

**2008 COMMITTEE OF VISITORS REPORT FOR THE
NSF OCEAN SCIENCES DIVISION**

Date of COV: June 17 to 19, 2008.

Programs: Integrative Program Section, Facilities

Division: Ocean Sciences

Directorate: Geosciences

Committee Membership:

Mr. John Freitag, URI and ONR, retired (Chair)
Dr. Ellen Druffel, University of California-Irvine, AC/GEO Member
Dr. Maureen Conte, BIOS, Bermuda and MBL, Woods Hole
Dr. Keir Becker, RSMAS, University of Miami
Dr. Carmen Aguilar, University of Wisconsin-Milwaukee

2008 COMMITTEE OF VISITORS REPORT FOR THE NSF OCEAN SCIENCES DIVISION

COV Review Process

The Committee of Visitors (COV) met from June 17 to 19, 2008 at the National Science Foundation to review the Ocean Science Facilities Programs within the Integrative Programs Section of the Division of Ocean Sciences (OCE). The program opened with introductions and statements from the Geosciences Deputy Assistant Director and the Deputy Director of OCE. They were available for questions and discussion early in the process. Ship Operations Program Officer, Dr. Linda Goad was present and available for questions and assistance much of the time. The present review includes the following programs: oceanographic instrumentation, shipboard scientific support equipment, ship acquisition and upgrade, submersible upgrade, oceanographic technical support, as well as several related activities.

The charge to the Committee of Visitors was to provide NSF with external expert judgment in two areas: (1) assessments of the quality and integrity of program operations and program-level technical and managerial matters pertaining to proposal decisions, and (2) the degree to which the outputs and outcomes generated by awardees have contributed to the attainment of the NSF's mission, strategic goals, and annual performance goals.

The COV was provided with documents and figures related to program activities and decision-making parameters. The materials pertaining to an award were organized in an electronic jacket (e-jacket). The previous COV in Fall 2005 conducted their review via e-jackets for the first time. Prior to the meeting, a series of materials were provided via the e-jacket system by Program Officer Linda Goad. Members of the Division presented summaries and program activities to the COV on June 17th. The COV examined e-jacket contents from the IPS programs and also used summary materials provided by the IPS staff to prepare the report. Additional materials were supplied promptly when they were requested.

The COV spent a day familiarizing themselves with the various files and understanding the programs. The process took longer than expected, however the COV felt confident about understanding the e-jacket system. The system provides information from receipt of proposal and comments from reviewers, to post-award information. The jacket provides a very detailed timeline and allows access to all information regarding a particular proposal, all in one place.

This COV report follows the NSF's recommended format for 2008, including core questions for parts A, B, and C of the review template. The sections address the integrity and efficiency of the program's processes and management; and the results of NSF investments, taking into consideration the overall mission of promoting the

progress of science, advancing national health, prosperity and welfare, and securing the national defense. The COV noted the differences between reviewing research programs and the facilities programs of the Integrative Program Section (IPS) program; some core questions listed on the NSF review template clearly not applicable to the IPS program were noted as such.

The COV wishes to thank Linda Goad and the IPS staff for providing materials and budget information and for preparation of summary materials to aid the review.

The program just recently completed hiring the team that will address the new proposals and challenges ahead. This follows a period when a reduced crew was in charge of the overall operation of the program. While the level of loss of corporate knowledge suffered by recent changes in personnel could be expected to have serious impact on the continuity of the program, the level of detail in the e-jacket system and the effort made by the NSF to retain key personnel on a consulting basis have largely ameliorated these concerns.

Introduction to Findings and Recommendations:

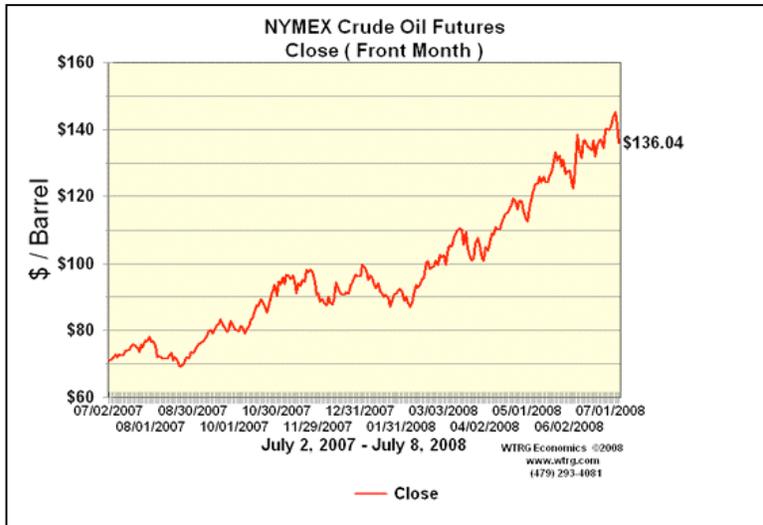
The National Science Foundation, Ocean Sciences Division (OCE) Committee of Visitors finds that the programs in the Integrative Programs Section are well managed and efficiently run by an experienced, dedicated and knowledgeable staff.

NSF is the primary funding agency for oceanographic research carried out by the US academic community, supporting 60-70% of all research cruises. The facilities in the IPS provide the ship and deep submergence platforms that support most of the fundamental research on all aspects of the ocean, including biological, chemical, geological and physical processes on both regional and global scales.

The University National Oceanographic Laboratory System (UNOLS) supported by OCE (65%), ONR (20%), NOAA (~15%) is an advisory group which assists the funding agencies with scheduling and other advisory tasks as well as providing useful feedback from the scientific community. The U.S. Academic fleet is comprised of 23 research vessels and DSRV Alvin located at 18 operating institutions which provide access to the sea for scientists receiving federal funding. Primary functions of UNOLS are to ensure the efficient scheduling of scientific cruises and to engage in committee activities to provide recommendations to agencies and operating institutions to improve the scientific capabilities and operations of the fleet. These committee reports and current and future ship schedules are available for the community and the public at large on the UNOLS web site.

An immediate challenge faced by the IPS program is the soaring cost of fuel needed to run the oceanographic fleet and the costs of commodities such as steel that are needed to maintain the fleet and to build new ships. Prices of commodities have increased dramatically in 2008 and provisions have to be made to address the price changes in

fuel for operating ships (for example average fuel cost was \$2.65/gal in 2007 and \$3.50/gal in 2008) and materials for maintenance and construction of research vessels. Soaring fuel costs have been especially challenging for large global-ranging research vessels with high fuel demands and full schedules in remote areas.



The IPS program has concurrently been faced with rising shipyard and manpower costs for maintenance and the operation of vessels and facilities. In addition to the price of materials, shipyard costs have also risen dramatically in recent years due to the high demand from the commercial marine sector. Strong demand for skilled marine and technical personnel by the commercial sector has adversely affected crew staffing, especially for technical support. Finally, compliance with new Safety of Life at Sea (SOLAS) and Homeland Security regulations has also significantly increased ship operation costs. Some assistance in recovering these costs has come about by cruise funding from IODP, OPP and other special programs across the foundation.

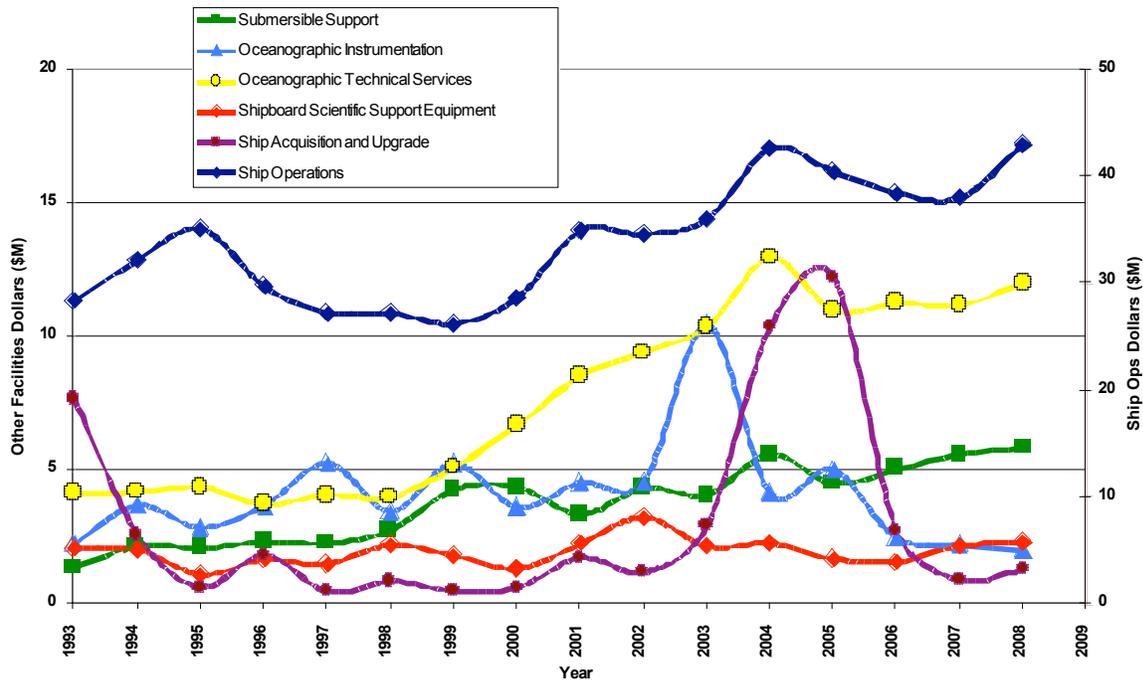
Despite these challenges and a flat or decreasing budget, the IPS program has made significant progress in fleet renewal and facility upgrades. In 2006 the new R/V Hugh Sharp entered the fleet to replace the R/V Cape Henlopen. In 2007 the IPS successfully completed the major conversion of an industry seismic vessel to support enhanced multi-channel seismic research work, including new 3D seismic profiling capabilities. The vessel, christened the R/V Marcus G. Langseth, passed Coast Guard and NSF inspections last autumn (2007), successfully conducted shakedown cruises Nov 2007 – Jan 2008, and began its science operations shortly thereafter. The Phase I design process for the Regional Class Research Vessels (RCRV) that began in 2006 is nearing completion, although escalation in estimated construction costs has necessitated the suspension of the detailed Phase II design process until funding is available, and funds will probably not be available for three RCRVs as planned. Planning for the Alaska Region Research Vessel (ARRV) is continuing, with a final design review scheduled for October 2008. The design process for a Human Occupied Vehicle (HOV) to replace the Alvin has begun and is making steady progress. IPS also supported development of a

new long coring system, including engineering of modifications to the R/V Knorr to allow for its operation on that vessel.

One of the main tools in the overall evaluation of proposals in the IPS is the use of peer review panels. This practice has insured the high quality of proposals overall. This is reflected in the e-jacket, where the panel has requested clarification of aspects of the proposal.

Figure 2 shows the annual budget for the six components of IPS from 1993 to 2008: 1) Ship operations, 2) Shipboard scientific support equipment, 3) Oceanographic instrumentation, 4) Submersible support, 5) Oceanographic Technical Services, and 6) Ship acquisition and upgrade. Ship operations comprise the largest component of the program, and has fluctuated through the years, with increased funding in 2008 compared to 2007. The increase in technical services and acquisitions started increasing in 1999, due to the inclusion of shipboard oceanographic technicians in the IPS budget in 1999 and beyond. Before 1999 these costs were not standardized, with some ship operators including technical services as part of their proposals and others supporting technicians on research grants. The increases in the ship acquisitions and upgrade budget in 2004-05 were costs associated with conversion of the R/V Langseth and initial design and material costs for the Alvin replacement (HOV). The costs for the HOV, Regional Class Research Vessel (RCRV) and Langseth conversion were removed from the ship acquisition and upgrade budget in 2006, and budgeted as separate line items. Total 2006-2007 costs for the HOV, RCRV and Langseth are \$31.5M (\$17.6M, \$5.2M and \$2.4M, respectively)

Facilities Funding Distribution, 1993-2008



Findings and Recommendations:

The Integrative Program Section is an essential program for the oceanographic community, which relies on the IPS for the operation, maintenance and upgrades of the ship and submersible platforms that provide access to the sea and for shore side facilities to support fleet operations.

- **Maintaining and renewing existing facilities:** The COV recognizes that this is an important component of the IPS.

The COV found thorough handling of the proposals for acquisitions and upgrades and timely turnaround. Some new technologies (gliders) are not sufficiently developed, whereas some progress has been made with new platforms e.g. NDSF (AUV/HROV/HOV). For some supplements, advisory communication helps guide decisions. NSF is making good use of UNOLS standing review committees, advisory groups as well as panels to help guide decisions. There is a good mix of reviewers for proposals, which are drawn from technically savvy scientists, engineers, operators (also for HROV).

The NSF request for National Research Council review of future needs in deep submergence illustrates the due diligence and proactive stance practiced by NSF in planning for future science needs in deep submergence.

The COV commends the IPS section for its thorough and well-documented handling of the deep submergence upgrade and acquisition proposals. Although the relevant IPS personnel are changing, and will continue to change over time, the level of detail maintained in the process bode well for future continuity of the program. IPS is also to be commended for utilizing the advice of relevant outside committees with scientific and engineering expertise, such as the DESSC (a UNOLS committee), HROV oversight committee, and RHOC (Replacement HOV Oversight Committee).

• **Quality and vision of the staff:**

Initiation of panel reviews for ship operations has provided important guidance for structuring the final cooperative agreements, e.g. panelists comments on staffing, maintenance and shipyard work have been very effective in optimizing resources. NSF maintains very close oversight on operations and expenses, e.g. justification of requests. Sending proposals for operating Global Class vessels out for external review insures efficient utilization of these large expensive vessels.

The use of cooperative agreements has resulted in tighter budgetary control of ship operations and excellent overall oversight. MOSA has proven to be a very effective accounting tool for amortization of shipyard costs. NSF has done a very good job of controlling costs using the cooperative agreements and requirements of details in Annual Reports.

The use of group purchases in both the ship ops and technical support has resulted in overall cost savings in acquisition and has yielded a benefit in standardization throughout the fleet. An ancillary benefit is the fact that such standardization increases the portability of skilled technicians, engineers and bridge personnel throughout the fleet. Typically these people are quite specialized and such portability has tangible use. The use of East and West coast wire/cable pools has reduced costs and insured the timely availability of long lead time cables.

• **Personnel / leadership transitions and maintenance of corporate knowledge:**

The COV finds the IPS personnel to be extremely skilled and dedicated. The COV notes the hard work of a reduced staff that kept the entire IPS program running smoothly despite vacancies of several key positions.

The number of personnel transitions has been managed exceptionally well. The COV was especially impressed with the transition procedures that were put in place and the efforts many departing staff made to transfer their corporate knowledge to the new hires. A key to these transitions is the meticulous attention to detail in the proposal jacket system. The knowledge summarized here allows new personnel to quickly come up to speed on the most minute aspects of a proposal. The e-jacket system has made this task easier.

- **Corporate knowledge of IPS facilities staff:**

ALVIN certification and safety has been managed by the Navy and maintained to a very high standard. The new HOV will not have this resource. Certification and safety issues will be handled by the American Bureau of Shipping (ABS). ABS does not have extensive corporate knowledge or expertise in the area of deep submergence vehicles and this is clearly an area of concern. IPS appears to be coping well to this challenge and exercising due diligence in insuring the construction of a safe and capable HOV. IPS is also working hard to maintain and develop the capabilities deemed important to the community.

- **Proposal solicitation and review:**

The COV has found thorough handling and review of IPS proposals and timely turnaround. NSF is making good use of UNOLS standing review committees, advisory groups as well as panels to help guide funding decisions. For some supplements, advisory communication helps guide decisions. The COV is impressed with the breadth of expertise, diversity and experience of the reviewers and panel members. The program is commended for the careful selection of reviewers and panelists. There is a good mix of reviewers for proposals, including technically savvy scientists, engineers, and operators (also for the HOV developmental process). The use of external reviewers for global ships has provided for a more thorough review of proposals.

Timing of cooperative agreement/grant periods to start and end at the same time has allowed for a better and more efficient review process. Importantly, it allows the panel to compare comparable similar class ships and facilities across the fleet over the same operational period.

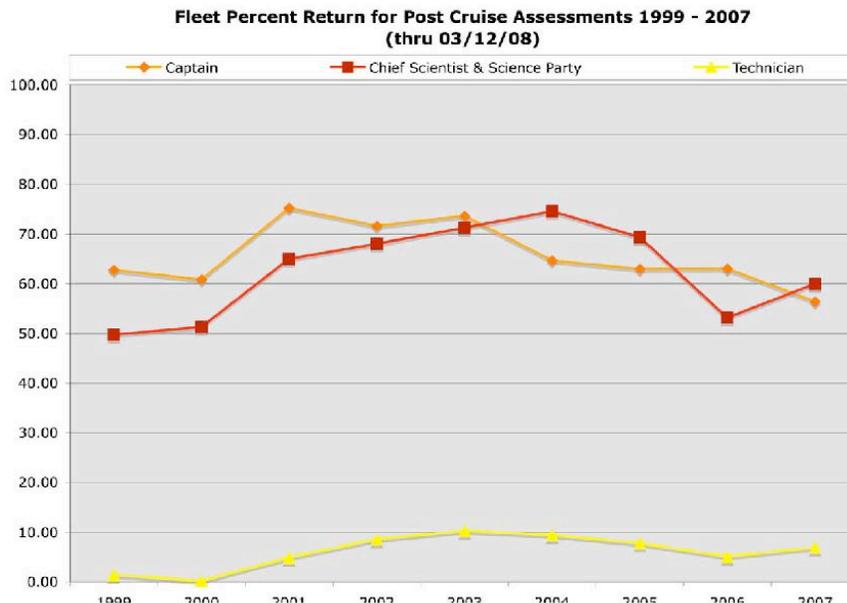
- **Funding balance between facilities and research:**

IPS faces clearly recognized, but increasing, challenges in the area of funding allocation between facilities and science. As in past years there is concern for declining funding and maintaining good science programs supported by IPS. Balance is the critical issue at stake here because research facilities are long lead time items which must be available coincident with science needs. Acquisition of instrumentation, winches and ships must be in response to science needs which implies accurate prediction of science trends in time to meet the need. Decreasing funding levels only exacerbate this problem. The coordination of science and facilities has been well carried out by NSF and needs to be maintained as a high priority. UNOLS committees, organizations such as AGU, Science program Officers and coordination with other funding agencies (such as NOAA and ONR) can greatly assist the facilities Program Officers in this task.

- **Post-cruise assessments (PCA):**

PCAs are an effective tool to obtain feedback and identify problems in ship operations. The COV noted the low percentage of Captains and Chief Scientists submitting PSAs (50-60%) and very low rates (<10%) for Marine Techs. In the past it was a requirement

that you could not disembark until you finished the PCA. There is no mechanism available to have leverage with PIs, through the annual report system could be used.



The community needs to be informed of the importance of the PCA. There is a need to continue efforts to improve compliance by PIs, Captain and technicians.

The diary notes and correspondence do not always provide documentation of NSF's follow-up on problematic issues that were raised in PCA and/or in correspondence regarding ship operations (e.g. equipment failures at sea) (the dates listed in correspondence are dates of uploads and not emails so it was difficult for the COV to follow these paper trails)

- **Very active management of ship operations:**

In some cases the final cooperative agreement has been extensively revised from the original proposal request, but in all cases the rationale for the changes has been well documented. Close oversight of the operations was demonstrated via the Annual Reports.

- **Instrumentation:**

NSF led the process to promote standardization and uniformity of ship instrumentation. Extremely detailed documentation in review analysis provides rationale and justification for funding decisions. There was very detailed follow up.

Costs have leveled after each fleet class has been brought to similar level of instrumentation (including spares for critical equipment like CTD). The NSF program

officer's expertise in this area has contributed to ensuring that resources are wisely spent to optimize scientific capabilities at sea.

NSF has actively encouraged cooperative use between institutions by discouraging institutional charges for use of shared instruments and providing trained personnel for use of equipment. Program oversight is very well documented in Diary Notes. Because these notes provide the sole insight into commitments made these notes are crucial the success of a successor PO.

The COV observed a very active management of ship operations throughout. In some cases the final cooperative agreement has been extensively revised from the original proposal request, but in all cases the rationale for the changes has been well documented. There has been close oversight of the operations via the Annual Reports.

Response to Previous COV Report and Recommendations:

The 2005 COV on the OCE IPS made a number of recommendations. We support these recommendations and have noted the NSF response to each recommendation in the intervening 3 years.

Considering Facilities Costs as Part of the Scientific Review process:

The COV has recommended that the facilities support costs of Science proposals should be available in a merit review, so that the reviewers understand the real costs of a proposal. NSF has addressed this issue and should continue to emphasize its importance to reviewers and panels. NSF also believes that these questions should be debated by the community at large. We concur with NSF and feel that progress has been made on this recommendation.

Maintaining an Open Process for Future Upgrades and Acquisitions:

NSF agreed that, where possible, there should be open competitions for operation of new facilities, and has publicly declared that the ARRV and Regional Class ships will be openly competed. We feel that this process has been well handled by the NSF that there is a high awareness of these principles.

Streamlining the Tracking of maintenance and upgrades of research vessels:

The development of the new web-based electronic tracking system development was completed.

Automating the Ship Scheduling Process:

NSF requested that UNOLS implement automated scheduling software and this is being tested in 2008. General comments on future scheduling challenges due to reduced number of ships and the need to maximize fuel costs (e.g. reduce deadheaded cruises)

Increasing Cost Effectiveness:

The NSF has continued to look for every opportunity for cost savings through bulk purchases.

Balance of facilities vs. research:

NSF clearly recognizes this as an issue which presents increasing challenge in times of decreasing funding. COV found that this balance is well handled.

Inclusion of new facilities:

Recognized some new technologies (gliders) which are not sufficiently developed but increasingly important. Progress has been made in the development new platforms in NDSF (AUV/HROV/HOV)

Communications:

PCA is a crucial piece of information to assess cruise success at different levels. This is a tool that should be required and used to improve facilities and operations. NSF should work with UNOLS to improve the usefulness of this valuable tool.

Streamlining the tracking of maintenance and upgrades:

COV felt that this has been well handled, however documentation to help track the follow to PCA comments, operational issues and inspections still could be improved.

NDSF recommendations:

The COV would recommend that IPS consider the merits of applying the cooperative agreement approach to the 5-year NDSF proposal, as they have done for ship operations proposals. We also note that jacket for the NDSF proposal contains a relevant discussion of the issue of whether to apply separate day rates to the NDSF vehicles. Apparently this might be preferred by other agencies that use these assets, but NSF, as largest supporter of NDSF operations, prefers the single day rate approach. The jacket describes the rationale for this approach and also indicates a commendable flexibility to revisit the issue if necessary in the future.

**CORE QUESTIONS and REPORT TEMPLATE
for
FY 2008 NSF COMMITTEE OF VISITOR (COV) REVIEWS**

Guidance to NSF Staff: This document includes the FY 2008 set of Core Questions and the COV Report Template for use by NSF staff when preparing and conducting COVs during FY 2008. Specific guidance for NSF staff describing the COV review

process is described in Subchapter 300-Committee of Visitors Reviews (NSF Manual 1, Section VIII) that can be obtained at <www.inside.nsf.gov/od/oia/cov>.

NSF relies on the judgment of external experts to maintain high standards of program management, to provide advice for continuous improvement of NSF performance, and to ensure openness to the research and education community served by the Foundation. Committee of Visitor (COV) reviews provide NSF with external expert judgments in two areas: (1) assessments of the quality and integrity of program operations and program-level technical and managerial matters pertaining to proposal decisions; and (2) comments on how the results generated by awardees have contributed to the attainment of NSF's mission and strategic outcome goals.

Many of the Core Questions are derived from NSF performance goals and apply to the portfolio of activities represented in the program(s) under review. The program(s) under review may include several sub-activities as well as NSF-wide activities. The directorate or division may instruct the COV to provide answers addressing a cluster or group of programs – a portfolio of activities integrated as a whole – or to provide answers specific to the sub-activities of the program, with the latter requiring more time but providing more detailed information.

The Division or Directorate may choose to add questions relevant to the activities under review. NSF staff should work with the COV members in advance of the meeting to provide them with the report template, organized background materials, and to identify questions/goals that apply to the program(s) under review.

Suggested sources of information for COVs to consider are provided for each item. As indicated, a resource for NSF staff preparing data for COVs is the Enterprise Information System (EIS) –Web COV module, which can be accessed by NSF staff only at <http://budg-eis-01/eisportal/default.aspx>. In addition, NSF staff preparing for the COV should consider other sources of information, as appropriate for the programs under review.

Guidance to the COV: The COV report should provide a balanced assessment of NSF's performance in two primary areas: (A) the integrity and efficiency of the **processes** related to proposal review; and (B) the quality of the **results** of NSF's investments that appear over time. The COV also explores the relationships between award decisions and program/NSF-wide goals in order to determine the likelihood that the portfolio will lead to the desired results in the future. Discussions leading to answers for Part A of the Core Questions will require study of confidential material such as declined proposals and reviewer comments. *COV reports should not contain confidential material or specific information about declined proposals.* Discussions leading to answers for Part B of the Core Questions will involve study of non-confidential material such as results of NSF-funded projects. The reports generated by COVs are used in assessing agency progress in order to meet government-wide performance reporting requirements, and are made available to the public. Since

material from COV reports is used in NSF performance reports, the COV report may be subject to an audit.

We encourage COV members to provide comments to NSF on how to improve in all areas, as well as suggestions for the COV process, format, and questions. For past COV reports, please see <http://www.nsf.gov/od/oia/activities/cov/covs.jsp>.

**FY 2008 REPORT TEMPLATE FOR
NSF COMMITTEES OF VISITORS (COVs)**

The table below should be completed by program staff.

Date of COV: June 17-19, 2008
Program/Cluster/Section: <p style="text-align: center;">Integrative Programs Section</p>
Division: <p style="text-align: center;">Ocean Sciences</p>
Directorate: <p style="text-align: center;">Geosciences</p>
Number of actions reviewed: Awards: 50 Declinations: 4 Other: 1 withdrawn, 1 returned criteria not met
Total number of actions within Program/Cluster/Division during period under review: Awards: 144 Declinations: 6 Other: 5 withdrawn, 1 returned criteria not met
Manner in which reviewed actions were selected: Suggested by the Program Officer.

Committee Membership:

Carmen Aguilar, University of Wisconsin, Milwaukee
 Keir Becker, RSMAS, University of Miami
 Maureen Conte, MBL, Woods Hole, and BIOS, Bermuda
 Ellen Druffel, University of California, Irvine
 John Freitag, URI and ONR (retired)

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

Briefly discuss and provide comments for *each* relevant aspect of the program's review process and management. Comments should be based on a review of proposal actions (awards, declinations, and withdrawals) that were *completed within the past three fiscal years*. Provide comments for *each* program being reviewed and for those questions that are relevant to the program under review. Quantitative information may be required for some questions. Constructive comments noting areas in need of improvement are encouraged.

A.1 Questions about the quality and effectiveness of the program's use of merit review process. Provide comments in the space below the question. Discuss areas of concern in the space provided.

<p>QUALITY AND EFFECTIVENESS OF MERIT REVIEW PROCESS</p>	<p>YES, NO, DATA NOT AVAILABLE, or NOT APPLICABL E¹</p>
<p>1. Are the review methods (for example, panel, ad hoc, site visits) appropriate? Comments: The program makes very effective use of mail reviews, panels and</p>	<p>YES</p>

¹ If "Not Applicable" please explain why in the "Comments" section.

<p>advisory groups to help guide decision making. The reviewer pool includes technologically knowledgeable scientists, engineers and other professionals for assessment of proposals.</p> <p>Source: Jackets and the EIS. Select the “Type of Review” module.</p>	
<p>2. Are both merit review criteria addressed</p> <p>a) In individual reviews?</p> <p>b) In panel summaries?</p> <p>c) In Program Officer review analyses?</p> <p>Comments:</p> <p>Intellectual merit is validated by the science supported by the facilities rather than by the facilities program itself.</p> <p>Source: Jackets</p>	<p>YES</p> <p>YES</p> <p>YES</p> <p>YES</p>

<p>3. Do the individual reviewers provide substantive comments to explain their assessment of the proposals?</p> <p>Comments:</p> <p>Quality of the reviewers is above average and in many cases include representatives from foreign operators and outside agencies such as NavSea and NOAA. Reviewers provide constructive and valuable comments and suggestions that improve the facilities and their operations.</p> <p>Source: Jackets</p>	<p>YES</p>
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<p>4. Do the panel summaries provide the rationale for the panel consensus (or reasons consensus was not reached)?</p> <p>Comments: The panel summaries were detailed and thorough.</p> <p>Source: Jackets</p>	<p>YES</p>
<p>5. Does the documentation in the jacket provide the rationale for the award/decline decision?</p> <p>(Note: Documentation in jacket usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), program officer review analysis, and staff diary notes.)</p> <p>Comments: The review analysis thoroughly documented the process and rationale for the award decision.</p> <p>Source: Jackets</p>	<p>YES</p>

<p>6. Does the documentation to PI provide the rationale for the award/decline decision?</p> <p>(Note: Documentation to PI usually includes context statement, individual reviews, panel summary (if applicable), site visit reports (if applicable), and, if not otherwise provided in the panel summary, an explanation from the program officer (written or telephoned with diary note in jacket) of the basis for a declination.)</p> <p>Comments:</p> <p>In most cases, extensive communication and/ negotiations between program officer and PIs are apparent throughout the process until the award is made.</p> <p>Source: Jackets</p>	<p>YES</p>
<p>7. Is the time to decision appropriate?</p> <p>Note: Time to Decision --NSF Annual Performance Goal: For 70 percent of proposals, inform applicants about funding decisions within six months of proposal receipt or deadline or target date, whichever is later. The date of Division Director concurrence is used in determining the time to decision. Once the Division Director concurs, applicants may be informed that their proposals have been declined or recommended for funding. The NSF-wide goal of 70 percent recognizes that the time to decision is appropriately greater than six months for some programs or some individual proposals.</p> <p>Comments:</p> <p>Typically, the decision time is well within the window, and the requested start date is usually met. Rationale for delays (group purchases, schedule changes) are well documented and communicated to the PI.</p>	<p>YES</p>

<p>Source: Jackets and EIS-Web COV module. Select “Report View”, then select “Average Dwell Time,” and select any combination of programs or program solicitations that apply.</p>	
<p>8. Additional comments on the quality and effectiveness of the program’s use of merit review process:</p> <p>The program effectively uses the entire system of mail reviews, panels and external oversight committees to guide the decision making process.</p>	

A.2 Questions concerning the selection of reviewers. Provide comments in the space below the question. Discuss areas of concern in the space provided.

<p>SELECTION OF REVIEWERS</p>	<p>YES , NO, DATA NOT AVAILABLE, or NOT APPLICABLE ²</p>
<p>1. Did the program make use of reviewers having appropriate expertise and/or qualifications?</p> <p>Comments:</p> <p>The reviewers and panelists are selected from a group of experts with a well balanced mix of users, operators and technical experts. Also see answer to A.1 above.</p> <p>Source: Jackets</p>	<p>YES</p>
<p>2. Did the program use reviewers balanced with respect to characteristics such as geography, type of institution, and underrepresented groups?</p>	<p>NOT APPLICABLE</p>

² If “Not Applicable” please explain why in the “Comments” section.

<p>Note: Demographic data is self reported, with only about 25% of reviewers reporting this information.</p> <p>Comments:</p> <p>These programs deal with institutions that have been previously selected, therefore the reviewers and panel members consist of peers as well as intra-agency technical peers and users.</p> <p>Source: Jackets and EIS-Web COV module. The "Report View" has reviewers by state, institution type, minority status, disability status, and gender.</p>	<p>YES</p>
<p>3. Did the program recognize and resolve conflicts of interest when appropriate?</p> <p>Comments:</p> <p>The program recognized potential conflicts of interest when they arose, and carefully considered differences of opinion expressed by the reviewers and panelists. There is a person within the division that oversees potential conflicts of interest.</p> <p>Source: Jackets and discussion with program officers.</p>	

4. Additional comments on reviewer selection: None.

A.3 Questions concerning the resulting portfolio of awards under review. Provide comments in the space below the question. Discuss areas of concern in the space provided.

RESULTING PORTFOLIO OF AWARDS	
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	APPROPRIATE, NOT APPROPRIATE³, OR DATA NOT AVAILABLE
<p>1. Overall quality of the research and/or education projects supported by the program.</p> <p>Comments: As IPS is a facilities funding group, the research merits and educational projects are established by the science proposals/projects using the facilities rather than the facilities themselves.</p> <p>Source: Jackets and program information</p>	NOT APPLICABLE
<p>2. Does the program portfolio promote the integration of research and education?</p> <p>Comments: The program promotes the integration of research and education by making specialized facilities available to the scientific community at large.</p> <p>Source: Jackets and program information</p>	YES
<p>3. Are awards appropriate in size and duration for the scope of the projects?</p> <p>Comments: The award is actively managed to optimize the resources and their availability to the scientific community.</p> <p>Source: Jackets and EIS-Web COV module has a “Report View” that gives average award size and duration for any set of programs or program solicitations you specify.</p>	YES
<p>4. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Innovative/potentially transformative projects? 	NOT APPLICABLE

³ If “Not Appropriate” please explain why in the “Comments” section.

<p>Comments: COV did not feel that this question was particularly relevant.</p> <p>Source: Jackets and program information.</p>	
<p>5. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Inter- and Multi- disciplinary projects? <p>Comments: Facilities are created to serve scientific needs, particular facilities (DSRV, Multi-Channel Seismic, ROV) come to fill Science needs and are not driven by IPS in and of itself.</p> <p>Source: Jackets, program information, and some people use as a proxy data on jointly funded projects. See EIS-Web COV module, "Report Review" and select "co-funding from" and "co-funding contributed to" to find jointly supported awards.</p>	<p>NOT APPLICABLE</p>

<p>6. Does the program portfolio have an appropriate balance considering, for example, award size, single and multiple investigator awards, or other characteristics as appropriate for the program?</p> <p>Comments: As these awards go to institutional facilities rather than being directed at an individual PI's research, the question has no relevance.</p> <p>Source: Jackets, program information, and EIS-Web COV module for information on award size.</p>	<p>NOT APPLICABLE</p>
<p>7. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Awards to new investigators? <p>NOTE: A new investigator is an investigator who has not been a PI on a previously funded NSF grant.</p> <p>Comments: The above comment applies.</p> <p>Source: EIS-Web COV module on "Funding Rate," filtered by PI Characteristic (use the pop-up filter).</p>	<p>NOT APPLICABLE</p>
<p>8. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Geographical distribution of Principal Investigators? <p>Comments: The Geographical location is fixed by the locations of the facilities which are competed as new facilities come on line.</p> <p>Source: EIS-Web COV module, using "Proposals by State"</p>	<p>NOT APPLICABLE</p>
<p>9. Does the program portfolio have an appropriate balance of:</p> <ul style="list-style-type: none"> • Institutional types? <p>Comments: The above comment applies.</p> <p>Source : EIS-Web COV module, using " Proposals by Institution Type"</p>	<p>NOT APPLICABLE</p>

<p>10. Does the program portfolio have an appropriate balance: ▲ Across disciplines and sub-disciplines of the activity?</p> <p>Comments: This lies in the area of the science programs funded to use the facilities, not the facility itself.</p> <p>Source: Jackets and program information</p>	<p>NOT APPLICABLE</p>
<p>11. Does the program portfolio have appropriate participation of underrepresented groups?</p> <p>Comments: Because these programs are directed at facilities, this issue is determined by individual facility policy rather than at the proposal level.</p> <p>Source: EIS-Web COV module, using “Funding Rate” with the pop-up filter (this allows you to see female and minority involvement, where involvement means being PI or co-PI).</p>	<p>NOT APPLICABLE</p>
<p>12. Is the program relevant to national priorities, agency mission, relevant fields and other constituent needs? Include citations of relevant external reports.</p> <p>Comments:</p> <p>The program makes state of the art facilities available to the scientific community and plays an important role in meeting national priorities, agency needs and science community needs.</p> <p>These national priorities and science community needs have been articulated in reports, such as: US Commission on Ocean Policy Report Pew Oceans Commission Report NRC Future needs in Deep Submergence Science Report Interagency Working Group (IWG) Fleet Status Report UNOLS advisory committee reports And other NAS reports</p> <p>Source: Program information</p>	<p>YES</p>

13. Additional comments on the quality of the projects or the balance of the portfolio:

A.4 Management of the program under review. Please comment on:

1. Management of the program.

Comments:

The staff and section head of the IPS program provide excellent guidance and close oversight to maximize use of resources. They have been proactive in controlling costs to ensure efficient allocation of resources while optimizing scientific capabilities. Program officers have maintained excellent documentation of the entire decision-making process and operations during the award period that have eased transition to new personnel who have joined IPS in the past two years.

In view of the number of personnel transitions the program has maintained excellent continuity during a period of unprecedented challenges. The level of documentation bodes well for smooth transition in leadership.

2. Responsiveness of the program to emerging research and education opportunities.

Comments:

The program staff has been proactive and responsive in providing for the future needs of the oceanographic fleet. The program strives to maintain the operational flexibility that is required for rapid response for unforeseen events. This has enabled, for example, IPS to deploy rapid response cruises for two recent events: First, the latest earthquake swarm in the Pacific, and second an eruption at the East Pacific Rise.

Their attention to detail in working with a wide variety of operators is to be commended.

3. Program planning and prioritization process (internal and external) that guided the development of the portfolio.

Comments:

The program is to be commended for the careful prioritization in planning for ship acquisitions and major infrastructure upgrades in light of the current challenging fiscal climate.

NSF is an active participant in the ongoing interagency discussions regarding the future of the oceanographic fleet, to maximize resource utilization. The program supports UNOLS activities and as a member of FOFC is involved in the national effort for fleet review and renewal.

4. Responsiveness of program to previous COV comments and recommendations.

Comments:

The COV notes the successful responsiveness of the program to the competition for operation of new facilities (e.g. Alaskan Regional Research Vessel, completion of the R/V Langseth), progress on the new web-based tracking software for ship inspection program, progress to sea trials for the HROV, inclusion of facilities costs in ship-time request forms, as well as the implementing cost management strategies, such as bulk and group purchases.

The program has adapted well to loss of corporate knowledge not only by careful documentation but also providing a transitional involvement of outgoing key personnel.

5. Additional comments on program management:

IPS has managed well in responding to unforeseen and ongoing budgetary challenges arising from escalating fuel, maintenance and shipyard costs, as well as homeland security requirements. This situation will likely worsen with time, and long term vision and proactive planning will continue to be essential for the success of the fleet.

PART B. RESULTS OF NSF INVESTMENTS

The NSF mission is to:

- promote the progress of science;
- advance national health, prosperity, and welfare; and
- secure the national defense.

To fulfill this mission, NSF has identified four strategic outcome goals: Discovery, Learning, Research Infrastructure, and Stewardship. The COV should look carefully at and comment on (1) noteworthy achievements based on NSF awards; (2) ways in which funded projects have collectively affected progress toward NSF's mission and strategic outcome goals; and (3) expectations for future performance based on the current set of awards.

NSF investments produce results that appear over time. Consequently, the COV review may include consideration of significant impacts and advances that have developed since the previous COV review and are demonstrably linked to NSF investments, regardless of when the investments were made.

To assist the COV, NSF staff will provide award "highlights" as well as information about the program and its award portfolio as it relates to the three outcome goals of Discovery, Learning, and Research Infrastructure. The COV is not asked to review accomplishments under Stewardship, as that goal is represented by several annual performance goals and measures that are monitored by internal working groups that report to NSF senior management.

B. Please provide comments on the activity as it relates to NSF's Strategic Outcome Goals. Provide examples of outcomes ("highlights") as appropriate. Examples should reference the NSF award number, the Principal Investigator(s) names, and their institutions.

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."*

Comments:

Facilities infrastructure supported by IPS is at the core of new discoveries since it provides the platform for scientists to perform their research.

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

Comments:

Facilities funded through IPS contribute to the education and training of scientists, technicians and engineers by providing working platforms to support high level oceanographic research and engineering programs.

B.3 OUTCOME GOAL for Research Infrastructure: “Build the nation’s research capability through critical investments in advanced instrumentation, facilities, cyberinfrastructure and experimental tools.”

Comments:

The IPS program provides exceptional leadership in guiding and supporting facilities deemed important to the oceanographic research community.

PART C. OTHER TOPICS

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

The COV (as with the 2005 COV) was concerned with maintaining the balance between facilities and research at a time when resources continue to dwindle. Although IPS is cognizant of this issue, continuing diligence is a priority. Additional steps could be taken to facilitate dialog between facilities managers and the science users, for example in planning for large initiatives like OOI.

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. COV felt that the program is well managed and maintains a high level of internal expertise. Continuing communications between the science and facilities sectors should always be a high priority.

C.3. Please identify agency-wide issues that should be addressed by NSF to help improve the program's performance. No significant issues were found.

C.4. Please provide comments on any other issues the COV feels are relevant. No significant issues were found.

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

The materials provided were of excellent quality and easy to access. Directing the COV to the "Review Analysis", "Panel Review Summaries" and the "Diaries" provides an excellent overview of many proposals. It would also be desirable that all documents pertaining to each proposal be made available to the COV on a CD with the jackets on a single file.

An operational flow chart of the documentation included in the E-jacket would be very helpful.

SIGNATURE BLOCK:



For the FY 2008 NSF COMMITTEE OF VISITOR (COV) REVIEW
Mr. John Freitag
Chair