Response to Recommendations from the Committee of Visitors (COV) for the Division of Environmental Biology (DEB), June 22-24, 2009

The Division of Environmental Biology (DEB) expresses its sincere appreciation to the members of the Committee of Visitors (COV) for their incisive observations and constructive recommendations. It was evident that all the members of the COV were deeply interested in the welfare and development of the diverse programs in the division and the science communities that they serve.

In general, the Report of the Committee of Visitors is favorable with respect to the operations and management of the various programs and activities of DEB although a number of important recommendations were given to improve upon current activities and practices.

In addition to several specific recommendations that can improve upon current DEB science programs and broadening participation of underrepresented groups, we are appreciative of recommendations on ways to improve management activities such as staffing and recruitment, long-term strategic planning, and division-specific metrics to assist both self-planning and future COVs.

Progress since the 2006 COV Report

The 2006 COV made 38 recommendations, some of which overlap. The overarching issues for the 2006 COV arose from concerns associated with the effects on DEB programs of relatively flat funding and increasing submissions. Additional recommendations focused on concerns about participation of underrepresented groups and the COV process. Eight of the recommendations were beyond the control of DEB and were passed to BIO for resolution or referral. The division took action and continues to act to implement 25 recommendations.

DEB is committed to continue working on the issues raised by the COV and integrating the COV recommendations into its business operations as fully as possible. DEB senior managers have already taken several steps to address lingering issues comprehensively, which include an incentive program to target specific groups of researchers and students; strategic outreach coordination and training at the Divisional level; and streamlining staffing workflows to better manage awards.

PART A. INTEGRITY AND EFFICIENCY OF THE PROGRAM'S PROCESSES AND MANAGEMENT

A.1 Questions about the quality and effectiveness of the program's use of merit review procedures.

Recommendation 1: (A.1.1., pg 5) ***"The COV observed that the current policies may be too restrictive and have not kept up changes in proposal submission practices . . . in some cases, many of the appropriate reviewers with sufficient expertise to evaluate the proposal are excluded from the review process because of current conflict of interest standards ."***

Response: BIO shares the COV's concern about the current conflict of interest standards, especially concerning collaborative projects. This is a problem affecting not only DEB but all scientific programs at NSF, and BIO will refer this recommendation to the NSF Office of the General Counsel for their consideration.

Recommendation 2: (A.1.1., pg 5) ***"COV noted occasional 'disconnects' between reviews and the panel summaries. Increased use of Science Assistants (SAs) during panel meetings could mitigate this problem."***

Response: BIO agrees with the COV, recognizing that this as an issue with specific regard to panel summaries, and has provided guidance to DEB Program Officers regarding their responsibility to ensure that the panelists understand the importance of transparency in their panel summaries. Program Officers have been reminded that the goal is to ensure that the PI understands why the panel made the recommendation that they did in the context of all reviews.

Recommendation 3: (A.1.2., pg 6) ***"COV notes that ad hoc reviewers sometimes neglect to address [broader impacts] of the proposal in their review."***
and
"The COV suggests that more could be done to ascertain whether the broader impacts promised in proposals are realized upon project completion, and are accurately documented in 'Results from Prior Support' section of resubmissions."

Response: BIO/DEB recognizes the COVs concern regarding the failure to address broader impacts in reviews. BIO/DEB has assembled a two-person team to re-visit the ad hoc reviewer letter to emphasize the importance of Criterion 2. Additionally, BIO/DEB has revisited the panel summary template in order to emphasize the Results of Prior Support: Broader Impacts section. BIO/DEB has tasked a working group with an analysis of reported Results of Prior Support.

Recommendation 4: (A.1.2., pg 6) ***"The list of suggested broader impact activities provided to the research community (http://www.nsf.gov/pubs/2002/nsf022/bicexamples.pdf) should be revisited, updated, and made more explicit, with some examples of . . . more recently funded projects that include highly successful, broader impact activities.***

Response: BIO is aware of the list of broader impact activities. However, the list cited by the COV is an older version of an updated file taken from the GPG (http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf). The list is not intended to be exhaustive, nor is any particular example relevant to all proposals sent to DEB. PIs are encouraged to draw from the examples but are urged to be creative in their approaches to demonstrating the broader impacts of their projects.

Recommendation 5: (A.1.4., pg 7) ***"The COV observed that proposal resubmissions are occasionally weaker than the original submission. This . . . might call for more clear feedback from the panelists AND continuity in panel composition."***

Response: BIO concurs with the COV on these points. BIO/DEB has tasked a working group to draft Division guidance on continuity in panelists. All DEB outreach presentations emphasize that the PI contact a Program Officer for assistance. DEB Program Officers will continue to stress to panelists the importance of constructive feedback in both reviews and panel summaries.

Recommendation 6: (A.1.8., pg 8) ***"The COV . . . recognizes that some program officers face a challenge in finding additional expertise of ad hoc reviewers. A possible mechanism . . . might be to refine and expand the current NSF database of reviewers and their expertise."***

Response: BIO agrees with the COV that there is a need to bring in new reviewers. There is no current NSF database of reviewers and their expertise; however, BIO/DEB will ensure that future society presentations and outreach trips emphasize that scientists can contact program officers to offer their expertise as potential reviewers.

A.2 Questions concerning the selection of reviewers

Recommendation 7: (A.2.2. pg 9) ***"The COV recommends that criteria for searching and including more of these new reviewers be developed with assistance from several sources."***

Response: See response to Recommendation 6.

Recommendation 8: (A.2.3. pg 9) ***"…identifying COIs has become increasingly labor intensive with the increase in multidisciplinary research. Two areas might be improved: 1) a method for tracking COI for individual researchers; and 2) relaxation of the COI category regarding some types of collaborators."***

Response: See response to Recommendation 1.

A.3 Questions concerning the resulting portfolio of awards under review

Recommendation 9: (A.3.1 pg 10) ***"Based on the proposal jackets reviewed by the COV as well as the research highlights generated by each DEB cluster, the quality of scientific research is extremely high."***

Response: BIO thanks the COV and will encourage DEB to continue to fund high quality scientific research.

Recommendation 10: (A.3.2. pg 10) ***"Assessment of education outcomes at the program level are encouraged, such as the recent efforts by program officers to obtain full reporting of outreach activities in 'prior support' sections of proposals."***

Response: See response to Recommendation 3.

Recommendation 11: (A.3.3. pg 10) ***"The award amount and duration are appropriate given the severe funding constraints that DEB has operated under during the past 3 years. Some research areas that are inherently more costly to fund (e.g. metagenomics) and are likely to play increasingly important roles in future proposals will require higher levels of funding."***

Response: BIO agrees with the COV that some areas of research and research approaches are more costly than others. BIO/DEB staff members work with other staff across the directorate to identify and prioritize research areas, and help identify or shift funding to support emerging areas of research.

Recommendation 12: (A.3.9. pg 12) ***"The COV would need data on the number of submissions of proposals from institutions of different types and the distribution of numbers of institutions of different types."***

Response: BIO concurs with this COV recommendation to obtain data regarding institutional submissions and distributions, and to include materials from these reports in future COV self-studies. DEB management will assemble a team to obtain and analyze these data for the 2012 COV.

Recommendation 13: (A.3.11. pg 13) ***"Considerable work remains to be done within and outside of NSF to learn how to be more effective in recruiting, training, and establishing new scientists from underrepresented groups."***

Response: BIO thanks the COV for this suggestion and will ensure that DEB participates in all NSF and BIO efforts in this area.

Recommendation 14: (A.3.12. pg 13) ***"The COV encourages NSF to continue to communicate the many achievements and awards of its DEB investigators as widely as the science and the achievements clearly deserve."***

Response: BIO thanks the COV for this recommendation. DEB will coordinate with OLPA in order to maximize the dissemination of DEB-sponsored research and achievements.

Recommendation 15: (A.3.13. pg 13-14) ***"BIO support for projects relating to the role of microorganisms in the biosphere has been tentative. DEB supports this science through Dear Colleague Letter on Microbial Systems in the Biosphere, which attracted 45 applications. Yet, it falls short of the 225 projects received by the discontinued MCB/MO/MIP panel, which funded a substantial amount of transformational research"***

Response: BIO appreciates the COV's attention to this portfolio balance issue. Projects relating to the role of microorganisms in the biosphere are supported in virtually every environmental biology program in addition to those supported by the Microbial Systems in the Biosphere activity. DEB has tasked a group of program officers with providing estimates of the submissions and success rate of such projects across the programs managed by DEB as a baseline against which future investments may be measured.

A.4 Management of the program under review

Recommendation 16: (A.4.1. pg 14) ***"The COV perceived that understaffing of support personnel is an ongoing problem".***

Response: BIO concurs with this COV recommendation. This finding was reflected in the proposed DEB staffing plan that was presented to BIO/OAD in fall 2009.

PART B. RESULTS OF NSF INVESTMENTS

B.1 OUTCOME GOAL for DISCOVERY: "Foster research that will advance the frontier of knowledge, emphasizing areas of greatest opportunity and potential

benefit and establishing the nation as a global leader in fundamental and transformational science and engineering."

(No specific recommendations articulated by the COV).

B.2 OUTCOME GOAL for LEARNING: "Cultivate a world-class, broadly inclusive science and engineering workforce, and expand the scientific literacy of all citizens."

(No specific recommendations articulated by the COV).

PART C. OTHER TOPICS

C.1 Please comment on any program areas in need of improvement or gaps (if any) within program areas.

Recommendation 17: (C.1. pg 19) ***"The COV concurs with the two previous COVs (2003, 2006) that the DEB should increase investment in independent postdoctoral fellowships."***

Response: BIO concurs with the need for funding postdoctoral fellowships; however most of the support for these fellowships is presently found within grants, rather than in an independent program. BIO has decided that because of the high proposal pressure and resulting low success rates, it does not make sense for DEB to offer an independent postdoctoral fellowship program at this time.

C.2 Please provide comments as appropriate on the program's performance in meeting program-specific goals and objectives that are not covered by the above questions.

Recommendation 18: (C.2. pg 19) ***"The combined problems of climate change, biodiversity loss, and need for sustainable development exist particularly in developing countries. Therefore, the COV considers international involvement to be a critical area for additional DEB involvement and partnerships."***

Response: BIO concurs with this recommendation. DEB will continue to support and fund projects with international components and involvement, particularly in regards to its Research Coordination Networks, the Dimensions of Biodiversity initiative, the LTER and biodiversity inventories programs, among others.

C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance.

(No specific recommendations articulated by the COV).

C.4 Please provide comments on any other issues the COV feels are relevant.

(No specific recommendations articulated by the COV).

C.5 NSF would appreciate your comments on how to improve the COV review process, format and report template.

Recommendation 19: (C.5. pg 20) ***"There is no efficient means for committee members to collaboratively write their performance review and recommendations. This COV strongly encourages the Foundation to update the system before the next COV meets, perhaps in a manner similar to how panels now function electronically."***

Response: BIO thanks COV for these valuable recommendations for improving the COV process and will forward them to the appropriate office for consideration.

PART D. Please comment on both scientific and management aspects of each of the following division-specific questions:

D.1 How is DEB positioned relative to national emphasis areas such as climate change and energy? What could it do better or differently?

Recommendation 20: (D.1. pg 21) ***"The COV . . . recommends the NSF ERE Working Group could be assigned to assess the implications of the Transition and tipping points in complex environmental systems report to NSF programs, and to its internal organizational structure and function.***

Response: BIO concurs with this recommendation and will forward it to the chair of the NSF ERE Working Group.

Recommendation 21: (D.1. pg 21) ***"Increasing the number of program officers with expertise in microbes and microbial processes is a necessity, as is increasing the number of panelists with microbial ecology expertise on DEB panels."***

Response: BIO concurs with this recommendation and is working with DEB through its staffing and organization planning processes to ensure that an appropriate balance of program officer expertise is represented.

Recommendation 22: (D.1. pg 21) ***"We recommend that DEB specifically consider how it can coordinate its programs in fundamental science so as to complement efforts of agencies such as DOE and USDA that have specific programs in energy-related themes such as biofuels and environmental impacts of alternative energy development."***

Response: BIO concurs with this recommendation but acknowledges that this coordination reaches beyond the scope of DEB. The BIO-AC would be well-positioned to create a task force to consider such interagency coordination efforts.

D.2 Are the current programs and clusters appropriately structured to foster emerging research areas?

(No specific recommendations articulated by the COV).

D.3 What actions should DEB consider to foster more innovative 'broader impacts' activities?

(No specific recommendations articulated by the COV).

D.4 Please provide advice on progress we have made on the issues raised by the previous COV during the last three years.

Recommendation 23: (D.4. pg 23) ***"It is clear that additional staffing is needed."***

Response: See response to Recommendation 16.

Summary Recommendations:

Recommendation 24: Management of Programs (pg 23) ***"Examine mechanisms for disseminating information to the scientific community regarding new initiatives. For example, very few members of the community are aware of the "Dear Colleague" initiatives. Of the four initiatives, two have received no response. In total, only 58 proposals were received. Moreover, even if aware, the community is not clear on the funding opportunities associated with the initiatives."***

Response: BIO concurs with the concerns expressed in this recommendation and agrees that the "Dear Colleague" mechanism is flawed as an approach to announcing new initiatives.

Recommendation 25: Management of Programs (pg 24) ***"Refine and expand the current NSF database of potential reviewers."***

Response: See response to Recommendation 6.

Recommendation 26: Management of Programs (pg 24) ***"The COV suggests that NSF reassess COI rules to allow panelists and ad hoc reviewers with minor affiliations with collaborators to participate."***

Response: See responses to Recommendations 1 and 8.

Recommendation 27: Science (pg 24) ***"Increase international engagement to address global scale research"***

Response: See response to Recommendation 18.

Recommendation 28: Science (pg 24) ***"Enhance postdoctoral opportunities to sustain independent, creative scholarship"***

Response: See response to Recommendation 17.

Recommendation 29: Science (pg 24) ***"Continue to increase leverage cross-disciplinary opportunities for fostering emerging scientific fields and technologies."***

Response: BIO concurs with this recommendation. DEB is working to expand the interdisciplinary opportunities available to its PIs.

Recommendation 30: COV Review Process (pg 24) ***"Include at least one member from the present COV on the next COV to ensure a 'memory' and continuity of the review process"***

Response: BIO concurs with this recommendation, and although DEB invited a member of the 2006 COV to serve on the 2009 COV, that individual had to drop off late in the process. DEB will do everything possible to ensure that the 2012 COV includes one member from the 2009 COV.

Recommendation 31: COV Review Process (pg 24) ***"Improve the electronic infrastructure for the COV review system that includes computer software for simultaneous editing of the report"***

Response: (See response to Recommendation 19). BIO thanks COV for these valuable recommendations for improving the COV process and will forward them to the appropriate office.