

NSF COMMITTEE OF VISITORS FOR IOB/BIO
RESPONSE TO THE CoV REPORT
AUGUST 5, 2005

INTRODUCTION AND PREAMBLE

The CoV noted that the self-study report provided by IOB greatly facilitated their review of the Division and recognized the report for its wealth of information and the care taken by the Division to craft a factual, rather than an evaluative document. The CoV commended the Division on its new organizational configuration and encouraged continuing efforts to maintain flexibility within and between clusters. IOB was also recognized for its very open and responsive management style during this period.

The Division appreciates the CoV's support of its recent reorganization and expects to continue to maintain flexibility to ensure the most effective review possible. The Division also appreciates the CoV's recognition of the usefulness of the self-study report.

RECOMMENDATION #1

Better tools for tracking the Division's ability to support outstanding science and education are needed. These assessment tools should be designed to better document the outcomes of NSF support, and should not be designed or used as an assessment of any grant application, PI or support. An array of quantitative and qualitative measures are necessary to better capture and capitalize on the successes achieved in meeting the scientific merit and broader impact goals defined within the vision of NSF missions. These include adding new mechanisms for award recipients to input numbers of students trained – undergraduate, graduate and post-graduate students and associates, numbers of publications, citation indices, numbers of citations/publication, lists of websites developed and hits/website, requests for strains and tools developed (primarily for repositories), invention disclosures, and numbers of patent applications and issued patents. Especially important is better documenting those persons from under-represented groups in the science enterprise. A means for identifying the number of students going onto science careers/involvement in science also needs to be included. Awardees should also be asked to indicate, simply yes or no, their involvement in K-12 outreach efforts. PIs should also be asked to report the total funding used for equipment purchase in their final reports.

RESPONSE

The Division agrees with the CoV that the current template for annual and final project reports creates considerable challenges for NSF staff in extracting useful quantitative and qualitative information on outcomes from NSF awards. Because this is a Foundation-wide template, the Division will convey these recommendations to the group that is developing the new templates for the Foundation.

RECOMMENDATION #2

The new Cluster organization needs additional terms and identifiers for sake of clarity to the scientific community and within the Biological Sciences Directorate. Terms associated with traditional disciplines should not to be avoided, because these will make each cluster's intention more transparent to all persons involved.

RESPONSE

The Division recognizes the need to continue to work to clarify the scientific responsibilities within and between the clusters in IOB. The Division is hosting a Directorate-wide session early in July 2005 so that Program Directors can talk with one another about the scientific content of proposals being reviewed at the various panels. We will continue to update the online descriptions of the clusters and to include this information in all of our outreach activities.

RECOMMENDATION #3

The IOB division currently operates with a greater percentage of rotating Program Directors, more than other divisions within the Biological Sciences Directorate, and is handling a very significant workload in terms of grant applications received and reviewed. The CoV panel strongly recommends increasing the number of permanent program directors to assist in maintaining continuity, institutional memory, and interface with a broad scientific community. We also recommend that the permanent and experienced rotators institute a formalized mentoring program for incoming PDs and develop an evolving operational manual that addresses daily matters. The DD and DDD should also be encouraged to continue their mentoring sessions with new PDS, but perhaps on a less frequent basis. The reliance on rotating PDs is essential to the vitality of the IOB program, its ability to recognize new and emerging ideas, and keeping it responsive to the educational and scientific community.

RESPONSE

The Division has received approval to recruit an additional permanent Program Director and anticipates filling this position by the end of the current fiscal year. IOB assigns mentors for all new staff and will increase our efforts to encourage more active mentoring. The existing IOB Orientation Manual will be modified to include step-by-step directions; we will provide this to new Program Directors in both paper and electronic form to facilitate ease of use and accessibility of information.

RECOMMENDATION #4

The IOB division is recognized for its strong commitment to its support staff and its efforts to enfranchise the staff in the changing responsibilities within the division. However, for the sake of efficiency and effectiveness, IOB needs to enhance training and education opportunities for the staff and to more clearly define expectations and responsibilities to the staff and those they serve.

RESPONSE

The recently developed spreadsheet detailing responsibilities for each position type in IOB will be included in the orientation materials for new Program Directors. The Division will continue to strive to enhance training and education opportunities for all staff. We will also add a session to the next IOB CoV agenda to provide time for the administrative/support staff to meet with the CoV.

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

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

The CoV mistakenly thought that the time to decision data presented in the self-study document was for the entire Foundation, when in fact the information presented was IOB-specific. IOB will clarify this on the self-study template in the future.

RECOMMENDATION #1

The alternate panel review mechanism was deemed appropriate for the proposals of active panelists. However, there were concerns about the use of only mail review for this category of proposal. This concern centered on the lack of panel discussion, which was deemed an important and integral part of the review process. If the mail review mechanism is used, the CoV recommends that IOB initiate a conference call after mail reviews are received for all proposals from active panelists that are not taken to alternate panels.

RESPONSE

The Division appreciates the value of utilizing both mail and panel review whenever possible. A major difference between panelists and mail reviewers is that the mail reviewers do not know the identity of the other reviewers while panelists do. Panelists are

appointed to a specific panel for a specific period of time and are provided with extensive information regarding conflicts of interest and confidentiality and their role in the NSF merit review process. The Division will explore this possibility with the NSF ethics official.

RECOMMENDATION #2

The CoV recommends that the NSF continue to stress the importance of review criterion 2 to both investigators and reviewers. We also suggest that measures be developed to assess the impact of this criterion on NSF's outcome goals for People, Ideas, and Tools.

RESPONSE

The Division and the Directorate have recently posted additional information about Criterion 2 on the public website. This link includes examples of possible activities to address this review criterion. Because assessing the impact of review criterion 2 on NSF's outcome goals for People, Ideas, and Tools is an NSF-wide activity; the Directorate will forward this recommendation to the NSF CoV working group.

RECOMMENDATION #3

With respect to the time to making appropriate funding decisions, the CoV recommends that data be collected to determine if the rapid return of reviews to investigators has improved the turn-around time for resubmissions, and if there has been an improvement in the rating of these resubmitted grants. We also recommend that, in general, IOB should track resubmissions and their subsequent success rates.

RESPONSE

In response to this recommendation, IOB has already asked one of our Science Assistants to analyze the turn-around time for resubmissions and to include information on the panel ranking for each submission in the analysis.

A.2 Questions concerning the implementation of the NSF Merit Review Criteria (intellectual merit and broader impacts) by reviewers and program officers.**RECOMMENDATION**

We recommend that Program Directors continue to stress to reviewers (both ad hocs and panelists) the importance of addressing criterion 2 with a level of rigor and insight consistent with assessments brought to other components of the proposal. Furthermore, the Program Directors should be vigilant in enforcing the return without review policy for proposals not addressing criterion 2 (Notice No. 127 on July 8, 2002).

RESPONSE

The Division shares the CoV's appreciation for the importance of stressing the importance of both merit review criteria with reviewers. The Division will continue to enforce the Foundation's policy to return without review all proposals that do not address merit review criterion 2 in the Project Summary.

A.3 Questions concerning the selection of reviewers.**RECOMMENDATION**

Overall the committee believes that the selection of reviewers is extremely appropriate in the vast number of cases. One minor concern is the review of applicants who are active panelists. In some cases alternate committees review applications of panelists while in others they are only reviewed by mail. The use of mail in only reviews without a subsequent discussion of the application may compromise the quality of the review. As a result we very strongly discourage mail in only reviews for standard research grant applications and in cases where they cannot be avoided (a panelist for example) we recommend at least a conference call among the mail in reviewers be added to the process. In addition, we recommend that the division attempt to establish basic guidelines for sought-after demographics among reviewers.

RESPONSE

The response to the recommendation related to the use of only mail reviewers can be found in section A.1., following Recommendation #1. A major topic of discussion at the Division's retreat in September of 2004, and an agenda item for our upcoming Division retreat in September of 2005 is the critical need to increase diversity among reviewers, panelists, and NSF staff. Increasing diversity at all levels – Program Directors, Panelists, Reviewers, and funded PIs – is also a major commitment of the current Division Director. The Directorate is developing a database of prospective reviewers, panelists, and Program Directors who are members of under-represented groups. The Division will include a module on "how to recruit minorities" in our orientation activities for new Program Directors.

A.4 Questions concerning the resulting portfolio of awards under review.**RECOMMENDATION**

As put forth elsewhere in this report, this CoV believes that if NSF were more proactive in assessing the outcomes of its awards, the Foundation should be able to more clearly document its successes. For example, to address the mandate to foster minority involvement in science, documenting in the Final report of every award how many minority students were supported would make manifest the continuing commitment of NSF to this effort.

RESPONSE

Please see the response to Recommendation #1 on Page 1 of this document.

A.5 Management of the division under review.**RECOMMENDATION**

The IOB-CoV panel recommends that the number of permanent Program Directors be increased in line with the relative percentage of permanent officers in other Divisions.

RESPONSE

Please see the response to Recommendation #3 on Page 2 of this document.

RECOMMENDATION

While the CoV committee recognized the significant improvement in training activities for the rotating PDs, we strongly recommend the development of a strong mentoring system (PD to PD), supported with a searchable and practical daily guide/handbook.

RESPONSE

Please see the response to Recommendation #3 on Page 2 of this document.

PART B. RESULTS : OUTPUTS AND OUTCOMES OF NSF INVESTMENTS

B.1 OUTCOME GOAL for PEOPLE: Developing "a diverse, competitive and globally engaged workforce of scientists, engineers, technologists and well-prepared citizens."

B.2 OUTCOME GOAL for IDEAS: Enabling "discovery across the frontier of science and engineering, connected to learning, innovation, and service to society."

B.3 OUTCOME GOAL for TOOLS: Providing "broadly accessible, state-of-the-art S&E facilities, tools and other infrastructure that enable discovery, learning and innovation."

B.4 OUTCOME GOAL for ORGANIZATIONAL EXCELLENCE: Providing "an agile, innovative organization that fulfills its mission through leadership in state-of-the-art business practices."

PART C. OTHER TOPICS**C.1 Please comment on any division areas in need of improvement or gaps (if any) within division areas.****RECOMMENDATION**

Increase the percentage of permanent PDs to improve institutional memory; one per cluster may not be sufficient.

RESPONSE

Please see the response to Recommendation #3 on Page 2 of this document.

RECOMMENDATION

The current workload among the PDs continues to be unbalanced across the culture. A more equitable arrangement should be implemented.

RESPONSE

The Division has received permission to recruit two additional rotator Program Directors in the areas where the current workload is the heaviest. Our goal is to fill these positions before January, 2006.

RECOMMENDATION

Improve training and mentoring of rotating Program Directors.

RESPONSE

Please see the response to Recommendation #3 on Page 2 of this document.

RECOMMENDATION

Clarify the description of the research topics of the reorganized clusters and communicate these to the research community.

RESPONSE

Please see the response to Recommendation #2 on Page 1 of this document.

C.2 Please provide comments as appropriate on the division's performance in meeting division-specific goals and objectives that are not covered by the above questions.**C.3 Please identify agency-wide issues that should be addressed by NSF to help improve the division's performance.****RECOMMENDATION**

Increase the cost of living compensation of rotating PD to alleviate financial hardship associated with maintenance of two households necessitated by temporary duty in DC. The panel thinks that the system of rotating program directors is critical to the quality of the review process. It would be tragic if the quality of the review process were compromised by the cost of housing in the DC area.

RESPONSE

The Division will communicate this recommendation to the Division of Human Resource Management at NSF.

RECOMMENDATION

Improved collection of outcome data will greatly assist the foundation in justifying budget requests to congress. It will also allow the division to better assess outcomes and output in order to increase division success. Additionally, this would greatly assist the foundation in justifying financial requests from congress.

RESPONSE

Please see the response to Recommendation #1 on Page 1 of this document.

RECOMMENDATION

Although the number of proposals from underrepresented groups has increased and the success rate is comparable to all PI types, the absolute numbers are still low and efforts should be made to increase this trend.

RESPONSE

Please see the response to the Recommendation under Section A.3 of this document.

RECOMMENDATION

Increase the participation of underrepresented groups on panels and ad hoc reviews.

RESPONSE

Please see the response to the Recommendation under Section A.3 of this document.

RECOMMENDATION

BIO has implemented several new programs targeting underrepresented groups (Research Initiation Grant, Career Advancement Award, Post-Doc Awards). Are there similar programs offered by other NSF directorates?

RESPONSE

Each of the other Directorates has a number of programs with the goal of increasing opportunities for members of underrepresented groups..

RECOMMENDATION

The new electronic systems may be too restrictive with respect to access of certain documents and actions. This restriction appears to have altered the logical distribution of work and impedes the efficient processing of proposals.

RESPONSE

The Division has made this recommendation to the e-business team in the past. We will again communicate this recommendation on behalf of the IOB Committee of Visitors..

RECOMMENDATION

Formalize Susan Lolle's notes, which are already in wide use by some Program Directors, into a handbook for all new program directors.

RESPONSE

Please see the response to Recommendation #3 on Page 2 of this document.

RECOMMENDATION

The self-study report was extremely valuable to the CoV. It freed the committee from spending excessive time on cursory data mining from jackets. It also allowed for the increased exploration of content, conceptual issues and provided time for more in depth interaction with program directors.

RESPONSE

The Division is pleased that the self-study was so helpful and will communicate this to the other Divisions in BIO and to the NSF-wide CoV committee.

RECOMMENDATION

Given the strength of the mandate for criterion 2, a five-word metric for its satisfactory inclusion in a proposal is grossly inadequate. A more rigorous metric is recommended.

RESPONSE

The Division will communicate this recommendation to NSF Senior Management.

C.4 Please provide comments on any other issues the CoV feels are relevant.**RECOMMENDATION**

Improve tracking of outcomes from funded research by collecting data electronically in annual and final reports. These data should facilitate better management of current and future project portfolios and could be invaluable in any decisions regarding strategic reallocation of funds.

RESPONSE

Please see the response to Recommendation #1 on Page 1 of this document.

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

RECOMMENDATION

Include descriptive statistics (means, standard deviations, range) on the data in the self-study.

RESPONSE

The Division agrees that this is an important addition to the self-study reports in the future..

RECOMMENDATION

The CoV report template should be organized and numbered exactly as the self-study report. (A few minor errors were noted in comparing the current CoV template to the IOB self-study report).

RESPONSE

The Division agrees that this is an important addition to the self-study reports in the future..

PART D. DIVISION LEVEL QUESTIONS

D.1 Please comment on actions taken by the division in response to the last CoV's recommendations.

- Agency rule prevents release of decline reviews without prior approved by DD.
- Progress has been made in training new Program Directors and a mechanism has been put in place for bringing back former Program Directors as requested, however, a more formal mentoring system with a current program director is recommended.
- Steps have been taken to improve dissemination of the expectations for satisfying criterion #2.
- Efforts are being made to increase diversity participation in review.
- It is unclear if a database of active underrepresented scientists and under-represented awardees has been created.
- Previously it was found the IBN was not successful in attracting applications from under-represented groups - we now see signs of improvement.
- Previously recommended that IBN make efforts to increase awareness for IBN funded ROAs - no data has been supplied to indicate if this recommendation has been acted upon.
- Time provided to meet with IOB and other cluster managers and Directors was provided in the current CoV panel.