Independent Science Board Meeting
California Bay Delta Authority, Bay-Delta Conference Room, Sacramento, CA
Thursday, April 22, 2004 8:30 a.m.–5:00 p.m.
Friday, April 23, 2004 8:00 a.m. – 1:00 p.m.
Executive Summary and Meeting Notes

Action Items

	Responsible	Items	Status
1.	Staff	Program staff will work with CALFED counsel to refine the Conflict Of Interest guidelines document for ISB activities. Staff will present the COI Guidelines at the September meeting.	Completed
2.	ISB Team	Levee Integrity Fact-finding Team (Mount and Twiss) will craft a document on uncertainty issues facing levee safety including: • Potential small, medium, large impacts, based on the eight issues identified by DWR and USACOE; • Potential low probability, high risk events; and • Two most critical issues: subsidence and seismic failure. The Team will also consider creating a document highlighting the big picture science issues facing the Levees Program, and the overarching concerns these pose for the whole CALFED plan. Mount and Twiss will identify a USGS speaker on seismicity and levees and will invite speaker to provide the brown-bag lunch science presentation at the September ISB meeting.	In-progress
3.	ISB Team	New Member Team (Ingram and Twiss) agreed that: • Twiss will update the descriptions of desired new ISB member general characteristics and disciplines. This document will not include the names of candidates. • Team will submit that document to Moore, who may ask specific questions during the September ISB meeting. • Team will be available to answer questions from Keller and Gohring regarding the Water Management Science Board (WMSB).	Completed
4.	ISB Team	Delta Improvements Plan (DIP) was delegated to Reed with support from Moore. Reed will draft a short document to include: • A long-term vision of the role of science, including a general discussion of basic "delta science," • A clear vision for the Delta, • A discussion of the risks • Interconnections between program elements in the Delta, and • Examples of how specific experience of ISB members in different systems can be pertinent to the Delta. Reed will present the information in the document to the Authority on June 10, 2004.	Completed 6/10/2004

	Responsible	Items	Status
5.	ISB Team	EWA/ERP Team (Rose and Freyberg) will continue with charge to prepare for a conversation between the EWA and the ERP Science Board. Team will frame 3-4 cross-program questions. Suggested potential topics include up and downstream effects, cross-cutting issues like purchasing water for fish, gaps in knowledge for projects such as 8500 cfs through the Delta, coordination among the agencies, and identifying barriers and opportunities for integrating the two programs.	In-progress
6.	ISB Team	PSP Team (Meyer and Patten) will meet with Moore and Taylor to provide more detailed comments on PSP and Implementation Plan. Moore will assist Taylor in incorporating comments, considering ERP examples, and re-structuring both documents. Science Program's goal is to submit the PSP to the Authority in August 2004.	Completed 8/12/2004
7.	Keller	Keller will solicit ISB recommendations (candidates and disciplines) for the Water Management Science Board. If any ISB member is also interested in serving on the Water Management Science Board, please inform Keller.	In-progress
8.	Reed	Reed will attend the June 10, 2004 Authority meeting.	Completed 6/10/2004
9.	Staff	Staff will consider arranging an optional field trip of the Delta for ISB member with DWR and USGS synchronized with the September ISB meeting.	In-progress

Upcoming Meeting Dates

Please note changes to upcoming ISB meeting dates have occurred. The new dates are:

- September 21 & 22, 2004
- November 11 & 12, 2004
    - Afternoon of November 10 will be reserved for Team work. ISB meeting will be 1½ days, ending Friday, Nov. 12 at noon.

CALFED Science Conference, October 4 – 6.
EWA Year 4 Review, Nov. 8 – 10.
Restoration Conference December 6 – 10 in Orlando.

Executive Summary

Report on April 7-8 Authority Meeting

Dunne reported that the Authority was enthusiastic in their approval of Moore as Lead Scientist. Authority members should be extended an invitation to attend an ISB meeting, with a focus on science, enhancing the understanding that science is inherently process-oriented rather than results-oriented, and understanding the respective roles of the ISB and the Science Program.

Report of Conflict of Interest Team

Slide show presentation outlined 'Conflict of Interest' issues and suggested draft language on sole source paid assignments, voluntary assignments, delegated assignments, the competitive

process, areas of concern, and disclosure. Discussion topics included: the ISB COI guidelines may influence other CBDA Science Boards, legal concerns and public reaction, and an annual disclosure discussion. ISB discussion noted that an open, competitive, peer-reviewed process will help manage potential conflicts of interest. Procedures are needed for ISB members to apply for competitive funds.

Delta Improvements Program

Wright presented a brief slideshow describing how and where California water is being used from a broad perspective.

Ramirez presented a slideshow providing background information of the Delta Improvement Plan noting that one fundamental decision of the ROD was to improve the Delta before constructing more reservoirs.

There are currently several agencies working to develop management plans regarding water quality. Eventually, there will be a need for evaluating and integrating the various efforts regarding water quality in the Delta. It was suggested that input from the ISB may have an appropriate role in this process.

The ISB agreed that Matt Kondolf's presentation that compares California to Spain and Portugal would provide useful information to the Authority.

Next steps

Reed will present a short document to the Authority explaining what role the ISB and the Science Program can play; what information, knowledge, insight, and guidance it can offer.

EWA/ERP Integration Team

The Environmental Water Program (EWP) was discussed and outlined as a tool for the ERP. The EWP has specific targets to improve habitat where the EWA is focused on minimizing the take of species. ISB members suggested the EWA/ERP team summarize all water sources onto one page, and focus on the science needs or uncertainties that would be in common between these programs. CALSIM II and other new water models may be useful to calculate quantities of flow and possible options for the EWA.

Next Steps

The ISB recommended the EWA/ERP Integration Team discuss issues with Ramirez and others and report back at the next ISB meeting.

Levee Integrity Fact-finding Team

A summary of research findings were presented regarding the organizational structure of levee agencies, staffing, and levee integrity. The Team interviewed staff of the Department of Water Resources and the Army Corps of Engineers.

It was noted that the purpose of the Levee Integrity Program is to reduce the risk of unplanned levee failures. Eight major issues were found to impact levee integrity: 1) Subsidence, 2) Seismic

risk, 3) Salinity, 4) Sediment budgets, 5) Dissolved organic carbons, 6) Exotics, 7) Mercury, and 8) Mosquitoes. In summary:

- Levee Integrity program is dependent on other programs for science
- Mercury and mosquitoes present significant levee integrity problems
- The program is absent of an adaptive management component.

ISB discussion noted that as new issues and alternatives are studied, new solutions may arise; a need for solutions that do not require expensive engineering; it is problematic to view the Delta as a static, unchanging phenomenon that will be the same in 30 years; and levee system failure would have implications for water quality.

Next Steps
The ISB should investigate this topic further to focus on potential significant risks. Team will write a short paper on this topic and circulate to the ISB for feedback. The Team will continue research and invite a USGS scientist to present on seismicity and risk analysis over lunch at the next meeting.

New Members Team

Team discussed the process of adding new members to the Water Management Science Board and the ISB. It was noted that the two boards have gaps in social science disciplines. Desired characteristics for new Science Board members include scientists who are: broad thinkers, familiar with physical/social science interactions, and are professionals. The Team identified several desired disciplines: geographers, risk and decision analysis experts, environmental economists, environmental law, and experts in organizational innovation and change. Written recommendations to thoroughly describe why these disciplines would be useful to the ISB were suggested. Another member pointed out that issues might be more important than specific disciplines.

Next Steps
The New Member Team will provide recommendations regarding Science Board member disciplines to the Lead Scientist, who will make the final selection.

Water Management Science Board

The first scheduled meeting of the WMSB is in October 2004. One or two additional board members are needed to cover the disciplines. It was agreed that attention for new member recruitment should first be given to the WMSB, then to the ISB. The ISB suggested that the WMSB aquatic ecologist position be split into two positions (Aquatic Biologist and a Ecologist familiar with nutrients and water quality) and that the New Members Team consider individuals with experience in the interaction of science and management. The need for additional water quality and public health expertise was also discussed.

Next Steps
Keller will solicit the ISB to involve interested members who would like to serve on the WMSB. Keller will request the description of desired characteristics and disciplines for new Science Board members from the New Members Team.

PSP Team Update

The Science Program's draft PSP will be completed for the August Authority meeting. ISB members who work on the draft PSP document should not participate in the PSP process.

Next Steps

Moore to provide advice on how to restructure the draft PSP and the draft implementation plan, by referring to ERP examples. Staff will incorporate detailed comments and submit the PSP to the Authority in August 2004.

Public Session

The ISB meeting was opened up to allow members of the public to attend. Discussion topics included:

- Chair Report
- Science Program Update
- Audience comments
- Brown bag presentation on Food-webs in the Delta by Jan Thompson of the USGS

Audience Comments

Jacobs from CDFG discussed two concerns: 1) delivering science to the agencies, and 2) monitoring. Jacobs stated that funding for monitoring is being lost and no comprehensive monitoring framework has been established. This initiated an ISB discussion on the importance of long-term data.

Brown noted that the IEP is facing significant budget cuts.

Taylor suggested the ISB consider 1) what makes a monitoring program successful, 2) types of data, monitoring and research needed, and 3) distribution of effectiveness of monitoring across CALFED.

Bobker stated that the problem is not monitoring, but rather the adaptive management program. A framework is needed that identifies the program's goals and what information is needed to attain those goals.

Independent Science Board Meeting
California Bay Delta Authority, Bay-Delta Conference Room, Sacramento, CA

Detailed Meeting Notes

Thursday, April 22, 2004 8:30 a.m.–5:00 p.m.

ISB Members in Attendance

Tom Dunne, Ph.D.	David Freyberg, Ph.D.	Helen Ingram, Ph.D.
Judith Meyer, Ph.D.	Jeff Mount, Ph.D.	Duncan Patten, Ph.D.
Denise Reed, Ph.D.	Kenneth Rose, Ph.D.	Robert Twiss, Ph.D.

ISB Members in Attendance by dial-in

Ken Cummins, Ph.D.	Jack Keller, Ph.D.

ISB Members Absent

Bill Glaze, Ph.D.	John Melack, Ph.D

State Staff

Dan Castleberry	Tom Gohring	Lauren Hastings
Zach Hymanson	Heather Johnston	Sam Luoma, Ph.D
Jana Machula	Johnnie Moore	Tim Ramirez
Rhonda Reed	Kim Taylor	Patrick Wright

Consultants

Kateri Harrison	Diana Roberts

Welcome

The meeting convened at 8:40 a.m. Dunne welcomed everyone and reported that Ken Cummins is recuperating well. Minor changes to the day's agenda were reviewed and agreed upon.

Report on April 7-8 Authority Meeting

Dunne reported that the Authority was enthusiastic in their approval of Moore as Lead Scientist and Authority members expressed the expectation that the ISB should be proactive, think big and long-term, and provide new information into the CBDA processes.

Wright suggested that Authority members be invited to attend a few ISB meetings to get a sense of key issues, the direction of the Science Program (SP), and the respective roles of the ISB and the SP. There is a wide variation in the expectations of the ISB, ranging from those who hope the ISB will pass review judgments on proposed projects to those who hope the ISB will serve an oversight big-picture role. ISB members suggested that if Authority members attend an ISB meeting, the focus should be on science and enhancing the understanding that science is inherently process-oriented rather than results-oriented. It was noted that Luoma has prepared a paper regarding the relationship between science and policy.

Report of Conflict of Interest (COI) Team

Reed presented a slide show outlining "Conflict of Interest" issues and suggested draft language on sole source paid assignments (directed actions), voluntary assignments, delegated assignments, the competitive process, areas of concern, and disclosure. ISB discussion centered on the following points:

- The ISB's COI Guidelines may influence other CBDA Science Boards.
- Non-competitive service on the ISB differs from accepting non-competitive assignments.
- At issue: the terms "uniquely qualified," "open competitive process," "product," "rule."

- Timeliness might be part of "uniquely qualified."
- Science Program would determine a need and identify the "uniquely qualified" individual. The ISB would review the SP's documentation that this individual is uniquely qualified, and forward this to the Authority.
- If someone is determined to be "uniquely qualified," that should be the exception rather than the rule.
- Important to avoid the appearance of conflict of interest with students and colleagues of ISB members.
- Recusing one's self during ISB discussion is a method of avoiding COI issues.
- The State's RFQ process is unwieldy.
- There are two issues: legal concerns and public reaction.
- The ISB agreed that the term "rule" has legal implications and so should not be used in the context of guidelines.
- The most productive relationships with institutions and programs are long-term, but that such long-term relationships may compromise the impartiality of the ISB. Perhaps it is not appropriate for a person with such relationships to serve on the ISB.
- The ISB should have a disclosure discussion once a year. Most members do not know in detail what projects their fellow Board members are doing for CBDA and therefore would find it difficult to decide whether any particular situation constituted a conflict of interest.
- A benchmark is needed to maintain not just legal impartiality but also the more stringent test of public acceptance.
- The Authority would be a good group to approve the COI guidelines because they understand political implications.
- The ISB needs COI guidelines not to eliminate any possibility of conflict of interest, but rather to manage them.
- A problem arises when the directed research or sole source activity is given to a Board member.

Rose noted that if the ISB is to become more proactive with the CBDA (beyond its role as a reviewer of proposals and the "go-to" place for answers to science questions), the ISB should perhaps be completely uninvolved with non-competitive activities.

Taylor explained how a "firewall" for the Science Program's RFP process enhances SP impartiality. The SP receives advice from many sources and writes the RFP from their conglomerated understanding.

ISB discussion noted that an open, competitive, peer-reviewed process will help manage potential conflicts of interest. Precise procedures are needed for ISB members to apply for competitive funds. Directed programs, which serve an important function for CBDA, are a grey area that needs very careful analysis. The default position would be for ISB members not to participate in directed actions. Sole-source access to projects, whether funded or not, are problematic. Exceptions may include a candidate who is "uniquely qualified" or has recused himself/herself from any deliberations on awarding the project.

<u>Delta Improvements Program</u>

The ISB's role in the Delta Improvements Program was the focus of this agenda item. Reed stated three goals for this discussion:

1. *Education.* Make sure that everyone on the ISB knows and understands the terminology, "plumbing," and scope.
2. *ISB role*. The Authority will meet in June. The ISB must be ready to inform them of ISB's role by that meeting.
3. *Next steps*. Should we establish a Team?

Wright presented a brief slideshow and discussed how and where California water is being used from a broad perspective. Funding is distributed according to 12 CBDA programs and their specific multi-agency, multi-regional projects. The 2004 CBDA agenda includes both system-wide improvements and local and regional projects. In the past decade, local and regional agencies have spent billions of dollars on their own projects, including integrated regional water management plans and desalinization facilities. Now the State is moving toward giving support to local and regional agencies via financial and technical assistance. Issues include oversight coordination and science, Federal authorization, finance plan, Science agenda, re-evaluation of targets, and performance measures.

ISB members discussed the need to include previous CALFED goals, particularly CALFED's acknowledgement that the environment was damaged and needs recovery. Recovery is part of CBDA's agenda. DWR will issue a Draft EIS/EIR to increase pumping in the south Delta in Fall 2004, including public review. ISB members noted the use of the term "Delta Improvement" refers to improvement in the ability to extract water from the Delta.

ERPP Volumes I and II articulated a vision for the improved state of the Delta but it no longer corresponds to current understanding of how the Delta functions. It is hoped this will be considered during the DRERIP process.

Ramirez presented a slideshow providing additional background information of the Delta Improvement Plan and indicated that the Sacramento River Basin conveyance system design capacity is insufficient. Luoma offered a biological perspective on conditions that existed before large human populations where the steep Sierras collected snow; and snowmelt flooded the Central Valley, which was then a very large wetland. Humans have eliminated this floodplain and this has impacted floodplain dependent species. It was agreed that Matt Kondolf's presentation that compares California to Spain and Portugal would provide useful information to the Authority.

Ramirez briefly discussed the history of the CALFED Bay-Delta Program which represents coordination of the Central Valley Project (federal) and the State Water Project operations with regulatory requirements. It includes three phases:

Phase I—Identify problems and alternatives.

Phase II—CEQA/NEPA analysis. The ROD was issued in 2000. One of the fundamental decisions on the CALFED ROD was to improve the Delta before building more reservoirs.

Phase III—Implementation.

It was noted that the science in the ROD is now outdated and that as each CBDA program prepares EIRs, more recent science is incorporated.

Ramirez continued his presentation, highlighting the distribution of water in the Delta Waterways, the supply-rich but conveyance-poor federal Central Valley Project (CVP), the conveyance-rich and supply poor state project (SWP), the South Delta Improvements Project (aka 8500) that would increase the flexibility of state pumping, the Delta Cross Channel, fish salvaging in the Clifton Court Forebay, and very high predation rates on salmon in the Forebay.

Ramirez noted that water quality is a concern that many stakeholders have expressed. CALFED is supposed to provide continuous improvement, not just meet standards. There is currently a long list of water quality efforts that will be done, but there is no plan for integrating them or for evaluating how they would influence each other. He suggested that there might be a role for the ISB. State agency staff has discussed the need for a salinity management program in the San Joaquin. Several agencies are working on this and eventually their efforts will need to be integrated.

Next steps
The next step is to mold these ideas into a short document that explains what role the ISB and the Science Program can play; what information, knowledge, insight, and guidance it can offer; and offer a shorter-term proposal for what the ISB and Science Program can do. The document should interweave longer-term ideas with short-term advice. Program elements should be integrated rather than piecemeal. There needs to be a clear understanding of the Delta as it is now and a clear vision of the Delta's future. ISB members agreed that the document should inform the Authority of what science can do, and could include the following:

- General discussion of basic Delta science
- Patten's Glen Canyon experience
- Articulation of clear vision for the Delta
- Risks associated with flexibility
- Interconnection between program elements
- Principles that could be applied to science

Dunne summarized that if the ISB approves the document, the document will communicate to the Authority and to ERP the scientific issues and approaches that must be used in the long term for effective alteration of the Delta system.

Reed, with assistance from Moore, was assigned to assume the lead in developing this document and delivering it to the Authority at the June meeting. There will be two communiqués, delivered as attachments: principles of science and a transmission memo to the Authority.

Introduction of John Moore to ISB and State Staff
Approximately 40 CBDA, DFG, and other staff members were in attendance. Everyone in the room introduced himself or herself with name and affiliation.

EWA/ERP Integration Team
Rose provided an update on the Team's (Rose and Freyberg) discussions to date. Castleberry explained that the ERP has tools to achieve its aims, including the Environmental Water Program (EWP) target to achieve 100,000 acre-feet of water in streams that supports spring-run Chinook salmon and steelhead. EWP is a pilot, time-bound program with a specific focus and acquisition targets for purposes of improving habitat. The EWA is focused on minimizing the take of species. EWP has found that buying long-term water rights is difficult and has had to purchase short-term water to meet short-term needs. Battle Creek is an example.

ISB members provided the following suggestions for the EWA/ERP Team:

- summarize all water sources noted together on one page.
- focus on the science needs or uncertainties that would be in common between these programs.

It was noted that CALSIM II can calculate that information for any tributary, any year, and one could ask questions about the quantities of flows and options for the EWA. Freyberg reminded the ISB that the original context of the EWA was to deliver water to users who otherwise would have poor access because of an ESA red light. The EWA guarantees delivery of water regardless of habitat and species considerations. It would be a fundamental change to consider who would have perceived a loss if water were used differently. ISB member discussed to what extent ERP considers the water system operation as something other than a constraint. EWA might conceptualize ERP as a goal, but is the opposite true? It was noted that research is being done to consider flow sequences in relation to water system operations. New water models can plug in ERP flow targets to study ecological values.

Next Steps
The ISB recommended that EWA/ERP Integration Team discuss these issues with Ramirez and others and report back at the next ISB meeting.

Levee Integrity Fact-Finding Team
Twiss summarized he and Mount conducted research regarding organizational structure of levee agencies, staffing, levee integrity, and so forth. They also developed background questions, such as

- Is there a science element in levee integrity studies?
- Is there currently any acknowledgement of uncertainty?
- Has the interviewee identified key areas where science could help?
- To what extent does science appear in environmental documents, especially good levee projects?
- Is there anything in the adaptive management arena that is involved in every day work?

They did not ask these questions directly but looked for answers to these questions in the interviews. They spoke with Curt Schmutte (DWR) and Army Corps of Engineers staff.

Mount presented the Team's slideshow and noted the purpose of the Levee Integrity Program is to reduce the risk of unplanned levee failures. The group was originally part of the Subventions and Special Projects Program of DWR and is now a diffuse interagency group. DWR distributes funds for repair and maintenance of levees to 60 levee districts. Most work is conducted by local districts. Each island has its own levee maintenance board.

There are eight major issues impacting levee integrity and subsidence and seismic risk represent considerable risk including: 1) Subsidence, 2) Seismic risk, 3) Salinity, 4) Sediment budgets, 5) Dissolved organic carbons, 6) Exotics, 7) Mercury, and 8) Mosquitoes.

In summary,

- Levee System Integrity program is dependent on other programs for science. CALFED is not stepping up to say what it would do in case of serious subsidence.
- Show-stoppers are mercury and mosquitoes.
- No adaptive management component.

ISB members noted the following: as new issues and alternatives are studied, new solutions may arise; a need for solutions that do not require expensive engineering; it is problematic to view the Delta as a static, unchanging phenomenon that will be the same in 30 years; and levee system failure would have implications for water quality.

Next Steps
Dunne noted that the ISB should investigate this topic further, not to establish inevitabilities but rather potential significant risks. Mount and Twiss agreed to write a short paper on this topic and circulate it for comments. The Team agreed to continue the scouting activities and to invite a USGS scientist to provide a science talk (next meeting's brown bag lunch) on seismicity and risk analysis.

New Members Team (Ingram and Twiss)
Ingram discussed the process of adding new members to the Water Management Science Board and the ISB. (Attachment D of the background materials summarizes many of the details of her presentation.) Keller (WMSB) is interested in having some social scientists on his Board. Ingram noted that the two Boards together still have gaps, mostly in the social sciences. Desired characteristics of Science Board members include:

- Broad thinkers, people who are interested in areas beyond their own narrow discipline, and who like to interact with people outside their disciplines.
- People who are accustomed to thinking about physical/social science interactions, in particular ecosystems, especially how physical science interacts with social processes. A natural implication would be geographers.
- Scientists with a scientific professionalism and no clearly identifiable association with specific interests, for example, an economist who is deeply embedded in details of economic analysis of the Bay–Delta region.

The Team has identified several desired disciplines: geographers, risk and decision analysis experts, environmental economists, and experts in organizational innovation and change.

Keller said that the Water Management Science Board has decided it needs an environmental economist, and questioned whether there needed to be an additional one on the ISB. The need for a lawyer on the ISB was also questioned by some ISB members and this concern was not resolved.

Freyberg noted that if the ISB recommends these disciplines, the CBDA Authority may receive it as an expansion of the definition of science. He suggested that the ability to think broadly may be more important than the discipline, which should be secondary. He stressed that the ISB would need to explain thoroughly why they believe these disciplines would be useful and must be careful in choice of language in their written recommendations.

Reed suggested that issues might be more important than specific disciplines and asked what issues the prospective new members could help with. Reed asked whether the Drinking Water Program has a Science Board. She also wondered whether the scientist must be an academic or whether scientists active in NGOs could be candidates. For instance, Terry Young in Oakland is a specialist in aqueous geochemistry and endangered species issues.

Next steps
Dunne noted that the ISB will provide recommendations regarding Science Board member disciplines to the Lead Scientist, who will make the final selection. The Team agreed to update their document in light of today's discussion with the goal to achieve general consensus on characteristics and disciplines. The Team's document should be provided to Moore who will reflect on this and later ask for individual nominations.

<u>Water Management Science Board</u>
Keller and Gohring discussed the formation of the Water Management Science Board (WMSB). Gohring stated that the first scheduled meeting for the WMSB is in October, but they are behind schedule. One or two more members are needed to cover the disciplines.

ISB members generally all agreed that that the attention for new members should go first to the WMSB and later to the ISB. ISB members suggested that the aquatic ecologist position be split into two: a fish ecologist/aquatic biologist and an ecologist who specializes in nutrients and food web/water quality. They also suggested that Keller and Gohring consider individuals with experience with the interaction of science and management. Reed, Patten, and Meyer noted that people from out of state can offer valuable experience.

The ISB discussed whether a separate Water Quality Science Board/Committee or Team is needed because of non-point source water quality issues vs. increasing membership in existing or proposed boards to include water quality experts. Discussion included the following points: the ERPSB is already fairly large; supporting a science board requires significant investment by CBDA staff; the WMSB should

have a strong water quality component; and the ISB currently has three water quality experts; and a public health risk expert would be needed in the water quality group to address salt, mercury, selenium. Not funding public health issues carries a significant cost.

Next steps
Keller will solicit the ISB to find interested members who would also like to serve on the WMSB. Keller will request the description of desired characteristics and disciplines for new Science Board members from the New Members Team.

First day adjourned 5:30 p.m.

Friday, April 23, 2004 8:00 a.m. – 1:00 p.m.

ISB Members in Attendance: Dunne, Freyberg, Ingram, Melack, Meyer, Mount, Patten, Reed, Rose, Twiss, and Keller (by phone). ISB Members Absent: Cummins, and Glaze. State Staff: Johnston, Moore, Ramirez, Taylor, and Wright. Consultants: Harrison and Roberts.

Agenda Review, Action Items, Meeting Schedule
Dunne reviewed changes in the day's agenda. Action Items resulting from yesterday's discussion were noted as listed on pages 1-2 of this Meeting Summary. ISB members revised their meeting schedule as shown on page 2 of this Meeting Summary.

Introduction to New Lead Scientist, Dr. Moore's
Moore presented a slideshow to introduce his interests and concerns to the ISB. He noted that the CBDA and all of California's water resource managers will have to deal with a significant increase in population in future and concurrently have increasing difficulties with water availability and conveyance and with environmental stability. Management of our environment must be active in order to assure viable water resources and ecosystems. He divided CALFED's purposes into two major efforts: understand system-level processes and functions, and assist project assessment.

Wright indicated that it would be helpful for the ISB to either produce or commission a series of short papers on important topics such as water use and management, subsidence, global climate change, and other big issues, not for direct use in policy formation, but as information.

Some Board members suggested that ISB has the responsibility to mention and acknowledge the "certainties"; be willing to speak out, even when they know that knowledge will continually be updated; raise issues to the level of debate; and to study water use efficiency. Mount suggested that the ISB might consider inviting Richard Howett and Jay Lund to speak about the CALSIM model to see how it can predict water prices with population changes.

Rose noted that considering similar efforts in other geographic locales could be useful in investigating methods of doing studies and lessons learned (Where the study went wrong; surprises.) Solutions are often site-specific, but these other insights may be generally applicable.

Patten suggested that considering "what if" would be a useful approach, to make projections about what might be done. For example, what if we change the way we distribute water? This could help us consider the science underlying causal theory.

Moore indicated that flexibility to ask individual ISB members for periodic assistance with short-term projects is desirable, and noted that longer-term projects would have to be competitive. ISB member contracts include a clause that they will "work with staff," which covers short-term advice however, it might be more appropriate for ISB members to provide Moore with referrals to other experts. It was agreed to consider these issues in more detail after the Board's Conflict of Interest Guidelines were formalized.

PSP Team (Meyer and Patten)
Meyer reported that the Science Program's draft PSP draft is still a work in progress but is on a tight timeline, and will be completed for the August Authority meeting. Those who work on the draft PSP document should not participate in the PSP process.

Next Steps
Moore will provide advice on how to restructure both the draft PSP and the draft implementation plan, and will refer to ERP examples. The Team will provide more detailed comments on the PSP and Implementation Plan. Staff will incorporate these comments and submit the PSP to the Authority in August 2004.

April 23, Public Session

ISB Members in Attendance

Tom Dunne, Ph.D.	David Freyberg, Ph.D.	Helen Ingram, Ph.D.
John Melack, Ph.D.	Judith Meyer, Ph.D.	Jeff Mount, Ph.D.
Duncan Patten, Ph.D.	Denise Reed, Ph.D	Kenneth Rose, Ph.D.
Robert Twiss, Ph.D.		

ISB Members Absent

Ken Cummins, Ph.D.	Dr. Bill Glaze, Ph.D.	Dr. Jack Keller, Ph.D.
Dr. Jeffrey Koseff, Ph.D.		

State Staff

Marina Brand	Dan Castleberry	Lauren Hastings, Ph.D
Heather Johnston	Jana Machula	Kim Taylor, Ph.D.
Patrick Wright		

Stakeholders

Patrick Akers	Gary Bobker	Larry Brown
Lauren Buffaloe	Rob DuVall	Dave Harlow
Diana Jacobs	Kristen Larson	Ladd Lougee
Kate Marie	Tom Mongan	Lorna Smith
Ramona Swenson		

Consultants

Kateri Harrison	Diana Roberts

Chair Report
Dunne stated that on May 5, ISB Teams reported on the work they were charged with during the January meeting. The EWA/ERP Integration Team will continue its work and report back at the next ISB meeting. The Levee System Integrity Team distilled a report on eight major topics of significance to those who do levee improvements. The ISB asked for further investigation on the seismology and changing topography issues specifically. There will be a report and perhaps a guest speaker at the next meeting. The Conflict of Interest Team engaged the ISB and staff in a discussion on how to manage potential conflicts and bias. The Team will work further on the development of COI guidelines prior to the next ISB meeting.

The New Members Team report was given by Ingram who noted the kinds of expertise currently on the ISB and other kinds of expertise that would be desirable has been discussed with the ISB. Social sciences, economics, and risk evaluation were among the disciplines discussed. Team will report back at next meeting.

The ISB appointed a new Delta Improvements Plan Team to discuss what scientific investigations should be done on the Delta and to develop a draft document on science related recommendations to be distributed at the June Authority meeting.

Introduction of Lead Scientist

Wright welcomed Moore and presented him with an official CBDA ball cap. Wright noted that Moore's attendance at an ISB meeting before his official start date reinforces their positive regard for him. Moore thanked Wright and those present. He said that the CBDA is an impressive operation with its integration of agencies.

Science Program Update

Workshops

Taylor reported that two workshops had taken place since the January ISB meeting:

1. Contaminants and identifying the effects on fish. See website at: http://science.calwater.ca.gov/workshop/past_workshops.shtml#.
2. Suisun Marsh with a discussion on the geographic distribution of native fish, technical issues, and the current state of knowledge. See website at http://science.calwater.ca.gov/workshop/past_workshops.shtml#. Thanks to Ladd Lougee and the Bay Delta Consortium.

A future workshop is planned for July focusing on gravel replacement projects and river processes. See website at: http://science.calwater.ca.gov/workshop/future_workshops.shtml.

ISB members discussed the value of these workshops and noted that workshops are a good medium for distributing current scientific knowledge, effective for forward movement when the participation number stays relatively small, helpful in reaching agreement about the certainties and the data, and gets participants involved in the idea development process. ISB members also noted that in other regions, targeted scientific workshops not open to the public.

Taylor noted that the white papers delivered at the end of the workshop, which are not generally peer reviewed, are less important than how the participants think about the problems during the workshops. Ingram warned that the programs and Boards must avoid allowing the workshops to have any overtones of advocacy.

Publications

Buffaloe reported the next edition of the San Francisco Estuary and Watershed Science Journal (on-line) will be released in mid-May and will contain a monograph on open water processes by Wim Kimmerer. The Journal has a potentially nation-wide audience and it is a cost-effective way to share information. ISB members are encouraged to submit manuscripts. Taylor reported that ERP has started a white paper on open water processes which links X2 and the food web. The Science Notebook contains non-peer reviewed comments on previously presented topics, information on other workshops, and other material. The next issue is currently in development.

Audience comments

Jacobs from CDFG discussed two concerns: (1) delivering science to the agencies, and (2) monitoring. Jacobs questioned how the ISB and the SP verify that science is delivered to the implementing agencies. For instance, CDFG took the lead in developing a simple diagram of a conceptual model for Delta smelt. It would be useful to feed this kind of information back into ERPP Vol. I and Vol. 2. There is currently no provision for a peer review of this Delta smelt model. It would be a good addition to the Science Program's public outreach documents.

Jacobs stated that funding for monitoring is being lost. Two examples are salmon counts and stream gauge operation. Jacobs asked whether monitoring programs like these should be part of the Delta Improvements Package. No comprehensive monitoring framework has been established. This sparked a discussion on the importance of long-term data which focused on the following points: science clearly depends on the collection of long-term data; short funding periods of 3 or 4 years are inadequate for long-term monitoring, which is the kind of data CBDA and the Science Boards need; budgetary concerns threaten monitoring of data with broad impact such as snowmelt changes; monitoring is not perceived as "real science" and thus is subject to neglect; and monitoring is considered a "luxury" by some which makes it vulnerable to budget cuts.

Brown noted that the IEP (composed of CDFG, USFWS, USGS, Bureau of Reclamation, USCOE) is facing significant budget cuts. It provides hydrodynamic data, continuous flow data, and water quality data. IEP decides what projects to fund based on their mandates and on recommendations by scientists. Since no one has ownership of the monitoring issue, no one advocates for it and he suggested that the ISB might be an appropriate body for this responsibility.

Brown noted that most CALFED science investigation funds go toward research rather than monitoring. Jacobs said that water projects provide a stable source of funding and also the Delta Improvements Package may provide an opportunity to fund monitoring. CDFG has taken the lead on salmon monitoring, both juvenile and adult.

Ingram noted that monitoring data is inherently affected by the project for which it is gathered. Data collected in the past for specific projects may or may not be useful now for more holistic studies.

Taylor would like the ISB to take on the question of monitoring and discuss (1) what makes a monitoring program successful, (2) types of data, monitoring and research needed, and (3) distribution of effectiveness of monitoring across CALFED.

Bobker stated that the problem is not monitoring, but rather the adaptive management program. It is unclear how new data and new information should feed back into implementation projects and into all programs. A framework is needed that identifies the program's goals, what information is needed to attain those goals, how to get that information, and what the consequences will be on the decision-making process if that information is not obtained. Clarification of the respective roles of the various Science Boards is needed in regard to monitoring, especially for active and passive adaptive management. The ISB could take a lead with passive adaptive management. He urged the ISB not to become too involved in implementation, but rather to maintain its independence. He suggested that Moore consider how the Science Program could be more embedded.

Board discussion noted that the ISB should take this concern on through the work of the DIP Team and through the development of a Strategic Plan for the Science Program.

<u>Brown Bag Lunch</u>
Presentation by Jan Thompson, USGS, on food webs in the Delta. Slideshow is available as a handout.

<u>Meeting adjourned at 1:00 p.m.</u>