Group as an outcome of the June 2005 meeting.

2.0 GENERAL OBSERVATIONS

The Science Team's role seems to be becoming clearer as the project progresses. Several members of the team are working directly with consultants on products and others appear to be providing the kind of critical thinking essential to moving such a complex project forward. The NSP continues to believe that having an engaged group of active scientists will be crucial to the project's success and we appreciate their frank discussions with us regarding their role and the role of science. It seems clear that the concerns of members of the Science Team have not always been heard by the Lead Scientist and the PMT. The considerable expertise embodied in the Science Team must be embraced by the PMT – to disregard their comments undermines the scientific credibility of the restoration effort. It is crucial that the PMT, the Science Team and the consultants are entirely in sync and moving towards a common vision and goal. We encourage Science team members to continue to draw the attention of the PMT and the NSP to scientific issues and concerns.

Several of the recommendations made here call for the use of competitive processes to solicit proposals for scientific activities. The NSP is concerned that the 'conflict of interest' issues have not been formally addressed regarding Science Team members and have raised the issue several times in this and previous meetings. Clearly, the Science Team includes some of the best researchers in the area. In order that the program can entrain the best scientists to the maximum extent of their capabilities, the NSP believes it is important to address the perception of 'conflict of interest' and that any Science Team member interested in responding to competitive solicitations not be directly involved with the development of the solicitations.

The presentation and discussion on the ISP provided the NSP with much greater insight into the challenge facing refuge managers. The NSP recognize that the managers appreciate the importance of the ISP and also realize the difficulties they face due to limited funding. This constrains the current monitoring to those parameters required for compliance with discharge permit conditions. However, the managers are receptive to science, are willing and eager to learn, and the NSP members value their contributions to our meetings. The challenge is finding a way to take advantage of the "experiments" currently being conducted under the ISP to learn more about the system, given the budgetary and schedule restraints faced by the managers.

The NSP sees the "stairway" approach to achieving the landscape vision (Figure 1), as presented by Lynne Trulio, as an important development. The approach builds on the outcome of the February 2005 Charette and as the concept is further developed the NSP encourages the PMT to see the 'visions' as reflecting the South Bay system as a whole – rather than simply the future of the pond complexes. The NSP believes the work of the Charette and the Landscape Assessments provides a context for this wider view and that the conceptualization of this in such a diagram can be an important communication tool for the program. Importantly, the figure shows adaptive management starting with the

ISP. The NSP embraces this idea and has developed recommendations (see section 3.0) regarding the relationship between the ISP and SBSP adaptive management approach, and how adaptive management can start even pre-ISP.

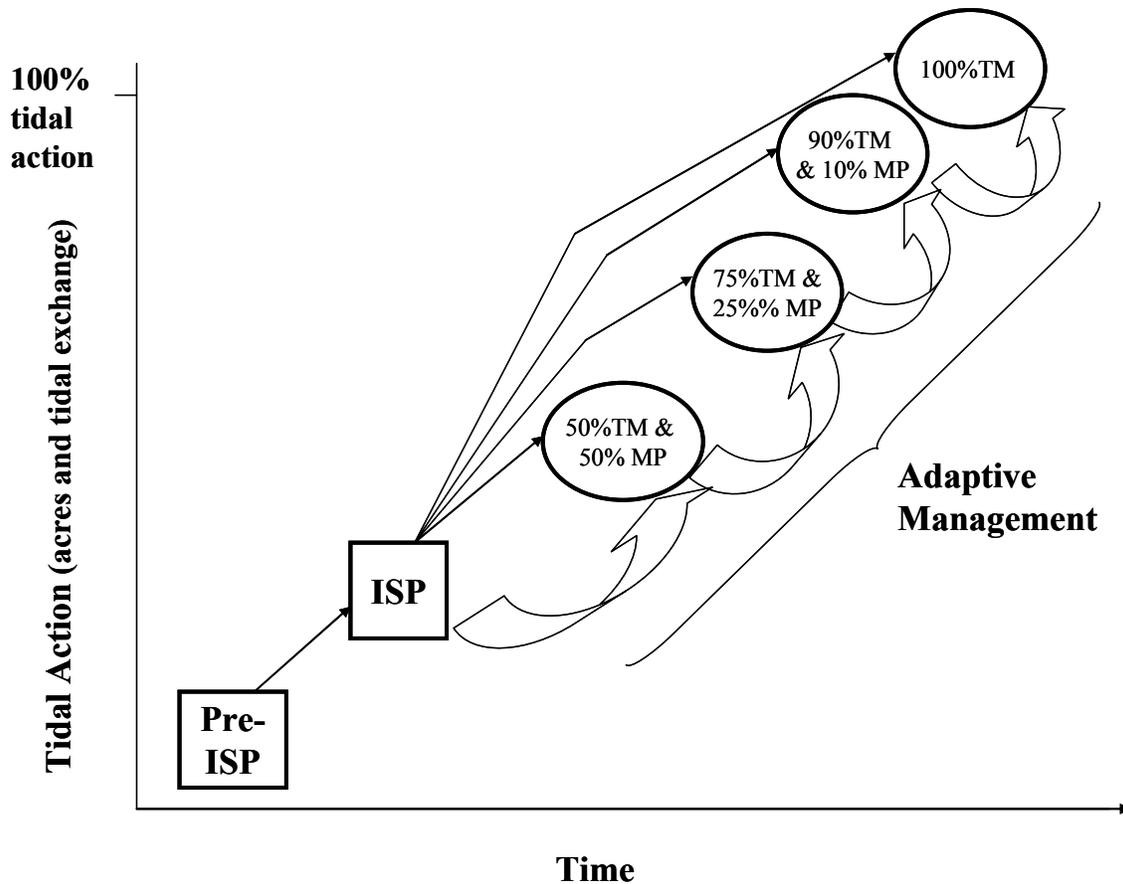


Figure 1. ‘Connecting Visions for the South Bay’ courtesy of Lynne Trulio.

3.0 ADAPTIVE MANAGEMENT AND THE ISP

The adaptive management process needs to start NOW. The actions currently being taken under the ISP (opening ponds to varying levels of tidal exchange) represent tremendous opportunities for learning. The NSP has made this recommendation during several previous meetings, and a considerable amount of time was spent during the February 2005 Charette in developing specific recommendations for ISP monitoring. Once more the NSP emphasizes that the program has a singular opportunity here that must not be lost. This is the time to answer critical questions and reduce uncertainties constraining implementation, to inform future restoration directly, to develop the technology transfer tools essential for a long-term adaptive management program, to provide solid documentation of restoration progress, and to increase the recognition amongst important stakeholders of the role of adaptive management in South bay restoration.

3.1 Learning from the Island Ponds

The Island Ponds are scheduled to be breached in spring 2006. As many other ponds have already been opened to some form of tidal action, the Island Ponds represent one of the last opportunities for collection of baseline data prior to breaching. In order to have a monitoring program developed prior to that time, the NSP recommends that the PMT should immediately start preparing a request for proposals (RFP) to design and implement the monitoring. This needs to be done through a competitive process in order to take advantage of the high level of expertise in the Bay Area. The goal here is to obtain answers to many of the critical questions that were identified during the Charette, many of which have been amplified and reiterated by the Science team and various workshops. The PMT and the Science team know the questions – proposers will provide their ideas on how to best obtain the answers by monitoring the Island Ponds pre- and post-breaching

Importantly, the plans and specifications for the breaches will be as already identified in the ISP regulatory documents. The NSP recognizes that this may provide a constraint on how well some questions can be answered but that any revision of the existing plan is unrealistic at this stage. The NSP recommends that the RFP should lay out the plans and schedules for the Island Ponds and the basic monitoring required for regulatory compliance. In addition, it should ask proposers to design experiments and monitoring schemes to address questions concerning:

- Marsh development
- Mercury
- Sedimentation rates
- Bird use
- Fish use
- Vegetation
- Near/far field effects

The PMT should identify in the RFP, based on the Charette, the science syntheses and other existing products, the questions regarding these issues which are most important to them. The proposal proponents would be tasked with developing a detailed set of monitoring objectives and testable hypotheses, and with devising approaches to answer the questions and test hypotheses. Given that the opportunity for collecting data prior to breaching of the pond levees will be limited, the effort should incorporate existing baseline data as appropriate to assess ‘before’ and ‘after’ conditions.

3.2 Learning from the ISP

Once the initial breaches occur under the ISP and salinities are reduced from the originally high levels to near ambient, the NSP assumes that many of the ponds will be in a ‘holding pattern’ for 5 years or more until the restoration planning and design process is complete and restoration begins. This provides an excellent opportunity to learn more about the ponds and the time is likely sufficient to entrain local researchers that can provide valuable data for this project as well as other restoration projects. Many scientists in and around the bay area undertake ongoing studies of sediments, water quality, marsh development, and habitat use – one idea is to encourage them to include the ponds in

their existing and future efforts thus leveraging other sources of research funding to provide important information for the South bay restoration effort. Currently, even though some excellent local scientists are involved on the Science Team, a greater effort must be made to utilize their skills and engage the wider scientific community. Specific NSP recommendations to support this include:

- Make monitoring data and the findings of specific studies accessible to all interested parties through a user-friendly database. In addition to monitoring data, it is important to record management actions in the database so that researchers can link management actions to results.
- Small grants should be made available to researchers to provide support for students, especially to target focused questions relevant to the restoration. These awards could provide for student stipends and/or research supplies and logistics depending upon the resources available.
- A longer-term, larger scale experimental field research effort aimed at identifying the processes that control the ecological changes that follow a salt pond levee breach should be launched. Resources must be identified to fund multi-year studies that address some of the most pressing questions identified by the Science Team.

3.3 Making Adaptive Management Work

The Science Team has clearly begun to engage more fully on adaptive management. The Draft Adaptive Management Plan does a good job of describing the concepts behind the history and development of adaptive management and it provides an important link between adaptive management and the landscape visions that were crystallized in the 2005 Charette. It covers three of the more important components of adaptive management: meeting performance criteria, monitoring, and applied studies but ultimately the plan must be sure to encompass regularly review and revision of management objectives, a mechanism(s) for incorporating learning into future decisions, and a collaborative structure for stakeholder participation and learning.

Many members of the NSP recognize how difficult it is to anticipate the various interactions among scientists and managers that are required to make such programs work. The NSP recommends that in developing the ongoing adaptive management process, the decision-making structure should be kept as simple as possible. It is recognized that this is a complex project with a management team made of multiple agencies, and a variety of stakeholders in the Bay Area. However, when restoration is in progress decisions will need to be made quickly, efficiently and transparently. Stakeholders must understand the basis of the restoration decisions. In our experience such interactions work best with simple organizational structures and ongoing active and open communication among scientists and managers. Some good ways to achieve active communication include workshops (once or twice a year) and electronic distribution of monitoring and experimental results. In addition, due to the large amount of data collection envisaged the NSP supports the concept of a central clearinghouse for data management with the land management agencies as the chief custodian. The NSF Long-

Tern Ecological Research program can provide an excellent model for the development of a data management system.

4.0 VISION FOR SCIENCE

Assessment on a landscape level is essential for success of this restoration project. It is clear that existing numerical models can provide insight on some aspects of system behavior, but none currently allow simulation of the interactions among hydrodynamic, sedimentological and habitat dynamics. The NSP is also concerned that thus far the project has not clearly articulated a conceptual model of system behavior and how restoration activities modify this system behavior. It is clear that existing numerical models can provide insight on some aspects of system behavior, but none currently allow simulation of the interactions among hydrodynamic, sedimentological and habitat dynamics. The need for a predictive tool which encompasses these aspects of the system becomes more urgent as the project progresses. The project must initiate the development of a specific suite of integrated models to capture understanding of system processes based on information currently available, to identify important areas of uncertainty where additional information is needed, and to predict system outcomes under different scenarios. These models may be refinements of existing tools or be developed particularly for this purpose. The NSP recommends that the PMT pursue one of the recommendations of the 2005 Charette and develop a numerical model of the South Bay, preferably a nested 3-dimensional model (as there is evidence of stratification), to integrate information from applied studies, monitoring, and reference sites and support detailed planning and restoration.

A model that integrates new information as it is collected is essential in order to move up the adaptive management “stairway” (Figure 1). Results of applied, process-based studies would be used to reduce uncertainties and enrich the model to increase the likelihood of meeting project performance objectives. The project team needs to develop a process to link the integrative model to decision-making. This is best done by opening up all experimental data and model results to all stakeholders via a dynamic website. Such a website should contain real-time model and field data output, the ability to zoom in on displays, and the provision to allow web surfers to initiate model runs of their own choosing. In this way the project can move up the stairway by incorporating changes in system dynamics as well as in community values.

The NSP recommends that a competitive process should be used to solicit proposals for the development and operation of such an integrative model. Members of the NSP are willing to assist in the development of the announcement and with the review of the proposals as appropriate. While this will be a multi-million dollar investment for the program, the NSP believes it is essential to planning and implementation of salt pond restoration in such a complex and dynamic environment.

5.0 HUMANS IN THE LANDSCAPE

There was a good discussion generated by the presentation on humans in the landscape. Clearly, there is a wealth of interest in the social and cultural dynamics of the South Bay and surrounding region. The PMT has apparently disregarded suggestions from the NSP for the involvement of social scientists on the Science Team since the first NSP meeting in 2003. Social scientists are essential to ensure the restoration embraces a broad view of the South Bay landscape, including the history/reconciliation of indigenous people and the contemporary community. The NSP recommends that this oversight by the PMT and the Lead Scientist be addressed as soon as possible. In the final analysis, the implementation of the scientific recommendations will be largely subject to the social values of the surrounding Bay community.

6.0 NEXT MEETING

The next NSP meeting has been tentatively scheduled for November 7 - 8, 2005. Prior to this meeting, the NSP would like the PMT to prepare a description of actions taken as a result of all NSP recommendations to date (including the February 2005 Charette recommendations). The PMT prepared a response to NSP recommendations from the first meeting held, but no formal responses have been prepared for subsequent NSP recommendations.

Prior to the next meeting, members of the PMT are encouraged to contact NSP members for advice concerning the development of Requests for Proposals as recommended here. Members of the NSP stand ready to assist with these matters within the constraints of their other professional commitments.

Other items for review at the next NSP meeting include:

- Adaptive Management Plan
- Final Alternatives
- ISP data/monitoring
- Report on how Science Team recommendations have been incorporated into planning
- Proposals for Island Ponds

Appendix A

List of Attendees National Science Panel Meeting June 13 - 14, 2005

National Science Panel

Denise Reed (Chair)	University of New Orleans	djreed@uno.edu
Charles (Si) Simenstad	University of Washington	simenstd@u.washington.edu
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Science Team

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Mark Marvin-DiPasquale	USGS	
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Project Management Team

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Others

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Beth Dyer	Santa Clara Valley Water District	bdyer@valleywater.org
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Bill DeJager	US Corps of Engineers	william.r.dejager@usace.army.mil
Kathy Fox	SJSWB	Kfox2@comcast.net
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John Schmidt	Resources Legacy Fund	jschmidt@resourceslegacyfund.org
Chris Hlarka	NASA Ames	chlarka@mail.arc.nasa.gov
Jean Palmer-Moloney	NASA Ames/SJSU Foundation Co-op	Lpalmer-moloney@mail.arc.nasa.gov
Jim McGrath	Port of Oakland	

Appendix B

List of Review Materials National Science Panel Meeting June 13 - 14, 2005

Most review materials, meeting presentations, and agenda can be found on the project website at: <http://www.southbayrestoration.org/Events.html#natscipanel>

1. Initial Stewardship Plan Status Report (March 2005)
2. Landscape-scale Assessment Progress Update (June 2, 2005)
3. Draft Adaptive Management Plan (June 3, 2005)
4. Mercury in Every Mix (CALFED Science Article, May 2005)