

**CALFED SCIENCE BOARD, STANDING TECHNICAL BOARDS,  
AND AD HOC WORKING GROUPS**

The CALFED Bay-Delta Program is a consortium of State and Federal agencies with management and regulatory responsibilities in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary. The CALFED Bay-Delta Program's mission is to implement a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system. The Program has four objectives:

- Provide good water quality for all beneficial uses;
- Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animals species;
- Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system;
  - Reduce the risk to land use and associated economic activities, water supply, infrastructure, and the ecosystem from catastrophic failure of Delta levees.

**Why Science Advisors?**

- The difficulties and uncertainties associated with environmental restoration and water management are clearly recognized by CALFED. Therefore, implementation strategies within each of the common programs require unbiased reviews, evaluations, advice and other types of inputs from established experts. CALFED will not be hiring a large scientific staff. CALFED's Science Program has determined that an essential aspect of an effective CALFED program requires obtaining information, technical reviews, advice, alternatives and recommendations, at regular intervals, from scientific experts not directly involved in program management ( Science Advisors). CALFED has adopted an implementation strategy of adaptive management – testing alternative ways of meeting objectives and adapting future management actions according to what has been learned. This strategy embodies a process of identifying indicators of system integrity, comprehensively monitoring these indicators to measure improvement over time, conducting focused research to address uncertainties, and phasing of actions to take advantage of new knowledge. Expert advice will be needed for specific aspects of all these endeavors. Furthermore, the CALFED Record of Decision mandated creation of a CALFED Science Board. The Lead Scientist (a USGS employee) is to be their technical liason. It is unlikely that any science advisory committee can be fully successful without outside expertise. Failure to provide a well-rounded group of science advisors would ultimately reduce the effectiveness of CALFED Science and reduce CALFED's ability to meet its mission.

**Role and Qualifications of Science Advisors**

The activities of the Advisors will include the following. (1) Detailed advice with regard to scientific needs related to strategic issues of concern to CALFED. These may include

identifying/prioritizing critical issues, proposing and participating in workshops on critical subjects; advising water managers and managers of ecosystem restoration; and/or proposing subjects for white papers, reviews or studies that CALFED may wish to support. (2) Review or obtain reviews for documents; proposals describing major new initiatives; programs composed of multiple studies and/or extended over time; or CALFED actions such changes in conveyance, threats to levees, restoration strategies. Review suggestions changes of direction or changes in goals. (3) Advise individually, or via participation in review committees or workshops, on specific technical questions that arise as the research and monitoring aspects of the programs evolve. (4) Advise about the annual planning processes for specific actions. (5) Analyze existing data related to specific actions or programs, as relevant to reviews or advising described above. All of the above duties will require knowledge of the Bay-Delta watershed or of a discipline intimately tied to Bay-Delta watershed issues. Invitation to be an science advisor will require most of the following:

- ❑ Evidence of stature in the broad scientific community (invited talks; history of workshop participation; history of scientific leadership such as organizing sessions or conferences);
- ❑ Experience managing environmental issues or advising top managers and promoting uses of science in water management and/or ecosystem restoration;
- ❑ A record of publication in the peer reviewed scientific literature in the area of expertise requested;
- ❑ Evidence of extensive and/or intensive knowledge concerning the broad scientific field related to the specific issues of concern (for example, as evidenced by long-term experience managing or promulgating science in the area of interest; talks in scientific contexts; or substantial publications);
- ❑ Evidence of abilities to work with people;
- ❑ Previous experience working as an advisors and/or in advising managers and
- ❑ Evidence of ability to weigh issues in a balanced manner, when in an advisory capacity.
- ❑ Evidence of ability to work and think across disciplines;
- ❑

Advisors also will be agents for facilitating communication between CALFED and the scientific community, and will conduct evaluations and reviews that must be widely viewed as authoritative. Therefore they must have the highest level of expertise/stature so that their advice is respected by scientists, agency technical people and CALFED staff and management. An ability of the individual to sustain a balanced view of issues is just as important as stature. This does not mean that advisors should not have opinions. But it does mean that willingness to listen to opposing views, willingness to change one's mind in the face of evidence contrary to an original view, and willingness to separate oneself from biases associated with employment or professional associations are paramount. Sustaining a balanced view of contentious issues is perhaps the most important goal of CALFED Boards, Panels and Workgroups. A proposed advisor can be rejected or not invited to return if either inadequate expertise or inability to sustain balance in their viewpoint are repeatedly observed.

## **Boards, Standing Technical Advisory Panels and Ad Hoc Working Groups**

Three levels of advisory bodies are expected to provide scientific advice to CALFED. Each advisory body will require scientists with expertise, although the nature of that expertise will differ among bodies. Balance will be a paramount issue for each body. Balance and unbiased analyses will be assured by seeking individuals capable of balanced analysis and by balancing disciplines and interests within each body. While the Lead Scientist will have the prerogative to choose advisors in each context, input from stakeholders, agencies, and the academic community will be sought and carefully considered. A major role of the CALFED Science Board will be to overview and review the balance and scientific integrity of the more detailed analyses conducted by the Standing Technical Advisory Panels and the Ad Hoc Working Groups.

### **The CALFED SCIENCE BOARD**

The CALFED Science Board will be a standing committee of distinguished experts, most of whom are participating in standing Technical Advisory Boards. The CALFED Science Board is primarily convened to take the “big picture” view in evaluating the role of science in CALFED, overall, and to oversee and assure (by review of each report of from standing committees and work groups) the scientific integrity of CALFED reviews, workshops, evaluations of critical programs and issues. The Science Board will be expected to bring critical issues to the attention of the Lead Scientist, the Director of CALFED and the Policy Group as they arise. Similarly it is expected that the Science Board will periodically be requested by the Lead Scientist, the Director or the Policy Group to review, clarify or define science needs for critical issues, programs or documents as they arise. The latter will usually be conducted via assignment to a standing committee or ad hoc working group, who will deal with the detailed issues. The Science Board will not be asked to make policy decisions, but to assure that the science used in CALFED decisions is of the greatest possible rigor, interpreted in a balanced manner, and clarified to the level necessary for all stakeholders to appreciate. The Board will not rescind the technical results of standing Technical Advisory Groups and working groups, but will review the activities of those groups for balance, rigor and use of authoritative science. Similarly, the Science Board will assure that a similar level of rigor and balance is applied across all Technical Advisory Boards and work groups. A particular charge of the Board will be to raise issues that intersect among CALFED activities that might be overlooked by individual Common Programs of CALFED.

Because the Board could be comprised of as many as 30 scientists (given the complexity and variety of CALFED issues), it will need an Executive Committee to work efficiently, and subcommittees to conduct individual assignments. Balance, as described above, will be sought in each type of body. The initial Executive Committee will be appointed by the Lead Scientist. Each Board member will serve a four year term and then rotate off the Science Board. A Board member must be off the Board for at least four years before they can return for another term. Some staggering of terms will be necessary in the beginning to set the rotation.

The CALFED Science Board will be comprised of nationally and internationally recognized academic researchers with strong publication records who, together, represent a range of expertise that spans program-wide scientific issues. Previous experience with program-level reviews of resource management and complex interagency programs and a track record of fair and unbiased yet constructive criticism are essential characteristics for each board member and for the board when acting as a whole. In addition to the individual characteristics, the Lead Scientist will be seeking, for the Board as a whole, to establish a balance between local and outside knowledge, natural and social science, and interconnections between the CALFED Science Board and the formal Boards and panels established for individual CALFED programs and issues (such as the ERP Science Board; see Figure 1). The Lead Scientist will nominate Board members; the concurrence of the Director of CALFED and the State and Federal chairs of the Policy Group will complete the formal nomination process. Any interested party may recommend members to the Lead Scientist. Information on the background of each member will be made public after they are nominated and have accepted the invitation to serve.

The Science Program has drafted aspects of the specific charge to the CALFED Board, and the organizational relationships between the Board and other science groups, and will continue to seek feedback as the process is developed. We anticipate bringing a complete description of the Board and its role before the new BDPAC and Policy Group in late fall.

### **Standing Technical Advisory Boards**

Standing technical advisory boards will be experts assembled to develop, over time, a joint, interdisciplinary knowledge of the variety of issues and challenges faced by a particular aspect of the CALFED Program. The members of these standing boards will participate in detailed reviews conducted by work groups. Each member of standing board is expected to participate in more than one ad hoc work group. Thus, for example, the Standing Board of Delta Experts will be expected to develop, over time, an understanding of the many issues intersecting in the Delta and increasingly provide insights, reviews and technical evaluations of programs as those issues develop.

Balance will be achieved via choice of individuals with reputations for balanced analysis of issues, by balancing local and outside knowledge, by balancing disciplines, and by balancing academic/private sector/regulatory agency scientists. Scientists with perceived attachments to stakeholder groups, or regulatory activities in the regulatory agencies, will not, *a priori*, be excluded from all Standing Technical Advisory Groups. But the individuals chosen must have exceptional reputations for maintaining a balanced view. If individuals with perceived or real attachments to one stakeholder group is chosen for a group, that individual must be balanced by selection of individuals from other relevant, major stakeholders and regulatory entities.

Examples of Standing Technical Advisory Boards are shown in Figure 1. Selected member(s) from each Standing Board will participate on the Science Board. Examples of Standing Boards include the ERP Independent Science Board, a Standing Board of Delta

Experts, a Standing Board of Experts on River Processes and Issues. As the Common Programs of CALFED develop their science structure, each will be expected to convene a Standing Board that will provide evaluations of scientific activities of the program, and intersecting issues with other programs. But those Boards will not be added to the Science Board until the program has a working internal science structure, as deemed by the Lead Scientist and the Science Board.

**Ad Hoc Working Groups.**

These are the groups that will actually analyze individual issues, conduct reviews of program, participate in workshops on critical issues and do the work of clarifying the state of knowledge and advising as to future directions with regard to specific issues. These groups will work at the greatest level of detail. Each group will be comprised of member(s) of a standing board(s) and individuals who not on standing boards. All requirements stated above for stature, expertise and balance apply as strongly to the working groups as to Standing Boards and the Science Board. Balance will be a key in all groups, but how that balance is achieved can vary with the issue. In the cases of sensitive issues, it may be important to exclude participants with ties to stakeholders or regulatory activities. In other cases obtaining viewpoints and analyses from such participants might be crucial, but in every case the balance among viewpoints is paramount on the work group. In a few cases, where clarification of an approach (to a management activity, for example) is the goal, exceptions to the balance issue may occur. But that should be done overtly and openly.

Figure 1. A conceptual model of CALFED Science Board and Standing Boards of Technical Experts (vertical rectangles and data management).

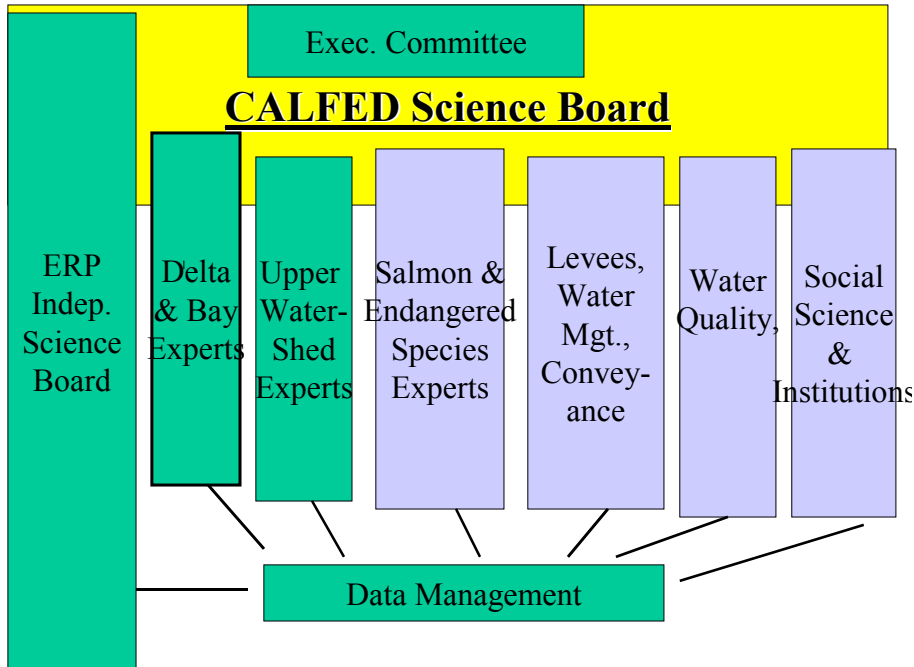


Figure 2 . A conceptual model of CALFED Science Board, Standing Boards of Technical Experts (vertical rectangles and data management), and examples of Ad Hoc Working Groups (circles).

