

# California Bay-Delta Program Independent Science Board June 7–8, 2007 Meeting Summary

## Action Items

The ISB will meet via conference call July 17, 2007. The Science Program will coordinate public noticing of the conference call and will host a public meeting room with conference phone.

### Individual Board Members

1. Meyer, Patten, and Smith to develop a letter with Fris and Hastings to set up a meeting with ERP representatives, to learn the substance of the ERP Conservation Strategy in development.
2. McKinney and Smith to draft a memo describing the science issues that will have to be considered in the conception and implementation of any follow-on to the EWA.
3. Mount to inform the NRDC counsel who offered a public comment on Day 1 of the ISB's decision not to act on her recommendation that the ISB urge consideration of Tier 3.

### All Board Members

4. After receiving specific instructions from the Lead Scientist and Mount, ISB members are to recruit potential candidates for the Lead Scientist position. The Lead Scientist and Mount will give individual ISB members specific people to contact.

### CALFED Science Program Staff and Lead Scientist

5. Robert Ullrey to add ISB members to the DWR Water News email list.
6. Science Program staff to adjust system of distributing materials to ISB members in advance of meetings. See *Wrap-up and Next Agenda, Discussion* below for details.

## Meeting Materials

Handouts and copies of presentations are available on the ISB webpage at:  
[http://science.calwater.ca.gov/sci\\_tools/isb.shtml](http://science.calwater.ca.gov/sci_tools/isb.shtml).

# Meeting Summary, June 7, 2007

## Attendance

### ISB Members

Antonio Baptista  
Peter Goodwin (on phone)  
Jack Keller  
Daene McKinney  
Judy Meyer  
Jeff Mount  
Duncan Patten

Paul Smith  
Bob Twiss

**Absent:**  
Bill Glaze  
Richard Norgaard

The order of agenda items 1 and 2 will be reversed to accommodate Joe Grindstaff's schedule. NOTE: the discussion are presented in the order they were done at the ISB meeting; thus, agenda item #2 is first in this summary, and agenda item #1 follows.

## 2. Director's Report – Joe Grindstaff

Deputy Secretary for Water Policy and Director of the California Bay-Delta Authority, Joe Grindstaff presented his report via call-in.

### Shutdown of State Water Project Pumps

The State Water Project shut down their Delta pumps last week. Grindstaff updated Independent Science Board (ISB) members on what led to this decision and why it happened, the scope and complexity of the current landscape, and upcoming important events for the summer.

The Department of Fish and Game's (DFG) spring 20 mm survey for Delta Smelt reported numbers an order of magnitude lower than ever seen before. Pumps had been operating at a minimal level from April until the last week of May, on the recommendation of the Delta Smelt Working Group, to prevent negative flows in Old and Middle rivers. Until the last week of May, the state project pumps had not been taking any smelt. When the pumps did start to take smelt May 28<sup>th</sup>, the pumps were turned off June 1st. The pumps are not intended to resume pumping until Delta water temperatures increase to 25C/77F, when the smelt have historically moved away from the pumps.

This is the most public action taken thus far with state water project pumping, and must be seen in the context of recent related court decisions.

- Recent Alameda County court action says that the Department of Water Resources (DWR) needs a specific permit for pumping from DFG. This determination is on appeal.
- A judge has agreed to hear arguments against USFWS that the 2005 Biological Opinion was insufficient. The last day for arguments is in early August; the decision is to be rendered in early fall. The decision will likely impose operating restrictions on both federal and state pumps,
- A similar case involving the National Marine Fisheries Service and anadromous fish has also been brought, a few months behind the DFG case. A similar decision is likely.

Twiss questioned why the court ruled in the Fresno US Fish and Wildlife Service (USFWS) case that the adaptive management approach was not adequate for fish protection. Grindstaff responded that the court found that an adaptive management approach is not reliable enough for the fish, nor were its presumptions adequate. The ruling may affect operations in the future, and is a significant issue that will affect future CALFED actions.

Baptista stated that shutting down the pumps was a common sense thing to do, and asked Grindstaff to discuss the scientific rationale. Grindstaff responded the decision was not made based on science but on the Delta smelt take occurring at the pumps. While the Delta Smelt Working Group makes bi-weekly recommendations, there is no scientific information on what impact the shutdown is likely to have on fish populations; the pumps are being shut down to avoid taking any fish because the take might result in a significant impact on the population.

Baptista asked for more information on the cost-benefit analysis associated with the shutdown. Grindstaff responded that in the short-term (first week to 10 days), export reductions are not expected to be a hardship, but there is a cost associated with the loss of 10,000 acre-feet of water per day for ten days. Should the shutdown go on for more than ten days, there will be some economic consequences beyond the long-term loss of water for small agriculture entities, cities with restricted water, businesses, and so forth.

Patten noted that the morning paper stated that the US Bureau of Reclamation does not intend to respond to requests of scientists to shut the pumps down in order to correct the direction of the flow of the river. How will state and federal agencies cooperate to correct this problem, in light of the fact that Grindstaff cited that the river reversed flow even when the pumps were shut off. Grindstaff responded that the pumps supply Stockton and other areas; therefore the shutdown is a health and safety issue that goes beyond the issue of merely shutting down pumps for fish, and must be worked out with federal partners. Current estimates show that if both the state and federal pumps were to be shutdown, flows in those rivers will continue to remain negative over the next

few weeks and possibly the next couple months because of irrigation withdrawals in the south Delta.

Mount asked who has jurisdiction over agricultural diversions in an emergency like this one. Grindstaff responded that the State Water Resources Control Board (SWRCB), USFWS, and DFG all have jurisdiction in the case of impacts on certain species and are in the process of understanding what steps they can take. DFG has sent notices to major water diverters asking them to cut back, and Grindstaff has spoken with Victoria Whitney, SWRCB deputy director of water rights, about permits issued by SWRCB and the water rights of individual diverters. It could be determined that diverting water under the current conditions is an unreasonable action, but that remains to be determined.

Mount asked Grindstaff about a Moyle-Swanson coalition letter arguing for larger releases down the San Joaquin River. Grindstaff responded that he has received the letter and has heard that the Bureau of Reclamation was trying to acquire more water for that purpose. NOAA's concern is what effect will releasing water now have in meeting streamflow needs for salmon in fall. Mount noted that the coalition asked for 3,500 cfs, which is high, considering the amount of water generally released in the San Joaquin River.

## **Delta Vision Task Force**

The Delta Vision Task Force has been meeting. Grindstaff stated that while getting to a recommendation based on the best information available by year-end will be a challenge, the group would be successful. The basic conclusion is that it not possible to meet objectives under the current system, and that either Delta water exports will have to be reduced, or a new form of conveyance will have to be built. The *End of Stage 1 Report* is currently in development, and will likely be circulated in July.

## **Bay Delta Conservation Plan (BDCP)**

The BDCP is continuing to develop, but the political system is moving faster than the science. The dramatic nature of the pump shutdown and increasing pressure to shut the pumps off will be a factor in future development of the BDCP.

## **Discussion**

Meyer asked Grindstaff to clarify the mechanism for providing good information to the Delta Vision Task Force. Grindstaff replied that the Status and Trends report provided a good background, and that the Delta Risk Management Strategy (DRMS) study, although not complete, is useful information regarding risks in the Delta. Delta Vision Executive Director, John Kirlin has identified 14 issue papers on topics of fundamental importance that will be done for the Task

Force. The Delta Vision Stakeholder Group will also provide valuable information. Grindstaff stressed that he hopes that the CALFED Lead Scientist and other science advisors will help communicate with the Task Force.

Mount noted that Kirlin will present a discussion of the role of science in the Delta Vision process to the ISB, after which ISB members will have the opportunity to advise on new perspectives of how best to involve science, given evolution in the Delta Vision process since the last ISB meeting. Multiple parallel efforts (e.g., Delta Vision, Delta Vision Stakeholders Group, Bay Delta Conservation Plan, the Ecosystem Restoration Program (ERP) Conservation Strategy), the need for integration among these parallel efforts, and a growing need for scientific support at this crucial stage in Delta planning make this a important issue.

Grindstaff agreed that integration is critical to success of Delta Planning. The real integration point for decision-making is likely political as opposed to scientific. A mechanism for integrating both scientific and land use planning information will be the environmental review process and associated environmental documents. The Science Program is positioning itself as the key integration point for the Lead Scientists of the various efforts. Mount noted, however, that the environmental review process would not likely drive integration of science: (1) big decisions are often made before the environmental review process, and (2) Environmental Impact Statement (EIS) and Environmental Impact Report (EIR) documents often justify prior decisions rather than setting new direction. Mount noted further that the Science Program is in a good position to benefit from being a focal point for the various Lead Scientists, but that broader integration, collaboration, and cooperation are necessary for a successful Delta future.

Meyer asked Grindstaff to discuss how findings and results of the Ecosystem Restoration Program play into conclusions for the End of Stage 1 report. Grindstaff responded that a key finding is that ecosystem restoration objectives cannot be met under continued Delta pumping. Grindstaff also noted that ecosystem restoration is one of the key program elements, and thus its findings are critical to the End of Stage 1 assessment. CALFED's goal is to have agencies sign the *End of Stage 1 Report*, which will be available as a draft in July or August. Meyer is concerned that the ISB should have the opportunity to comment on the draft report. Mount concurred.

Baptista asked whether, in the case of the decision to shutdown pump operation, Grindstaff believed that decision-makers had the tools they needed to make this decision – for example, the best science available; agencies integrated into a decision-making body. Grindstaff said that while he is satisfied with the process, agency directors want scientists to be able to tell them directly and simply how to apply science for decision-making. While there is no “silver bullet” that would assure that all science leads simply to clear-cut management decisions, top-level managers and scientists alike identify the need for improved communication of science to decision-makers. Grindstaff said that in his role with CALFED, he receives more briefings of science than do most directors, who receive only periodic briefings. This leads to a lack of intimate understanding of science,

which can hinder the decision-making process. There is a proposal to address this issue using the Interagency Ecological Program (IEP) Lead Scientist to report to all directors to improve understanding the role of science in decision-making.

Baptista further asked how future decision-making could be improved to address similar emergencies. Grindstaff said that institutionalizing the Science Program is an important step. Other scenarios that would further improve the understanding of how to use science in decision-making include (1) more integration between the Science Program, agency directors and the Resources Secretary; (2) more frequent contact between the Secretary and the Science Program, including more question and answer sessions; and (3) more interaction of agency directors with science advisory boards and Lead Scientists. These would help ensure that decisions are made using the best available science.

Baptista asked Grindstaff what role he envisions for the ISB over the next five years. Grindstaff replied that he wants the ISB to broaden its responsibilities and participate in helping the Science Program determine what science needs to be done in both the short-term and long-term in order to make good decisions. Taking an ecosystem example, what information do we need to know about long fin smelt or white sturgeon in the case of a future emergency? Grindstaff also noted that CALFED is concerned about more than ecosystem questions.

Mount asked Grindstaff what role he sees for ISB in these types of emergencies, given that the ISB only meets four times per year. He noted that the connection of science and management decisions needs improvement, and that better science does not automatically result in better policy. Grindstaff replied that science must be included in decision-making and that, in particular, the Science Program has successfully used the ISB and science panels to deal with specific short-term issues. However, some policy-makers oppose including the ISB in emergencies because of their concern that scientists may go off in their own direction and will not be able to make a quick decision. It would be helpful for the ISB to advise the Science Program on the integration of science and policy and help characterize the state of science on various issues.

Mount asked Grindstaff to comment on the stability of funding for CALFED. Grindstaff replied that all CALFED science items have been approved by the Legislature, including an increase in staff and an \$8 million budget increase. Funding for a Delta Vision programmatic assessment is still pending in the Legislature, but regardless of outcomes in the Legislature, the programmatic assessment will be funded by some means. There is a remaining concern about improving accountability of how money is spent. However, the Legislature continues to support science funding.

Mount asked Grindstaff to explain SB-27 and its relation to the previous discussion. Grindstaff responded that SB-27 started as a bill to approve a peripheral canal under independent authority and lease it to water users to pay for ecosystem restoration. Following strong disagreement, an agreement was brokered that led to this co-sponsored bill that states a decision will be made on the future of the Delta by next year. If the Delta Vision process does not result in this decision, the Legislature will decide. Delta future options range from the

“opportunistic Delta” to a peripheral canal. The future of the Delta will be determined next year by a bill in Legislature. Mount noted the danger of SB-27 getting in front of Delta Vision. Joe responded Delta Vision is essential to reaching an agreement, but that if the pumps stay off, pressure to make a decision will only increase.

## 1. Welcome and Introductions – Jeff Mount

### Board Disclosures

Bob Twiss is operating under previous disclosure of a contract with DWR for the DRMS project and the *Status and Trends Report*. His contract has been updated; he is now participating with the Delta Vision Stakeholder Group and Blue Ribbon Task Force. He has made presentations to and is a lead to both groups for Geographic Information Systems (GIS) and is also the GIS lead for the *Status and Trends Report*.

### Update of Board Activities

Activities of the ISB over the past year will be reviewed on Day 2 of the ISB meeting as part of the Strategic Planning process. Jeff noted that since the last ISB meeting, Meyer and Norgaard submitted a letter on the Public Policy of California report to Delta Vision, but has not received comments.

### Performance Measure Subcommittee

One of the most significant activities for ISB members since the last meeting has been to act as liaisons for the development of performance measures. The following table lists ISB liaisons to each performance measures group and summarizes their principle activities since the last ISB meeting.

Performance Measures Group	ISB Liaisons	Liaison Activities and Progress Since February 2007
Levees	Mount, Twiss, Goodwin	Reviewed specific issues and made recommendations for changes in direction of performance measures. Encouraged to refine and refocus some objectives for monitoring. Expressed concern about some performance measures. Encouraged more progress, but seriously understaffed.
Ecosystem	Patten, Meyer, Smith	Held conference call. Noted that one way to proceed is to test the approach on some sample issue, rather than trying to take on all tasks at once.
Monitoring and Water Supply	Keller, McKinney	Documentation provided info since November 2006. One action to assess probability that would be delivered according to contract.

Performance Measures Group	ISB Liaisons	Liaison Activities and Progress Since February 2007
Water quality	Glaze, Baptista	Two phone meetings. Number of comments on significant contextual issues. There has been progress on methods, but the ISB liaisons do not see the big picture emerging yet.

Twiss noted that scenarios and reports are beginning to emerge that have significant water quality implications, including a sketch plan of changes in the Delta from the BDCP, efforts by stakeholder groups, and the Delta Futures report from the PPIC. Some of these recommend a much longer residence time in the South Delta. These reports indicate that water quality – of both water for human consumption and water for ecosystems – is likely to become a big issue, but has not yet received the attention it deserves. The ISB should play a role especially in the coming year in reminding people of its importance. Glaze has made this point to the Delta Vision Task Force.

CALFED Deputy Director, Program Performance and Tracking, Susan Garrett-Dukes said that the ISB would hear more about this, especially with respect to CALFED Phase 2 activities, later this ISB meeting. A plan is currently in development to integrate data from BDCP and Delta Vision into existing performance measures. Twiss noted that performance measures being developed are focused on the current situation, but that they also need to be considering future situations.

Patten reminded ISB members of the letter sent six months previously to ERP agencies recommending that they maintain contact with the ISB. There has been no response. Mount noted that a draft ERP Conservation Strategy is due out in summer, with a final draft projected for December. The ISB has not been contacted regarding this document. Hastings noted that ERP staff has worked closely with the BDPAC Subcommittee to develop priorities. Garrett-Dukes said that the draft so far is an outline and serves more as a management document than as a strategy document. Mount expressed concern that ISB members who are intimately connected with CALFED have heard nothing of this effort.

Hastings reported that the ERP is developing its own End of Stage 1 report with assistance from the Science Program, at the request of the Lead Scientist. The draft report is due in September 2007, and the final report in November or December 2007. The report will resemble the 2004 milestones assessment in some ways, and will include information for all projects on status, how much was spent, analysis by topic area, location, research focus, outcomes, and so forth. One major obstacle to assessing outcomes is the lack of monitoring data to help determine outcomes. Hastings cited work by Terry Mills, former ERP staff, which considers the “signature areas” of Clear Creek, Yolo Bypass, and Tuolumne River. However, the Delta is less well understood; there is less knowledge and great complexity.

Garrett-Dukes stated that what is still missing from level 1 performance measures and analysis is answering the “so what”, or “what understanding does it lead to”

questions. The Bay-Delta Public Advisory Committee (BDPAC) recommended compiling a document to address this issue to invite public comment rather than holding public workshops. Meyer expressed concern about lack of independent review, and suggested the ISB liaisons could play a role in review. Hastings noted that the Science Program has not been very engaged in the ERP process, and is more interested initially in working with the stakeholders. Hastings also noted that ERP staff wants help from scientists; they are struggling with a mechanism to create and execute level 1 performance measures and the limitations of time, money, and resources. It was suggested that Meyer, Patten, and Smith write a letter with the help of Rebecca Fris and Hastings related to concern over the Conservation Strategy document requesting more information and report back to the ISB (Judy Meyer lead).

Goodwin referenced feedback to his academic community that the ISB's letter was too harsh alerting the Delta Vision Task Force to the Public Policy Institute of California's report, *Envisioning Futures for the Sacramento-San Joaquin Delta*, and recommended an executive statement saying that the ISB is concerned about gaps in science, but recognizes the value of the report. Patten cautioned that the ISB not endorse the PPIC Envisioning Futures Report as the "end-all, be-all" answer some may hope it to be. After discussion, it was agreed that no statement would be issued and this discussion would be captured in the ISB meeting summary.

## **Search for Lead Scientist**

Mount has received numerous comments from Lead Scientist Michael Healey and ISB members regarding potential candidates for recruitment to the Lead Scientist position after Healey vacates the post, December 31, 2007. ISB members are requested to contact applicants for recruitment, in lieu of publication of a job announcement. Mount and the Lead Scientist will provide ISB members direction on whom to contact. Names of potential Lead Scientist recruits are to remain confidential.

## **2. Science in Delta Vision**

### **Background – Jeff Mount**

Mount initiated the discussion of how science will be integrated into the Delta Vision process, and introduced Delta Vision Executive Director, John Kirlin who provided an update.

For the last six months, the ISB has been trying to understand their specific responsibilities to the Delta Vision process. The complexity of the current environmental will make integration a challenge.

Mount provided the following background:

- An executive Order from the Governor created the Delta Vision Task Force and Delta Vision Stakeholders Group, with independent review to be provided by a team of science advisors.
- Delta Vision Phase 1. To create a vision for the Delta, due December 31, 2007.
- Delta Vision Phase 2. To develop a Strategic Plan for implementation, due October 2008.

Mount then reviewed three parallel, independent efforts and programs, none of which has a structural link to the ISB board.

The **Delta Risk Management Strategy (DRMS)** was created by the Governor to evaluate how to mitigate risk principally related to levee failures, though DRMS does include ecosystem and infrastructure components. The Department of Water Resources (DWR) initiated DRMS as a massive effort independent of, but involving, CALFED. Mount noted that Twiss is part of this massive effort, and as such, he is the nexus for the ISB as it evaluates the independent review established by the Science Program. June 15<sup>th</sup> is the expected release date of the draft DRMS report, though it has been substantially delayed. The report will begin a qualitative assessment and will therefore be very controversial. The Executive Summary of the report will be downloadable, and the full report may be distributed to ISB members. Mount asked ISB members during their review to remember that the focus of the report is levees and that the report is not the purview of the ISB. DWR, the USFWS, and US Army Corps of Engineers (USACE) are in charge of the DRMS Program.

The **Bay Delta Conservation Plan (BDCP)** is a parallel Federal Habitat Conservation Plan (HCP), and California Natural Community Conservation Plan (NCCP) process and is not CALFED-sponsored. The BDCP is a process to establish agreement to continue to operate the pumps in the Delta, by determining what conservation plan is necessary to operate within the regulatory framework. The goals of the BDCP are very different from DRMS, in that the BDCP is focused on listed fish of immediate concern. The BDCP is a voluntary, multi-party, joint planning agreement signed by state and federal fish agencies, water use agencies, and several NGOs.

**Delta Vision** is an effort to develop a vision and strategic plan for a sustainable Delta. The governor and legislature are ultimately in charge of the Delta Vision program. Delta Vision is all encompassing; its focus is not fish but infrastructure, people, ecosystems, water exports, and so forth. Delta Vision is an independent process with no direct connection to CALFED or the ISB, so review of the process will be done on a voluntary basis. Mount and Lead Scientist Healey are science advisors to the Delta Vision program, and serve as a nexus among the ISB, Delta Vision, and CALFED.

Mount noted a number of other independent processes that rely on science, and that that could or should impact the science being used by Delta Vision. These independent processes include Delta Regional Ecosystem Restoration Plan (DRERIP), Ecosystem Restoration Program Conservation Strategy, Operations

Criteria and Planning (OCAP), Suisun Marsh Charter Implementation Plan, IEP Pelagic Organism Decline (POD) action plan (critical issue), U.S. Army Corps of Engineers (USACE) Sediment Management Strategy, USFWS Native Species Recovery Plan, and USFWS Salmonid Recovery Plan.

Mount posed several questions:

1. How should the ISB review and offer advice for incorporating science into the Delta Vision process?
2. What is the potential for contradictory or overlapping science between these programs? Specifically, how is the science being conducted so that it is useful and accurate?
3. How do the programs connect science and the development of policy? For example, are the BDCP and DRMS projects coordinated in terms of listed fish by asking the same questions and using the same science?

Mount noted that Twiss is involved in some way in each of these programs.

Baptista asked who CALFED ultimately responds to. Mount responded that since reorganization, CALFED is under the jurisdiction of the Secretary for Resources, Mike Chrisman, who reports to the Governor at the state level and to the Secretary to the Department of Interior at the federal level. Baptista asked why Delta Vision was created with no clear connection to CALFED. Mount replied that some stakeholders have concern about CALFED's ability to carry out the program. CALFED Deputy Director of Science, Ron Ott noted that Delta Vision is larger than CALFED in that it includes infrastructure, land use, and other issues beyond the purview of CALFED. Kirlin added that, in his experience, it is the norm to have multiple initiatives with intersecting interests as a means of minimizing conflict and to reach agreements when relationships are not pre-ordained.

Mount and Healey believe that, as part of the ISB's *Strategic Plan* for the coming year, the Board must think about coordination, integration, and collaboration. The key questions are the quality of science, how science is used in the Delta Vision, how to structure that information, and the integration of science amongst programs.

Baptista asked whether how much money is spent annually on science funded for each of these programs. Ott replied approximately \$30–40 million is spent annually for the Science Program and IEP.

### **3. The Delta Vision Process – John Kirlin**

John Kirlin joined Delta Vision in March 2007. Kirlin said that the Delta undeniably provides one of most complex public policy issues in the United States, with a history of many science efforts, policy initiatives, and fragmentation. The Executive Order S-17-06 creating Delta Vision, signed

September 2006, was related to and responding to legislation including AB-1574, AB-1200 (DRMS), and AB 1803. The Executive Order includes a broad sweep of issues, and is anticipated to build on and coordinate everything going on in Delta.

The most important attribute of the Delta Vision effort is that it is policy-focused, and not intended to generate new science or accomplish anything other than recommend a vision for sustainable management of the Delta, with the understanding that this will require value choices about the uses of the Delta. Delta Vision has a two and a half-year life. By January 1, 2008, it must recommend a vision for sustainable management, with a plan to implement that vision by December 2008. In the absence of a recommendation, the Legislature will determine the future of the Delta.

This is just the beginning of a public debate about statutes. What can be done by Executive Order? What can shifting program resources do? And, what should the future shape of the Delta look like? Mount added that there would be California Environmental Quality Act (CEQA) requirements. When Kirlin got involved in Delta Vision in March 2007, the appointment of science advisors was pending. Kirlin recommended that rather than institute a new body of scientists, Mount and Lead Scientist, Michael Healey should be appointed as science advisors by Secretary for Resources, Mike Chrisman.

## Articulation of Delta Initiatives Timeline

Kirlin's *Articulation of Delta Initiatives Timeline* graphically represents schedules for all of the studies and programs related to the Delta.

The Delta Vision Committee is made up of three members with extensive backgrounds about the Delta, and is chaired by Secretary Chrisman.

The Delta Vision Stakeholder Coordination Group has held three meetings thus far, as well as workshops.

The Blue Ribbon Task Force consists of seven individuals, selected for policy knowledge and experience, plus three public members.

The Stakeholder Coordination Group will make a recommendation to the Blue Ribbon Task Force in August 2007. The Task Force will make a tentative characterization in October 2007, and a final recommendation in late 2007. The Delta Vision Committee's role is to make an independent recommendation to the Governor in late 2008. Kirlin noted this is a very short amount of time considering what needs to be done.

Delta Vision is unusual in that it does not direct existing efforts but has an integration role. There are two places where science needs to be integrated: (1) in developing a common understanding of scientific opinion, and (2) in establishing a common approach for assessing the science related to possible Delta scenarios.

Kirlin is trying to get people to use common spatial reference and terminology, and to find means of integration and articulation, so that whatever comes out of the DRMS and BDCP studies, for example, will be easier to integrate and incorporate into Delta Vision. A bad outcome could result if there is a fragmentation of recommendations/different visions, or if the Task Force is unable to make a recommendation. It is therefore especially important to narrow the range of possible scenarios and to begin a debate. Suisun Marsh is an example of lack of imperfect articulation, as various efforts all suggest substantial changes in marsh management.

## Work to Support Delta Vision

Kirlin referenced a list of nine categories from the Executive Order that any visions for sustainable management of the Delta must have. These categories incorporate, by reference, the provisions of AB-1803, calling additionally for government and finance categories. Kirlin has charged various individuals with the creation of these 10–20 page “context memos” (see handouts for categories). These context memos will not be peer reviewed, but there will be opportunity for public participation, in the hope that the memos will be as broadly accepted as possible and disagreements will be identified up front.

Kirlin reviewed a meeting handout on other specific work products, including the following.

- Tools to support the development of proposals, such as management techniques, common building blocks, and plausible actions list.
- An Ecological Design group.
- A recent workshop on Ecological Geography in Oakland that generated information for Delta Vision and other efforts.
- Upcoming June 11 workshop on the variable Delta.

Twiss elaborated and contrasted the Ecological Geography workshop, held earlier for the Delta Vision Stakeholders, with the Variable Delta workshop hosted by the Science Program. The Ecological Geography workshop was a facilitated session by the Center for Collaborative Policy. The outcome of the Ecological Geography workshop was not very transparent, and resembled planning more than science. The variable Delta workshop, in contrast, was publicly noticed; attendees submitted formalized presentations; and the facilitated discussion at the end of the meeting was recorded. This procedure is the preferred approach for science. Because the system will be under scrutiny in development of the Delta Vision, the record must be substantial.

The information coming to the Delta Task Force about levees, water conveyance, and water reuse is fairly consistent; however, on the ecosystem restoration side, more agreement is needed for any information to be valuable to decision-makers.

The Delta Vision Blue Ribbon Task Force is participating in an active discussion regarding how to assess a sustainable Delta – where “sustainable” has been defined by statute and in academic papers. The Delta Vision does not have dedicated discretionary resources to launch this effort, but Kirlin is hopeful that more resources will become available as the state budget finalizes for a legal analysis and exploration of the public trust approach.

Kirlin concluded that he has provided a fairly extensive overview of Delta Vision. Integration with other efforts will be a challenging task, but integration will benefit all efforts and is critical to the success of Delta Vision. Development of the best public policy framework will need to be based on the best science available. Kirlin also noted that it is important to frame the issues well, and to establish trust and communication between agencies and efforts early in the process.

Kirlin expressed concern that it is already June, and we should be farther down the path in terms of developing understanding, building trust, and developing political arrangements.

## Discussion

Mount expressed that when Delta Vision began to develop, it was unclear to the ISB how science would relate to the Task Force. His understanding is that the Stakeholders Group is responsible for developing the visions (although Delta Vision will accept visions from anyone who takes the time to provide one), and that they will deliver a range of visions to the Task Force in August, at which time these visions will be assessed through a sorting function that will ultimately yield a decision. How will this happen and how will science be involved in a transparent way in all of these steps?

Mount noted that scientific assessment in the Delta Vision process, as described by Kirlin, could be structured in a way that is rigorous, systematic, transparent, and well-organized and archived so people can see how the recommendations were made.

Patten stated that the filtering of visions by the Task Force must include a science assessment of the consequences of each vision. The Task Force will also want to know what will happen from a public response perspective. It is important that the Task Force develop its criteria for this filtering early in the process. Kirlin responded that the visions delivered in 2007 are not expected to be a detailed set of recommendations. The Stakeholders Group is responsible for developing the visions, but feels its members do not have the background to create detailed vision. Kirlin also noted that the Stakeholders Group would not be the only group developing visions. Visions will also come out of DRMS, BDCP, PPIC, each of which has its own constraints and varying level of technical involvement. Further, external submissions of visions such as from the NRDC that are grounded in science will benefit the science overall. The visions and chunks of visions to come forward will be a “mélange” with different levels of transparency.

Kirlin focused attention on the “template” that will be used in 2008 process to assess proposed visions. The group is currently developing the categories that will be included in this template. Assessment will probably consist of characterizations that are a result of professional judgment. The outcome will be a range of decisions that have varying degrees of feasibility from technical and political points of view; tradeoffs will be made in the policy-making decision process between July and August 2007.

Mount asked whether the ecological design team were a subset of the overall team. Kirlin and Twiss responded that the ecological design team will support Delta Vision and the Task Force, but this support depends on appointing members and building a working relationship and trust. Kirlin would like to see common membership between the ecological design team and the assessment group. There is no statutory requirement for peer review, though independent review is being discussed.

Ecological design implies that the designers know what kinds of ecosystem services are desired. Protecting listed fish could lead to the detriment of game fish. Science can help delineate options for ecological design. Kirlin noted that a good example of input from the scientific community into scenario creation is the concept of Delta variability. The Task Force had suggested a return to original conditions, but learned that this is not possible, due to subsidence. Twiss noted that the upcoming Delta variability workshop is essentially an ecological design workshop, and that the agenda now includes dimensions of variability other than salinity, such as types of substrates, geometry. Kirlin replied that from his perspective, variable salinity is a robust issue and an example of how science can help with policy choices by looking at the relevant dimensions of variability that need to be assessed.

Baptista asked Kirlin which critical documents from parallel efforts would be imported into the Delta Vision process to help create, plan, and assess the vision. Kirlin responded that it is not possible to say how the products of these efforts will be helpful until they are completed, but at that time, these parallel efforts will need to be integrated at an administrative level, i.e., getting the various groups to communicate, as well at a scientific level. There is significant uncertainty regarding which issues the Delta Vision needs to incorporate into the vision – such as redundancy, reversibility, and adaptive management. For instance, adaptive management of large ecosystems can be difficult. It is important for science to contribute to an understanding of how to treat these issues within the vision. Kirlin suggested that the ISB could possibly work with the science advisors or serve as independent reviewers in 2007 and 2008. Mount recommended that this be discussed further.

Baptista asked Kirlin whether were comfortable with the three-month timeframe for the selection of recommended alternatives. Kirlin responded that this is probably the right amount of time. At this time, there is broad agreement that “it’s not working” – that current uses of the Delta are unsustainable and cannot be continued. Current understanding is adequate to enable reasonable decision-making. The task of Delta Vision is to gather, frame, and format that information so that Task Force members can use it. In 2008, that information can be refined

and considered. Timing is absolutely critical to decision-making, and the selection of recommended alternatives will be made within the specified timeframe.

Baptista asked what mechanisms would be incorporated to monitor for implications and adjustment: Kirlin responded that these mechanisms are still undefined, and will be part of the implementation phase. Delta Vision is beginning to work on this by studying the Columbia River and three major ecosystem restoration efforts within one watershed to understand the integration of policy-making between them. For the Delta, it will be necessary to understand the appropriate spatial scale, likely the watershed scale, not just the legal Delta. Scientists should provide guidance on the proper scale. Kirlin also noted that Delta Vision has already been asked to accelerate its schedule.

Twiss said that the articulation timeline could include another row of small workshops, reports, memoranda, and so forth, such as the upcoming Variable Delta workshop and other workshops related to Delta issues. The ISB could be involved in this if structured properly. Kirlin stressed that scientifically valid workshops should be summarized as soon as possible and sent to Kirlin so that he can brief the Delta Vision Task Force.

Keller found the timeline chart useful. The next step is to get a sense of the huge amount of science required. He suggested another matrix that could serve as a roadmap for the ISB to decide what to investigate, who to contact, and who on ISB would do it based on individual members' expertise. This matrix would chart critical issues in the Delta (such as water quality, ecosystem, and so forth, already done to a certain extent in the PPIC report) against study groups, noting which critical issues each study group is doing. This ISB needs a tool like this to be able to engage effectively in a way that is realistic and useful within the timeframe. Mount noted that many of the parallel efforts would still be ongoing during the most critical phase of Delta Vision, which is when the alternatives will be developed and analyzed.

Twiss said that the ISB could identify these critical issues, noting that these issues are discussed in the PPIC Report and are further explained in the Status and Trends Report and will be in the State of the Science report. Assessments of changed conditions as a result of climate change will be highly controversial, and should be assessed against specific scenarios.

Meyer said that developing the template for assessment is critical and must be available by 2007. Reviewing the template is a reasonable role for the ISB. Part of the ISB assessment should include how to "get from here to there" – what hurdles need to be jumped, is it possible to jump these hurdles, and what are consequences of jumping them? Mount noted that engaging on this issue would be valuable if done in timely fashion, but would require a conference call because as there is little value in the ISB recommending improvements to increase transparency in September.

Patten said that any assessment of this kind must consider at spatial/temporal factors and integration of various forms of science. The Delta Vision is

essentially a grand restoration program that is considering a range of historic variability, preferred conditions, and so forth. There are papers and assessment tools on this that the ISB could help put together.

Mount said that the ISB could also engage in envisioning the shape of the future Science Program, and how the Science Program and CALFED should respond to changed conditions that will result from Delta Vision. Mount noted two approaches to this engagement – actually being involved with the assessment, and reviewing the product.

Twiss noted that there is a very short fuse on Delta Vision, then there is the Strategic Plan, after which indicators of success would have to be identified, followed by CEQA/NEPA for the Biological Opinion – so there are multiple opportunities for the ISB to review. Twiss said in his opinion, the ISB is best suited to generate the best possible knowledge rather than review information.

Mount noted that the integration question is very important, as there are three products that will have formalized scenarios within them.

1. The PPIC concluded either exports must be reduced an isolated canal must be built.
2. DRMS is looking at two scenarios in Phase 2: (a) business as usual by strengthening the Delta; (b) a peripheral canal.
3. The BDCP HCP/NCCP is looking at four scenarios: (a) business as usual, (b) an armored through-delta facility; (c) dual facility; and (d) fully isolated Peripheral Canal.

But the terminology of each is very different. The ISB should perhaps have a role in integrating these efforts.

Kirlin noted that all of the above ways of talking about the future of the Delta are “Delta-centric” and describe their plans in terms of water conveyance without rising to the central issue of Delta ecosystem function. Therefore they are spatially incomplete (incorporating neither watershed nor the whole of California) and focus on one major value while ignoring others. It is important to expand knowledge of the implications of decisions about conveyance on ecosystem restoration. Delta Vision will be a better product if the conversation expands spatially (including not just the Delta but the watershed and the entire state) and moves beyond water conveyance metaphors. Patten agreed that the spatial issue needs to be further discussed, considering some Delta water does not even stay in this watershed.

## **Lunch Presentation: Delta Smelt Update June 2007 for CALFED ISB – Matt Nobriga**

*Please see the ISB website for presentation.*

Science Program Environmental Scientist, Matt Nobriga discussed the current crises with Delta smelt including an overview of understanding about the smelt's life history, trends from the 20-mm survey, and possible factors contributing to the low numbers of Delta smelt.

## Discussion

Mount started by asking Science Program staff to add all ISB members on the DWR *Water News* email list. This list sends 5 emails a day on water resource issues.

Meyer asked whether modeling of Delta smelt funded by the Science Program's PSP has provided any conclusions that would help answer the question of what is limiting the smelt population. Nobriga noted that the PSP study by Wim Kimmerer and Kenny Rose is just getting underway. Additionally, at the Asilomar IEP workshop two years ago, Bill Bennett did a virtual population extinction analysis of Delta smelt (published in an online white paper). His results indicated that record low indices were highly probable within two years. His prediction was received skeptically, but it has occurred.

Baptista asked whether the decline could be a function of the sample design. Nobriga responded that the survey was designed to target 20-mm Delta smelt based on an understanding of the hydrology of the Delta and the species range of distribution, so the trawl took into account where the smelt should be based on current salinity.

Keller asked how this year differs from previous years. Nobriga responded that he expects that zooplankton counts are likely also down. Preliminary contaminant findings are also being investigated, but the ecological effects of contaminant loading are not well understood. Mount noted that the media is presenting the correlation between contaminant levels and Delta smelt decline as fact. Smith noted that the news reports that contaminant loading in 1999 was different than in 2006-2007, but this may not be true.

## 4. Lead Scientist Report – Ron Ott

*Please see the ISB website for presentation.*

CALFED Science Program Deputy Director, Ron Ott presented the Lead Scientist's report for Michael Healey, who is in Japan. Ott provided an overview of Science Program activities, including the need to integrate science across agencies, IEP, BDCP, DRMS, and DRERIP; and the need to coordinate science at the top levels, fellowships, upcoming events, communications, and staff.

Mount noted that Ott is planning to retire, and will be replaced by Hastings as Acting Deputy Director.

## 5. Performance Measures Phase I Report – Elizabeth Soderstrom and Susan Garrett-Dukes

### Overview

There are two levels of effort to develop performance measures underway:

1. Retrospective. These are intended to evaluate CALFED program from inception to the present. Measures are primarily in terms of administrative investment and output (i.e., levels 1 and 2). Retrospective performance measures will be presented to BDPAC and Authority on June 20th and 21<sup>st</sup> and will likely form an appendix for the End of Stage 1 report.
2. Prospective. Developing prospective performance measures – to be used to evaluate future CALFED actions – is a CALFED agency effort. Measures focus on outcome indicators and driver or output indicators (levels 2 and 3). This effort is complicated by the fact that agencies that are developing these performance measures are unsure of CALFED's future. To deal with this uncertainty, the performance measures have built in flexible aspects: (1) they are fundamental enough that they will be useful under whichever umbrella CALFED falls, and (2) there will be period of refining these performance measures in late 2007 early 2008 after some of the reports are released and CALFED's future becomes clearer.

There are also two phases of development. The report from Phase 1 will provide initial performance measures and a plan for implementing them. Phase 2 will include conceptual models, targets, driver indicators and will involve data analysis and reporting on the initial performance measures. Phase 2 will also consider vertical and horizontal integration. Vertical integration refers to linking administrative indicators to the outcome indicators. A framework for this is currently in development. Horizontal integration refers to integrating performance measures across programs.

### Timeline

Phase I will conclude in October 2007 and will include an update to BDPAC and Authority on June 20<sup>th</sup> and 21<sup>st</sup>; end of July Version IV of the Phase I Report will be released with comments due the end of August. A final Phase I Report will be finished in October 2007.

Phase II will start in July 2007 and will involve the development of conceptual models, targets, will continue through June 2008. In June 2008, a technical review panel will review Phase II report.

## **Discussion**

Meyer expressed surprise that no review of the Phase 1 report is planned. Soderstrom responded that July 2007 would be a good time for liaisons to give input; they will schedule teleconferences to get ISB input. Baptista suggested that the meetings be in person rather than over teleconference to improve opportunities for serious interaction.

## **Water Supply Reliability – Paul Massera, DWR**

*Please see the ISB website for presentation.*

Today's presentation reflects comments from ISB liaisons and the BDPAC Water Supply Subcommittee.

### **Enhance Stability of Delta Water Supplies**

McKinney noted that acre-feet of water delivered during a given year does not measure how well the program performed, but that in contrast, comparing the acre-feet of water delivered to the acre-feet of water contracted would allow measurement of performance. Massera noted that this relates to quantifying the gap of the missed target.

### **Conceptual Model of Probability Density Function**

Massera noted that they are using a "sample probability function" developed by Ken Kirby to map likelihood of an annual delivery over time. McKinney expressed concern that the meaning of the curve and its usefulness as a metric are unclear. Patten, in contrast, stated that the model is appropriate and shows how actions will affect ability to deliver. The model is a conceptual model, not a quantitative model, which will underlie more specific conceptual models. Once the capacity curve is developed and compared against curves of actual deliveries, it will be possible to discern how close to capacity performance actually was. McKinney agreed that this is a useful technique to compare actual performance to historical performance. However, he expressed concern about the faith the group is putting into the conceptual model.

### **Increase Certainty of Delta Water Deliveries in the Short Term**

The term "scheduled deliveries" is nebulous, and the performance measures group is trying to define it. Operations adjust scheduled conditions to reflect changed conditions.

Mount suggested that comparing scheduled deliveries for multiple projects would be very informative. Massera agreed.

## **ISB Discussion**

Patten asked what integration this group is pursuing with the water quality performance measures group. Massera said that they plan to meet regularly to discuss the needed nexus. The water supply group is focused on water delivery and needs to connect to environmental health. Patten warned that any water quality performance measures that the water supply group develops should not conflict with measures of the water quality group.

Meyer asked whether this group has considered the question of whether to use regulatory standards as targets – potentially problematic because regulatory standards change, but useful in other areas. Massera replied that he understands the targets were simplified to allow implementation of the performance measures.

## **Levees – Mike Mirmazaheri, DWR**

### **Selected Performance Measures**

#### **Number of Levee Miles Maintained**

The levees group is gathering data on numbers of miles of levees maintained. Mount noted that this is an “indicator” rather than a “performance measure.” He recommended that this group separate their measures into indicators and performance measures. The levees group is also differentiating between maintenance and rehabilitation.

#### **PL-84-99**

Mount noted that with the redefinition of 100-year flood levels, using the PL-84-99 standard would be problematic when all Delta levees do not conform to the new standard.

#### **Subsidence Control**

The group plans a survey of 700 acres of land on Sherman and Twitchell islands. Mount expressed concern that this does not capture the issue of subsidence on the landscape scale in the Delta – these 700 acres are one-half of one percent of the Delta land. This measure lacks scale and has no target. Mount also acknowledged that this subsidence issue is politically volatile, and recommended that the levees group consider using accommodation space as a performance measure.

#### **Electromagnetic Conductance Anomalies**

Over 700 miles of levees have been tested for anomalies. Baptista expressed concern that the metric is total number of miles rather than a percentage of the total anomalies.

Patten asked what would be done after all of the miles have been tested. The speaker noted that the second phase is to confirm the anomalies.

Meyer asked what action the group takes when they “address” the anomalies. The speaker noted that in the first phase, they are only identifying anomalies. The district with responsibility will decide whether to act.

Twiss noted that the DRMS effort is investigating “building-block” technologies such as are being tested on Sherman and Twitchell islands, and include altered land use practices. Any progress in the application of subsidence, mitigation or control measures would be useful.

## **Ecosystem Restoration – Steve Detweiler, USFWS**

*Please see the ISB website for presentation.*

DRERIP conceptual models will be crucial to future progress of developing performance measures for ecosystem integrity; this is essential for the success of ecosystem restoration.

### **ISB Discussion**

Patten noted that the ERP performance measures framework is more complex than those in other efforts. There might be older efforts that have already been done that could be used within the framework.

Patten suggested that the ERP performance measures team test-drive the framework using a particular species as an example. DRERIP conceptual models are already available for some species. Detweiler agreed that this is a good approach. He also noted that uncertainties would complicate the process of test-driving the framework.

## **Water Quality – Karen Larsen, RWQCB**

CALFED’s water quality goal is to continuously improve Delta water quality for all uses, including drinking water, environmental water, and agricultural water. The focus here is on drinking water, toxicity (aquatic life uses), and mercury.

### **Drinking Water Quality**

CALFED’s goal is to improve water quality at the intakes and to provide safe drinking water quality at the tap. They are currently measuring annual average levels of organic carbon, bromide, and Equivalent Level of Public Health (“ELPH”) Protection.

ISB members expressed concern with using annual average as the metric, and suggested more useful metrics, e.g., the numbers of times a standard is violated, or the number of times a value lies outside of a specified confidence interval. Larsen said that the performance measures group intends to work beyond the Record of Decision's (ROD) requirements, but that they must start here.

## **Toxicity**

The Regional Water Quality Control Board's (RWQCB) target is no toxicity from controllable sources. As yet there has been no comprehensive data gathering.

Patten noted that their targets "no toxicity from controllable sources" and "all causes and sources of toxicity of high magnitude, duration and frequency are identified" are circular. Larsen agreed and noted that the work under DRERIP will help refine performance measures.

## **Mercury**

The goal is to contain water-borne mercury to levels that are not harmful to people, wildlife, or aquatic organisms, and to reduce human exposure to mercury. Patten expressed concern that the focus on human exposure should not undermine concern about aquatic organisms. Larsen agreed, and noted that the target to reduce human exposure to mercury provides an opportunity to measure progress faster than the target to reduce mercury levels.

## **Discussion**

Baptista identified a lack of integration between drinking water quality and environmental water quality that leaves a lot of room for gaps in performance measurement. Larsen agreed and noted that water supply issues also needs to be integrated.

Mount noted that now that the development of water quality performance measures is being done within the agencies (rather than by consultants), its likelihood of "sticking" (i.e., being used by agencies) is possibly increased.

## **ISB General Comments on Performance Measures Efforts**

The four approaches to performance measures show large variation in language, framework, and presentation. The ISB recommended to Soderstrom and Garrett-Dukes that they help bring these four efforts into a more standard and unified approach.

Meyer noted that with 19 “Big-R” species and 25 “little-r” species, the number of ERP performance measures has the potential to be great – and therefore less useful because too complex. Garrett-Dukes said that they are trying to prioritize the species. Meyer suggested that it would be useful to consider grouping the species by, for example, life history strategy. It would be much more informative to have three species performance measures than 19. Patten noted that with R species, there are generic performances that could be applied across the species. Specifics would differ, but the measure could be the same.

## 6. Environmental Water Account: Review and Response – Matt Nobriga

*Please see the ISB website for presentation.*

Science Program Environmental Scientist, Matt Nobriga discussed the Environmental Water Account (EWA) that will sunset at the end of 2007. The program may continue in an adapted form. Nobriga’s presentation provided an overview of the program, progress and process of the comprehensive review of the program being conducted, and an explanation of the use of Tier 3 procedures.

## 7. Public Comment

Tom Mungan (sp?), consultant to the Delta-Mendota Water Authority, suggested that the most important role that the ISB could play with respect to the EWA is a review of the science that would indicate whether an environmental water account-type program is at all useful. “Is it reliable science or just folklore?”

Katherine Poole, senior attorney with National Resources defense Council (NRDC): The alarming drop in Delta smelt over the past three years led to a seriously low count during this year’s annual spring survey by DFG. The Delta Smelt Working Group’s recommendation from May 15 said that these results are an urgent indicator that this species is critically impaired and that an emergency response is urgently needed, and recommended an immediate change in pump operations. Operators have taken steps but there have been only one or two days with no net flows in Old and Middle Rivers. The projected flows for the next day are a reduction from 1,200 cfs to 400 cfs. DWR is likely to start the pumps again soon. NRDC believes that it is appropriate to invoke Tier 3 of EWA now. Part of the process for initiating Tier 3 is the convening of an independent science panel.

Poole brought materials for the ISB to consider:

- Letter from Peter Moyle and Tina Swanson titled “Recommendations for Actions to Protect Delta Smelt.”
- Summary of May 15 DWR recommendations.
- Tier 3 protocols.

- Findings from USFWS's Cay Goude and DWR's Jerry Johns.

Poole argued that the issue is time-critical; decisive and effective action must take place within the next two months.

Mount asked Poole what she would like the ISB to do, given its limited purview. Poole responded that NRDC requests the ISB to urge the agencies to invoke Tier 3 or to follow through on the process to determine whether Tier 3 is necessary, including convening an independent science panel to determine whether it would be necessary.

Patten noted that if USFWS issues a jeopardy opinion, the Bureau would have to shutdown its pumps. Poole noted that the USFWS would unlikely issue a jeopardy opinion within the critical two-month period.

Baptista cautioned that the agenda must be published in advance of the meeting, and that the ISB must be careful about changing the agenda.

## Friday, June 8, 2007

### Attendance

#### ISB Members

Antonio Baptista  
Peter Goodwin (on phone)  
Jack Keller  
Daene McKinney  
Judy Meyer  
Jeff Mount  
Richard Norgaard

Duncan Patten  
Paul Smith  
Bob Twiss

**Absent:**  
Bill Glaze

### Three Issues from Yesterday – Jeff Mount

#### Delta Vision Assessment Template

Kirlin discussed the template that will be used to assess Delta Vision scenarios with the implication that it would be useful for the ISB to comment on the template being developed by the Lead Scientist. The ISB will discuss the Lead Scientist's straw man template at the next conference call.

## **EWA Review**

Ott can provide an outline of the EWA review to McKinney and Smith, who are developing the ISB's response to the EWA review. The EWA has scheduled July 15, 2007 for release of their draft. McKinney and Smith's response will include consideration of issues that should be considered for any follow-on environmental water program that should succeed EWA.

The response will be in the form of a memo, short and to the point, to be distributed to EWA agencies and contractors for review.

## **Public Comment from Day One**

The NRDC attorney requested the ISB recommend convening the independent science panel for consideration of Tier 3 of EWA. Mount noted that there is no structural connection between the ISB and EWA other than in a review capacity. The ISB must decide how to respond to this request. Baptista noted that any decision would serve as a precedent for future requests. There are two issues here: (1) how to respond to this particular request and (2) what the ISB's policy should be in response to similar future requests of an urgent nature.

Because this request was not on the ISB's agenda, the ISB had not had the opportunity to hear opposing viewpoints.

The EWA has its own procedures for dealing with crises. Some ISB members expressed concern about becoming involved in the EWA process and debate without either enough background or enough authority to make an informed and influential decision. Other ISB members felt that recommending in a letter that an independent science panel be convened offered sufficient protection against hasty action because the outcome of the panel is not pre-determined, and that this is an opportunity for the ISB to encourage more science. In response, Twiss noted that more science is needed, but there are other and better ways to stimulate science.

Baptista noted that because this issue had not appeared in the agenda, the ISB did not have authority to consider the issue further. Mount said that the ISB had considered the "Bobker Memo 2" in the past without putting it on the agenda. This issue needs to be resolved both from the standpoint of legal requirements and ISB policy.

Mount recommended that the ISB not respond to the NRDC request regarding the request for an independent science panel to consider Tier 3 either now or at a future meeting. The ISB accepted this recommendation.

The ISB determined that it would not respond to the NRDC's request. Mount will notify the NRDC of this decision.

CALFED Counsel advised that the Bagley-Keene Act requires that the ISB place on the agenda any response to public comments and address the comments and their response at a noticed ISB meeting. This means that the ISB cannot respond to emergencies on anything faster than a 15-day basis.

## 1. ISB *Strategic Plan* – Jeff Mount

*Please see the ISB website for presentation.*

### Overview

The CALFED ROD calls for the ISB. Its current charge was adopted a year ago with the ISB's role being primarily as oversight. Two other roles are insight and foresight. See *Primary ISB Functions* below.

The Lead Scientist emphasizes that the ISB must prioritize its efforts, and in so doing, determine which issues it will and will not address. This is especially crucial now, during the End of Phase 1 period, because of the large number of demands for the ISB's attention. The relative effort to be spent on each type of issue must be clarified. For instance, has the amount of time the ISB has spent on the development of performance measures appropriate? Without a *Strategic Plan*, this is difficult to determine. The Board must also determine whether it will take a "reactive" stance responding as appropriate to current crises, or a "proactive" stance anticipating future science needs and potential crises.

The discussion regarding whether the ISB has authority to respond to the public comment from the NRDC attorney, submitted on Day 1, illustrated the ISB's need to define itself with a *Strategic Plan*.

The ISB *Strategic Plan* is intended to be a living document, articulating goals and plans, being revised and updated as significant changes arise in the Program environment.

The current ISB charge adopted a year ago has the following nine specific charges:

1. Understand underpinnings of the Program.
2. Evaluate progress toward Program goals.
3. Evaluate Science agenda.
4. Assure balance and credibility of analyses.
5. Approve performance measures.
6. Assure science is used in all programs.
7. Identify impending issues and significant interconnections.

8. Work with National Research Council.
9. Help select the Lead Scientist.

## Primary ISB Functions

Oversight. Assuring quality of science.

Insight. Using the ISB's remarkable range of expertise to gain deeper understanding of the implications of current CALFED issues for science, and of current understanding of science for CALFED issues.

Foresight. Anticipating future issues. For instance, the first convened ISB raised the issue of the lack of sustainability of the Delta, precipitating the past two years of investigation into this issue.

Linking Science to Policy. This role is not explicitly noted in the ISB's current charge. The science community is good at science, but not at designing science that feeds into and connects to policy. (Tim Quinn of ACWA raised this issue.)

## ISB Current Performance

Mount discussed principle ISB actions during the past year and the results of each action. *Please see the ISB website for presentation.*

## Issues to Consider for *Strategic Plan* Development

The issues that the ISB must consider while developing the *Strategic Plan* are their role, the timeframe of issues that they might consider, and their mode of response to issues.

- Four roles: oversight, insight, foresight, and integration of science with policy.
- Three timeframes: immediate and near-term, ongoing, future.
- Two modes of response: reactive and proactive.

The discussion below is structured according to timeframe.

### Near-Term Issues

The following is discussion of some of the near-term issues mentioned during Mount's presentation.

### **Integration of Science**

Science is being developed and applied in several efforts now – including Delta Vision, DRMS, and the BDCP. Approaches are not being integrated across these efforts. This will likely lead to results that cannot easily be related to each other, and possibly even to apparently conflicting information. Integration often takes place informally through personal relationships; it is likely that with Denise Reed as Lead Scientist of BDCP, integration between that effort and CALFED programs will be improved.

### **Screening of Delta Vision Scenarios**

Patten, Norgaard, and Meyer have experience with related efforts, and will likely be able to provide insight.

### **DRMS Review**

Should the ISB address the fact that the DRMS product will be incorporated into Delta Vision prior to completion of DRMS?

### **POD**

While POD is one of the most important issues in CALFED-related science, the ISB has not seen the report, nor has it been requested to be involved. Is this an issue that the ISB should pursue?

### **Delta Regional Ecosystem Restoration Implementation Plan**

Several current ISB members have a history of involvement with DRERIP. Because integration of science can be facilitated through personal relationships, it would be reasonable for ISB member to be involved with DRERIP in order to further science integration.

## **Ongoing Issues**

McKinney expressed concern that several issues and organizations that are of obvious importance to CALFED science – such as IEP and the Comprehensive Monitoring, Assessment, and Research Program (CMARP) – have not yet appeared on an ISB meeting agenda. Outcome monitoring, i.e., physical, chemical, and biological system monitoring, is crucial to science.

## **Long-Term Issues**

### **CALFED Stage 2 Implementation**

The ISB will be asked to provide its input on the roles and structure of Phase 2 of the CALFED program.

### **DRERIP Implementation Plan**

Smith noted that DRERIP will not provide answers, but rather is a tool for sorting ecosystem restoration projects, and as such will be a source of questions and a tool for coordinating these questions. DRERIP has scheduled the release of their conceptual models for this summer, Mount noted.

## ISB Discussion

### Critical Planning Questions

- How well are we meeting the June 2006 charge? How effective are we, or is it too hard to determine?

Because the ISB has no performance measures against which to compare its performance, it is not possible to answer this question. McKinney noted that the ISB has touched on most of the charges during the past year, which indicates good performance. However, both he and Patten noted that ISB actions have not been done within a framework and have accordingly been reactive and unplanned.

- Is our current allocation of oversight, insight, and foresight the proper balance?

Norgaard noted that the ISB could better decide what issues to focus on if the Lead Scientist and Science Program staff could provide greater discernment on the issues that they request the ISB to consider. Mount noted that half of the past year, there was no Lead Scientist.

#### **Balance of Oversight, Foresight, and Insight**

Keller noted that there should be a balance among oversight, insight, and foresight. For instance, he could play a role as an individual advisor from the ISB, providing foresight for monitoring in water supply reliability and levees issues. Mount noted that providing this kind of support would demand a lot of time and resources.

#### **Role of Oversight**

ISB members generally agreed that its oversight role should be reduced; it was suggested it should comprise about half of the activity. Meyer noted that oversight is very important, however. Perhaps improving efficiency would maintain this role but reduce time investment. McKinney agreed that while “reviewing the review” is a useful role, the ISB must pick and choose carefully. Science Program staff and the Lead Scientist could suggest which reviews to consider. Mount noted that this represents an evolution in the ISB’s self-perceived role from a year ago, when reviews seemed a crucial part of the ISB’s role. An important change is the ISB’s commitment to go beyond reviews to include comments on implications for science – such as were discussed in the review of the EWA.

#### **Role of Foresight**

Foresight is an important role and should be a large fraction of the ISB’s effort – several members suggested at least half. This will include playing a role in the following.

- Assuring that sources of data and procedures are adequate.

- Giving hearings to post-doctoral fellows and investigators who need direction on critical projects.
  - Playing a role in investigating and publicizing innovations – both science and technology – that can play a role in future science. For instance, Goodwin has participated in a seminar on trends in data retrieval; such a seminar could advance skills of CALFED scientists. The ISB could play a role in identifying and suggesting topics for such workshops/training.
  - “Foresight” is another term for “proactive” rather than “reactive.” Patten noted that the ISB should find a way to anticipate impending crises and suggest ways to for science and policy to respond. He noted that developing a plan for how science and monitoring interact could play a large role in this.
  - Meyer noted that the short-term issues that will require foresight are Stage 2 planning and Delta Vision. These should accordingly be placed high on the priority list of the ISB’s *Strategic Plan*. (Ott noted that other efforts would roll into these top-level primary issues – BDCP, DRERIP, and Suisun Marsh have their own scientists.)
- Is the nature of our products (memos) sufficient for meeting our goals?

Memos are very effective, but the ISB members are particularly expert in writing substantive pieces – which the ISB does not currently produce. Mount noted that, for instance, the ISB could produce a substantive review of how integration of science could take place in the current significant CALFED-related efforts. Patten noted that this would be proactive, whereas writing memos is reactive.

Meyer noted that the previous ISB had encountered difficulty when it wrote the paper on levee integrity, because it was perceived to be inappropriately acting as consultants. This would have to be resolved before the ISB could take on the role of writing more substantive papers.

- Should we tackle the issue of science integration more aggressively, and if so, how?

If the ISB plans to address the issue of integrating science, would the best approach be a memo, an analysis, or other?

Smith noted that the timing chart that Kirlin presented on Day 1 of the ISB meeting demonstrated the need for integration of science. It takes integration for science products to merge, and it takes time to integrate the science. It defeats science not to have each of the science efforts mentioned on the timing chart NOT to be integrated. Mount noted that lack of integration could potentially lead to apparent contradictions because the efforts are asking different questions. In particular, the purpose of the BDCP (as a planning document focused on permitting issues) is very different from the purposes of Delta Vision and DRMS.

Meyer noted that this issue the issue of science integration in current CALFED-related science-based efforts is of a fundamentally different kind than the levees paper (mentioned in the previous bullet point), and warrants more attention from the ISB than a memo would require.

Twiss noted that the difference between BDCP and Delta Vision is a classic example of species-specific protection (BDCP) versus landscape-level and process-level analysis (Delta Vision). Denise Reed and Lead Scientist of BDCP is aware of the tension between these two approaches but will be limited in her authority as reviewer to push integration. An ISB science paper could state what types of issues the ISB anticipates arising from these efforts and how integration could address any problems.

Norgaard noted that the ISB should acknowledge and encourage a process-based approach to science integration rather than a top-down approach. The PPIC approach is a good example – scientists have got together to share their knowledge and are using the results of cooperation to interpret their results in a broader framework. The ISB could play a role is helping set up a framework of interaction.

- Should we, as part of a *Strategic Plan*, re-evaluate the Lead Scientist position as currently structured?

It was noted that discussion about recruitment of the Lead Scientist, beyond the issue as it relates to the ISB's *Strategic Plan*, is needed. It may be discussed during an executive conference call, if CALFED counsel approves.

The current structure of the Lead Scientist position presents challenges for recruitment, especially with respect to attracting scientists from academia

- The position is limited in time, a two-year appointment with a possible extension to four years, meaning that the Lead Scientist does not currently have the prospect of being involved with the work over a long period.
- CALFED experiences some amount of structural, political, and fiscal instability in its role as a politically funded entity that is breaking new ground in science and policy – with the result that it is unclear who the Lead Scientist would report to beyond the immediate future.
- Further, the CALFED environment is quite complex, and the Lead Scientist needs to have the resources to deal with the complexity – meaning time to grow into the position and administrative support to execute the responsibility.
- An academic who would take on this position would be giving up the “activities that you love” as a scientist for an administrative and agency-type position. A possible incentive for candidates would be to encourage the Lead Scientist to maintain an active academic life. Patten suggested that it might be worthwhile to consider making the Lead Scientist position part-time and delegating some administrative duties to other Science Program staff. Further, An academic looking for such a position

would want to take a position that would be “a feather in your cap.” If CALFED wants to recruit a Lead Scientist into this position, the role must have potential to provide this benefit. Patten suggested that the Lead Scientist role should be “both more and less than it has been.” Meyer, however, noted that there are people in academia who are ready for a career change and may want to move from pure science to the science-policy interface.

- McKinney and Mount noted that pay scale for the Lead Scientist is not a large increase over a full professor with years of experience.

## Baptista’s Presentation

*Please see the ISB website for presentation.*

### **Context**

ISB value is its independence. It is objective, and does not play an advocate role. It serves the region, not just CALFED. The ISB’s region of concern is the Delta in context – upland and to the ocean.

The ISB must be instrumental in encouraging the integration of science and in developing an infrastructure to sustain scientific enquiry. Baptista noted that there is currently no science infrastructure with associated appropriate monitoring.

### **Recommendations**

ISB meetings should be at least two days each. The first day should be spent on topics chosen by Science Program staff and the Lead Scientist. The second day should be an “action” day that is driven by agenda determined by ISB members.

The ISB should be more involved in content development, and less involved in listening to presentations. Work could target efforts that crosscut regions and efforts that would encourage collaboration. The ISB should also engage with agencies at the highest level. An example of an appropriate issue is integrating indicators of performance. Output could include “white papers.”

The ISB should participate in developing requests for funding (“RFPs”), in order to influence research programs funded by CALFED. There is a need for a system approach to develop integrated monitoring and modeling systems; science that will support management in decision-making, and science related to climate change impacts.

The ISB should consider supervising several fellows. Baptista suggested supervising two fellows doing work with indicator measures and two doing work with monitoring and modeling systems.

The ISB must define a specific policy for dealing with short-term response. It must be able to intervene but should do so only exceptionally, when the ISB feels strongly that it should participate and that it is uniquely qualified to do so. This

would involve a mechanism for acting on a 15-day cycle to accommodate requirements for meeting noticing. Video-conferencing is a likely approach.

## **ISB Discussion of *Strategic Plan* and of Baptista's Recommendations**

Mount and Baptista noted that the ISB would have a greater impact if it produces "white papers" (degree of complexity and peer review to be defined) or "thoughtful essays" rather than memos. The document itself would be of less importance than the effects that the document would have on science.

Baptista suggested that each future ISB meeting include brief presentations by ISB members on a white paper on a topic they consider important. McKinney suggested that a more in-depth documentation of the topics discussed during the meetings could be useful to CALFED. Goodwin noted that if ISB is to produce these white papers, authors should attend meetings on the relevant topic in order to base their understanding on in-depth and current knowledge. He also noted that these reports could be published in the Science Program online journal.

Smith noted that ISB members could combine budgeted contract time and personal time doing research in their own areas of expertise to deliver one major product a year that would serve this role. This, however, would require more support from CALFED staff.

Possible topics for white papers (names of recommender are in parentheses; this does not necessarily imply that the recommender would also do the paper):

- How to assess scenarios (Meyer).
- Water quality (McKinney suggested presentation by Glaze).
- EWA and recommendations for future environmental water programs (report from McKinney and Smith).
- Report on the state of science integration in CALFED programs (Mount suggested report by ISB as a whole).
- Prediction system and infrastructure, and implication for RFP (Baptista).
- Any studies or recommendations for studies that would help identify and potentially avoid future crises (Patten). This could include studies of Delta smelt, longfin smelt, pumps, and how land management decisions will affect the future of the Delta.

## **Next Steps**

The ISB will continue its discussion of the ISB *Strategic Plan*, likely by conference call in July.

## **2. State of Science for the Bay-Delta System Report – Jana Machula**

*Please see the ISB website for presentation.*

### **Overview**

The Editorial Board hopes to have completed its review of chapters 1 and 2 by mid-June. Peer review will be in August and September. ISB review is currently scheduled for November and completion by end of December. However, there have been a number of requests to schedule the release date sooner, in early November before the winter holidays. This could possibly be accommodated if the ISB gives its review parallel to peer review to shorten the time of the review cycle.

Patten noted that considering the likelihood of slippage for any document of this complexity, the projected schedule is unrealistic. To release the document early is even less likely. He recommends publishing the document in January, incorporating at some level the information from Delta Vision. Machula noted, however, that the Lead Scientist would like to see completion of the State of Science report by the end of his term, scheduled for the end of January.

### **Executive Summary and Delta Vision**

Ott mentioned that the Delta Vision participants have requested each draft chapter as they are released to consider in developing the vision. ISB response was that an executive summary of each chapter would be more useful to the policy-oriented Delta Vision Task Force.

McKinney suggested that the complete executive summary be released in advance of the full report. The ISB could review the summary in September. Patten noted that an adequate review entails that the reviewers be familiar with the content of the chapters; Baptista concurred and recommended that the ISB receive the full report in September but review the executive summary first.

Smith suggested that the ISB review the full report parallel to peer review of individual chapters. Machula questioned whether this would be most effective because the report intends to show linkages in the system. Piecemeal review by the entity best suited for comprehensive review – the ISB – could undermine the value of its review.

Baptista recommended that the report be signed as late in December as possible, with a public release in January.

Mount noted that the State of Science report would have a greater impact on the *Strategic Plan* part of the Delta Vision process (to be completed in 2008) rather

than the vision process (to be completed in 2007). Thus, it is not crucial that the State of Science report feed into the visioning process.

The Editorial Board will notify the ISB whether they will be assigned chapters for review or whether they should request chapters.

Mount noted that Machula would be leaving the Science Program in early August. He thanked her for being “always responsive, always pleasant, even keeled, and talented.”

### **3. Public Comment**

There was no public comment.