

SCIENCE – ISSUES

Science advisers to the DFG, the Commission, and the Ocean Protection Council, must include independent experts in Economics AND the Social Sciences.

The Ocean Protection Council (OPC) is the coordinating body for marine issues among state agencies. Of the two public members, only Dr. Knatz is (very) qualified to be on the OPC, the other one, not so much.

The membership of the Ocean Science Trust (OST), needs to be changed to better represent the public interest. One of the Ocean Interest Group positions should go to an established state wide fishing and ocean dependent group. I believe that one of the UC/State University members, should be a social scientist familiar with marine issues.

SCIENCE PROVIDES THE FOUNDATION FOR RESOURCE MANAGEMENT

What is “good science?” Define the advantage of adaptive management and how it fits into policy-making and decision making. When is “learning by doing” appropriate and when is a more rigorous level of evaluation/assessment necessary and the potential “major” change of course (be it policy or project/program design) occur? Now it seems to occur due to litigation or a natural disasters (sometimes occurring outside of California.)

Science – Where is “science” embedded in the DFG? Would a Science Coordinator/Assistant Director be advantageous? The role could be to help set priorities within the Department and coordinate across agencies to avoid duplication or funding of low priority research. How does DFG interface with other initiatives such as the California Landscape Conservation Cooperative (FWS) which is a science-based approach to working with species adaptation and resiliency to climate change.

Should there be an Independent Science review board? This can create more bureaucracy. It should be carefully crafted, with maybe a sunset or room for revision (through adaptive management) so that this group would not be a group of cronies, but rather a dynamic board that helps DFG build a strong science program (in the eyes of the public).

Priorities – how are priorities for research, investigations, modeling and assessments determined? Of course, agencies have to follow the money to a certain extent, but why drop valuable research and methods. For example: the development of Conceptual Models for the Delta ecosystem (under the Ecosystem Restoration Program.) This

provided a level of assessment that could provide something similar to a triage that could lead to critical thinking, setting research priorities and problem solving.

Defining research that will help lead to solutions. How does this work in DFG? What are the roles of the various institutions and consultants?

Lack of Staff/lack of funding – can DFG partner with Institutions of higher learning. For example: DFG defines their information/research needs, then partner with the appropriate institution(s) that helps with the selection of the appropriate graduate student or post-doc whose research could be funded by DFG. These types of partnerships and research funding needs to go beyond opportunistic and must be driven by the Department.

Good biologists being promoted to managers. This can be a double-edged sword.

DFG's Strategic Plan:

Initiative 7: Expand Scientific Capacity – Purpose

Strategy 1: Internal coordination

Strategy 2: Scientific oversight

Strategy 3: Scientific staff development and classification

Strategy 4: DFG data management

DFG Narrative: DFG must invest in retaining, developing and recruiting high quality scientists in order to ensure that DFG's actions and policies are supported by the strongest possible scientific foundation. Currently, the Office of Training and Development within DFG has an Advisory Committee for the Scientific Community Development Program. The goals and work plan of that committee need to be supported and implemented. This includes creating a regular science conference for DFG scientific and technical staff.

To accomplish the goals set out in Initiative 7, DFG must:

1. Complete the database of scientific employees, their focus, studies, and current research and monitoring activities taking place. Better communicate scientific activities to DFG staff, including a scientific newsletter.
2. Create a Resource and Population Assessment Program team to conduct population modeling for either aquatic or terrestrial animal populations, and provide the lead for all such assessments conducted by DFG. This team would maintain strong ties to academic and non-governmental researchers, and with counterparts in the other

state and federal agencies. One facet of their work would be training/mentoring other DFG staff who contribute to their assessment work as co-authors and data providers.

3. Utilize existing policy (modeled after the Interagency Ecological Program) on the minimum standards for any scientific work, establish a research branch, establish an independent science panel for high priority department issues and establish a mechanism for facilitating peer review.
4. Maintain and develop new resources to support research within DFG on though collaborating agencies and organizations.
5. Use new classifications to attract and retain high caliber candidates and technical experts. The salaries for these classifications are competitive and will allow DFG to compete for, and retain, well qualified scientists.
6. Formally establish recruiting pathways with the University of California and California State University systems. Work with department heads and professors to engage graduate students to study issues of interest to DFG. Upon earning advanced degrees, those individuals could access an inner track for employment with DFG.
7. Encourage DFG scientific staff to collaborating outside scientists.
8. Provide a mechanism (time and support) for existing DFG scientists to complete advanced degrees through their Individual Development Plans.
9. Clarify and publish data collection and storage policies and guidelines. Define the data dissemination process. Develop the system capacity to store and make available DFG data. Evaluate DFG capacity for sustaining current data programs, and identified data program needs and develop a plan for upgrading or enhancing capacity to meet data demands.
10. Find ways to partner in recruitment of experts. Highly qualified scientists, especially Ph.D.s do not always plan years in advance to work for DFG, but apply when a position becomes available. The state hiring process precludes these experts from working for DFG. Partnerships or contracting with other organizations on hiring and salary could circumvent the process by accessing these individuals without hiring them on as official DFG staff.

Thoughts: DFG's list of priorities appear sound, and to the list I add the opportunity for partnerships with industry to obtain independent scientific support to conduct collaborative research.

During working group discussion, a suggestion was made to establish an independent scientific board or committee to review best available science. If such a committee were established, it should have participation from a wide range of disciplines, including population dynamics as well as ecology, and socio-economic scientists.

Currently the CA Ocean Science Trust has a scientific advisory committee; the federal PFMC maintains a Science and Statistical Committee to review all Council decisions based on best-available science. The MLPA Initiative process also established a scientific advisory committee to review MPA proposals for each region. Many of the scientists serving on the MLPA SAT later were awarded grants to study the new MPAs,

to the dismay of fishermen, who wondered about the objectivity of the decisions, since the scientists benefitted from them.

Perhaps one solution is to obtain independent scientific peer review on a project basis. CA Sea Grant has infrastructure to conduct such independent reviews, and perhaps could collaborate with the Department.

1. No continuing education offered/required for biologist making regulations and always new science – not always most recent information used/considered – e.g. Wildlife Action Plan
2. Lack of current science. Many species management plans based on 30 year old data.
3. Develop management plans for livestock

Create a Science Unit. The unit should be internal to DFG at HQ level, headed by senior scientist with civil service protection (Program Manager 2). The unit would be responsible for review of studies and information and would submit reports to decision-makers at the Dept and the Commission. If a decision were made contrary to the scientific report, that decision would then be accountable. All Science Unit reports would be public and posted. The unit could be university-affiliated.

At the staff and management levels, reward following science rather than penalizing it.

1. There is a need to better integrate inventory and monitoring efforts with State and Federal agencies and other entities in California. In particular, there is an opportunity to more effectively conduct needed fish and wildlife inventory and monitoring efforts and use resulting data to inform conservation by jointly identifying priorities, partnering to implement, and sharing results.
2. There is a need/opportunity to build collaboration at the statewide level on setting watershed restoration priorities. Specifically, there is an opportunity for CDFG and USFS to work together to set state priorities for watershed restoration specific to different species, particularly riparian and aquatic species (also NATURAL RESOURCE WG & MISSION WG).

- 1) Identify DFG's internal science capacity and capacity needs
- 2) Use of technology for program and policy development and delivery
- 3) Integration of science programs across all management and policy functions

- 4) Partnerships – enhance relationships with academic institutions and other credible science organizations
- 5) Enforcement – use of science to support higher conviction rates and to identify priorities
- 6) Consistency of methods and approaches statewide
- 7) Opportunities for collaborative science literature database
- 8) Increase output of official Department reports
- 9) Encourage staff to publish internally and in professional and academic journals
- 10) Increase capacity to manage scientific data
- 11) Advance DFG science policy