Other Partnerships and Data Management

NPRB ENCOURAGES PARTNERSHIPS AND OTHER APPROACHES TO RESEARCH AND PROVIDES LEADERSHIP IN WORKING WITH OTHER AGENCIES AND ENTITIES TO IDENTIFY SCIENCE, MANAGEMENT, AND MONITORING NEEDS. NPRB INTENDS FOR ITS SCIENCE PROGRAM TO BE VIEWED AS A SOURCE OF UNBIASED, HIGH QUALITY INFORMATION AND CONTINUES TO DEVELOP ITS OWN DATABASE FOR ITS FUNDED PROJECTS.

Alaska Marine Information System

Projects 704, 901

In 2002, the Board began efforts to fund what has come to be known as the Alaska Marine Information System (AMIS). The purpose was to build an online portal to data and information about Alaska's oceans, and was initially developed through a web-based GIS application and included a series of oceanographic, fisheries, and bio-geographic information to illustrate how this could be achieved and the type of products and applications of such a system. The project achieved these goals, but it became clear that all major research institutions that conduct work in Alaska needed to participate, and that the operational center needed to be institutionalized.

As a result, the Board partnered with the Alaska Ocean Observing System (AOOS) and the University of Alaska Fairbanks in projects 704 and 901 to develop, expand, and maintain a searchable database that has an advanced project browser searchable by researcher, contact information, project location, funding source, and project duration. Other variables such as fisheries and biogeographic information for the Alaska region would be included, as well as a data access and display center that are key ingredients to successful project planning, research, and management.

The development of the new AMIS and the Board's own data system will provide access to historical information on projects as well as provide access to relevant current and real-time datasets around Alaska. The Board's project data are available at www.nprb.org, and the AMIS database, which has the potential to become a one-stop-shop for all marine research related information in Alaska, is accessible at http://ak.aoos.org/amis/.

Background

Information collected by NPRB-supported projects and other research must be made available to scientists and anyone interested in the marine ecosystems of Alaska. The Board began its efforts to build a searchable database for its research starting in early 2002. The Executive Committee met on February 4, 2002, and recommended funding to develop the database. After further consideration by the full Board at the two March 2002 meetings, $200,000 was identified for the searchable database. Another $42,166 was approved for continued development of the Bering Sea Metadatabase Project at NOAA's Pacific Marine Environmental Laboratory in Seattle. The Board also added data submission requirements to its annual RFPs. For 2002-

Krista Keck

2004 there was a basic requirement for scientists to report their data to federal databases at NODC or USGS in accordance with a data transfer plan to be developed by NPRB. That plan really was not developed for several years due to the press of other business, but eventually NPRB ramped up its data system and all data must now be submitted as explained below.

The Board decided in 2003 that it needed to put a priority for data system development in its 2004 RFP. As a result, the Board approved funding in March 2004 for Project 404, which included a consulting firm, System Science Application, and Karen Stocks at the San Diego Supercomputer Center, University of California, to develop what would be named the Alaska Marine Information System (AMIS). The project was completed in November 2005. It provided weblinks to AMIS on the NPRB home page, and access to software that integrated multivariate oceanographic, fisheries, and biogeographic information for the Alaska region. There also was an Alaska-centered portal to the species distribution information in the Ocean Biogeographic Information System (OBIS) and a series of informational pages on various marine science topics relating to Alaska. These were important first steps, but the most significant progress was made when we decided to hire our own data systems manager.

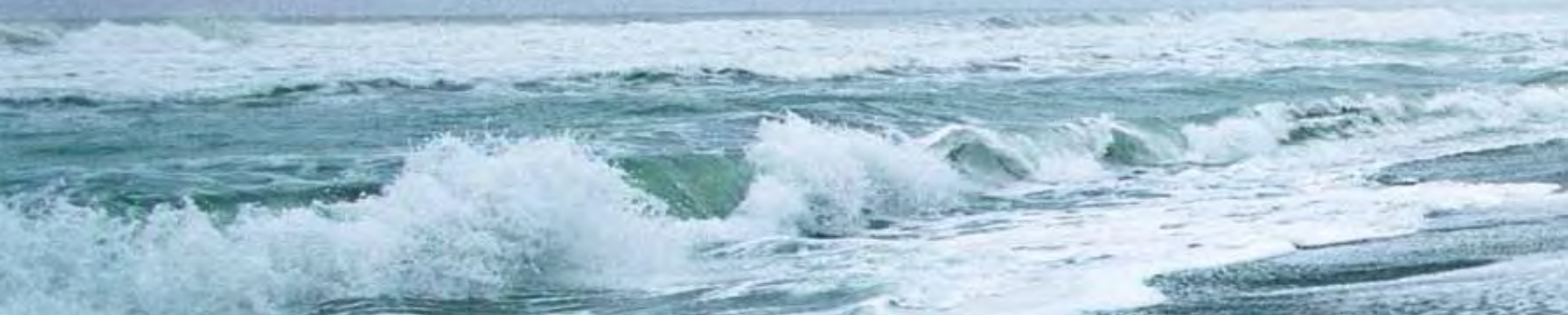
Igor Katrayev was hired April 2004 and set about developing an in-house system. While he initially worked with the systems established under Project 404, real strides forward were made in 2005 when he started developing his own system, with advice from Francis Wiese, program manager at the time. Together, they established a project browser to map projects onto Google satellite and hybrid maps of Alaska and provide information on each NPRB project. The browser and mapping system were made available under a research link on the NPRB home page (http://project.nprb.org/) and enables searches for projects, data, publications, contacts, and investigators.

Data management policies were incorporated in the science planning in 2004, but data did not really start coming in from completed projects until 2005. And even then, it took quite awhile to determine a suitable system for archiving the data and metadata descriptions. Over time, it was decided that there should be two major data systems. One would be at the Board office, overseen by our data 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 marine related projects as could be found. That larger database would be the central repository for marine data from Alaska and called the Alaska Marine Information System.

Expansion of AMIS

Consideration of such a larger system began in March 2006 when the Board received a comprehensive options paper. An expanded AMIS was being developed at UAF by the Alaska Ocean Observing System (AOOS) to provide data from NPRB, AOOS, NOAA and other agencies through one web portal. The Board was informed it did not have the hardware or staff to serve as a central hub for Alaska marine data, but that a collaboration with AOOS could do that task at UAF if properly funded. AOOS was building a web-accessible database that focused initially on historical oceanographic and meteorological data. Then it would incorporate real time data and model forecasts and provide users with several interface styles for easy access to the information. The data management team included a project leader, web-designer, data manager, data analyst, and a satellite data technician. The Arctic Region Supercomputing Center at UAF had further expanded this team by two numerical modelers who were working on ocean model forecasts for Alaska waters and the North Pacific Ocean. Together, this group was developing the web interface for data access, and a modeling and analysis effort that would form a core program within AOOS based on non-proprietary software for data search and retrieval. Stakeholders could search graphically for locations of oceanographic cruises, moored instruments, and meteorological stations and download available data in several formats. Browsers would be developed to allow searches for specific projects and data sets, and AOOS was positioned to expand data mining efforts to include biological, chemical and fisheries data. The AMIS could be developed to be the single site sponsored by many agencies to provide a wide array of information to scientists and stakeholders, i.e. the one-stop-shop for marine data for Alaska.

As a result of these considerations in March 2006, the Board started budgeting $100,000 annually, starting in 2007 and inflation proofed by 4% in future years, for support for AMIS at UAF. The funding supports a person to help develop the data archive and website, and obtain data sets from other agencies for inclusion in the AMIS. This has worked out well and a robust database can now be accessed through a weblink on the AOOS web site at www.AOOS.org.



OTHER RESEARCH APPROACHES AND PARTNERSHIPS :: Other Partnerships and Data Management

NPRB Metadata and Data Management

NPRB continues to develop its own database for its funded projects. In addition it has contracted with a remote server farm to store and backup data. Data from our projects are arriving slowly and are made available on the Board's web site, as well as distributed through the AMIS site. Obtaining data from researchers has met with varying success to date. Some readily provide it, while others are not so forthcoming. This issue came to a head at the April 2007 meeting when the Board was informed about how each of the principal investigators was doing in terms of supplying metadata and data. Staff were instructed to not release funds for 2008 RFP recommended projects until data issues were resolved from any earlier NPRB projects. The Board agreed that if a reasonable timeline was established for metadata and data delivery from earlier projects, funds could be released, but if that timeline was not adhered to, then payment of invoices for all projects associated with that PI would stop until data and metadata were delivered.

For principal investigators and institutions associated with proposals that were not recommended for funding, a notice would be sent to their respective institutions, with a copy to principal investigators, that future funding would be jeopardized if data and metadata issues were not resolved. This decision had an energizing effect on principal investigators, and the staff reported to the Board in September 2008 that considerable progress was being made in receiving data and metadata. Staff will continue to report progress during proposal review at April meetings.

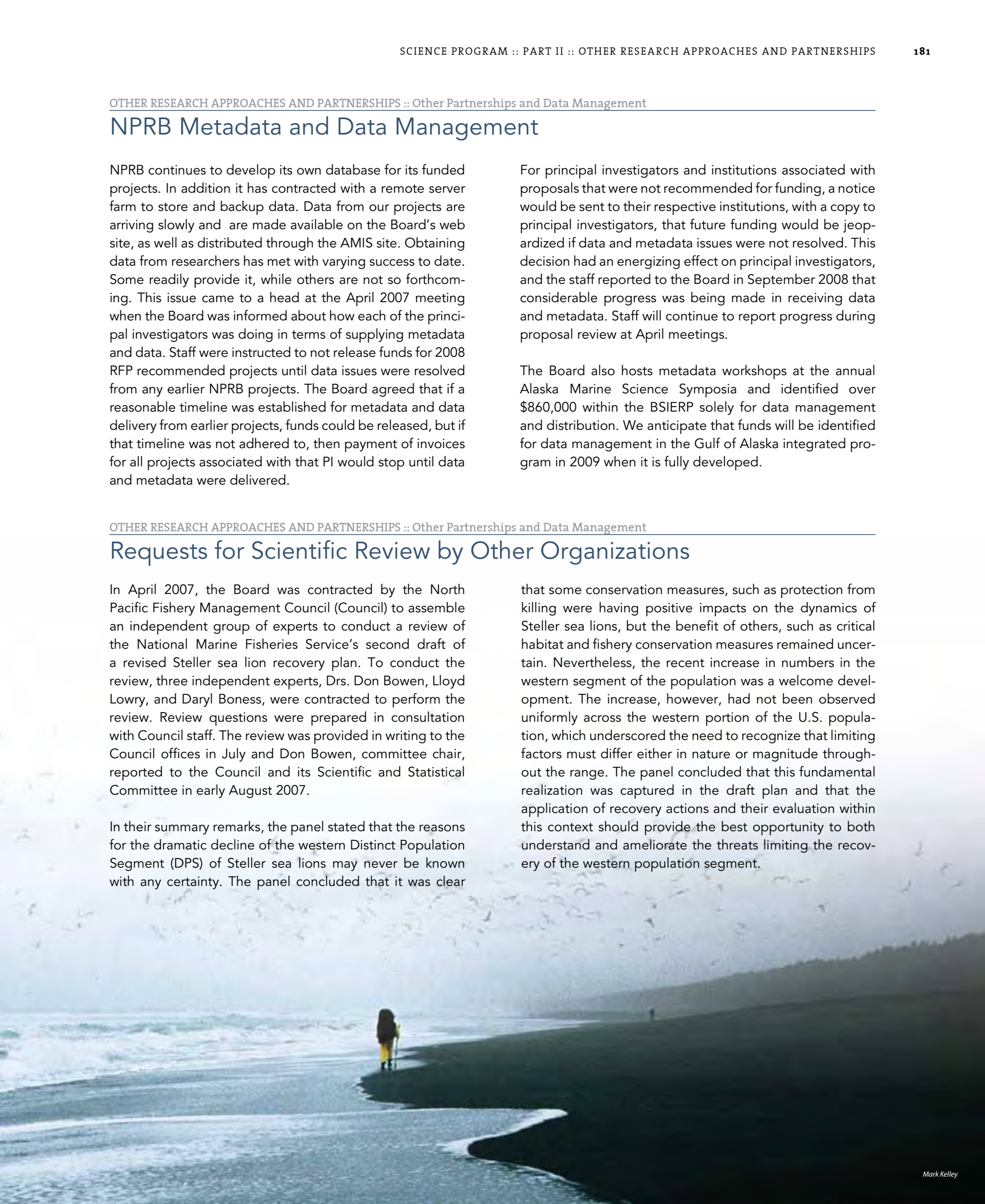
The Board also hosts metadata workshops at the annual Alaska Marine Science Symposia and identified over $860,000 within the BSIERP solely for data management and distribution. We anticipate that funds will be identified for data management in the Gulf of Alaska integrated program in 2009 when it is fully developed.

OTHER RESEARCH APPROACHES AND PARTNERSHIPS :: Other Partnerships and Data Management

Requests for Scientific Review by Other Organizations

In April 2007, the Board was contracted by the North Pacific Fishery Management Council (Council) to assemble an independent group of experts to conduct a review of the National Marine Fisheries Service's second draft of a revised Steller sea lion recovery plan. To conduct the review, three independent experts, Drs. Don Bowen, Lloyd Lowry, and Daryl Boness, were contracted to perform the review. Review questions were prepared in consultation with Council staff. The review was provided in writing to the Council offices in July and Don Bowen, committee chair, reported to the Council and its Scientific and Statistical Committee in early August 2007.

In their summary remarks, the panel stated that the reasons for the dramatic decline of the western Distinct Population Segment (DPS) of Steller sea lions may never be known with any certainty. The panel concluded that it was clear that some conservation measures, such as protection from killing were having positive impacts on the dynamics of Steller sea lions, but the benefit of others, such as critical habitat and fishery conservation measures remained uncertain. Nevertheless, the recent increase in numbers in the western segment of the population was a welcome development. The increase, however, had not been observed uniformly across the western portion of the U.S. population, which underscored the need to recognize that limiting factors must differ either in nature or magnitude throughout the range. The panel concluded that this fundamental realization was captured in the draft plan and that the application of recovery actions and their evaluation within this context should provide the best opportunity to both understand and ameliorate the threats limiting the recovery of the western population segment.



Mark Kelley