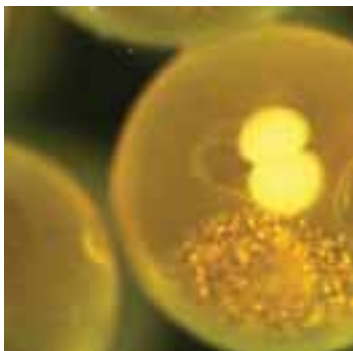


NORTH PACIFIC RESEARCH BOARD
*A New Marine Research
Program for Alaska*

PART I NORTH PACIFIC RESEARCH BOARD





The North Pacific Research Board (NPRB) was established by Congress in 1997 and first organized in 2001. This new organization's science planning and support activities commenced in early 2002, and now, eight years later, NPRB plays a significant role in supporting marine research off Alaska. This role is likely to expand in coming years of projected higher federal deficits that may result in decreased federal funding for research. NPRB has matured as an organization and is poised to lead Alaska marine research activities into the future, improve the understanding of marine ecosystems off Alaska, and provide information to support effective management decisions on sustainable use of Alaska's abundant marine resources.

Over the past eight years, the Board developed its organizational structure, policies, and procedures; published a comprehensive science plan; funded 200 projects for just over \$33 million; commenced a six-year, \$52 million ecosystem research partnership with the National Science Foundation (NSF) in the Bering Sea; initiated a smaller ecosystem program in the Gulf of Alaska; facilitated conferences and science meetings; developed a flourishing education and outreach program; and adopted prudent budget practices that will provide \$4-6 million dollars or more annually for new research in coming years.

These are not insignificant accomplishments: they derive from many discussions and decisions over the foundational years from 2001 to 2008. This period of intense policy development, staff and organizational development, budget formulation and revision, scientific plan writing, and research program implementation, required grappling with the myriad questions and issues that face any new organization starting from scratch. This report provides background information about these decisions and policies that set the foundation for the robust marine research program that exists today. We hope these insights will prove valuable to others who may develop research programs and as a historical reference for future Board members and staff.

Three major sections comprise this report. **Part I: North Pacific Research Board** introduces the Board and its enabling legislation, and the statements of vision, mission, and goals that flow from the legislation. Annual highlights are provided for 2001 through 2008. They attempt to capture the tempo and evolution of policies and procedures, and describe the many other steps that have culminated in the North Pacific Research Board as it is today. Part I also lists the current members of the Board, its Science Panel, Advisory Panel, and staff.

Part II: Science Program is the heart of this report, and recounts the development of NPRB's *Science Plan*, which was published in 2005 and to this day remains the core planning document for all our research. A detailed excursion through all of the Board's funded research since 2002 is broken down by major thematic areas of the *Science Plan*. Part II thus reflects the true accomplishments of the Board in fielding a robust research program and improving our understanding of the marine ecosystems of the Gulf of Alaska, Bering Sea and Aleutian Islands, and high Arctic Ocean. Because research projects are referenced by number, this section may be used as a convenient portal to more detailed project information available on the Board's website. Part II also describes major integrated ecosystem research programs initiated for the Bering Sea and Gulf of Alaska, and summarizes other research approaches and partnerships developed from 2002 to 2008.

Part III: Evolution of a New Marine Science Program goes beyond the marine science accomplished by the Board, to a detailed history of its organizational development over the past eight years in terms of policies, management,

finances and budgets, and a host of other activities that culminated in the Board as a contemporary, prominent research organization. This is not light reading and is geared more for those people seeking background information on the decisions the Board made as an organization to evolve itself into the robust catalyst for marine research that it embodies today.

Two reference documents complement this report: the *Science Plan*, published in 2005, and the *Statement of Policies and Procedures* published in 2002, and updated in 2005. Both documents provide important context for all decisions and activities of the Board. Additional background materials may be found in meeting notebooks at NPRB offices. All meeting summaries, and project descriptions and deliverables are available on the website at www.nprb.org.



The Board extends a great debt of gratitude to U.S. Senator Ted Stevens of Alaska for his insight and wisdom in creating this enduring legacy of marine research and providing the resources necessary to carry it out.



Enabling Legislation

Congress passed legislation authorizing the establishment of the North Pacific Research Board on November 4, 1997, which President Clinton signed ten days later on November 14. Although only a few pages long, it provided the basic foundation for the development of the Board and its scientific program.

Of critical importance, the legislation established the Environmental Improvement and Restoration Fund (EIRF) as a funding source, using one-half of the award by the Supreme Court to the U.S. based on litigation between the State of Alaska and the federal government over rights to oil and gas revenues from the Dinkum Sands area off Alaska's North Slope. Through the Secretary of Commerce, the Board was given access to 20% of the annual earnings of the fund without further appropriation to carry out marine research. Providing non-appropriated funds was very forward thinking. While created in a period of budget surpluses, it now helps to buffer NPRB from severe budget deficits and potential decline in Congressional appropriations for research.

The enabling legislation required the Board to make recommendations for research to the Secretary, placing priority on cooperative research efforts that address pressing fishery management or marine ecosystem information needs, while avoiding duplication of other research. It also identified the composition of the Board and how members would be nominated and appointed. It further identified five voting members who could act on behalf of the Board in all administrative matters, including the disposition of research funds, but required them to consult with the other 15 Board members.

The founding documents also required the Board to establish written criteria for the competitive submission of grant requests with a review process for all requests based on merit. Research awards could be granted to federal, state, private, or foreign organizations or individuals and conducted anywhere in the northern Pacific Ocean, Bering Sea, and Arctic Ocean, including any lesser related bodies of water. With the stroke of a pen, Congress created a completely new program of marine research off Alaska to augment and enhance existing state, federal, and university research programs.

The Board first met in February 2001, to outline its vision, mission, and goals statements. These reflect an overall intent to field a program of applied research resulting in products useful for management, rather than simply a curiosity-based science program.

Vision

A clear understanding of the North Pacific, Bering Sea, and Arctic Ocean ecosystems that enables effective management and sustainable use of marine resources.

Mission

To develop a comprehensive science program of the highest caliber that provides a better understanding of the North Pacific, Bering Sea, and Arctic Ocean ecosystems and their fisheries. The work of the NPRB will be conducted through science planning, prioritization of pressing fishery management and ecosystem information needs, coordination and cooperation among research programs, competitive selection of research projects, enhanced information availability, and public involvement.

Supporting Goals

- Improve understanding of North Pacific marine ecosystem dynamics and use of the resources.
- Improve ability to manage and protect the healthy, sustainable fish and wildlife populations that comprise the ecologically diverse marine ecosystems of the North Pacific, and provide long-term, sustained benefits to local communities and the nation.
- Improve ability to forecast and respond to effects of changes, through integration of various research activities, including long-term monitoring.
- Foster cooperation with other entities conducting research and management in the North Pacific, and work toward common goals for North Pacific marine ecosystems.
- Support high quality projects that promise long-term results as well as those with more immediate applicability.

The enabling legislation, together with the vision, mission, and goals, provides the foundation for further development of policies and research directions, with an overriding aim of establishing a meritorious science program of the highest quality and integrity. Although the legislation provides for administrative and technical support from the Secretary, the Board chose to have its own staff and began hiring employees in 2002. The next section of this report highlights the rapid development of NPRB as an organization and its research programs through 2008.

Annual Highlights: 2001-2008

2001 Organizational Meetings

The North Pacific Research Board first convened in 2001, although not all members officially would be onboard until October. Four of the five voting members held two preliminary meetings to select a fishing industry representative and establish a date for the first full meeting. These included Dr. James Balsiger (U.S. Department of Commerce), Kevin Duffy (Alaska Department of Fish and Game), David Benton (North Pacific Fishery Management Council), and Tylan Schrock (Alaska SeaLife Center). In February, the Board selected David Benton as first interim chairman and developed criteria for selecting the fifth voting member, the special fishing interest representative. In March, it recommended Trevor McCabe for the fishing interest position and he was confirmed by the Secretary of Commerce (Secretary) in early October. This five-member body is referred to as NPRB's Executive Committee.

The other 15 members are ex-officio members representing agencies and organizations or state-nominated members approved by the Secretary. A mix of executive committee and ex-officio members met in April and May. State-nominated members had yet to be appointed. Substantial progress was made: the Board approved continuing David Benton as interim chairman and discussed other organizations that could be used as models for institutional structure. It also discussed coordination with other research organizations, the nature of the overall program, types of research to support, and how to engage the public. The Board formally adopted vision and mission statements and goals, and chose to hire staff. After circulating a job announcement for executive director in August and September, the Executive Committee selected Dr. Clarence Pautzke, who started on January 1, 2002. NPRB ended 2001 with all members officially confirmed by the Secretary.

2002 Initial Research Program

In early 2002, NPRB began developing infrastructure, operating policies, budgets, and the initial research program, and renting office space in the Exxon Valdez Oil Spill Trustee Council office and contracting with their staff for support. The Executive Committee met by teleconference with the executive director on February 4 to arrange for the first full meeting of the Board in March. Throughout 2002, NPRB met four times: twice in March, in June, and in October. Dave Benton and Tylan Schrock were elected as the first chairman and vice chairman, respectively. The Board made its first funding decisions about research, demonstration, and education and outreach projects, based on accumulated funds available from the EIRF as well as the North Pacific Marine Research Institute. (NPMRI was created by Congress under the auspices of the Alaska SeaLife Center and had its own independent funding, and is discussed more fully in Part III of this report.)

NPRB released its first request for proposals (RFP) in early March and received 41 proposals by the April 12 deadline. It ended up funding 15 projects for \$1.2 million. In October, the Board released a second RFP for projects to be funded in the spring of 2003, and established a two-tier voting structure to meet the consultation requirements of the enabling legislation. Standard operating procedures were completed and the Board began developing its committee structure. NPRB contracted with the National Research Council (NRC) of the National Academy of Sciences to provide guidance on drafting its first science plan. The Board established a budget based on projected earnings of the EIRF and created a website to facilitate public outreach. NPRB ended the year with a full 14-member Science Panel appointed to help review proposals and provide direction for its science program.



The North Pacific Research Board in 2008: Top row, left to right: John Gauvin, Steve MacLean, Ian Dutton, Dave Benton, John Hilsinger, Doug DeMaster, John Iani, Denis Wiesenburg. Bottom row: Gerry Merrigan, Howard Horton, Dorothy Childers, Nancy Bird, Eric Olson, Leslie Holland-Bartels.

2003 Committees and Advisory Panel

The Board met in March, May, and October in 2003, finalizing committee structures and operating procedures, including conflict-of-interest policies. The first Advisory Panel was appointed in March. After learning that EIRF earnings were much lower than previously projected, the Board significantly revised its budget. The 2003 RFP attracted 156 proposals, and recommendations for funding 26 new research projects for a total of \$7 million were forwarded to the Secretary. NPRB released the 2004 RFP in October, and received workshop reports from the NRC concerning the science plan. In May, the Board established new offices in Suite 100 at 1007 West Third Avenue in Anchorage, where it resides today. The Board's second new employee, Misty Ott, was hired as administrative assistant in September.

2004 Science Planning

During 2004, the Board met in January, March, July, and September and focused intently on developing a long-term science plan. Early in the year, the NRC committee chairman presented interim guidance on what should go into such a plan to ensure its success. At subsequent meetings, Board members reviewed various layouts and versions of the plan developed by a drafting team under the direction of the NPRB executive director. In September, the Board approved the draft science plan for NRC review, and also approved a four-year implementation plan to accompany it. The 2004 RFP drew 87 proposals, of which 21 projects totaling over \$3 million were recommended for funding. NPRB released the 2005 RFP in October and hired a third employee, Igor Katrayev, as data systems manager.

2005 Science Plan Completed

During three meetings in 2005 (March, May, and September), the Board reviewed, revised, and finally approved its first science plan, which was published in September. The 2005 RFP drew 103 proposals, of which 35 new projects for \$6 million were recommended to the Secretary for funding. In response to a strong recommendation from the NRC for integrated programs, the Board started developing a Bering Sea Integrated Ecosystem Research Program (BSIERP). NPRB also appointed its first committee on local and traditional knowledge and hired its fourth employee, Dr. Francis Wiese, as program manager.

Though data management policies were incorporated in the science plan, data did not really start coming in from completed projects until 2005. It took some time to determine a suitable system for archiving the data and metadata descriptions, with the Board deciding that there should be two major data systems. One would be at the Board office, overseen by NPRB's data systems manager, and would contain data and metadata just for NPRB-funded research. A second, larger system would be supported at the University of Alaska Fairbanks to house data not only from NPRB, but from as many other agencies and projects as could be found. That larger database would be the central repository for marine data from off Alaska, and called the Alaska Marine Information System (AMIS). For more about AMIS, see "Part II: Other Research Approaches and Partnerships."



Science Panel meeting in Seward, Alaska in April, 2006.



2006 National Science Foundation Partnership

The Board met four times in 2006. The highlight of the year was the completion of the BSIERP request for pre-proposals for \$14 million, released in October. NPRB also forged a partnership with the National Science Foundation and the Bering Sea Ecosystem Study (BEST) that brought another \$21 million to the joint program, resulting in a potential \$35 million ecosystem study in the Bering Sea related to climate change and its potential impacts on fisheries and other components of the ecosystem. (Total funding for the BEST-BSIERP program eventually amounted to over \$52 million, with \$16 million from NPRB, \$21 million from NSF and \$14.9 million from NOAA and USFWS in matching funds.)

The opportunity to partner with NSF in funding joint research reflected five years of work by the Board to build a highly meritorious science program based on credible operating policies and procedures. NPRB established a special ecosystem modeling committee to advise on the modeling components. Development of an integrated ecosystem research program for the Gulf of Alaska also was initiated, but the Board chose not to release it until the fall of 2008. In December, scientists submitted three pre-proposals (one had three variants) to the BSIERP RFP and the Board invited two pre-proposals for full proposals by March 15, 2007. The regular 2006 RFP drew 126 proposals, and after thorough scientific review, 44 new projects were funded for \$6 million. NPRB contracted for an assistant program manager, Dr. Carl Schoch, to develop the Gulf of Alaska integrated ecosystem research program, and hired Carolyn Rosner as assistant program manager for communications.

2007 Bering Sea Ecosystem Program

During its four meetings in 2007, the Board processed two full proposals for BSIERP. A joint NPRB-NSF Science Panel and NPRB and NSF staff met in Washington, D.C. in June to develop final funding recommendations. In September, the principal investigators associated with the joint BEST-BSIERP program met to discuss their research and ensure a fully integrated program. The regular annual 2007 RFP drew 93 proposals and the Board approved 33 new projects totaling \$4,558,647. In June, the Board delayed development and release of a special request for proposals for the Gulf of Alaska IERP until it could assess the process used for the BSIERP.

NPRB continued to develop a variety of educational and outreach products for its website and for diverse audiences, through a grant guided by Nora Deans, the outreach coordinator for the Alaska SeaLife Center. Staff continued to update the website with new information and created a 2008 calendar and traveling exhibit based on NPRB's first annual photo contest. The Board also approved launching a Graduate Student Research Award program, offering five awards of \$20,000 each to qualified masters and doctoral students. In September, the Advisory Panel and the Local and Traditional Knowledge (LTK) Committee were merged to ensure better communication among stakeholders and to reduce expenses. Dr. Francis Wiese was promoted to science director in February. Dr. Carrie Eischens was hired as a new assistant program manager in early July.

2008 Gulf of Alaska Ecosystem Program

The Board met twice in 2008 and selected 25 new projects out of 89 proposals to fund for \$4.1 million dollars. The first field season of the BEST-BSIERP was launched in March, and NPRB hosted a meeting for all of the major principal investigators in Girdwood, Alaska in October. In the fall, the Board released a call for pre-proposals for its Gulf of Alaska IERP with the intent of funding the program for \$9 million. It adopted a policy on long-term monitoring and continued funding for the continuous plankton recorder as part of a consortium developed by the North Pacific Marine Science Organization (PICES). Five graduate students received research awards for \$20,000, and NPRB released its regular 2009 RFP for \$3.7 million in the fall. The Board also initiated a process for long-term planning. Thomas van Pelt joined staff to manage the BSIERP, and Nora Deans was hired directly as senior outreach manager.

The North Pacific Research Board Today

By the end of 2008, the Board had funded 200 regular projects that addressed almost all components of its *Science Plan*. The Board anticipates funding a minimum of \$3.7 million in new research projects in both 2009 and 2010 before ramping up to around \$5 million annually starting in 2013. Besides the \$16 million already dedicated to the Bering Sea research program that will run through 2012, the Board plans to fund a Gulf of Alaska Integrated Ecosystem Research Program for about \$9 million that will run from 2010 to 2014. The Board's science activities, projects, and integrated ecosystem research programs are discussed in more detail in Part II of this report.

Committees and Panels

Current staffing stands at seven members that serve the 20-member Board in the Anchorage office. NPRB settled its overall organizational structure in April 2008, when various members of the Advisory Panel and Local and Traditional Knowledge Committee were merged into one large 13-member panel, an important and necessary step to facilitate communication among the wide range of stakeholders hailing from Alaska, Washington, and Oregon, as well as the Alaska Native community, who all depend on marine resources off Alaska. (See pages 170 and 190 for more about the evolution of the Advisory Panel and Local and Traditional Knowledge Committee until they merged.) The 16-member Science Panel, the Board's other major committee, is comprised of expert scientists from all over the nation and one from Canada.

The Ecosystem Modeling Committee remains the only other standing committee. It is composed of six scientists who monitor and advise on the modeling component of BSIERP and will do so for the Gulf of Alaska Integrated Ecosystem Research Program.

NPRB Board Members

December 2008

Executive Committee

David Benton (Chair) * Marine Conservation Alliance, Juneau, AK

Eric Olson (Vice Chair) * North Pacific Fishery Management Council, Anchorage, AK

Dr. Douglas DeMaster * NOAA National Marine Fisheries Service * Alaska Fisheries Science Center, Juneau, AK

Dr. Ian Dutton * Alaska SeaLife Center, Seward, AK

John Hilsinger * Alaska Department of Fish and Game, Anchorage, AK

Other Members

Nancy Bird * Oil Spill Recovery Institute, Cordova, AK

CAPT Michael Cerne * 17th District U.S. Coast Guard, Juneau, AK

Dorothy Childers * Alaska Marine Conservation Council, Anchorage, AK

Michele Longo Eder * U.S. Arctic Research Commission, Newport, OR

John Gauvin * Groundfish Forum, Seattle, WA

Dr. Leslie Holland-Bartels * U.S. Geological Survey, Anchorage, AK

Dr. Howard Horton * Oregon State University, Corvallis, OR

John Iani * Van Ness Feldman, Seattle, WA

Paul MacGregor * Mundt MacGregor, Seattle, WA

Steve MacLean * The Nature Conservancy, Anchorage, AK

Gerry Merrigan * Prowler Fisheries, Petersburg, AK

Pamela Pope * BP Exploration Alaska, Anchorage, AK

Dr. Denis Wiesenburg * University of Alaska Fairbanks, Fairbanks, AK

Office of Naval Research (vacant)

U.S. Dept of State, Washington, D.C. (vacant)



Science Panel Members 2008

Dr. Richard Marasco (Chair) Retired * NOAA Alaska Fisheries Science Center, Seattle, WA

Dr. Douglas Woodby (Vice Chair) * Alaska Dept. of Fish and Game, Juneau, AK

Dr. Vera Alexander * University of Alaska Fairbanks, AK

Dr. Richard Beamish * Dept. of Fisheries and Oceans Canada, Nanaimo, BC

Dr. James Berner * Alaska Native Tribal Health Consortium, Anchorage, AK

Dr. Michael Dagg * Louisiana Universities Marine Consortium, Chauvin, LA

Dr. Robert Gisiner * U.S. Marine Mammal Commission, Bethesda, MD

Patricia Livingston * NOAA National Marine Fisheries Service, Seattle, WA

Dr. Seth Macinko * University of Rhode Island, Kingston, RI

Dr. John Piatt * US Geological Survey, Port Townsend, WA

Dr. Andre Punt * University of Washington, Seattle, WA

Dr. Cheryl Rosa * North Slope Borough Dept. of Wildlife Management, Barrow, AK

Dr. Thomas Royer * Old Dominion University, Norfolk, VA

Dr. Patricia Tester * NOAA National Ocean Service, Beaufort, NC

David Witherell * North Pacific Fishery Management Council, Anchorage, AK

Advisory Panel Members 2008

Gale Vick (Chair) * Gulf of Alaska Coastal Communities Coalition, Anchorage, AK

Shirley Kelly (Vice Chair) * U.S. Dept. of Commerce Economic Development Admin., Anchorage, AK

Helen Chythlook * Dillingham, AK

Gary Freitag * Ketchikan, AK

Justine Gundersen * Nelson Lagoon, AK

Ronald Hegge * Grand Junction, CO * Oregon representative

Frank Kelty * Unalaska, AK

Vera Metcalf * Nome, AK

Mike Miller * Sitka, AK

Jeff Stephan * Kodiak, AK

Arni Thomson * Seattle, WA

Kim Williams * Dillingham, AK

(One seat vacant)



NPRB Staff 2008

Dr. Clarence Pautzke * Executive Director
 Dr. Francis Wiese * Science Director
 Nora Deans * Senior Outreach Manager
 Dr. Carrie Eischens * Assistant Program Manager
 Igor Katrayev * Data Systems Manager
 Carolyn Rosner * Assistant Program Manager
 Thomas Van Pelt * Assistant Program Manager

Alaska SeaLife Center Financial Support

Dr. Tara Riemer Jones * Director of Research
 and Grant Operations
 Kellee Weaver * Grant Technician

Ecosystem Modeling Committee Members

Dr. Dan Goodman (Chair) * University of Montana, Bozeman, MT
 Dr. Tim Barnett * Scripps Institute of Oceanography, La Jolla, CA
 Dr. Dick Beamish * Fisheries and Oceans Canada, Nanaimo, BC
 Dr. George Hunt * University of Washington, Seattle, WA
 Dr. Tom Royer * Old Dominion University, Norfolk, VA
 Dr. Phil Mundy * NOAA's Ted Stevens Marine Research Institute, Juneau, AK

Annual Meeting Cycle

The Board generally meets twice each year in Anchorage: once in September to develop the request for proposals for the coming year and again in late April or early May to approve proposals. Funding recommendations by the Board are subject to review and formal approval of the Secretary, through his designee, the Regional Administrator of the NOAA Fisheries Alaska Regional Office. Thus far, all Board recommendations have been approved by the Secretary. The Advisory Panel also meets twice a year, normally the week of the Board meeting in Anchorage. The Science Panel usually meets twice yearly, two or three weeks in advance of the Board to give staff time to finalize and distribute the report to the Board in advance.

Annual Requests for Proposals

The staff begins developing draft research priorities for the annual RFP in late July and August, based on past Board direction, and comments from agencies, organizations, and stakeholders. The draft RFP is reviewed by the Science Panel in August, and then by the Advisory Panel in September, and panel comments and recommendations are presented to the Board at their September meeting. Given Board approval, the RFP is released on the Board's website in early October and proposals are due in early December. Technical reviews are gathered early the next year and these are presented to the Science Panel at their April meeting, and then to the Board in late April or early May. Successful projects normally may commence as early as June 1 in a given year.

Integrated Ecosystem Research Programs

The BEST-BSIERP in the Bering Sea is ongoing. Its first field year was in 2008 and two more are planned for 2009-2010, followed by two years for analysis, synthesis, and reporting. It amounts to a \$52 million program with \$16 million from NPRB, \$21 million from NSF, and about \$15 million in matching funds from NOAA and USFWS. The Gulf of Alaska IERP was initiated in late 2008 and its first field season is planned for 2011. The program in the Gulf will be narrower in scope than the program in the Bering Sea because only \$9 million is available for it.

Communicating about Research

The Board's communication, education and outreach program is flourishing, promoting both completed research projects and the overall science program of the Board. NPRB encourages scientists to share their research results with educational and public audiences by mandating a modest amount of their research funding to support communicating about science. Staff also help coordinate media participation in field science, both at sea and on remote islands. Lively two-page project synopses offer an overview of completed projects and magazine-style summaries of each research theme delve deeper. The staff maintain robust and dynamic websites for the NPRB, the two integrated ecosystem research programs, and the Alaska Marine Science Symposium, which reach public audiences and serve as communication and management tools for far-flung scientists, Board members and staff. NPRB sets up

its traveling exhibit at science conferences, symposia, and public festivals and shares publications with scientists, community members, teachers, and the public. The program is described in more detail in "Part II: Other Research and Partnerships – Communication, Education and Outreach."

Preserving the Data

The Board is endeavoring to ensure that data gathered using its support are made available to other scientists and the general public. Thus there are strict requirements in each project agreement for the investigators to submit their datasets along with a metadata description to the Board for posting on its website and provision to the Alaska Marine Information System supported at the University of Alaska Fairbanks by NPRB and the Alaska Ocean Observing System, described in more detail in "Other Research Partnerships" in Part II of this report. These requirements are in addition to any federal requirements for data submission using federal support.

Long-Term Planning

Starting in 2009, the Board will begin long-term planning to evaluate its programs and determine if any major course corrections are needed. A committee of external reviewers, similar to the NSF's committees of visitors, will be appointed to thoroughly examine the Board's cumulative programs and procedures in light of the 2005 *Science Plan* and its standard operating procedures, and report back sometime in 2010.

