



Alaska Sea Grant Program Assessment *2001-2006*

BRIEFING BOOK

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Alaska Sea Grant College Program
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The Alaska Sea Grant College Program is a marine research, education, and extension service headquartered at the University of Alaska Fairbanks School of Fisheries and Ocean Sciences.

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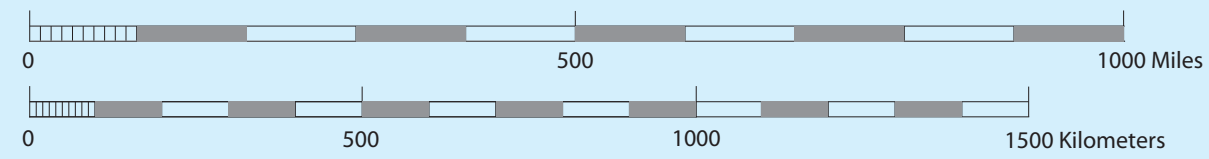
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Introduction

Aleut descendants of the first people to cross the Bering Land Bridge from Asia into North America called their new home “aláxshaq,” a word that roughly translates to “facing the sea.” Today, we know it as simply “Alaska,” but its meaning has stood the test of time. Alaska and its people remain rooted in an enduring relationship with the sea. Indeed, Alaska faces more sea and continental shelf than the rest of the United States combined. Living in small, remote communities along this seemingly endless coast are many of our stakeholders, Alaska’s coastal residents. Fishing—be it commercial, subsistence,¹ recreational—remains the lifeblood of coastal Alaska. Approximately 50,000 Alaskans rely on commercial fishing for all or a significant part of their incomes. In 2005, more than \$1 billion in salmon, pollock, halibut, cod, crab, and other seafood was harvested from Alaska’s well-managed ecosystems, more than anywhere else in the United States. Some 54% of all U.S.-harvested seafood comes from Alaska’s pristine waters. Recreational fishing generates another \$900 million in spending in Alaska’s communities. Subsistence gathering of food from the sea and coast remains a critical part of life in rural Alaska where cash jobs are scarce, stores are few, and commodities are prohibitively expensive.

Fishing is not the only coastal enterprise. Alaska also reaps a bountiful harvest of visitors each summer. Tourists nearly triple the state’s 645,000 resident population as they fly, drive, and cruise Alaska on their once-in-a-lifetime adventures, spreading approximately \$1.8 billion around the state on everything from T-shirts to wildlife and glacier tours.

But Alaska is not always a joyride. Danger is ever-present. Alaska has more earthquakes than any other region in the world—some 5,000 temblors in 2005 alone. Most of the quakes occur along the coast, where two massive tectonic plates collide to form mountain ranges that extend to the end of the Aleutian Island archipelago, a distance of 3,000 miles. In the recent past, earthquakes have triggered tsunamis that have taken human lives and all but wiped some Alaska communities off the map. Today, coastal Alaskans remain vigilant to these threats. Other hazards loom on the horizon as climate warming threatens the coast with powerful storms, increasing erosion, disappearing sea ice, and other environmental changes that threaten the state’s economy, environment, and human safety.

It is within this mix of natural and human challenges that the Alaska Sea Grant College Program has made significant contributions in research, education, and extension aimed at helping Alaskans develop sustainable economies, while also helping them learn about and conserve their environment, and protect themselves from the dangers of life on the Last Frontier. We have grouped our investments around five central strategic themes:

- ◆ Coastal Communities and Economies
- ◆ Ecosystems and Habitats
- ◆ Fisheries
- ◆ Marine and Aquatic Science Literacy
- ◆ Seafood Science and Technology

This *Alaska Sea Grant Program Assessment Briefing Book 2001–2006* is your guide to the activities we’ve undertaken during the past five years. In the pages to follow, we detail how we are organized, how we connect with a wide range of stakeholders, how we plan our activities, and how we’ve made significant contributions to science, technology, extension, communications, and education—and how these careful investments have helped society, the economy, and the environment.

Response to 2001 Program Assessment Team Findings and Recommendations

The 2001 Program Assessment Team gave the Alaska Sea Grant College Program an overall ranking of Very Good, with a rating of Excellent in two key categories: *Connecting Sea Grant with Users*, and *Producing Significant Results*. Areas deemed in need of improvement were *Effective and Aggressive Long Range Planning*, and *Organizing and Managing for Success*. Program Assessment Team recommendations largely focused on the latter two areas.

¹ “Subsistence fishing” is defined in state law as taking of fish, shellfish, or other fisheries resources by Alaska residents for “noncommercial, customary and traditional uses,” including direct personal or family consumption as food. Commercial fishing accounts for about 97 percent of Alaska’s annual wild fisheries harvest. Alaska’s subsistence users take about two percent and recreational fishers take one percent of the harvest. Subsistence users consume about 27 million pounds of fish and shellfish each year, mostly salmon, which is about 230 pounds of subsistence-harvested fish and shellfish per person per year.



Alaska Governor and former U.S. Senator, Frank Murkowski, addresses the Alaska Sea Grant Advisory Committee in Anchorage. He emphasized that of all the states, Alaska is best suited for a Sea Grant program. PHOTO BY DAVE PARTEE

In the time leading to this review, we have addressed the team's suggestions for improvement, and have enjoyed continued success in areas where we excelled. A 2004 mid-course review by a Topical Assessment Team documented numerous improvements and provided valuable feedback on our strategic planning efforts.

Recommendations 1, 3, and 4 of the 2001 assessment urged the Alaska Sea Grant director to undertake a new strategic planning process that fully integrates research, education, and extension.

The Alaska Sea Grant 2004–2010 Strategic Plan was posted on the Web in December 2004, the result of nearly two years of activities that included hiring a new Sea Grant director (Brian Allee) and Marine Advisory Program leader (Paula Cullenberg), forming the Alaska Sea Grant Management Team, creating an Advisory Committee, and gathering stakeholder input. Surveys of community leaders and direct consultations with key managers, agency officials, and others, also were conducted. The Topical Assessment Team reviewed a 2004 draft of the strategic plan and offered several suggestions for further refinement, which were incorporated into subsequent drafts. Alaska Sea Grant views its strategic plan as a living document, and as such the plan continues to undergo revisions. Details of Alaska Sea Grant's strategic planning activities are provided in section 8 (p. 8), Strategic Planning Process.

Recommendation 2 advised Alaska Sea Grant to better utilize the existing School of Fisheries and Ocean Sciences Advisory Council as its advisory body, especially with regard to assistance in developing a new strategic plan. The Program Assessment Team further suggested that additional meetings be held with a diverse set of stakeholders.

Alaska Sea Grant created a dedicated Advisory Committee in 2003, composed of 28 individuals from an array of stakeholder groups representing all regions of the state. Members represent K-12 education, marine conservation, ecotourism, oil and mining, coastal engineering, cruise ship industry, commercial fishing and seafood processing, resource management agencies, Alaska Natives and subsistence users, the state legislature, and others. The Advisory Committee has met three times, and subcommittees have met several times, providing valuable guidance in identifying state priorities for research, education, and extension within the subset of National Sea Grant themes. The Advisory Committee participated in strategic planning efforts, organized a funding subcommittee, and has played an integral part in the review of research proposals. The Topical Assessment Team commended Alaska Sea Grant Director Brian Allee for establishing the Advisory Committee, calling it a "very broad-based group composed of high-level individuals who will serve the program and university well."

Recommendation 5 urged Alaska Sea Grant to develop and implement a management team approach to articulate a clear vision, management philosophy, and structure to address the allocation of program resources, approaches to finding new program resources, staffing, capitalizing on new funding opportunities, program development, student support, and outreach.

Shortly after Allee began as director in 2003, he created the Management Team consisting of himself, Marine Advisory Program Leader Paula Cullenberg, Sea Grant Science Director Susan Sugai, Education Services Manager Kurt Byers, and Program Manager/Fiscal Officer Michele Frandsen. (Dr. Sugai resigned in 2004.) The team meets at least once a month.

The Alaska Sea Grant Management Team has improved communication between the leaders of the Marine Advisory Program and Sea Grant, strengthened the connection between extension and research, and facilitated better decisions on the allocation of program resources, staffing needs, and emerging opportunities. The Topical Assessment Team applauded the changes and made additional suggestions to further cement the interconnectedness of Alaska Sea Grant and the Marine Advisory Program. Alaska Sea Grant heeded their recommendations, and adopted a single logo, merged separate Web sites, and now requires an outreach component within each research proposal.

Recommendation 6 urged the School of Fisheries and Ocean Sciences to provide institutional support to retain a full time deputy director. Paula Cullenberg was appointed in 2003 to lead the Marine Advisory Program, and was soon thereafter named associate director of Alaska Sea Grant.

Recommendation 7 challenged Alaska Sea Grant and the Marine Advisory Program to pursue federal funding

opportunities beyond core Sea Grant funds to enhance the size and stature of the program. Our efforts to secure additional funding have resulted in grants totaling \$12.3 million from 2002 to 2006. The Marine Advisory Program secured the majority of these external funds, more than \$10.8 million. This funding came from diverse sources such as state agencies, U.S. Fish and Wildlife Service, NOAA Fisheries, and private Alaska Native corporations. In addition, successful competition in National Sea Grant funding opportunities such as Fisheries Extension Enhancement have enabled us to add to our core funding.

Recommendation 8 suggested the School of Fisheries and Ocean Sciences dean create an associate dean position for the Alaska Sea Grant director with direct oversight responsibilities for Alaska Sea Grant, the Marine Advisory Program, and the Fishery Industrial Technology Center. The School of Fisheries and Ocean Sciences dean created an organizational system in which the Alaska Sea Grant director has supervisory responsibility for the Marine Advisory Program leader.

Recommendation 9 urged the Marine Advisory Program to create an advisory committee. The new Alaska Sea Grant Advisory Committee serves the needs of the entire program, and fulfills the desire expressed in Program Assessment Team Recommendation 3 that Alaska Sea Grant and the Marine Advisory Program become more fully integrated.

Recommendation 10 challenged Alaska Sea Grant to find creative ways to overcome hesitation by faculty members to apply for Sea Grant funding for Ph.D. students and projects. We believe this concern stems from our two-year funding cycle and the possibility that funding may not be renewed after two years, making support of Ph.D. students potentially problematic. However, we believe this concern to be overstated. Alaska Sea Grant has supported 15 Ph.D. students since 2001. Alaska Sea Grant considers funding Ph.D. students a long-term investment and we make an effort to provide continued funding, even after a project has ended. We do not discontinue student funding, except due to unsatisfactory progress.

Recommendation 11 advised creation of an education Web site linked from the Alaska Sea Grant home page. The site, made public in April 2006, provides engaging multimedia content such as online video, 3-D animated graphics, and images, as well as cross-referenced links to Alaska Sea Grant books and videos, and to staff who can, among other things, arrange for school visits.

Recommendation 12 urged Alaska Sea Grant to more actively promote Knauss, industry, and fisheries fellowships. In response, we requested and facilitated Knauss Fellowship presentations by former Knauss Fellow Megan Agy of National Sea Grant on all three University of Alaska campuses, including the Fisheries Division in Juneau, where

most of the university's fisheries graduate students reside. We also enhanced our Web pages with fellowship information. In 2006 Alaska Sea Grant recommended a highly qualified Knauss Fellowship candidate to National Sea Grant, but she was not selected for the program.

National Sea Grant Office/Topical Assessment Team Recommendation While the Program Assessment Team indicated that the institutional placement of the Alaska Sea Grant Program within the School of Fisheries and Ocean Sciences appears to be working well, the National Sea Grant Office (NSGO) noted that most Sea Grant programs report directly to the system vice president or vice provost for research. A desire for an elevated institutional organization for Alaska Sea Grant was expressed in a letter from National Sea Grant Director Ron Baird. In its 2004 mid-course review, the Topical Assessment Team reiterated the NSGO concern on this issue. In response, University of Alaska system President Mark Hamilton directed University of Alaska Fairbanks Chancellor Steve Jones to assign School of Fisheries and Ocean Sciences Dean Denis Wiesenburg to be the university's system-wide coordinator of marine research and development. This institutional organizational arrangement means that Alaska Sea Grant is responsible to a statewide management authority, as desired by the National Sea Grant Office (see Appendix 1 and 2, organizational charts). The Topical Assessment review was initiated by Director Brian Allee.

Program Accomplishments, Impacts, and Outcomes

ORGANIZING AND MANAGING THE PROGRAM

1 Program Leadership

Alaska Sea Grant is directed by Dr. Brian Allee, who joined the program in February 2003. Allee brought 30 years of research and administrative experience to the job. Most recently he worked for the Northwest Power Planning Council as manager for policy and program implementation for the Columbia River Basin. He also served as the executive director of the Columbia River Basin Fish and Wildlife Authority in Portland, Oregon; director of the Fisheries Rehabilitation, Enhancement and Development Division of the Alaska Department of Fish and Game; and president and operations manager of Alaska's Prince William Sound Aquaculture Corporation.

The Alaska Sea Grant Marine Advisory Program is led by Paula Cullenberg, who joined the program in March 2003. She also heads Sea Grant's Coastal Community Development activities and is a professor. Cullenberg has strong administrative experience from her seven-year tenure as director of the North Pacific Fisheries Observer Training Center in Anchorage. She served as the Alaska Marine Advisory Program agent in Dillingham from 1985

to 1990, and was a Washington Sea Grant extension agent from 1990 to 1991. She is an experienced commercial fisherman of salmon and herring, and is a longtime member of the Alaska Marine Safety Education Association Board of Directors.

Assisting Allee is the Alaska Sea Grant Management Team consisting of Paula Cullenberg, Marine Advisory Program leader; Michele Frandsen, program manager/fiscal officer; and Kurt Byers, Education Services manager (see Appendix 1, Alaska Sea Grant Organizational Chart). The team meets each month to discuss and make decisions regarding funding, resource allocation, and program development issues.

Alaska Sea Grant and the Marine Advisory Program are well served by a staff of highly motivated professionals who have received state, national, and international recognition for their expertise (Appendix 15). Alaska Sea Grant's Marine Advisory agents and specialists in nine communities (Appendix 3) are leaders in their fields, and are the program's grassroots connection to its primary stakeholders.

A key program leadership goal has been to fully integrate Alaska Sea Grant and the Marine Advisory Program, and to develop institutions aimed at improving strategic planning with stakeholder involvement. Great strides have been made on these fronts, with Sea Grant and the Marine Advisory Program participating in joint retreats and increasing contact and cooperation on projects and activities. A research review session, held in January 2006, was well attended by Marine Advisory faculty and proved to be an excellent opportunity to exchange ideas and information. In addition, Alaska Sea Grant established a chartered stakeholder Advisory Committee, consisting of 28 men and women selected for their leadership in Alaska's marine trades, resource agencies, and organizations. The Advisory Committee has proven invaluable, helping us identify areas of needed research and extension, and serving as financial partners on specific efforts (see Appendix 4, Advisory Committee).

2 Institutional Setting and Support

Alaska Sea Grant was established in 1970, and attained college program status in 1980. The Alaska Sea Grant College Program and the Marine Advisory Program are organized as divisions of the School of Fisheries and Ocean Sciences (SFOS) at the University of Alaska Fairbanks. The University of Alaska Fairbanks is part of the University of Alaska system, a statewide network with three major campuses (Fairbanks, Anchorage, and Juneau) as well as rural community campuses.

SFOS is one of the most diverse units of the university, both geographically and in academic mission. The school serves to unify and strengthen programs in fisheries and ocean sciences and has a strong history of world-class regional research, excellent graduate education, and out-

standing service to the state and the nation. Importantly, the SFOS dean serves as the university's statewide coordinator of marine research and development for the University of Alaska (see Appendix 2, University of Alaska Organizational Chart). This arrangement supports Alaska Sea Grant's mandate to serve the state, nation, and world, as required by the National Sea Grant Office.

The main administrative offices of Alaska Sea Grant are located in Fairbanks and Anchorage. Substantial administrative support is provided by SFOS as both matching and nonmatching funds (Appendix 5). Marine Advisory agents and specialists are university faculty and hold academic rank in SFOS.

Funding

Alaska Sea Grant's federal core funding stayed between \$1.347 million in 2001 and \$1.429 million in 2006. In addition, Alaska Sea Grant has received funding from the National Sea Grant Office for Fisheries Extension Enhancement, Steller Sea Lion Outreach, Minority Serving Institutions, Population Dynamics Fellowship, and the North Pacific Fisheries Observer Training Center (Appendix 6).

Alaska Sea Grant has consistently met National Sea Grant Office guidelines in terms of core funds allocation. For each of the five years under review, between 48.5% and 55.6% of core funds were used for research, 8% for management, 30% for extension, and approximately 10% for communications/education (Appendix 7).

The School of Fisheries and Ocean Sciences, through state appropriations, provides funds in the amount of \$1.1 million per year. These funds support advisory faculty, staff salaries, travel, and building leases and operations throughout the state.

Alaska Sea Grant has been competitive in securing funds to leverage core federal Sea Grant funds. Total funds were over \$12.3 million from 41 state and federal agencies, universities, and municipalities (Appendix 8).

Over \$290,000 was received to produce books and videos. More than \$450,000 was received for coordination of workshops and conferences. NOAA Fisheries, the Alaska Department of Fish and Game, and the North Pacific Fishery Management Council have contributed each year to the Wakefield Fisheries Symposium series and they are long-term supporters of Alaska Sea Grant activities.

Of the \$12.3 million received, \$10.8 million was for conducting workshops and training. Increases in funding from diverse sources were secured during this period, with major projects comprising Trade Adjustment Assistance for Farmers and Fishermen and Alaska Fisheries Business Assistance.

Education Services generated more than \$400,000 in program receipts over the five-year period. In 2000, Frankie Wakefield established a \$100,000 endowment at the University of Alaska to continue the Wakefield symposium series.

3 Project Selection

Like many research programs, Alaska Sea Grant receives far more proposals than can be funded. During the three proposal cycles since 2001, we received 127 preproposals requesting \$15.3 million. Of those, 35 projects were funded totaling nearly \$3.5 million.

Alaska Sea Grant follows a rigorous process to solicit, review, select, and track progress of the best projects that most appropriately address the themes in our strategic plan. Preproposals received in response to our announcement of funding opportunity are reviewed by a panel of several Advisory Committee members and the Alaska Sea Grant Management Team. Agencies and industry represented in the recent review panel included the Alaska Miners Association; Alaska Ocean Observing System; Government and Community Relations, Holland America; Institute of Marine Science, University of Alaska Fairbanks; NOAA Fisheries; National Park Service; Northern Southeast Regional Aquaculture Association; U.S. Fish and Wildlife Service; and United Fishermen's Marketing Association.

The panel ranks preproposals on the basis of

- A importance of subject area to Alaska and how the project fits within the Alaska Sea Grant strategic themes,
- B innovation and encouragement of new areas of research,
- C feasibility of project within proposed budget, and
- D value and effectiveness of outreach component.

Based on comments and rankings by the review panel, selected projects are recommended to be developed into full proposals.

The full proposals received are then sent to three to five peer reviewers who have agreed to review the proposal. Reviewers are asked to provide both positive and negative comments on the validity and significance of the science proposed, its potential applicability to important problems, and the quality of the approach, methodologies, facilities, and investigators.

The proposal evaluation criteria are those established by the National Sea Grant Office, as follows.

- 1 Rationale: the degree to which the proposed activity addresses an important issue, problem, or opportunity in development, use, or management of marine or coastal resources.
- 2 Scientific or Professional Merit: the degree to which the activity will advance the state of the science or discipline through use and extension of state-of-the-art methods.
- 3 Innovativeness: the degree to which new approaches to solving problems and exploiting opportunities in resource management or development, or in public outreach on such issues, will be employed; alternatively, the degree to which the activity will focus on new types of

important or potentially important resources and issues.

- 4 Qualifications and Past Record of Investigators: degree to which investigators are qualified by education, training, and/or experience to execute the proposed activity; record of achievement with previous funding.

The proposals and peer reviews are then considered by a six-person proposal review panel. Panel members interpret peer reviews within the specialized field of the proposal, evaluate proposals for overall quality, and assign a numerical rating using the same criteria as our peer review form. Each panel member serves as discussion leader for three or four proposals and has primary responsibility for writing the summary. Other panelists provide input and rate projects. In addition to the six members from outside Alaska, several Advisory Committee members and the Management Team attended the most recent panel review and provided valuable comments on the proposals being reviewed.

In most cases, there is a high degree of consistency between the peer reviews and the support of the research panel. Projects are ranked by the panel and final funding decisions are made by the Sea Grant director. Projects funded during the five-year reporting period are in Appendix 9.

In addition to the research competitive selection process, both the Marine Advisory and Education Services proposals are externally reviewed by peers, using the same criteria as for the research proposals.

Appendix 11 shows how our project selection process influences our planning process. Throughout this selection process, careful consideration is given to the need for a balanced program.

Alaska Sea Grant also provides rapid response funding to take advantage of rapidly emerging research, education, and extension opportunities outside of the normal biennial funding cycle. The Alaska Sea Grant director makes funds available to faculty and students for pilot projects that stimulate and develop new areas of research by bringing together scientists to debate and assess new approaches, to stimulate new areas of investment by the university, and to accommodate transition problems during startup and termination of projects in synchronization with the academic year (Appendix 10 Development Fund Projects).

4 Recruiting Talent

To recruit top-notch research talent, Alaska Sea Grant uses a variety of tactics. The proposal process cycle starts with distribution of our announcement of funding opportunity to more than 250 individual scientists, state and federal resource management agencies, grant administrators, department chairs, and faculty at universities in Alaska, Washington, and Idaho, as well as others in our database. During the past three funding cycles, the

Growing the Capacity of the Alaska Sea Grant Marine Advisory Program

Situation Marine Advisory agents work directly with coastal communities on issues important to residents. With too few agents to serve the needs of rural coastal communities spread across great geographic and cultural distances, several communities have asked for agents and specialists to assist in technical training, industry and business development, and education-extension.

Response Alaska Sea Grant leveraged funding from multiple sources to place four new Marine Advisory agents and specialists in underserved regions and meet the state's needs. Reid Brewer joined the Marine Advisory Program in early 2004 to serve Unalaska and the remote Aleutian Islands, home of the nation's largest commercial fishery. The Unalaska position was filled in response to resolutions requesting a Marine Advisory agent from the city and school districts, who are donating office space to Brewer. The Unalaska position was made possible with funding within a \$475,000 grant to assist communities impacted by regulations to protect Steller sea lions. Supplemental funding for this position was from the Alaska Marine Safety Education Association, for enhanced safety training for commercial fishermen. Terry Reeve was hired in March 2004, with funds from a University of Alaska president's initiative, to fill a position serving the 60-plus Alaska Native communities in the Yukon and Kuskokwim river deltas, a region dependent on subsistence and small commercial fisheries. Funds from the National Sea Grant Fisheries Extension Enhancement (FEE) competitive initiative resulted in hiring Torie Baker in Cordova to serve the Copper River drainage area and Prince William Sound. Office space is donated by the Prince William Sound Aquaculture Corporation. Petersburg Marine Advisory Agent Sunny Rice was hired with FEE support in spring 2004 following the retirement of longtime agent Brian Paust.

Impact The addition of these agents has significantly improved the Marine Advisory Program's ability to deliver an extension program that addresses community needs in sea safety, community education, environmental monitoring, commercial fisheries development, and coastal community infrastructure improvements.

Response In response to a request by the people of the Bering Strait region, recruitment is under way to fill a new Marine Advisory position in Nome by fall 2006. This position is funded by the Norton Sound Economic Development Corporation, the region's Community Development Quota group. The position is funded at \$118,000 per year for three years and will serve 15 rural Inupiaq Eskimo communities.

manner of distribution has changed from all hard copy distribution to entirely electronic.

In addition, the announcement of funding opportunity is posted on our Web page, and announced in *Fishlines* newsletter. Brian Allee visited the University of Alaska Southeast and University of Alaska Anchorage campuses to explain and encourage proposal submissions. In 2005 we received more proposals, and more from outside the School of Fisheries and Ocean Sciences, than in 2003, as a result of increased efforts to get submissions from a wider audience (see Appendix 13). With a larger pool, we can select better talent and address a wider range of subjects.

Over the years, Alaska Sea Grant has invested in some long-term projects. Even with those commitments, new projects for the funding cycles 2002–2004 and 2004–2006 totaled six for each cycle. The most recent funding cycle resulted in 13 new projects. Efforts to recruit new researchers have resulted in new investigators for each cycle: 2002–2004, one new investigator; 2004–2006 cycle, five new investigators; and 2006–2008 cycle, six new investigators. In addition, new efforts to expand the recruitment and encouragement of proposals has resulted in an increase in represented institutions from two in the 2002–2004 cycle to six in the most recent.

Some of our researchers are widely acknowledged as among the best in their fields. For example, three Alaska Sea Grant–funded researchers are members of the Scientific and Statistical Committee of the North Pacific Fishery Management Council, and one chairs the committee. Their presence on the Scientific and Statistical Committee provides a way for Alaska Sea Grant information to become available to one of the world's preeminent fishery management bodies. In addition, several principal investigators have won awards (Appendix 15).

5 Effective and Integrated Program Components

Alaska Sea Grant connects research, education, and extension activities in ways that help our constituents and stakeholders understand, appreciate, and wisely use the state's marine resources.

Whenever prudent, we bring all of our resources and capabilities to bear on an issue. For example, salmon research conducted by Sea Grant–funded researcher Bruce Finney and graduate student Steve Sweetman resulted in findings that were extended to fishery managers, highlighted in the print and radio media, published in prestigious scientific journals, and incorporated into Sea Grant publications. A research effort to reconstruct a landslide-triggered tsunami in Alaska's Cook Inlet resulted in production of an award-winning video made in partnership with scientists, coastal communities, and state-federal emergency response planners. The video was shown in many Alaska and outside venues, resulting in media coverage of the issue that contributed to enhanced awareness of

the dangers posed to Alaska coastal communities.

More often we have pursued targeted approaches in which we carefully select and focus one or more of our capabilities. One example is supporting a workshop on coastal erosion in early 2006, attended by experts in the field. Our support of the workshop and production of a proceedings book is a meaningful contribution to issue discussions. A related contribution is a project to produce an engineering guide to coastal erosion in Alaska.

In their effort to extend research results to users and the public, the Management Team now requires that all research proposals include an outreach component. This will foster even greater collaboration among researchers, educators, and extension.

Alaska Sea Grant also has strengthened the links between program administration, research, education, and extension. All-program retreats have built better relationships and fostered camaraderie among groups separated by great distances. We've also initiated an annual research review, during which researchers gather to share their results with extension and communications and agents express needs for research in their communities.

CONNECTING SEA GRANT WITH USERS

6 Engaging Appropriate User Communities

For Alaska Sea Grant, talking with, listening to, and working alongside stakeholders is a critical step in planning. We are working for the people, groups, and communities of Alaska. It is imperative that we address the important issues, and we need to hear from individuals to find out if our projects are making a difference in their lives. For these reasons, we believe it is crucial to engage users on multiple levels using a variety of methods appropriate to the projects we pursue.

Some methods are built into our program as a result of strategic planning, such as consultations with our Advisory Committee. We also engage users through community meetings, workshops, seminars, conferences, roundtable discussions, teleconferences, trade show booths, state fairs, visits to schools, and other venues, as well as surveys (mail, Internet, and phone). Marine Advisory agents and specialists maintain a vibrant and critical communication link with users through their coastal community hometowns. Marine Advisory faculty are active on local fish and game advisory boards, town council committees, fishing and community development associations, environmental groups, and industry associations, and they work with their constituent-neighbors daily. See Appendix 14, showing leadership by staff in organizations. Alaska Sea Grant-funded scientists interact with their peers and students, and engage state and federal resource managers through positions on such bodies as the North Pacific Fishery Management Council's Scientific and Statistical Committee.

Alaska Sea Grant Database Integrates Program Components

Several years ago, Oregon Sea Grant (OSG) rolled out their "Making a Difference" accountability database of funded projects. We liked their database setup, and decided to customize it for Alaska Sea Grant's use. In 2001 we hired OSG's database developer to do the job.

The resulting product is a robust database for tracking principal investigators (PIs), graduate students, requests for proposals, research projects, and many other functions. The Alaska Sea Grant database suite now includes development fund management, news releases, publication titles and inventory, customer addresses, and invoicing. Near-future components include the *Fishlines* newsletter, product evaluation, and the meetings database.

All Alaska Sea Grant staff now benefit from several components of the database, usable on both Macs and PCs. Our program manager uses the database extensively during proposal review. The secure data set of peer reviewers has area of expertise, quality of reviews from former proposal cycles, and frequency of reviews for each contact. The ability to use a template letter to send emails is an absolute time saver. Like Word mail-merge, the database merges data into email messages that can be sent out several hundred at a time. We use this email function for proposal reviews, PI notifications, and requests for reports.

Because parts of the database are dynamically served to our Web site, updates are immediately seen on the Web. Reports submitted electronically by PIs and students go to a holding bin where they are reviewed, proofread, and then accepted. This updates the database without further typing, minimizing time and error.

Our public information officer enters news releases and radio stories, and uses the database for story leads and information. Our sales and marketing coordinator tracks sales through the publications ordering database.

Our database has helped us meet National Sea Grant Office requirements, save time, increase efficiency, track and quantify products and activities, and share information more readily with others. To take advantage of all the software has to offer, we are upgrading to FileMaker 8 in summer 2006.

Just as we looked to Oregon Sea Grant for a database model, now others are looking to us. Cooperative Extension Service is modifying our database for their publications distribution system, and they are interested in the administrative project tracking part as well.

We believe the Alaska Sea Grant database could be considered a Best Management Practice.

7 Partnerships

Forming partnerships is our most effective means of making an impact. Alaska Sea Grant's organizational structure gives us the ability to collaborate directly with the more than 250 faculty, staff, and students of the School of Fisheries and Ocean Sciences, as well as interact with university faculty in areas of resource management, economics, engineering, and Cooperative Extension Service. Since 2001, Alaska Sea Grant has pursued broad statewide and national partnerships with more than 350 research institutions, universities, resource agencies, Alaska Native groups, stakeholder associations, and others. Alaska Sea Grant also partnered with Sea Grant programs in Washington, Oregon, California, Hawaii, Louisiana, New York, and Rhode Island in pursuit of common goals.

Recently Alaska Sea Grant received funding through a National Sea Grant initiative, and joined with the Alaska Governor's Office, Alaska Department of Environmental Conservation, North Pacific Fishery Management Council, and others to begin gathering input toward drafting a comprehensive statewide Alaska marine research plan. To lead the effort, we recruited marine economist Keith Criddle, from Utah State University, who is now the Ted Stevens Distinguished Professor of Marine Policy at the University of Alaska Fairbanks.

A partnership between Alaska Sea Grant-funded researcher Terry Quinn of the University of Alaska Fairbanks and Jeremy Collie of the University of Rhode Island (through Rhode Island Sea Grant) led to research on fisheries models for use in both the Pacific and Atlantic oceans. Our partnership with the Washington Sea Grant Program has helped Alaska longline fishermen reduce their incidental catch of seabirds, including endangered short-tailed albatross. A partnership with Washington Sea Grant and the Alaska Department of Fish and Game is testing a new form of sonar, called DIDSON, to improve counts of adult salmon returning to Alaska's rivers and lakes.

Recently we partnered with Cornell University's School of Ornithology, a world leader in wildlife recording expertise, to launch an effort to record killer whale attacks on fur seals in the Bering Sea. This effort combines the talents of University of Alaska Fairbanks marine scientist Alan Springer and graduate student Kelly Newman. Our modest \$7,000 investment is likely to improve understanding of increased predation rates on marine mammals, and may help explain the slow recovery of endangered Steller sea lions, harbor seals, and sea otters in Western Alaska. Our marine mammal specialist, Kate Wynne, is working with Hawaii Sea Grant to publish the third in a series of regional marine mammal field guides.

The Lowell Wakefield Fisheries Symposium series, now on its 24th symposium, is a collaborative effort among scientific and community stakeholders. These partnerships have included the Alaska Department of Fish and Game, NOAA Fisheries, North Pacific Fishery Management

Council, North Pacific Research Board, Alaska Crab Coalition, and Central Bering Sea Fishermen's Association, as well as other fishing associations, Alaska Native corporations, and city councils.

Largely because of the high regard for the Wakefield Symposium series, Alaska Sea Grant is frequently asked to organize other conferences. Since 2001, Alaska Sea Grant has organized or convened 17 meetings on such diverse issues as king crab enhancement and rehabilitation, sustaining Yukon-Kuskokwim River salmon runs, cooperative management of the Copper River salmon fishery, and seafood byproducts. Each of these meetings represents partnerships with key stakeholders. Our Wakefield symposia are further detailed on page 18 and Appendix 28.

Another example of a long-term partnership involved Oregon Sea Grant Extension engineer Ed Kolbe, as he worked with Marine Advisory faculty Don Kramer and Chuck Crapo to study energy efficiencies at seafood cold storage facilities. Kramer and Crapo also led state and national efforts involving the U.S. Department of Agriculture, the Food and Drug Administration, and numerous individuals across the country to improve seafood safety and implement national Hazard Analysis and Critical Control Point (HACCP) standards, and continued training seafood workers to meet the standards. Many other partnerships are detailed in section 13 (p. 21), Impact on Society, the Economy and the Environment. A list of partners is in Appendix 16.

EFFECTIVE AND AGGRESSIVE LONG RANGE PLANNING

8 Strategic Planning Process

History, post 2001 PAT visit

The 2001 program assessment of Alaska Sea Grant indicated that we should strengthen our strategic planning process. The Program Assessment Team (PAT) made several suggestions on how to do that, including doing more to solicit stakeholder advice and better utilizing our advisory council.

After the retirement of then-Alaska Sea Grant Director Ronald Dearborn, in May 2002, in a timely response to the PAT recommendations Acting Director Susan Sugai solicited advice from 88 agencies, businesses, academic departments, Alaska Native groups, and other nongovernment organizations on how we ought to focus research, education, and extension efforts. In October 2002 she held a meeting in Anchorage of key stakeholders to gather more advice on how we should strategically allocate efforts and adjust our programmatic themes. A request for advice was distributed to 250 constituents via our monthly newsletter, *Fishlines*, with a Web-based form for submitting comments. The input formed the basis of a revised, interim 2003–2008 Strategic Plan that was put in place in time for our first post-program assessment announcement of funding opportunity in December 2002. Due to the length of the funding cycle, many of the projects in

this briefing book address the goals and priorities of the interim 2003–2008 Strategic Plan.

In February 2003, Brian Allee took the reins as Alaska Sea Grant director, and continued responding to recommendations from our 2001 Program Assessment. Allee established a Management Team and formed the Alaska Sea Grant Advisory Committee. The initial charge to the Advisory Committee was to help us identify state priorities in marine, estuarine, and coastal watershed resource issues, and focus our research, education, and extension on a subset of the National Sea Grant themes deemed most relevant to Alaska.

In its inaugural meeting in November 2003, facilitated by Dr. George Geistauts, a strategic planning consultant and professor of business administration at the University of Alaska Anchorage, the Advisory Committee identified Alaska Sea Grant's strengths, weaknesses, opportunities, and threats, and crafted draft vision and mission statements. Subcommittees on strategic planning and funding also were established. The Management Team participated in the deliberations and took notes on the proceedings.

Fueled by the results of the first Advisory Committee meeting, in early 2004 Alaska Sea Grant began work on a new strategic plan. In addition to advice from the Advisory Committee and university officials, to ensure that our plan addressed local and state needs, input was solicited from more than 3,000 Alaska residents via print media, email, Web, community meetings, and telephone (Appendix 12).

Some 50 stakeholders attended community meetings hosted by Allee and Marine Advisory agents in Bethel, Dillingham, Homer, Ketchikan, Kodiak, Petersburg, and Unalaska. More than 100 constituents responded to a mail survey, sent to people who receive our monthly newsletter *Fishlines*, and to hundreds more selected from our mailing list database. A separate email survey was sent to leaders in the Alaska Native community, which yielded valuable advice. A summary of survey results is presented in our published 2004–2010 Strategic Plan.

The Advisory Committee Subcommittee on Strategic Planning met in January 2004 to discuss relevance of the National Sea Grant themes to Alaska. The subcommittee deemed each theme relevant to Alaska, and selected five as highest priority. Those five themes became the foundation for Alaska Sea Grant's strategic plan. Adopting National Sea Grant themes, with due consideration of NOAA's strategic plan, ensures that Alaska Sea Grant's strategic plan addresses national needs on a regional and local level. In late 2004, a Topical Assessment Team visited Alaska Sea Grant to help us assess progress to date on our responses to the 2001 Program Assessment, and review our strategic plan.

In December 2004 the new 2004–2010 Strategic Plan replaced the interim plan and accompanied our announcement of funding opportunity.

To ensure that our plan conformed to current best planning standards, we contracted with Margo Matthews (dba MAP Enterprises), a Fairbanks-based strategic planning and facilitation consultant and former planner with national stature for the Alaska Department of Fish and Game. Equipped with advice from Topical Assessment Team member John Byrne, and following recommendations on strategic planning from the National Sea Grant Office, through 2005 and the first half of 2006 we finalized our vision statement and refined our 2004–2010 Strategic Plan. We included thematic issue statements, goals, and thematic objectives with associated strategies, outcomes/impacts, and indicators of success.

In addition, Matthews guided us in writing our 2006–2008 Implementation Plan. In August 2006 we produced an updated 2004–2010 Strategic Plan, which will underpin our announcement of funding opportunity in December 2006. An updated implementation plan will be produced in 2007, reflecting the outcome of the announcement of funding opportunity.

Matthews also drafted a charter for the Advisory Committee. The Advisory Committee approved the charter at its third annual meeting in November 2005. MAP Enterprises coordinated planning and facilitated the meeting, which focused on partnerships.

9 and 10 Quality of Strategic and Implementation Plans

Based on National Sea Grant thematic priorities, which reflect NOAA priorities, our strategic and implementation plans are the result of an effort to solicit constituent input through our Advisory Committee and from stakeholders whom we contacted through community meetings and mail and online surveys. Close collaboration with two strategic planning consultants with expertise in academic, business, and natural resource management planning, ensures that our plans reflect best management practices relevant to Sea Grant's mission. Review by our Advisory Committee, which includes academic, industry, conservation, education, resource management, and political interests, reinforces input received from our grassroots constituents. And endorsement by University of Alaska administrators affirms that our plans address our university's institutional goals.

With a system in place to periodically revisit and revise our strategic and implementation plans, Alaska Sea Grant will remain at the forefront of efforts to foster wise management, conservation, and utilization of Alaska's marine, estuarine, and coastal watershed resources.

PRODUCING SIGNIFICANT RESULTS

11 Contributions to Science and Technology

Our philosophy on selecting research projects is to continually assess Alaska's marine, estuarine, and coastal watershed issues and target our finite resources to most effectively address current and emerging issues, while complementing efforts of other marine research programs in Alaska. Over the years, this has led us to take on programmatic topics such as fisheries oceanography, fisheries, seafood science and technology, and fishery economics.

Today we are striving to develop a more diversified research portfolio than ever before. We are beginning a multidisciplinary program to promote community resiliency. With a crosscutting emphasis on coastal engineering, fisheries, shellfish aquaculture, and resource economics, we will help coastal communities thrive economically and promote public health and safety.

In 2006, we received a grant from National Sea Grant to work with other Alaska research groups to identify the state's most critical marine research needs and develop an Alaska regional marine research plan. We believe this is an extraordinary opportunity to help the state improve management of its marine resources.

Other agencies in Alaska that fund marine research, such as the North Pacific Marine Research Board, have far more fiscal resources than we do to fund research in fisheries, oceanography, and marine mammal–fishery interactions. As we move closer to implementing the Alaska regional marine research plan, we will continue to define the niche for Alaska Sea Grant that complements Alaska's overall marine research effort. Our Advisory Committee will play a central role in helping us make research choices that can make a difference for Alaska.

It is important to remember when reviewing the research efforts described in this book that our research portfolio will continue to evolve to meet changing needs, given the reality of funding constraints. We will continue to prioritize our research portfolio against the fabric of our vision statement, which speaks to providing research, education, and extension services to Alaska communities and decision makers, providing the information they can use to make well-informed decisions that balance resource development and conservation.

Following are Alaska Sea Grant research highlights. (See section 13 for more details on these studies.)

- ◆ Research efforts validated the importance of keeping shellfish in deep cold water to avoid contact with *Vibrio parahaemolyticus*, a deadly bacterium. The practice is now standard operating procedure for Alaska shellfish farms.
- ◆ Two Alaska seafood processing companies are interested in using Alaska salmon protein powder, after

market testing in China revealed a 90% preference for the Alaska powder over traditional carp-based powders.

- ◆ Experiments at seafood processing plants showed that freezing times were reduced by 30% with freeze-friendly packaging, air flow balance through blast freezers, and fan speed reduction to increase energy efficiency, plant productivity, and product improvement. A resulting manuscript will soon be published as a book (Planning for Seafood Freezing) by Alaska Sea Grant, targeting seafood processors.
- ◆ Economics researchers found that Individual Fishing Quotas increased halibut prices to fishermen, seafood processors were forced out of business as a direct result of paying higher prices to fishermen, and it may be beneficial to lengthen the Pacific halibut fishing season and thus deny a seasonal niche market to farmed halibut. The North Pacific Fishery Management Council is looking at the results as they consider the charter-based halibut sport fishery.
- ◆ Scientists did adaptive sampling studies on a commercially important rockfish species to assess error in fish sampling. Rockfish are long-lived and vulnerable to overfishing. The results increased the confidence of the North Pacific Fishery Management Council about Pacific ocean perch assessments.
- ◆ Researchers carried out 20-year studies on hybridization between locally adapted and translocated pink salmon stocks. They concluded that translocation of pink salmon stocks can result in outbreeding depression and reduce survival of local natural spawning populations. The results will be used by the Alaska Department of Fish and Game in making decisions on stock transfers.
- ◆ Research measured the concentration of marine nitrogen-15 released by decaying salmon and stored in lake bottom sediment, to reconstruct sockeye salmon returns to Alaska river-lake systems for thousands of years. Results have been incorporated into Alaska Department of Fish and Game's Karluk Lake salmon management plan, and have allowed managers to comfortably increase salmon escapement to increase the salmon run to the benefit of fishermen.
- ◆ Researchers used commercial fisheries data to study in-season changes in pollock distribution. They found that local depletion does occur during the fishing season, depletion can be quickly replaced by immigration, and depletion is not strongly related to location of sea lions. Their results directly apply to current discussions on sea lion recovery by NOAA Fisheries and the North Pacific Fishery Management Council.
- ◆ Research confirms the importance of Arctic Ocean sea ice to biota, and confirms that the role of sea ice in the

nutrient balance is declining, which may lead to marked changes in the arctic food web. Such knowledge is useful as researchers and coastal communities seek better predictions of how the environment may change with a warmer climate.

- ◆ Scientists assessed humpback whale entanglement in Glacier Bay, Alaska. The entanglement rate was found to be similar to that in the Gulf of Maine, where the whale-fisheries interaction is a substantial management concern. The results prompted the National Park Service to consider mitigation steps. The information also will be used in a ten-nation collaborative study run by NOAA to assess the abundance and health status of humpbacks in the Pacific.

Alaska Sea Grant funded 35 fully reviewed research projects in three funding cycles (Appendix 9).

Alaska Sea Grant–supported researchers published 46 peer-reviewed articles in scientific journals, and book chapters (Appendix 18).

Alaska Sea Grant supported 58 graduate students and four undergraduates (Appendix 26 and 27).

Thirty-one Alaska Sea Grant–funded graduate students wrote theses and dissertations, and received their degrees.

Alaska Sea Grant organized 17 scientific conferences, including four Lowell Wakefield Fisheries symposia (Appendix 28), and we published 14 scientific proceedings books, six peer-reviewed (Appendix 19).

12 Contributions to Extension, Communications, and Education

With the exception of some Marine Advisory Program research, all of Alaska Sea Grant’s efforts in our extension (Marine Advisory Program) and communications (Education Services) projects are educational in nature. Many activities are joint efforts between Marine Advisory and Education Services.

Because of this interconnectedness, it is difficult to separate our outreach work into Extension, Communications, and Education. For purposes of this discussion, we describe how Alaska Sea Grant approaches educational work, and in the section on “Contributions to Education” we highlight our educational projects.

Contributions to Extension

The Marine Advisory Program has seven specialists and seven agents based in nine coastal communities, who provide extension educational programs and products for residents living along Alaska’s coasts and rivers (Appendix 3). Marine Advisory projects focus on helping Alaskans make decisions that protect their quality of life, support responsible economic development, and sustain Alaska’s abundant resources.

In the last 42 years, the Marine Advisory Program has grown into a highly respected extension education service with internationally recognized faculty. Marine Advisory

activities in business assistance, marine safety, seafood technology, shellfish aquaculture, and marine conservation have been integral to the growth of the state and have served as national models.

As Alaska’s marine extension program, Marine Advisory faculty:

- ◆ Identify and prioritize emerging coastal and marine issues in partnership with users;
- ◆ Develop educational activities and extension programs that transfer knowledge to individuals or groups so they can solve problems or create new opportunities;
- ◆ Develop partnerships with organizations, agencies, industries, and individuals to maximize the impact of our educational programs;
- ◆ Stimulate researchers, policy makers, and others to focus on concerns related to coastal and marine issues;
- ◆ Evaluate the effectiveness and impacts of our programs and adjust our efforts in response.

The extension effort by the Marine Advisory Program over the last five years has been diverse, with the following focus areas.

- ◆ Mitigating and responding to major environmental issues in Alaska
 - *Selendang Ayu* oil spill
 - Steller sea lion endangered species impacts
 - *Vibrio* outbreak in shellfish
- ◆ Supporting communities as they adjust to changes in the fishing industry
 - Trade Adjustment Assistance technical assistance
 - Development of the Fisheries Business Assistance Program
 - Fishing communities forum
 - Bycatch deterrent outreach and collaborative research
- ◆ Promoting economic development and capacity building in Alaska’s coastal communities
 - Assisting the shellfish farming industry
 - Charter boat and tourism development support
 - Capacity building for resource decision makers
 - Encouraging rural and Alaska Native students to pursue fisheries/marine science
- ◆ Involvement in marine conservation and marine education issues throughout the state
 - Community science interactions
 - Water quality and environmental monitoring classes
 - Marine mammal stranding
 - Responsible wildlife viewing

The Marine Advisory Program works seamlessly with the other facets of Alaska Sea Grant in developing our extension programs and projects. The Marine Advisory Program leader is associate director of Alaska Sea Grant and is a member of the Alaska Sea Grant Management

Team. Both the Alaska Sea Grant director and the Marine Advisory Program leader attend the School of Fisheries and Ocean Sciences Executive Committee meetings and represent approximately 20% of the budget of the school.

Our methodology also is broad and reflects the cultural and geographic diversity of Alaska (see seagrant.uaf.edu/map). Our extension program tools include workshops, conferences, classes, one-on-one consultations, Web sites, video programs, publications, newsletters, directories, surveys, and posters (most developed in partnership with Alaska Sea Grant Education Services). In addition, Marine Advisory agents serve on or facilitate a wide variety of boards, commissions, citizen groups, and committees involved in activities such as advising managers, developing watershed plans, and directing marine safety activities (Appendix 14). In addition, Marine Advisory agents participate in applied research projects such as shellfish farming tests and seabird deterrent tests; the results are peer reviewed and presented publicly.

We also work closely with nationwide Sea Grant programs. In the last three years, we worked with Washington Sea Grant on the Trade Adjustment Assistance program because so many Alaska salmon fishermen live in Washington. We also have collaborated with Washington Sea Grant in the development of longline gear designed to deter the capture of seabirds, including cooperative research, statewide distribution of deterrent gear, and the creation of an educational video used in the United States and Russia. Marine Advisory Program Leader Cullenberg is halfway through a 3-year term as secretary/treasurer of the Executive Committee of the Assembly of Extension Program Leaders, as well as the Assembly's Fisheries Extension Enhancement Committee.

The Marine Advisory Program collaborates whenever possible with the Cooperative Extension Service. Most recently, the Trade Adjustment Assistance technical assistance program was passed to the Marine Advisory Program through the Cooperative Extension Service, who offered staff support throughout the project. Additionally, Marine Advisory agents are often the sole source of extension publications and contact in a rural community. (Bethel is the only rural Alaska community with both a Marine Advisory agent and a Cooperative Extension agent.) Marine Advisory agents work with Cooperative Extension on workshops, 4-H activities, and training.

Marine Advisory agents in Alaska log more flight hours than those working in any other state in the nation. For example, Liz Brown serves the 35 communities of Bristol Bay, an area the size of Wisconsin, with a population of approximately 9,000 people. Only one of the communities in her area is connected by road to Dillingham, her base town. In Unalaska, none of the communities served by Reid Brewer are connected by road and most can be reached only by first flying into Anchorage, then back out to the Aleutians.

Marine Advisory agents also participate in Alaska Sea Grant-funded research projects, as principal investigator, co-principal investigator, or outreach component leader. They uncover problems that need research, and they review proposals. They also act as local contacts for researchers and assist them in meeting with community members before, during, or after a project is under way.

Extension work is not a single activity, nor a short-term commitment. In planning and program development, Marine Advisory agents take a long-term look at the intended outcome, then design a program to carry over several years. For example, a healthy salmon industry in coastal Alaska requires an education campaign to increase quality handling practices, training in fishing business efficiencies, and feasibility studies of custom processing. Our extension program contributes to an overall problem-solving effort defined by our constituents and in partnership with agencies and fishermen around the state.

Significant contributions in extension since Alaska Sea Grant's 2001 program assessment include the following.

- 1 We have taken an active and innovative role in critical state issues in the last two years: participating in the state's salmon revitalization plan and in industry and community efforts across the state to keep the industry healthy; supporting the economic health and well-being of coastal communities through work on shellfish aquaculture, tourism, and subsistence; and enhancing the sustainability of marine and coastal resources through bycatch reduction applied research and extension, response to endangered species concerns through research and community involvement, marine education of adults and youth, community participation in environmental monitoring, and response and prevention education related to environmental emergencies such as oil spills and outbreaks of marine pathogens.
- 2 Alaska Sea Grant received a substantial award from National Sea Grant through the Fisheries Extension Enhancement competition. This allowed us to hire two new extension agents who have focused on the changing fisheries in Alaska.
- 3 The Marine Advisory Program and Alaska Sea Grant are more strongly linked.
- 4 Marine Advisory agents were added in two new communities and new agents were hired in three more communities. One additional community, Nome, will have an agent hired by fall 2006.
- 5 External funding has supplemented flat funding by the University of Alaska and Alaska Sea Grant. Over \$10.8 million in outside funding has supplemented Alaska Sea Grant Marine Advisory's extension program (see Appendix 8).
- 6 A tourism/recreation specialist was designated by the program. Terry Johnson, in Homer, fills that role.

Johnson is developing a statewide responsible marine wildlife viewing program, assisting coastal tourism businesses such as charter operators and rural tourism operations, and providing safety and access information for remote recreational sites.

Internal evaluation of programs, products, and activities

Evaluation of our extension work is critical to maintaining a program that is both relevant and dynamic. The Marine Advisory Program takes evaluation seriously and uses a variety of ways to analyze the effectiveness of our work. Following are some performance indicators.

All of our extension programs around the state are done in partnership with others. This allows us to leverage our funds to deliver a broader program, and to customize our program to meet the needs of Alaska's diverse population and geography. Through the Trade Adjustment Assistance technical assistance program, technical assistance workshops in 83 communities were customized by each agent to take into account salmon species caught, type of gear used, economic and educational level of the local population, and cultural and language issues. A list of our partners is in Appendix 16, and our workshops are in Appendix 17.

Funding partners often approach us directly due to the quality of our educational programs, the broad reach of our network, and the general level of unbiased credibility of our program. Funding from the Alaska Department of Commerce, Community and Economic Development, the U.S. Department of Agriculture, and the U.S. Fish and Wildlife Service are examples of funding and program partners that came to the Marine Advisory Program unsolicited. External funding of extension programs during the last five years amounted to \$10.8 million from 22 funders.

Internal evaluation processes for programs and products

The Marine Advisory Program uses peer review whenever possible for program development and products. We meet regularly via audioconference and whenever possible face-to-face in small groups. Each Marine Advisory faculty member submits a monthly report that is posted on our internal Web site so that other Marine Advisory faculty can review them for ideas and partnering potential. Recently, we have formed a number of small groups by program area such as fishing business assistance, marine conservation, and seafood technology training. This allows for internal evaluation and planning during the year.

All Marine Advisory faculty follow the University of Alaska Fairbanks regulations for annual review and promotion and tenure (three of our faculty are not tenure track). Marine Advisory faculty follow a set of unit criteria developed internally and approved by the University of Alaska Fairbanks Faculty Senate.

Staff and product awards

In the past five years, four Marine Advisory faculty members have received tenure and promotion. Our extension faculty is one of the largest faculty groups represented in

the School of Fisheries and Ocean Sciences and receives one of the largest budgets. Many Alaska Sea Grant publications that are authored by Marine Advisory agents have received national awards (Appendix 22).

The Trade Adjustment Assistance technical assistance program, developed and offered by nine Marine Advisory agents, was used as a national model. Following the training program, the Foreign Agriculture Service made additional funds available for an Intensive Technical Assistance Program.

Targeted audience and evaluation for all products

Most Marine Advisory projects are customized to meet the needs of our diverse state. In almost all cases, educational activities are evaluated by participants immediately following the event.

Taking advantage of the opportunity to interact with salmon fishermen across the state, the Marine Advisory Program got surveys back from 2,343 salmon fishermen while providing Trade Adjustment Assistance technical assistance. The survey evaluated the technical assistance offered by the Marine Advisory Program and also assessed how salmon fishermen viewed their future and what extension education the Marine Advisory Program could provide and how best to deliver it. Consistently, respondents felt that the technical assistance was positive. The survey input guided the development of our fisheries business assistance program.

Changes in behavior of target audiences

Follow-up evaluation is useful in assessing behavior changes. For example, in redesigning the seafood processing business development course into modules, a follow-up phone survey assessed the usefulness of classes taken a year before and captured suggestions about how to improve future classes. Some examples of impacts that are changing Alaska, resulting from Marine Advisory work include the following.

- ◆ Rebounding of the salmon fishery in Alaska with increased emphasis by the industry on quality, fresh wild product, and increased vertical integration.
- ◆ Steller sea lion numbers are increasing slowly and fishing impacts have become more focused as a result of research and education.
- ◆ Small-boat longliners fishing in inside waters in Southeast Alaska are seeking a waiver from seabird deterrent gear requirements since documented impacts are low, and a lightweight streamer line has been developed for other small-boat fishermen.
- ◆ Shellfish farmers in Alaska have increased access to leased sites in Southeast Alaska and Prince William Sound, and shellfish farm productivity has increased by approximately 30%. Shellfish growers have changed operations to avoid *Vibrio* outbreaks in warm waters by lowering oyster nets below the thermocline.

- ◆ A network of rural Alaska Natives is engaged in water quality sampling throughout the state as a result of training by the Marine Advisory Program in cooperation with the Native American Fish and Wildlife Society and the Environmental Protection Agency.
- ◆ The Oil Spill Liability Trust Fund has been funded again.
- ◆ Rural Alaska seafood processing plants are able to submit Hazard Analysis and Critical Control Point (HACCP) plans to the Alaska Department of Environmental Conservation, and be approved to operate safely.
- ◆ Ecotourism operators and the public have begun to adopt best practices when viewing marine wildlife.

Our extension effort is forward-looking and attempts to identify emerging problems and opportunities important to Alaska and related to the Sea Grant mission. The Marine Advisory Program's approach of identifying these issues and developing educational programs to address them strives to be innovative, to positively impact behavior and livelihoods, and to generate new ideas to conserve, manage, and enjoy the marine resources of Alaska.

Contributions to Communications

Education Services, led since 1988 by Kurt Byers, carries out the bulk of our communications efforts. Specialized videography is carried out by Deborah Mercy of the Marine Advisory Program.

Education Services is composed of publications, marketing and distribution, media relations, the Web, meetings and workshops, and special projects. The Education Services staff is in Appendix 1.

The Education Services four-year work plan is developed in consultation with the Marine Advisory Program and integrates and supports Marine Advisory efforts. Each research project contains an outreach component, some of which require the work of Education Services. Research grant writers are strongly encouraged to consult with the Marine Advisory Program and Education Services when developing outreach strategies.

PUBLICATIONS CONNECT US WITH USERS

Managed by Sue Keller, our national award-winning publications effort, a 2001 Best Management Practice, produces books, brochures, and newsletters that address our strategic objectives and serve the educational needs of our primary audiences—commercial fishermen, seafood processors, marine resource managers and policy makers, scientists, conservationists, coastal tourism enterprises, K-12 students and teachers, nonformal and homeschool educators, visitors to Alaska, and state residents (see Appendix 19 for a list of publications and videos).

Alaska Sea Grant Marine Advisory faculty, researchers, staff, and other experts who interact with our constituents identify needs and author our educational products. In addition, agencies and individuals with goals similar to

ours, recognizing the high quality of our work, approach us as a publisher for information products. All proposed publications are scrutinized for applicability to our strategic goals and objectives, for author expertise, and funding availability. Outside partners often provide funding; from September 2001 to June 2006, we collected over \$240,000 in outside funds to support publication production.

Indicators of performance

From September 2001 to June 2006 we published 86 new publications and revised five titles. We distributed 85,600 items to all 50 states, the District of Columbia, Puerto Rico, Guam, American Samoa, and 78 other nations. Electronic copies of Alaska Sea Grant publications were downloaded from the National Sea Grant Library 49,480 times over the five-year period. Publication and video sales from Alaska Sea Grant generated about \$400,000 in revenue. We produced 20 videos (12 by Deborah Mercy, instructional media specialist; six by Rick Steiner, conservation specialist; and two by Byers). Some uses of our educational products are in Appendix 20 and 21.

Funds generated through sales are returned to an account designated to be spent on production of educational products. Of the items we distribute each year, about 15 to 20% are given away. We also give away free copies for book reviews, donations for fundraising, and free books to schools and libraries.

Evaluation

The sheer number of educational items people request from us—and pay for—indicates that our constituents find our materials useful. Beyond that, we also solicit direct feedback from users, receive unsolicited feedback, and submit selected items to professional scrutiny in national critique and award competitions. Until 2005, our standard feedback solicitation took the form of a postage-paid postcard questionnaire that we inserted with each book. That yielded up to an 8% return rate, and provided valuable information about the quality and utility of our publications.

In 2006, we began to use our new database to set up an email query process to contact users for feedback on books and videos. With this new evaluation tool we markedly increased the yield of buyer responses over the postcard method. Our publications manager sends a personalized note by email, an easy and economical way to contact large numbers of buyers and learn how they use our products. A sample of users' comments is in Appendix 21.

Awards received in critique and award competitions judged by professional peers in government, trade, and academia provide a significant measure of the editorial and graphic production quality of our products, and win or not, provide useful critiques that help us improve our performance (Appendix 22 shows publication awards).

We suggest that our publications effort merits consideration as a Best Management Practice.

VIDEOS CONNECT US WITH USERS

Educational videos are an essential medium in reaching the wide variety of learners living in Alaska. Alaska Sea Grant is fortunate to have a professional videographer and editor, Deborah Mercy, as a longtime member of the Marine Advisory staff. Mercy came to Alaska in the late 1970s as a news reporter, later producing the television series “Alaska’s People.”

During her years at Alaska Sea Grant, Mercy has produced a wide range of educational videos and is known in the state for her footage and photography of life on the sea. Most recently, she spent three weeks aboard a Bering Sea crab catcher-processor shooting video, some of which was used in a documentary aired on The History Channel titled *Alaska: Dangerous Territory*.

Many of the videos have been produced in partnership with Marine Advisory agents and others. Along with Washington Sea Grant’s Ed Melvin, Mercy produced *Off the Hook in Alaska*, an educational video for longliners that showed outcomes of bycatch of the endangered short-tailed albatross, and methods that fishermen can use to deter seabird catch. The video was sent to all Alaska longliners and translated into Russian for Pacific Rim fishermen.

When the Trade Adjustment Assistance (TAA) program was initiated, a video was quickly created to introduce the program to over 4,000 salmon fishermen. The video outlined the causes for the decline in salmon prices and introduced ways for fishermen to improve their business. During the second year of the TAA program, the video was translated into Yup’ik for villages on the west coast of Alaska.

Current video projects include a salmon quality training DVD and a video on vessel stability in partnership with the Alaska Marine Safety Education Association, funded by the U.S. Coast Guard.

We suggest that Alaska Sea Grant’s educational video production effort be considered a Best Management Practice.

MARKETING CONNECTS US WITH USERS

For many years, one of the distinguishing components of Alaska Sea Grant has been our ability to connect with users through a commitment to ambitious promotion and efficient distribution of educational products. Our Education Services manager has been invited to speak on the subject at regional and national conferences of Cooperative Extension and Sea Grant communicators. Colorado State University’s Cooperative Extension Service adopted our marketing approach, and the University of Alaska Cooperative Extension Service recently consulted with us to adapt our marketing methods.

Building on this success, to increase public awareness and use of our educational products and to respond to a suggestion by our Advisory Committee that we get more visibility in Alaska, in 2005 we established the national

Sea Grant network’s first-ever sales and marketing staff position, filled by Kathy Kurtenbach, a 0.75 FTE. While we have long recognized myriad marketing tactics, establishing this position allowed us to more thoroughly implement the methods. We also developed an annual marketing and visibility action agenda. The tactics we use to promote and distribute our products are listed in Appendix 24.

Increase use of educational products

An indicator of the impact of the new marketing position is the increase in distribution from September 2004, when Kurtenbach started devoting her efforts to marketing, to the present (Appendix 23). In 2004 we distributed 16,300 items, in 2005 we distributed 23,800 items, and the 2006 total is proving to be even higher. Much of that increase is due to expanded marketing to retailers who serve free-choice learners—primarily science interpretive centers, museum and aquarium gift shops, as well as general-interest bookstores and tourist-oriented gift shops.

We distribute products to 200 retail outlets in Alaska, the Lower 48, and internationally. In 2005, retail outlets accounted for as much as 26% of our product distribution. The book buyer for Captain’s Nautical Supply in Seattle said, “It is clear that Alaska Sea Grant takes seriously its Sea Grant mission, and follows in the century-and-a-half tradition of the Land Grant colleges. You make marine research and applications available at a reasonable price for all.”

In June 2005, we started sending email announcements for new publications to audiences not targeted in our paper announcement mailing. Since then, email announcements have generated orders for 4,640 publications. This is a high return rate for an inexpensive tactic—plus recipients get the announcement immediately.

We also utilize the Web to promote educational materials. We use Web booksellers, such as Amazon.com, Barnes & Noble, Borders, and Blackwell Publishers. And we add cross-links between our Web catalog pages, which lead to other Alaska Sea Grant publications that might appeal to the customer.

Alaska Sea Grant submits the required electronic file (or paper copy) of each new publication to the National Sea Grant Library (nsgl.gso.uri.edu) within one month of the book’s delivery to us, ensuring that the public has immediate access to the information from the national site.

Increase visibility

To enhance Alaska Sea Grant’s visibility, we have increased the number of special projects we pursue, primarily trade shows and community events. We increased our attendance from about four events per year to as many as 12. Attendance ranges from 400 to 7,500. At community events we communicate directly with our constituents, sell publications, hand out catalogs and brochures, engage attendees in educational activities, network with

Publications Sales Help Gulf Coast Fishermen

Hurricanes Katrina, Rita, and Wilma in 2005 destroyed fishing businesses and livelihoods in the Gulf Coast states of Louisiana, Mississippi, and Florida. To aid those in need, Sales and Marketing Coordinator Kathy Kurtenbach suggested that we contribute income from publications and video sales to Gulf Coast relief efforts. We partnered with the Alaska Fishing Industry Relief Mission (AFIRM), a nonprofit organization of Alaska commercial fishermen and seafood processors whose goal is to provide relief assistance to their Gulf Coast cohorts. Alaska U.S. Senator Lisa Murkowski encouraged formation of AFIRM and is the honorary chair of their Advisory Board.

AFIRM gladly accepted our offer to contribute the equivalent of 10 percent of our sales income over a six-month period. The sum we contributed was \$5,800, nearly twice what we had predicted, thanks to our marketing efforts. Brian Allee presented the check to Senator Murkowski at her Anchorage office. Kurtenbach attended, and set up a display of publications and videos to show Murkowski the products that generated aid funds for AFIRM. We also developed a Web page and conducted media outreach that resulted in newspaper, radio, and Web news stories on the hurricane relief issue and our involvement.

In a related effort, we helped Louisiana Sea Grant with media relations when Alan Sorum, Valdez port director and Alaska Sea Grant author, convinced his city to donate a surplus 60-ton-capacity boatlift (Travelift) to Plaquemines Parish in Louisiana. Approximately 3,000 fishing vessels and 30,000 recreational boats were stranded on land by the hurricanes. Sorum learned of the need from Eric Olsson, Washington Sea Grant's ports and harbors specialist, when both attended the 2005 conference of the Pacific Coast Congress of Harbormasters and Port Managers. Rusty Gaude, Louisiana Sea Grant Marine Extension agent, played a central role in coordinating the project. The boatlift was delivered in February 2006. It was quickly reassembled by technicians provided gratis by the Travelift company, and put to use moving stranded boats back into the water—and back into business.

"Of all the economic sectors affected, the commercial fishing community has been the hardest hit. . . . This contribution from the City of Valdez is vital to the rebuilding of our commercial fishing economy. . . . The value of this donation is beyond words." —Plaquemines Parish President Benny Rousselle

agencies and business people, and take suggestions for new educational products.

Our marketing effort has a solid base, and is gaining momentum. We suggest that our marketing program merits consideration as a Best Management Practice.

MEDIA RELATIONS CONNECT US WITH USERS

Our media relations program in both radio and print has yielded award-winning results over the years. In May 2006, the Alaska Chapter of Sigma Xi gave a special recognition award for excellence in science reporting, akin to a lifetime achievement award, to our public information officer, Doug Schneider, who joined Alaska Sea Grant in 1988.

Radio

Alaska is huge and remote, and radio is a prime tool for reaching audiences in far-flung places, including villages and aboard thousands of vessels that operate in our waters.

Our signature media relations effort is Arctic Science Journeys Radio (ASJ), started in 1996 (seagrant.uaf.edu/news/MoreASJ.html). Since its inception, it has won 14 state and national awards. ASJ features 3- to 5-minute stories about science, culture, and the environment of the far north, with scientist interviews. A list of stories from September 2001 through 2005 is in Appendix 25 (ASJ has been temporarily suspended so that Schneider could do administrative writing; ASJ will resume in fall 2006.)

Radio stations, science Web sites, and freelance science writers use our radio stories as a source of ideas for their own articles. Several newspapers publish the radio scripts as an ASJ column. A list of other users is in Appendix 25.

We suggest that ASJ merits consideration as a Best Management Practice.

In addition, we work closely with Laine Welch, producer of Fish Radio, a program about the seafood industry. Welch features a different story every weekday, broadcast to most of Alaska by 22 commercial and public radio stations. We sponsor Fish Radio, which gives us on-air credit with mention of new products or activities. Welch produces Fish Radio news stories about our activities, typically featuring interviews with Alaska Sea Grant faculty or staff. Welch also covers Alaska Sea Grant in Fish Factor, a weekly print column that appears in more than 12 newspapers and Web sites.

Print media

Doug Schneider also writes news releases and feature stories. He has a well-established network of media contacts who respect his work and look forward to his marine-related stories (Appendix 25).

Over the last five years, feature articles written by Schneider on shellfish aquaculture and king crab research have appeared in *Alaska Business Monthly*, widely read by

Alaska business and government leaders. Feature articles on sea lion research (cover story) and climate change have appeared in *Alaska* magazine, with a nationwide circulation.

In addition, Byers placed an article he wrote on marine wildlife viewing in *Coast Magazine*; a six-page spread in *Alaska* magazine featuring photos and text from *The Bering Sea and Aleutian Islands: Region of Wonders*, a book authored by Terry Johnson; and a feature article about the National Ocean Sciences Bowl in *Sea Technology* magazine.

Newsletters

For 26 years, Alaska Sea Grant's monthly two-page newsletter *Fishlines* has kept our most engaged constituents informed of our research, education, and extension activities. Aimed at an audience of about 300 people in academia, government, and marine industries, the venerable newsletter is compiled, written, and edited by Sue Keller. In 2005 we redesigned the newsletter and expanded distribution. Distributed as a paper copy and via email and Web (seagrant.uaf.edu/news/fishlines), *Fishlines* is a convenient source of news from Alaska for the National Sea Grant Office and NOAA public affairs. In 2005 we used the newsletter twice to survey about 250 key constituents, requesting advice for our 2004–2010 Strategic Plan.

Charter Log is a quarterly newsletter serving charter boat operators in Alaska. Written by Recreation and Tourism Specialist Terry Johnson, it has been described as the only objective source of consistent charter boat information available in the state. *Charter Log* is available on the Web and is mailed to 2,000 individuals.

Alaska Seas & Coasts is a new periodical, taking the name of a discontinued publication produced by the Marine Advisory Program in the 1970s. The purpose of *Alaska Seas & Coasts* is to provide in-depth topical information for Alaskans. The first two issues focused on Steller sea lion research and impacts, and responsible wildlife viewing in Alaska. The next two issues will focus on community coastal monitoring, and global climate change and fisheries.

Contributions to Education

The Marine Advisory Program and Education Services conduct educational projects aimed at free-choice learners, K-12 students and teachers (with special attention to underserved populations), and homeschool teachers and students. Marine Advisory faculty and staff respond to the informational needs of people who visit our offices, which is a frequent and important educational effort. We also visit classrooms to talk about marine and coastal topics. Marine Advisory faculty give lectures and demonstrations on traditional Native ways of utilizing natural resources, and present classes on outdoor safety for children and adults, using books and videos we produced (see Safety Education and Training, p. 19).

TRAINEESHIPS

Alaska Sea Grant is a leading supporter of graduate students within the University of Alaska system. Each year we provide students with valuable financial assistance, training, and support. Our students are studying seafood science, resource economics, oceanography, fisheries, and marine biology. Since the 2001 program assessment, we have provided full or partial support for 14 Ph.D. candidates and 44 students pursuing master's degrees. Of these, 31 students have graduated (six Ph.D. and 25 master's) and three will earn degrees before the end of 2006 (one Ph.D. and two master's). We provide continuing support for eight Ph.D. candidates and 19 master's students (see Appendix 27).

The Sea Grant traineeship project prepares the nation's future scientific leadership with the educational and hands-on research tools needed to solve marine resource issues. Most of our students graduate to productive careers, with nearly 40% remaining in Alaska. We can account for the whereabouts of 100% of the students who have graduated since 2001. They continue in academia as faculty or research associates at universities around the country (30%), work at federal agencies (27%), state agencies (13%), private companies (10%), and continue their education (20%). An investment of 20–25% of our federal funds is directed at education programs and traineeships.

Alaska Sea Grant has provided a variety of funding opportunities for graduate and undergraduate studies. Most Sea Grant traineeships were awarded along with peer-reviewed research projects. In addition, we partnered with the University of Alaska Fairbanks Center for Global Change and Arctic System Research to support awards for eight students in a grant competition, and provided a member to the review panel. This competition gives students experience with proposal writing and the peer review system. Further, we have partnered with the National Fisheries Institute, which provides a \$5,000 scholarship used as a recruiting tool for fisheries graduate students.

In some instances we provide only partial funding to students. Several graduate students employed by state and federal agencies do not need stipends. Recently, faculty in the School of Fisheries and Ocean Sciences have received generous funding from USDA-CSREES grants, which do not pay tuition. Alaska Sea Grant has stepped in to provide tuition funds for students on these projects. We also supported students in partnership with the North Pacific Research Board, Coastal Marine Institute, and NOAA Fisheries, to fill gaps in funding from those agencies. Sometimes only a small amount of funding from us provides a choice opportunity for a student to work on a fully developed research project.

Providing flexibility in funding for students is important to Alaska Sea Grant. Recognizing that graduate students often require additional time to finish degrees and publish findings, we sometimes fund students in associ-

Legacy of Educating Alaska's Youth

In 1982, Alaska governor Jay Hammond declared April 23 through May 11 as "Alaska Sea Week" to encourage Alaskans to learn more about the state's seas and coasts. In support of that proclamation, in 1985 Alaska Sea Grant launched the Alaska Sea Week grade school curriculum project, which included curriculum books and teacher training workshops aimed at elementary grades. In a 2004 report on the status of environmental education in Alaska*, published by the Alaska Natural Resource and Outdoor Education Association, our Sea Week curriculum was hailed as the first environmental education curriculum created specifically for Alaska. Soon after publication, it won a top award from the National Science Teachers Association.

The six-volume curriculum has remained remarkably popular, with 437 copies distributed from 2002 to 2005. But over time it has become outdated in teaching methods and graphic design, and does not address current state and national teaching standards. Thanks to the leadership and enthusiasm of Peggy Cowan, superintendent of the Juneau School District, an Alaska Sea Grant Advisory Committee member, and one of the original Sea Week curriculum authors, in 2005 we assembled a focus group of Alaska educators, including the 1989 Alaska Governor's Teacher of the Year, Linda Frame (who helped implement the original Sea Week curriculum program), to assess the status and future of the Sea Week curriculum. The group unanimously decided we should retain the venerable teaching aid and bring it up to current standards.

At Cowan's recommendation, we contracted with Marla Brownlee, an education specialist at the University of Alaska Southeast, to lead the project. Within months, Brownlee wrote a successful grant proposal to the Alaska Department of Education and Early Development that secured \$582,000 over three years for us to update the curriculum and bring it into compliance with state and national teaching standards. The new digitally based version will be presented on a Web site and possibly on CD, with ancillary print materials.

Teachers and science education experts will participate in development workshops, curriculum design, writing, training, and finally classroom testing. Three grades per year will be updated. Partners in the project are the Center for Alaskan Coastal Studies, Alaska Ocean Observing System, Alaska Fisheries Science Center, Alaska Science Consortium, Juneau School District, Lower Kuskokwim School District, and the Matanuska-Susitna Borough School District. We expect to publish and distribute the revised curriculum guides to teachers by mid 2009.

*Status Report: Environmental Education in Alaska, Alaska Natural Resource and Outdoor Education Association, October 2004.

ation with reviewed projects from previous funding cycles with tuition, stipend, or travel funds. We have accommodated students who put their Sea Grant funding "on hold" when they received funding from other programs such as the Rasmuson Foundation and the Teaching Alaskans Sharing Knowledge program. For principal investigators who took more time than expected to find a qualified student, we extended support to adjust for a delayed start.

We have also increased efforts to fund undergraduate students. Prior to the 2001 program assessment, little funding was directed toward undergraduate research. Recently we funded Nate Bickford to develop a fisheries undergraduate research laboratory at the School of Fisheries and Ocean Sciences, employing two undergraduates. The students gain high-demand expertise with analytical equipment, computer programming, quantitative data management, and science communication. This project gives Native students skills that will enable them to work in the sciences for the duration of their careers.

In spring 2006, we implemented a new Undergraduate Internship in Aquaculture. Intern Celeste Leroux has been working at the state's Alutiiq Pride Shellfish Hatchery in Seward. In addition, we provided funding for an undergraduate student to help determine salmon powder shelf life on a project directed by Chuck Crapo in Kodiak. See Appendix 26 for student support during 2001–2006.

Our commitment to student education and our flexibility in delivering that support could be considered a Best Management Practice.

WAKEFIELD FISHERIES SYMPOSIUM SERIES

One of our longest-standing and most effective communication activities aimed at scientists, policy makers, conservationists, and other stakeholders is our conference and workshop component, coordinated by Sherri Pristash. The goal is to improve ecosystem management and resource conservation and utilization by giving scientists, resource managers, industry, fishermen, and Native groups the chance to come together to share the latest research and management strategies for high latitude marine ecosystems.

Premier among the meetings is our Lowell Wakefield Fisheries Symposium series, which has an international reputation for excellence, and award-winning peer-reviewed proceedings books. Usually held once a year, the Wakefield meetings began with a conference on *Chionoecetes* crabs in 1982. Meeting proceedings are sometimes used as college texts, and are in the libraries of academic institutions and of scientists and policy makers the world over. All proceedings books since 1996 have been peer reviewed, which has improved the quality and the usefulness of the scientific articles.

For the Wakefield meetings and other conferences, we identify partners to provide financial support and collaborate to organize the meetings. Our role includes the following: select committee and chair; provide call for

papers, agenda, media coverage, Web pages, and online registration; arrange travel, meeting space, lodging, and catering; and publish abstract book, program, and peer-reviewed proceedings book. A list of scientific conferences organized by Alaska Sea Grant from September 2001 to July 2006 is in Appendix 28.

We suggest that the Lowell Wakefield Fisheries Symposium series be considered a Best Management Practice.

FACULTY, STAFF DEVELOP LOCAL EDUCATIONAL OPPORTUNITIES

For three decades, Alaska Sea Grant has pursued myriad marine literacy projects, including the creation of Alaska's first environmental education curriculum (see highlighted text box Legacy of Educating Alaska's Youth, p. 18). Our 2005 survey of constituent needs clearly indicated that our capability in K-12 and lay public marine education is valued and that people want us to do more. Recent reports by the Pew Oceans Commission and the U.S. Commission on Ocean Policy, as well as the NOAA strategic plan, support expanded efforts in marine literacy. Those urgings are reflected in our decision to feature marine and aquatic science literacy as one of our five primary strategic themes, change the name of Information Services to Education Services, and name Sherri Pristash as our education coordinator.

Many opportunities exist to respond to marine education needs in local communities and statewide. Marine Advisory and Education Services' four-year Sea Grant proposals include several marine literacy projects and provide for unanticipated opportunities. Following are examples of some recent projects.

Each summer, Reid Brewer, Marine Advisory agent in Unalaska, conducts three-week summer marine education camps for kids, in cooperation with the Unalaska Parks, Culture and Recreation Center. The classes encourage children to learn about their ecosystem with a hands-on approach. In 2004 Brewer taught marine survival and assisted with an intertidal ecology class at Camp Qungaayux, an annual Native culture education camp run by the Qaalugin Tribe in the Aleutians, which reinforces Native knowledge and culture.

In 2004 Brewer established the Forum of Alaska Marine Issues (FOAMI) as a way to involve the community with scientists working in the Aleutian Islands. The presentation series is conducted in partnership with the Museum of the Aleutians.

To date, 27 scientists have presented FOAMI talks to over 600 residents of this commercial fishing community (population 4,000). The forums have proven useful to residents interested in research taking place in their region, and have allowed scientists to gain valuable local knowledge of the marine issues they are studying. Caroline Wolf, an Unalaska teacher reported, "These talks are one of the greatest things that have happened out here. The history of many families is strongly connected with the

sea and its bounty. After the presentations they talk about these connections. These talks become bridges from their past to their present."

Following Brewer's lead, in 2005 a science lecture series was launched in Cordova, by the Marine Advisory program and the Prince William Sound Science Center. Thirty lectures were presented in 2005–2006. Over 600 Cordovans attended the series, including 100 K-12 students.

SAFETY EDUCATION AND TRAINING

Marine safety has long been a high priority for Alaska Sea Grant. The Marine Advisory Program's efforts two decades ago led to the formation of the Alaska Marine Safety Education Association (AMSEA), now a nationally recognized organization supporting marine safety in Alaska and across the United States. Marine Advisory agents conduct safety education activities for adults and children, and we produce and distribute thousands of safety-related publications and videos. Torie Baker, Paula Cullenberg, and Reid Brewer are U.S. Coast Guard–certified vessel safety drill instructors. Cullenberg is a long-standing member of the AMSEA board of directors, and AMSEA's executive director, Jerry Dzugan, is an affiliate faculty member of the Marine Advisory Program. Reports from mariners who have survived accidents at sea, and other documentation, have proven that AMSEA training has reduced fatalities in Alaska commercial fishing, ranked as the most dangerous occupation in the United States.

Baker has had noteworthy success delivering AMSEA training in Cordova, a Prince William Sound commercial fishing community. Along with commercial fishermen, Baker seeks out local teachers, charter boat operators, and recreational boaters to participate in the 18-hour training. Since 1993, in Cordova alone, over 300 people have completed the drill instructor course.

Working with AMSEA, we produce safety and survival books and videos, including the book *Beating the Odds on Northern Waters*. Originally published in 1991 under the title *Beating the Odds on the North Pacific*, at a Sea Grant Week meeting in the early 1990s this book was touted by the Maryland Sea Grant director as a perfect example of a Sea Grant book that could be adapted for regional and national use. In 2002, author Jerry Dzugan updated the book for all northern regions. We have distributed 18,100 copies, and are developing a marketing strategy for the New England area.

The following groups use *Beating the Odds on Northern Waters* for safety training.

- ◆ Primary text for all AMSEA U.S. Coast Guard Drill Conductor classes for commercial fishermen in Alaska.
- ◆ NMFS, Kodiak, Alaska.
- ◆ 17th U.S. Coast Guard District, Juneau, Alaska.
- ◆ AMSEA classes for NOAA research vessel crews in Alaska and Seattle.

- ◆ Alaska Vocational Technical Center in Seward, Alaska.
- ◆ Kodiak High School, Kodiak, Alaska.
- ◆ JoyCrafts Marine Safety Equipment, Kodiak, Alaska.
- ◆ Seattle Central Community College, Washington.
- ◆ Washington Sea Grant, South Bend, Washington.
- ◆ Oregon Sea Grant, Newport, Oregon.
- ◆ U.S. Coast Guard crew training in Oregon.
- ◆ Safety training at Clatsop Community College, Astoria, Oregon.
- ◆ Coastwise Marine Safety Training, Crescent City, California.
- ◆ Marine Option Program, Hawaii Sea Grant, Honolulu, Hawaii.
- ◆ Chesapeake Maritime Training Institute, Virginia.
- ◆ 5th U.S. Coast Guard District, Portsmouth, Virginia.
- ◆ Drill Conductor classes in Rhode Island and Massachusetts, delivered by a New England safety training company.
- ◆ Maine Department of Marine Resources, Portland, Maine.
- ◆ NMFS Fishery Observer trainers around the United States (trained by AMSEA).
- ◆ Antarctic research support staff who work on the ice (trained by AMSEA).

WORLD WIDE WEB

Alaska Sea Grant was one of the first Sea Grant programs on the World Wide Web, as well as one of the first University of Alaska departments to adopt Web technology in 1995. Since then, our site has grown to more than 1,600 pages.

Taking to heart the idea of the Web both as information delivery and an archive, Alaska Sea Grant has emphasized *and retained* content from the start. Each of our 200+ publications and videos has a Web page with price and description. Other pages include *Fishlines*, *Charter Log*, and *Alaska Seas & Coasts* newsletters; news releases; Arctic Science Journeys Radio stories; and National Ocean Sciences Bowl projects and results. Our Web site includes biographies of funded graduate students. Our project summaries, progress reports, and completion reports are on the Web, generated from our FileMaker database.

From the onset of our Web presence, we have embraced the standards of HTML code and accessibility to the disabled. Through requests for feedback and research into Web practices, we improve the usability of our site.

Our Web site serves every component of our program. We post our request for proposals online and offer principal investigators online forms for submitting reports. Our strategic plan, implementation plan, and annual reports are online, often in both HTML and PDF. Our scientific meeting and workshop registration and agendas are on the Web. Graduate students can find information on fellowships there, and can update their own profiles. Education Services created a Web section on earthquakes and tsunamis in 2000 (seagrant.uaf.edu/features/earthquake) that received thousands of hits after the 2004 Indian Ocean Tsunami (and continues to get steady traffic). And our publications have been available for purchase online with credit cards via a secure server since 1999.

Although Alaska Sea Grant has for years had educational resources on the Web, we only recently added a

Web section specifically devoted to marine education. This new Web section is still in the beginning stages. Among its components are topic and grade-level lists of educational publications, a section on marine mammals with field guide pages and animated 3-D mammal skulls, and links to ASJ stories about marine mammals.

Our Web site comes up first in Google a high percentage of the time when words associated with our projects are typed in. While corporations pay thousands of dollars to make their Web pages come up first in Google, our site ranks high in search engines because we have practiced the best principles of Web construction for 11 years. Those principles include quality content with descriptive headers. It's interesting to note that many of the principles of accessibility to the disabled, which we practice, also make a page more visible to search engines.

With the goal of modernizing the Web site, in 2005 a Web steering committee was formed to overhaul and redesign the Alaska Sea Grant site. Objectives include merging the Alaska Sea Grant and Marine Advisory Web sites (a 2004 Topical Assessment Team recommendation), moving to dynamic Web pages wherever possible, and converting the site to modern Web technology to allow fast updates of pages and accessibility to Palm Pilots, cell phones, etc. We have added RSS (rich site summary) which delivers updated headlines from our Web site to subscribers.

Our future Web presence will include a shopping cart system to handle publication sales and meeting registrations, and will likely have blogging and wikis. As we have from the start, Alaska Sea Grant will continue to work aggressively to serve our constituents via the Web.

We suggest that our Web effort merits consideration as a Best Management Practice.

NATIONAL OCEAN SCIENCES BOWL

A 2001 Best Management Practice was our cosponsorship of the Alaska region competition of the National Ocean Sciences Bowl (NOSB). In addition to the quiz competition, Alaska's NOSB has included two unique components:

- 1 Alaska teams must present a marine-related research paper, which is juried and counts toward their overall scores, and
- 2 students from participating schools (not necessarily quiz bowl team members) may produce artwork to enter in an Alaska region NOSB art competition.

We support the Alaska NOSB by maintaining a Web site (seagrant.uaf.edu/nosb/index.html), providing prizes for the art show, producing promotional videotapes, and arranging for photographic documentation. We also provide administrative support and travel funds; design posters, T-shirts, and signs; and promote NOSB through the news media.

In October 2001, we placed a feature article about NOSB in *Sea Technology* magazine, garnering national exposure

with a high priority audience that keenly appreciates the need for young people who are well educated in marine science.

ALASKA OCEAN OBSERVING SYSTEM

In spring 2006 MAP agent Torie Baker was tapped by the Alaska Ocean Observing System (AOOS) to facilitate a stakeholder beta test of their new Web site. The site, www.aos.org, draws on hundreds of weather models, NOAA buoy data, and satellite ocean observations to provide a one-stop source for marine weather and other information. As a service to AOOS, in 2005 Education Services published the AOOS promotional brochure, which won the top award for promotional publications from the Association for Communication Excellence (Appendix 22). Sherri Pristash, Alaska Sea Grant meetings and education coordinator, is a member of the AOOS Marine Education Advisory Group.

ALASKA SUMMER RESEARCH ACADEMY

Alaska Sea Grant continues its partnership with the Alaska Summer Research Academy (ASRA), a University of Alaska Fairbanks program that engages grade 8–12 students in college-level classes. We sponsor the marine biology component of the academy's offerings and pay for the use of the Kasitsna Bay Laboratory near Homer. In 2006, Alaska Sea Grant sponsored student Katya Wassillie of White Mountain, and funded a teacher intern at Kasitsna Bay. We also have assisted ASRA in media outreach to promote the academy.

COMFISH ALASKA FISHERIES POLICY FORUM

Each year we attend the ComFish Alaska Trade Show and Fisheries Policy Forum, organized by the Kodiak Chamber of Commerce. We provide speakers for the fisheries policy forum, typically Marine Advisory agents and specialists, and sometimes sponsor events at the Kodiak Fisheries Research Center. In 2005 we became a primary cosponsor of the forum, and in 2006 we organized a forum presentation on king crab enhancement, described on page 27.

Participation in Comfish helps us maintain high visibility with key seafood industry people and regulators, and provides a direct way to promote our program, products, and services and learn about constituent concerns. For example, a conversation with a NOAA Fisheries scientist at ComFish several years ago led to a partnership that yielded our national award-winning educational video, *Life on the Beach: Among Friends and Anemones*, described on page 30.

13 Impact on Society, the Economy, and the Environment

Community Resiliency

COASTAL COMMUNITY DEVELOPMENT PROGRAM

Situation Alaska's fishing-dependent communities have experienced significant job losses, reduced product market

share, and lower prices for their catch as a result of changing global salmon preferences, foreign salmon farming competition, processor consolidation, and changing workforce demographics. Coastal communities struggle with maintaining economic diversity that can sustain changes to the resource base or global fluctuations in markets. In Alaska, the struggle is compounded by geographic isolation leading to steep fuel, power, and transportation costs and an overall lack of access to information and lack of ease in participating in the public process.

Response A \$50,000 grant from the NOAA National Sea Grant Office, Coastal Community Development Program, was used to fund a Coastal Community Development specialist, filled by Paula Cullenberg in 2002. Initiatives with multiple partners and leveraged funding have resulted in increased coastal community capacity, improved community participation in resource decision-making, U.S. Department of Agriculture Trade Adjustment Assistance (TAA) to salmon fishermen, and enhanced community economic development (seagrant.uaf.edu/map/taa/index.html).

Impacts

- 1 Approximately 270 people from more than 60 communities in Alaska attended three Tools for the Salmon Industry workshops convened in 2002–2003 in response to the state's salmon crisis (sfos.uaf.edu/salmontools/index.html). The workshops were funded by National Sea Grant Fisheries Extension Enhancement funds and organized jointly with Washington Sea Grant. The November 2003 issue of *Alaska's Marine Resources*, "Charting New Courses for Alaska Salmon Fisheries: the Legal Waters," was distributed to over 500 people and focused on legal issues associated with restructuring the industry. The publication was produced with the Institute of Social and Economic Research at the University of Alaska Anchorage.
- 2 The Marine Advisory Program, in partnership with NOAA Fisheries, the North Pacific Fishery Management Council, and the Alaska Department of Fish and Game, organized and conducted a statewide conference in 2005 called Managing Fisheries—Empowering Communities. The three-day conference provided a forum for 175 community members, fishermen, and resource managers to discuss what community values and lifestyles ought to be protected as fisheries management plans are developed, and examined case studies of community involvement in resource decision-making elsewhere in the world. We published and distributed the proceedings book. Participant evaluations called for a follow-up workshop, scheduled for September 21–22, 2006, focusing on future health of fishing communities in Alaska.
- 3 Alaska Natives are increasingly concerned about the health of their subsistence resources, particularly the

impacts of water quality on resources such as salmon. In an effort to build community capacity, Marine Advisory Aquaculture Specialist Ray RaLonde over the last four years has trained 400 water quality samplers, many of whom now work in 80 Alaska communities. Funds for the training effort came from an Environmental Protection Agency grant through the Alaska Chapter of the Native American Fish and Wildlife Society. The environmental monitoring data, including water quality, macroinvertebrates, habitat types, and fish populations, are also used as baseline data, should development such as mining take place in the future. At least four of RaLonde's trainees have gone on to develop an approved Quality Assurance Project Plan for Alaska watersheds, which allows monitoring programs access to Environmental Protection Agency funding.

Response The U.S. Department of Agriculture enlisted the Marine Advisory Program, in partnership with the University of Alaska Cooperative Extension Service and Washington Sea Grant Extension, to provide salmon fishermen with the information necessary to qualify fishermen for Trade Adjustment Assistance (TAA) technical assistance. TAA is a federal program that provides cash, training, and technical assistance to producers of commodities, including Alaska salmon, negatively impacted by import competition. To become eligible for TAA assistance, Alaska salmon fishermen were required to attend a one-hour workshop to increase the profitability of their fishing businesses. In 2004, nine Marine Advisory agents, led by TAA coordinator Torie Baker, organized and delivered 256 in-person workshops in 83 communities, and 56 audio workshops for extremely remote communities (Appendix 17). An additional 60 workshops were held in 2005.

The Marine Advisory Program created curriculum materials, including the manual *Business Tools and Resources for Alaska Salmon Harvesters*, written by Terry Johnson, and the video/DVD *Keeping Your Net Wet*, produced by Deborah Mercy and Torie Baker, in both English and Yup'ik Eskimo languages. The Marine Advisory Program partnered with the Alaska Department of Labor (DOL) to conduct some TAA workshops with DOL job counselors in attendance, to immediately connect TAA applicants with resource providers. This was the largest TAA effort in the nation.

Impacts

- 1 In 2004 and 2005, 4,300 fishermen and crew attended the workshops. The workshops attracted more than 600 non-TAA applicants, who took advantage of the opportunity to improve their business acumen.
- 2 More than 800 fishermen and crew enrolled in DOL-supported training programs designated for the salmon industry, ranging from completing college to acquiring vocational and technical certificates for new jobs within and outside of the seafood industry.

"I was able to upgrade my merchant marine license to 1,600-ton with all endorsements. I spent 2 months at AVTEC [Alaska Vocational Technical Center] in Seward last winter and also Seattle. Sitting for these licenses takes a lot of time; without this support, I couldn't have done it—I'm very thankful. The MAP folks have always been the tops for dependable information in my fishing business." —Dave Beam, Prince William Sound fisherman and merchant mariner, Girdwood, Alaska.

"I'm using the TAA schooling monies and getting a small business enterprise associates degree at Kenai College—it's awesome to go back to school at my age. This is really helping me not only set up for direct marketing my own fish, but I'm learning tons more!" —Steve Schoonmaker, setnet fisherman, Kasilof, Alaska.

"MAP was instrumental in ensuring that fishers and crew who were interested in retraining into new careers or upgrading their current skills, licenses, etc., were instantly connected with the Department of Labor and Workforce Development. We knew that there were numerous individuals who were looking for training assistance and due to the networking of the MAP agents and the numerous workshops that were held in both urban and rural areas, these individuals were identified and connected with our training programs. We would not have been able to serve near the number of individuals we did if it weren't for MAP and their active promotion of the available programs." —Shawna Harper, TAA program coordinator, Alaska Department of Labor.

- 3 A questionnaire was handed out to workshop participants in 2004, asking for feedback in three areas: the quality of the TAA workshops, what kinds of information fishermen want from the Marine Advisory Program, and how best to receive it. A total of 2,343 questionnaires were returned, 54% of the workshop participants. Results of the survey are at seagrant.uaf.edu/map/taa/survey-resultso4.html.

We recommend that the partnerships, between the Alaska Sea Grant Marine Advisory Program, Cooperative Extension Service, and the USDA Farmed Service Agency to deliver technical assistance to 4,300 salmon fishermen all over Alaska and the United States, be considered a Best Management Practice.

Situation The average age of Alaska fishermen is getting higher—"the graying of the fleet"—and some communities fear that their commercial fishing cultures and economies will shrink to damagingly low levels because young people are not replacing veteran fishermen when they retire.

Response Petersburg Agent Sunny Rice, in partnership with local residents, addressed the issue that the aging of Alaska's commercial fishermen may impact coastal communities. Delivered to the Petersburg Chamber of Commerce, a presentation focused on how aging fishermen might invest in their communities by selling their fishing operations to younger local residents. Rice authored the Alaska Sea Grant publication *How to Make a Directed Transfer of Your Fishing Business*, which tells about financial strategies to pass on fishing operations.

Impact Community leaders have well-considered information on how to support the economy by passing on fishing operations to the younger generation.

“Your willingness to take on the “graying of the fleet” issue helps us to begin addressing one of the biggest threats to the future prosperity of the community.” —Eric Phillips, coordinator, Economic Development Council, Petersburg, Alaska.

“We have chosen to be proactive in regards to problems we anticipate as our harvesting fleet matures into retirement and we look to the next generation to step into their boots. Sunny has been instrumental in compiling lots of available information and synthesizing it for presentations to community members. Her work has aided us in our discussions and in our quest for solutions.” —Kris Norosz, Government Relations, Icicle Seafoods, Petersburg, Alaska.

SHELLFISH AQUACULTURE

Situation Complicated state regulations, a lack of technical training, and a shortage of state-approved growing sites limited the growth of Alaska’s shellfish aquaculture industry and prevented economic diversification in rural coastal communities.

Response Marine Advisory Aquaculture Specialist Ray RaLonde worked with state regulators, coastal communities, and the Alaska Legislature to increase participation in shellfish aquaculture.

Impacts

1 With modest funding from Alaska Sea Grant, Cooperative Extension Service, and the University of Alaska President’s Fund, site selection studies were conducted across 900 square miles of inlets, bays, and beaches around Prince of Wales Island in Southeast Alaska. State managers in 2002 preapproved 1,350 tideland acres, enough for 130 shellfish farms near the small, economically depressed communities of Naukati, Thorne Bay, and Kasaan, and the larger, more prosperous city of Ketchikan. RaLonde’s testimony to the Alaska Legislature in 2002 resulted in \$470,000 for additional site selection studies, and another \$900,000 in state funding for shellfish industry infrastructure projects such as improvements to the state shellfish seed hatchery. Five new farms were started in the last five years, and are now selling market-size oysters to retail outlets. In 2005 two new shellfish nursery systems in Southeast Alaska began selling seed.

“We are starting to blossom here again. Ray has helped us and this industry enormously.” —Art King, Naukati West, Inc. (a homeowners association of 137 residents of a former logging community that has turned to shellfish aquaculture).

2 RaLonde was asked to assist Southeast Alaska’s Annette Island Indian Reservation, a 144 square mile sovereign Indian nation outside state and federal jurisdiction, with development of an aquaculture plan. Two shellfish farms are presently growing oysters and scallops, and three additional farms are planned. Pilot studies are under

way inside the reservation to grow littleneck clams, geoducks, and cockles.

COASTAL RECREATION AND TOURISM

Situation In the late 1980s, Alaska’s visitor industry began to bloom. By the late 1990s it rivaled the seafood industry in economic importance. Much of that growth was due to the attraction of coastal resources, including Alaska’s bustling fishing communities, many located in magnificent coastal mountain settings. At the same time, misinformation existed about commercial fishing and its effects on the ecosystem.

Response We decided to help coastal communities focus on local seafood industries as attractions visitors enjoy learning about, and convey information to the public about an important industry, lifestyle, and culture. We invited communities to develop dockside interpretive signs to depict commercial fishing vessels and the seafood species brought to port.

The other two components of the project were a brochure and the book *Ocean Treasure: Commercial Fishing in Alaska*, by Terry Johnson. Wrangell, Seward, and Ketchikan responded, and seven signs were created and installed overlooking five harbors in those towns. Seward opted for the interpretive brochure. Some 15 years later, most of the signs are still in place, educating viewers and enhancing the visitor experience.

Published in 2003, *Ocean Treasure: Commercial Fishing in Alaska*, the third part of the project, presents a portrait of Alaska’s commercial fishing industry. It has fulfilled its promise as the seminal book about commercial fishing in Alaska.

Impact We have distributed 1,650 copies since the book was published in spring 2003, it is used as a text in a University of Alaska fisheries course, and it has won two national awards (Appendix 22). U.S. Senator Ted Stevens wrote the foreword to the book and ordered 100 copies to give to each of his Senate colleagues.

“Those two books [also *The Bering Sea and Aleutian Islands: Region of Wonders*] are among the dozen of the finest Sea Grant products that I have ever come across.” —Dr. Bob Abel, founding director, National Sea Grant College Program.

“The 200-page glossy reference is sure to become the definitive guide to commercial fishing in the North Pacific. Pretty enough to be a coffee-table ‘thumber’ and comprehensive enough to be used as a classroom text, the book brings together a huge amount of information and puts it into a friendly, well-organized and attractive format.” —John VanAmerongen, Editor, *Alaska Fisherman’s Journal*.

“Congratulations on your fabulous book: *Ocean Treasure: Commercial Fishing in Alaska*. I just received a copy today and couldn’t put it down. You really produced a comprehensive and informative book on all aspects of the Alaskan commercial fishery. What a beautiful collection of pictures and what a wealth of info! I can tell that a lot of hard work went into this. Great job!” —Emory Anderson, Program Director for Fisheries, National Sea Grant College Program.

Response Terry Johnson was named the marine recreation and tourism specialist for the program. Johnson has worked with Alaska State Parks to develop regional supplements to the *Alaska Safe Boating Handbook*, and has developed a statewide program on responsible wildlife viewing in Alaska.

Impact The March 2006 issue of the newsletter *Alaska Seas & Coasts* was devoted to responsible marine wildlife viewing, authored by Johnson. The newsletter is used by NOAA Fisheries Protected Resource Division, the agency responsible for implementing regulations for viewing humpback whales, as a source document for the public and media. Johnson gave 10 presentations on responsible marine wildlife viewing to a total of 200 people in nine communities.

Response Our Advisory Committee has two members representing Alaska tourism, John Shively of Holland America, and Stan Stephens of Stan Stephens Cruises.

Increase Value of Seafood

IMPROVING SEAFOOD QUALITY, PRODUCT DIVERSIFICATION

Situation Alaska's commercial fishermen and seafood processors have suffered significant losses in market share and ex-vessel prices for some species, especially salmon, due in part to lagging quality and inadequate value-added product diversification.

Response The Alaska seafood industry has been reaching out to new markets, domestically and globally, as well as working to move beyond primary processing of fish and shellfish.

Alaska Sea Grant seafood quality and marketing specialists have been helping by providing hundreds of opportunities for training in Hazard Analysis Critical Control Point (HACCP), seafood safety, proper care and handling of seafood, seafood direct marketing, and improving processing plant energy efficiencies. They have offered an expanded menu of workshops and education opportunities to meet ever-changing needs of coastal communities, fishermen, and seafood processors. New products have been developed and tested. International markets are being developed.

Impacts

- 1 Since 1997, more than 2,200 seafood workers, fishermen, direct marketers, and seafood plant managers have participated in Marine Advisory seafood safety and quality courses in sanitation control, better process control for canners, direct marketing, salmon quality, and Just-in-Time training workshops for seafood plant workers, in partnership with the Alaska Seafood Marketing Institute (Appendix 17).
- 2 Don Kramer and Chuck Crapo fostered a relationship with meat and seafood producer Doug Drum of Indian Valley Meats to train his employees. Drum then offered

his facility for hands-on instruction of seafood quality and processing methods, enabling dozens of fishermen and entrepreneurs to take the weeklong training course, with an eye toward starting seafood value-added businesses.

"This is the most important time for people like Chuck and Don to be helping the industry, because we can no longer sell fish the way we as an industry have been. The focus has to be (on) quality and value-added, and MAP emphasizes that." —Doug Drum, owner of Indian Valley Meats, Girdwood, Alaska.

Response *The Fishermen's Direct Marketing Manual*, first published in 1997, was revised by Terry Johnson in 2005. The effort was funded with a National Sea Grant Fisheries Extension Enhancement grant and was produced in cooperation with Washington Sea Grant and Oregon Sea Grant Extension.

Impact In its third printing, the book has been used by over 3,000 individuals and small businesses. The electronic PDF version of the book has been among the 10 most accessed Alaska Sea Grant Web pages since spring 2005.

Response The Marine Advisory Program developed and taught courses in rural Alaska aimed at improving business practices. Village Based Entrepreneurship workshops were taught through the University of Alaska Fairbanks, Bristol Bay campus, in Dillingham; and Seafood Processing Business Development classes were taught through the Prince William Sound Community College and offered in Valdez, Cordova, Kenai, King Salmon, Wrangell, and Quinhagak.

Impact Coastal communities are supporting residents who are starting to sell and/or process their own fish in a variety of ways. For example, a Naknek fisheries cooperative is processing their own fish; Kenai Wild is a group of salmon fishermen who are freezing their fish and selling to the domestic market; in Wrangell a regional marketing group established quality standards and found domestic markets for fresh and frozen salmon; some Prince William Sound fishermen are selling their fresh fish domestically by air; a Dillingham fishing family is now freezing fish, making prepared meals, vacuum packing and selling domestically; and a Quinhagak community processing facility is buying, freezing, and selling salmon. Also, some people who attended the Marine Advisory classes used the information provided to decide against entering the seafood business at this time.

Response Eleven people are enrolled in the Alaska Seafood Processing Industry Leadership Institute designed to cultivate and train future leaders in the seafood processing industry. The trainees are from Akiachak, Homer, Juneau, Kodiak, Naknek, Nome, Palmer, Petersburg, Quinhagak, and Unalakleet, all communities that have been adversely affected by the downturn of the Alaska salmon industry. The program was established in 2006 by the Marine Advisory Program, together with the Alaska Department

of Commerce, Community and Economic Development through a grant from the Alaska Fisheries Revitalization Strategy; it continues through 2007.

Response Alaska Sea Grant Seafood Quality Specialist Chuck Crapo and Seafood Marketing Specialist Quentin Fong, together with University of Alaska Fairbanks economist Mark Herrmann, and marketing professor Lily Dong, worked with graduate student Cathy Xu to develop and market-test protein powder supplements for children in China. The supplements are made from Alaska pink and chum salmon, and were tested as potential replacements for less nutritious fish protein powders added to juices by the consumer.

Impact Market testing in China revealed a 90% preference for the Alaska salmon powder over traditional carp powders. Since this project ended in 2004, Brian Allee has gained interest from two Alaska seafood processing companies for using the salmon powder. Crapo is defining the powder's attributes, and Alaska U.S. Senator Lisa Murkowski has been briefed on the project's potential for increasing Asian trade exchange.

Response Working with Ed Kolbe of Oregon Sea Grant Extension, the Marine Advisory Program assisted seafood processing plants in finding ways to become more energy efficient and therefore more profitable. Experiments at seafood processing plants in Alaska and Oregon showed that seafood freezing times were reduced by as much as 30% with freeze-friendly packaging, balancing air flow through blast freezers, reducing fan speed, and other steps that would benefit processors in energy efficiency, plant productivity, and product improvement. Kolbe and Don Kramer revised their 1993 publication, *Planning Seafood Cold Storage*. The new edition was published in 2006.

Response Fong, a native of China with 15 years experience in the China seafood industry, assisted an Alaska trade delegation visiting China in early 2006. He arranged tours at processing plants, and at flatfish and sea cucumber growing facilities in Qingdao. Fong helped the visitors build relationships with Chinese industry contacts, and presented research on higher levels of omega-3 fatty acids in Copper River salmon compared to farmed salmon, to 100 Chinese retailers, wholesalers/distributors, and media in Shanghai.

Impact As a direct result of the tour, one Alaska processor contracted to sell three trailer-size shipping containers of pink salmon each month to a Chinese importer, and another processor has sold four containers of arrowtooth flounder to a Chinese importer. Wal-Mart in China, South Korea, and Japan invited Alaska to conduct promotions there in fall 2006.

Response Continuing more than a decade of contributions to understanding the economic impacts of Alaska's commercial, sport, and subsistence fisheries, Alaska Sea

Grant-funded fishery economists Keith Criddle and Mark Herrmann completed in 2004 a two-year economic analysis of the Pacific halibut commercial fishery. The study focused on the transition from derby to individual quota management and lengthening the halibut season to meet a halibut aquaculture threat.

The study found that Individual Fishing Quota (IFQ) increased halibut prices paid to fishermen. Some seafood processors went out of business because of the high price they had to pay fishermen. Economic simulations suggest that if farmed halibut were sold in the same markets as wild halibut, the losses to Alaska fishermen would be substantial. Lengthening the halibut fishing season would prevent a seasonal niche market for farmed halibut.

Impact The model results are being used by the North Pacific Fishery Management Council as it considers management of the charter-based halibut sport fishery.

Response In 2003, the statewide workshop, Public Cold Storage and Seafood Processing Facility: Is It Right for Your Community was held. Washington and Oregon Sea Grant participated, as did the Alaska Energy Authority and the Alaska Department of Commerce, Community and Economic Development. Marine Advisory Agent Sunny Rice is chair of the Petersburg Economic Development Council's Cold Storage Oversight Committee.

Impact The Southeast Alaska fishing community of Petersburg is opening a cold storage facility, and is using our book *Planning Seafood Cold Storage* to help guide development.

"Your [Rice's] involvement and input on both the PEDC Board of Directors and the Cold Storage Oversight Committee has been very beneficial in structuring the cold storage/freight consolidation project to meet the needs of industry and the community. I look forward to working with you and the Marine Advisory Program on future projects because it is obvious that you view your program-related responsibilities as more than a job. Your personal and programmatic contributions to the community are substantial." —Eric Phillips, coordinator, Petersburg Economic Development Council.

Inspecting salmon with a portable odor detector

Situation The human nose long has been the instrument of choice for seafood inspectors. But in the near future the electronic nose may replace the human nose, if it can be trained to effectively sniff out bad seafood.

Response Alexandra Oliveira, an Alaska Sea Grant-funded researcher at the Fishery Industrial Technology Center (FITC), master's degree student Jiraporn Chantarachoti, Seafood Quality Specialist Chuck Crapo, and FITC seafood microbiologist Brian Himelbloom tested commercial electronic noses to see how they might be used to test seafood in processing plants. Electronic noses can test for ethanol and other chemicals associated with seafood spoilage. The researchers found that correct odor classifications were detected 85–92% of the time by the

Cyranose 320 when they used it to “sniff” pink salmon belly cavity odors.

Impact Chantarachoti was awarded the best student oral presentation during the 2005 American Association for the Advancement of Science (AAAS) Arctic Division meeting in Kodiak, Alaska. She also presented findings at the 2005 Institute of Food Technologists Annual Meeting in New Orleans, and defended her thesis in June 2006.

Protein powder from arrowtooth flounder

Situation There are more than 2.8 million tons of arrowtooth flounder in the Gulf of Alaska, but almost none of it is used for food because the flesh turns to mush when cooked.

Response Alaska Sea Grant–funded scientist Subramaniam Sathivel of the Fishery Industrial Technology Center (FITC), and undergraduate student Mary Patterson, together with Chuck Crapo and Brian Himelbloom, conducted research to turn arrowtooth flounder flesh into a powder that can be used as tasty breading and other coatings for salmon. They evaluated appearance, nutrition, and shelf life of the powder and coatings.

Impact A Kodiak fish processing company has agreed to put the arrowtooth powder coating to use in their plant, in late summer 2006, to retard oxidation and rancidification of products. Sathivel also sent samples of the powder to several fish buyers for their consideration. In addition, a paper based on the results of the protein powder study was published in the *Journal of Food Science*. Patterson was awarded an honorable mention in the undergraduate research paper competition, at the 2004 Institute of Food Technologists Annual Meeting and Food Exposition. Her presentation was Developing Arrowtooth Flounder Protein Powder Mayonnaise.

Salmon nutraceutical products

Situation There is a high demand in the United States for safe, healthy, value-added seafood products that can be used as health food supplements. Alaska processors have access to large amounts of oil from wild-caught salmon, which have high levels of omega-3 fatty acids, DHA and EPA.

Response Alaska Sea Grant funded a project to purify salmon oil and create a microencapsulated salmon oil powder that can be used as a food ingredient. Subramaniam Sathivel and Chuck Crapo are evaluating physical properties of the salmon oil, enriching the polyunsaturated fatty acid content, and encapsulating the oil with protein and carbohydrate to produce a dry, flowable powder. In addition they are evaluating the nutritional properties, product acceptance, and market potential.

Impact A Nebraska food processor has shown interest in the nutraceutical aspects of the salmon oil powder, and is traveling to Kodiak to evaluate the value-added product

and consider its market potential as a food ingredient or capsule health food supplement.

Sustainable Fisheries

MULTISPECIES MANAGEMENT

Helping fisheries managers build healthy stocks

Situation Alaska fisheries managers have a mandate to manage fisheries using the best available science. The public has become increasingly concerned about rockfish harvests along the U.S. West Coast. Rockfishes are very long-lived and aggregated in their distribution, making them vulnerable to overfishing. Rockfish surveys are highly variable, increasing concern about the potential for stock assessment errors.

Response Alaska Sea Grant is a leader in research that improves scientific understanding and management of important marine fisheries. Scientists Terrence Quinn and Lewis Haldorson, together with graduate student Dana Hanselman, did field studies and analysis of a commercially important rockfish species, Pacific ocean perch (POP), in the Gulf of Alaska.

Their study showed that alternative sampling strategies could lead to reductions in variability in surveys and assessments. One strategy is adaptive sampling, in which intense sampling takes place around areas of high rockfish abundance. Another strategy is to use hydroacoustic information to improve estimation.

Impacts

- 1 Their studies increased the confidence of the North Pacific Fishery Management Council about POP assessments. The research is one of the most extensive field studies ever conducted using adaptive sampling.
- 2 The project supported Dana Hanselman for his master’s and Ph.D. in fisheries. Partial support for Hanselman came from the NOAA/Sea Grant Population Dynamics Fellowship, in which Jon Heifetz of the NOAA Fisheries Auke Bay Lab acted as a mentor. After graduation Hanselman was hired by the Auke Bay Lab, where he now works to make additional improvements to rockfish stock assessment techniques and models.

Response Researchers Bill Smoker and Anthony Gharrett have engaged in a 20-year series of Alaska Sea Grant–funded studies on the effect of hybridization between locally adapted and translocated stocks of salmon. The genetic isolation barrier between pink salmon in Pillar Creek on Kodiak Island, and Auke Creek near Juneau, was removed by producing hybrids from Pillar Creek males and Auke Creek females. Controls were crosses between Auke Creek fish. The experiment was conducted on both broodlines—pink salmon have a two-year life cycle, and reproduce only once in their lifetime. The crosses were carried out for two generations.

Researchers conclude that translocation of salmon stocks can result in outbreeding depression and reduce survival of local natural spawning populations.

Impact These results provide a demonstration of the potential effects of stock translocations that will be referenced in Alaska Department of Fish and Game decisions on stock transfers.

Many graduate students have received degrees working on these projects. Most recently, the project supported master's students Ivan Wang, Sara Gilk, and Carrie Hoover, and doctoral student Dion Oxman, who is completing his degree work. Wang is employed by the Biology Department at the University of New Mexico. Gilk, Hoover, and Oxman are all employed by the Alaska Department of Fish and Game. We recommended Smoker and Gharrett's salmon hybridization studies to be considered a Best Management Practice.

Response Bruce Finney's Alaska Sea Grant research measured the concentration of marine nitrogen-15 released by decaying salmon and stored within layers of lake bottom sediments, as a way to accurately reconstruct sockeye salmon returns to Alaska river-lake systems extending back thousands of years. The research revealed that some Alaska freshwater systems once supported much larger salmon returns than current management plans allow.

Impact Research results have been incorporated into Alaska Department of Fish and Game's Karluk Lake salmon management plan, and have allowed managers to comfortably increase the escapement of salmon in a long-term plan to enlarge the salmon run to the benefit of commercial and subsistence fishermen.

The project supported master's student John Sweetman, who went on to work toward his Ph.D. at Canada's Queen's University in contaminant transport in salmon. Two papers from this research appeared in *Nature* and *Science*. This project also received wide state, national, and international media attention as a direct result of Alaska Sea Grant communication efforts.

Situation Many of Alaska's crab fisheries have been in decline for years due to overfishing and environmental change.

Response In March 2006, Alaska Sea Grant, together with multiple partners, held the Alaska Crab Enhancement and Rehabilitation Workshop in Kodiak, concurrent with ComFish, the state's largest annual commercial fishing trade show. The workshop gathered experts from around the world who spoke of their scientific and practical efforts to raise and reintroduce crab and lobster stocks into the wild in support of improved marine ecosystems and healthy commercial fisheries. Attendees represented the North Pacific Fishery Management Council, Alaska Department of Commerce, Community and Economic Development, Smithsonian

Estuarine Research Center, Northern Southeast Alaska Regional Aquaculture Association, Alaska Crab Coalition, Central Bering Sea Fishermen's Association, Trident Seafoods, and the Alaska Sea Grant Marine Advisory Program.

Impact The workshop raised awareness of the possibility of a successful crab enhancement program in Alaska. The workshop received widespread local, state, and trade media coverage.

The event has led to significant positive activities. Key among them is the Alaska Sea Grant effort, supported by the Alaska Governor's Office, to raise king crab at the state's Alutiiq Pride Shellfish Hatchery in Seward. Alaska Sea Grant is supporting undergraduate student Celeste Leroux in this pilot effort, and will support her graduate work as well. Kodiak Legislator Gary Stevens secured a \$75,000 grant to aid the hatchery in accommodating this research. In addition, Alaska Sea Grant is supporting Ph.D. student Sara Persselin as she continues her NOAA research on crab at the School of Fisheries and Ocean Sciences. Persselin worked under NOAA Fisheries researcher Brad Stevens, who pioneered efforts in Alaska to raise king crab.

Marine-derived nutrients and sockeye salmon

Situation Nutrients such as nitrogen, released into freshwater lakes and rivers by decomposing adult salmon carcasses, help nourish the next generation of salmon. But just how important are these nutrients, and how can fishery managers determine the optimum number of returning salmon to provide nutrients to freshwater systems?

Response Alaska Sea Grant-funded researchers Milo Adkison and Bruce Finney, and graduate student Tadayasu Uchiyama, studied the importance of salmon-derived nutrients in productivity in 46 Alaska lakes. They used data on the relationship between adult spawning salmon and the number of smolts to develop a model of the nutrients used in these systems. For ten lakes, present-day nutrient conditions were compared to records of long-term conditions to understand what these systems need for optimum nutrients and salmon production.

Impact Results are expected to help fishery managers adjust spawning goals to produce more salmon for both fishermen and the ecosystem.

Dungeness crab larvae in Glacier Bay

Situation Scientists have long believed that certain areas of the sea and coastal zone produce most of the fish in the ocean. The public is increasingly asking that critical habitat receive special protections to ensure the sustainability of commercial, sport, and subsistence fisheries and to maintain a healthy coastal ecosystem. One such area is Glacier Bay in Southeast Alaska, where multiagency studies are under way to determine whether the bay has been

effective as a marine reserve since receiving the classification in 1999.

Response Alaska Sea Grant–supported scientist Ginny Eckert of the University of Alaska Southeast and graduate student Heidi Herter studied whether Glacier Bay is important for the production of Dungeness crabs needed by nearby commercial fisheries. The study identified oceanographic features that contribute to the success or failure of crab settlement. One finding was that high tides transported significantly more late-stage crab larvae into nearshore habitats than low tides.

Impact This study is providing valuable information about Glacier Bay, one of the largest temperate marine reserves in the United States. It is also helping fishery managers understand and use marine reserves as a fishery management tool. Heidi Herter is nearing completion of her master’s degree and plans to defend her thesis in October 2006.

Life history of eulachon in Berners Bay

Situation Eulachon is a species of smelt that each year migrates in great numbers from the sea to freshwater to spawn. In Southeast Alaska’s Berners Bay, millions of returning eulachon attract hordes of marine mammals, seabirds, and fishermen. Coincidentally, hard-rock mining is proposed for the region, and some people believe that mining could degrade water quality in Berners Bay.

Response Alaska Sea Grant–funded scientist Nicola Hillgruber of the Fisheries Division, and graduate student Andrew Eller, studied the timing of emigration, duration of residence, and growth of larval eulachon in Berners Bay. The study found that smelt larvae primarily inhabited the surface layers of the river plume.

Impact The project filled essential information gaps in the early life history of eulachon, including age validation, growth rates, timing of emigration, and length of eulachon larvae residency in the estuary.

MARINE MAMMAL AND SEABIRD CONSERVATION

Understanding the decline of Steller sea lions

Situation Alaska’s western stock of Steller sea lions has declined by more than 80% since the 1970s and is currently listed as endangered. For nearly two decades, scientists have worked to understand the ecosystem that supports Steller sea lions.

Response One hypothesis to explain the decline of Alaska’s Western stock of Steller sea lions is that food limitation affected the health of sea lions and that local depletion of walleye pollock by commercial fishing was partly responsible for the decline and lack of recovery. Information on distribution of pollock abundance is limited, because the trawl survey only occurs in summer.

Alaska Sea Grant–funded researchers Terry Quinn and graduate student Brian Battaile used commercial fisheries data (1995–1999) to study in-season changes in pollock distribution. The first four years of data were collected when the fishery had limited regulations in place; 1999 had extensive regulations.

After data processing and standardization (resulting in two published papers), researchers found that local pollock depletion does occur during the fishing season and that depletion can be quickly replaced by immigration.

Impact The results directly apply to current discussions on sea lion recovery by NOAA Fisheries and the North Pacific Fishery Management Council. A paper with these results is in press with *Natural Resource Modeling* and is likely to be a much-cited work on this topic. This research supported Brian Battaile for his Ph.D. in fisheries. Battaile has a postdoctoral position at the University of British Columbia.

Response Alaska Sea Grant Marine Mammal Specialist Kate Wynne has aided the efforts of many scientists in their Steller sea lion research while also pursuing her own research and extension on this issue. Working with partners at the University of Alaska Fairbanks, NOAA Fisheries, the Alaska Department of Fish and Game, and others, Wynne has run the university-federal-state study called the Gulf Apex Predator-Prey Project (GAP). The goal of this study is to document trophic relationships among Steller sea lions and their prey and predators in waters around Kodiak Island. With NOAA support of nearly \$5 million since 2000, GAP has collected information on prey use, quality, and availability that is critical to commercial fishery conservation actions.

Impact The highly integrated studies have helped scientists and residents better understand the marine ecosystem and yielded information about sea lions, whales, and seabirds. Preliminary results suggest that food may not be limiting populations of apex predators in the Kodiak region. This information was published in our workshop proceedings, *Steller Sea Lion Decline: Is It Food II*, and presented to a National Research Council sea lion panel and the NOAA Steller Sea Lion Mitigation Committee.

Ten graduate students benefited from financial or logistical support on the GAP project as they conducted graduate research at the University of Alaska Fairbanks—eight master’s and two Ph.D. students.

Response As a member of the NOAA Steller Sea Lion Recovery Team, Kate Wynne worked for four years to draft a recovery plan.

Impact The recovery plan was submitted in spring 2006 to NOAA Fisheries. The plan outlines measures and research needed to help Steller sea lions recover from Endangered status.

Seabird deterrent gear for small longline vessels

Situation From 1993 to 2001, Alaska longline fishermen accidentally caught an average of 15,000 seabirds each year. Most seabirds were northern fulmars and gulls, but also caught were highly endangered short-tailed albatross. Catching just four short-tailed albatross in any two-year period would result in the automatic closure of the fishery. New federal regulations require longline vessels to use seabird deterrent strategies. Most common are streamer lines that flap over the deployed longline and prevent birds from reaching sinking baited hooks. Streamer lines are 100% effective when used correctly.

Response With a \$170,000 grant from the U.S. Fish and Wildlife Service, Alaska Sea Grant's Torie Baker and Sunny Rice in 2003 and 2004 undertook a research project with small longline vessels fishing in Southeast Alaska, Prince William Sound, and off Kodiak Island. Following on earlier work by Washington Sea Grant's Ed Melvin, and partnering with Cordova District Fishermen United, Rice and Baker worked with fishermen to develop and test seabird deterrent gear for smaller longline vessels. Melvin and Marine Advisory Program Media Specialist Deborah Mercy produced a video/DVD that explains the federal seabird avoidance requirement, and shows how to use streamers effectively. Rice currently provides free streamer lines to fishermen around the state and has developed an outreach Web site (seagrant.uaf.edu/map/Seabird) and flyers to spread the word.

Impact Lighter weight streamer lines were made available to small boat fishermen at no cost. In all, 362 pairs of lightweight streamers have been sent out from the Pacific States Marine Fisheries Commission to individuals and distribution points in Alaska. Rice and Baker have presented the results of their streamer line research and outreach program in several forums, including a recent National Sea Grant Beltway Brown Bag in Washington, D.C., and at the North Pacific Fishery Management Council meeting in Kodiak.

We recommend that this research model be considered a Best Management Practice.

"The streamer lines that we deploy over our baited hooks are extremely effective. We've reduced our incidental take of seabirds eightfold, and have not taken any short-tailed albatross since 1998." —Thorn Smith, director, North Pacific Longline Association.

"Seabird bycatch has dropped . . . primarily due to the voluntary adoption of paired streamer lines by the freezer-longliner fleet in 2002 after a Washington Sea Grant study showed they were the most effective seabird deterrent. Paired streamer lines are now required for all vessels over 55 feet. Prior to their use, the average annual bycatch of seabirds in the combined Alaskan demersal groundfish fleet was 15,888 birds. Since then the average has been 4,910, a reduction of 70%." —Shannon Fitzgerald, NOAA AFSC Quarterly Report, Jan.–Mar. 2006.

Humpback whale entanglements in fishing gear

Situation Humpback whales in Southeast Alaska increasingly share their environment with large cruise ships, fishermen, recreational boats, and float-equipped airplanes. An increasing number of humpback whales has been reported entangled in commercial fishing gear.

Response In 2003, Alaska Sea Grant supported graduate student Janet Doherty with tuition as she worked with the National Park Service to photograph humpback whales in Glacier Bay National Park, one of the nation's most treasured places. In 2004, we joined with the National Park Service to fully fund Doherty's research, with Sue Hills of the School of Fisheries and Ocean Sciences and Jan Straley of the University of Alaska Southeast. Doherty found the rate of nonlethal entanglement to be proportional to the rate in the Gulf of Maine, where the whale-fisheries interaction is a substantial management concern.

Impact Doherty's photos established a baseline to identify individual whales and look for scars from entanglement in fishing gear. The study has raised awareness among fishermen, resource managers, and the public to an issue not previously thought to be of concern. It has prompted the National Park Service to consider mitigation. Doherty's data also will be used in a ten-nation study run by NOAA to assess the abundance and health of humpbacks throughout the Pacific. Doherty continues her work on this issue with the National Park Service.

Response Marine Mammal Specialist Kate Wynne is one of a handful of Alaskans to be trained and authorized by NOAA Fisheries to disentangle whales.

Impact Since 2001 Wynne has been called on to disentangle three humpback whales from fishing gear, two of which were successfully released from life-threatening entrapment. In addition, the Marine Advisory Program supported a series of lectures on marine mammal interactions with Alaska fisheries, by Jan Straley and Kate Wynne in Anchorage, Homer, and Kodiak in spring 2006.

ECOSYSTEMS AND HABITATS**Commercially important fishes in kelp beds**

Situation Little is known about the importance of large marine seaweed, including kelp, as habitat for commercially caught fishes in Alaska.

Response Alaska Sea Grant-funded researcher Brenda Konar and master's student Judy Hamilton examined the use of canopy-forming and understory kelp beds by juvenile and adult fish to determine habitat preferences, and followed seasonal changes in kelp cover and fish assemblages over one year. Hexagrammids existed year-round in the more complex beds and most often with higher temperatures and denser annual kelp. Most other fishes were transient.

Impact This study yielded information valuable to fishery managers in their goal of protecting important fish nurseries. The study also provided baseline information important to understanding the role of nearshore kelp beds in sustaining diverse, productive marine ecosystems. Judy Hamilton graduated in 2005 and now works as a marine biologist for the Kachemak Bay National Estuarine Research Reserve.

Marine Literacy

Alaska Resources Issues Forum

Situation Alaska needed a forum to bring together knowledgeable people to discuss and debate environmental issues as a way to encourage public involvement and knowledge of pressing issues, and to show varied opinions.

Response Since 1986, Marine Advisory Conservation Specialist Rick Steiner has produced 21 Alaska Resource Issues Forum television programs. The program has brought together key people involved in the controversial environmental issues of the day, from wolf control to salmon farming to development of the Arctic National Wildlife Refuge. Since 2001, six programs have aired on the Alaska Public Television Network to a viewership estimated at 30,000–50,000.

Impact The 2001 program, Conservation and Development: The Alaska Dilemma, was included in the curriculum for the Anchorage School District's Alaska Studies Program. Distributed to policy-makers, legislators, administrators, and interested public, the program enables better decisions and more informed opinions among users.

The Bering Sea and Aleutian Islands

Situation Alaska waters yield about half of the U.S. annual commercial fisheries harvest and most of that comes from Bering Sea and Aleutian waters. Thousands of Native people in Bering Sea coastal communities in Alaska and Russia depend on the bounty of the sea. The shallow and often stormy waters provide shipping routes between the United States and Asian trading partners. But few people know much about this remarkable and critically important region.

Response The idea for a book about the Bering Sea was suggested in the early 1990s by Marine Advisory Conservation Specialist Rick Steiner, who recognized the increasing threats to the ecosystem and believed the time had come to educate the public about this part of the world.

A few years later Kurt Byers was awarded a grant (\$131,000) from the North Pacific Marine Research program (NPMR) to create a radio series and book, *The Bering Sea and Aleutian Islands: Region of Wonders*. The two products would highlight information generated by NPMR researchers, while educating the public.

This unique book is a comprehensive guide to the Bering Sea and Aleutian Islands. Marine Advisory Agent

Terry Johnson wrote the text with help from Byers and Doug Schneider. Schneider produced nine radio stories about NPMR research, and made them part of our award-winning Arctic Science Journeys. The radio stories are on an audio CD packaged with the book.

Impact Since the Bering Sea book was published in 2003, we have distributed 1,550 copies, and it has won four national awards for graphic design and content. This book also spurred recognition of production staff who won the Outstanding Professional Skill Award in 2005 for overall excellence in publishing, the “best of the best” award given by the Association for Communication Excellence, an international professional association of university and private enterprise communicators.

“It succeeds in ‘throwing open the doors to the Bering Sea and Aleutian Islands . . . so the public can explore the region and gain a better understanding of it,’ the book’s stated purpose. Its thoughtful design enhances the editorial content on every page.” —Association for Communication Excellence judge, in Gold Award critique.

Life on the Beach video/DVD

Situation For children, early exposure to marine life on the beach can instill a lifelong interest in science and nature. But the allure can lead to destruction of habitat when people visit beaches and do not know how to minimize their negative impact.

Response Education Services partnered with the Center for Alaskan Coastal Studies in Homer, in consultation with the National Marine Fisheries Service in Kodiak, and with funding from the Alaska Conservation Foundation, to produce a video about life on Alaska’s rocky intertidal beaches. The video describes commonly encountered animals and algae, and how they fit into the ecosystems, including adaptive strategies and predator-prey relationships. We provide tips on how people can protect beaches as they explore them, and highlight a subsistence harvest tradition that has existed for thousands of years. The video includes a printed teacher guide with classroom activities.

Impacts

- 1 Since it became available in summer 2004 we have sold 380 copies. Key buyers include the Alaska Natural History Association, a group that supplies Alaska’s state and national park gift shops; and the Alaska Maritime National Wildlife Refuge Visitor Center.
- 2 The video was shown statewide on the Alaska Public Television Network.
- 3 The video won First Place, Educational Program, in the awards competition sponsored by the National Association of Government Communicators.

“We use the video as a supplement to our field-based Alaska Coastal Ecology program at the Peterson Bay Coastal Science Field Station. In spring 2006 the audience for this was 20–25 teachers and 650–700 students from 14 different schools in 12

Alaska communities. The teachers say that it is an excellent introduction to the concepts that we instruct in the field. I have also loaned the video to local kayak guiding businesses for naturalist trainings and reinforcement of beach etiquette messages for guiding groups during tidepooling at low tides.”

—Marilyn Sigman, Director, Center for Alaskan Coastal Studies.

Community-Based Science

Traditional knowledge and whitefish

Situation Whitefish are an important subsistence food for many rural Alaskans. Alaska has eight species of whitefish, from the large sheefish, which can weigh 60 pounds, to the pygmy whitefish, which weighs just a few ounces. As a group, whitefish are not well understood by fisheries managers. However, Alaska’s Native people know a great deal about whitefish, and Alaska Sea Grant–supported scientists have tapped into that knowledge.

Response Alaska Sea Grant–funded researcher Gordon Haas from the University of Alaska Fairbanks Fisheries Division, and master’s student David Runfola, collaborated with Native subsistence fishermen on the Yukon River delta to gather local traditional knowledge of whitefish. Runfola interviewed seven individuals and spent time in the field with some of them. Interviewees provided insights into biology and life history for whitefish and other fish, and they described traditional harvest strategies and management of local fisheries.

Impact In the near-term, the information will be used in designing data collection methods for the upcoming field season. David Runfola presented a poster summarizing his research at the 2004 American Fisheries Society Alaska Chapter annual meeting in Sitka.

Residents help collect marine mammal data

Situation Extreme weather, difficult access to remote coastal habitats, the wide-ranging habits of individual animals, the seasonal nature of research, and limited funding, all contribute to a void in scientific data on endangered Steller sea lions, whales, and seals.

Response Kodiak-based Alaska Sea Grant Marine Mammal Specialist Kate Wynne launched Sightings and Samples, a community-based effort that involved Native hunters, fishermen, air taxi pilots, beachcombers, and wildlife law enforcement in the collection of data.

Impact Participants gained an understanding of the scientific basis behind local resource management, while scientists gained a deeper appreciation for citizen-community participation. During 2002–2004, a total of 194 sightings of six cetacean and two pinniped species were reported by 26 volunteers. Location and other data were included in the Opportunistic Sightings database maintained by University of Alaska Fairbanks whale researchers in Kodiak. Valuable data from 21 carcasses were provided to the NOAA Alaska Region Marine Mammal Stranding Network.

PUBLIC HEALTH AND COASTAL HAZARDS

Oil spill prevention and response

Situation Oil spills continue to occur in Alaska, the nation, and throughout the world. In Alaska, the Malaysian-flagged bulk carrier *Selendang Ayu* broke apart on December 8, 2004 in a remote Aleutian island bay near Unalaska. The accident killed six of the ship’s crew, and spilled more than 325,000 gallons of fuel oil, the largest spill in Alaska since the 11 million gallon *Exxon Valdez* oil spill in 1989. The wreck also released 65,000 tons of soybeans, the ship’s cargo. The *Selendang Ayu* spill exposed the human and environmental dangers faced by the more than 3,000 ships per year that ply the Great Circle Route through the Aleutian Islands to and from Asia.

Response As the only University of Alaska marine biologist resident in the area, Marine Advisory Agent Reid Brewer became the liaison among community, state, and federal response agencies. He participated in damage assessments through beach surveys and subsistence resource inventories. Eight months later, Brewer organized the first Aleutian Life Forum on the oil spill; the forum was funded in part by Alaska Sea Grant rapid response funds.

Impact The U.S. Coast Guard described Brewer’s efforts as some of the best communication between community residents and the Unified Command. The Aleutian Life Forum brought together 33 scientists and responders to the community to discuss the lessons learned from the spill. About 100 people attended the forum. In June 2006, we published the proceedings of the conference, *The Selendang Ayu Oil Spill: Lessons Learned*, and thus far it has been distributed to 200 people. A second Aleutian Life Forum is scheduled for August 2006, to focus on developing a community-based ecosystem monitoring program in the Aleutian Islands.

Response Marine Advisory Conservation Specialist Rick Steiner partnered with the Alaska Oceans Program to found the Shipping Safety Partnership (SSP), a multi-stakeholder coalition of Alaska Natives, commercial fishermen, conservationists, and businesses working to improve vessel safety and environmental stewardship throughout the North Pacific.

Impacts

- 1 Steiner, working within SSP and the Marine Advisory Program, met with and urged Alaska U.S. Senator Ted Stevens to introduce measures to reinstate the federal Oil Spill Liability Trust Fund that ended in 1996. The fund, created with proceeds from a 5-cent tax on each barrel of imported oil, was reinstated in April 2006 and will maintain a balance of \$2.7 billion. Funds raised will bolster oil spill cleanup and prevention efforts around the country.
- 2 The SSP, through Steiner’s leadership, urged state and

federal governments to conduct an Aleutian Island Vessel Traffic Risk Assessment. The Alaska Legislature appropriated \$250,000 for the risk assessment.

Response Steiner, with funding from Alaska Sea Grant, the United Nations, and several nongovernmental organizations made numerous trips and consulted with governments of Pakistan, India, Russia, Kazakhstan, Azerbaijan, Mauritania, Nigeria, Japan, South Korea, and Kenya, at their request. Steiner served as the chief technical advisor to the Pakistan government for its National Resource Damage Assessment (NRDA) program following the 2003 *Tasman Spirit* oil spill in the Arabian Sea. This was the first comprehensive NRDA program conducted in a developing country, and it has provided a model that the United Nations has used globally.

Impact Steiner coauthored the oil spill impact assessment report on the *Tasman Spirit*. The report detailed steps that could be taken to restore damaged habitats and ecosystems, and to develop new laws to prevent, respond, and hold people accountable for future spills. Pakistan's minister of environment, Major Tahir Iqbal, presented Steiner with a certificate of appreciation and a plaque on behalf of the Pakistani government and the United Nations.

"Rick Steiner was of great assistance to both the World Conservation Union and the government of Pakistan. He was part of the team that included the government, the United Nations, and the World Conservation Union to undertake the initial damage assessment for the disaster."—Ali Raza Rizvi, World Conservation Union, Karachi, Pakistan.

Coping with a harmful marine disease outbreak

Situation Unusually warm ocean waters in summer 2004 triggered Alaska's first outbreak of *Vibrio parahaemolyticus* (*Vp*), a naturally occurring bacterium that is the leading cause of seafood illness in the United States. *Vp* had never been found in Alaska shellfish because cold waters inhibit the marine bacteria. The bacterium is more commonly found in the much warmer Gulf of Mexico. However, the 2004 outbreak was the third largest in U.S. history in terms of people getting sick, and 1,500 times more virulent than strains common to Puget Sound, Washington. The unprecedented outbreak came on the heels of dramatically warmer coastal Alaska waters, and infected farmed oysters primarily in Prince William Sound. About 62 people who consumed Alaska-grown oysters were diagnosed with severe gastrointestinal illness. The incident caused alarm in the shellfish industry and required immediate action.

Response With funding from Alaska Sea Grant, Marine Advisory Aquaculture Specialist Ray RaLonde purchased and immediately set up a network of temperature data loggers in deep (70–100 feet) and shallow water on farms across the state as a way to detect ocean conditions that could indicate the presence of *Vp*. RaLonde also advised farmers to sink their product into colder waters where *Vp*

would be unable to thrive. RaLonde was interviewed for local, state, and national newspaper and radio stories on the subject.

Impacts

- 1 While farms were temporarily prevented from marketing product, the movement of shellfish to deeper waters prevented an economic catastrophe for the state's shellfish farms. Continuous ocean temperature monitoring enabled farmers to maintain their product in cold waters, and provided a data set for a planned research project.
- 2 The state-federal study of the people who became ill was published in the *New England Journal of Medicine* (353:1463-1470, 2005). The investigation confirmed *Vp* as the cause of the illness. Importantly, the confirmation extended by 1,000 km the northernmost site where oysters have caused illness due to *Vp*.
- 4 The following year, RaLonde led a study to prove the effectiveness of keeping shellfish at depth to avoid contact with *Vp*. RaLonde leveraged \$3,200 from Alaska Sea Grant and the Marine Advisory Program into an additional \$12,000 from the Alaska Department of Environmental Conservation and the University of Alaska President's Fund to test shellfish for *Vp*. Shellfish harvested from deep waters on farms were compared with shellfish in warmer surface waters. Information from the data loggers installed the year before was instrumental in establishing study parameters and tracking temperature trends throughout the study. Eight shellfish farms took part in the study. Test results show that shellfish at depth had *Vp* levels approximately one-tenth those at the surface. The effort validated the importance of keeping shellfish in deep cold water to avoid contact with *Vp*. The practice is now standard operating procedure for Alaska shellfish farms.

"The *Vp* outbreak in Alaska was totally unanticipated and presented an unprecedented public health challenge to the industry and regulatory agencies. Ray RaLonde identified a practical solution of sinking oysters below the thermocline, persuaded the industry and DEC to adopt this approach and assembled a team of scientists to evaluate the effectiveness of this approach within a single year. This is probably the best model of developing a timely proactive approach to address an emerging pathogen issue to date in the National Shellfish Sanitation Program."—Dr. Angelo Depaola, research microbiologist, Food and Drug Administration Gulf Coast Seafood Laboratory, Dauphin Island, Alabama.

Response Also in 2005, RaLonde led a study with multiple investigators to survey coastal waters to determine how pervasive *Vp* had become. Shellfish, algae, sediments, even sea otter fecal material were tested. Key partners in the study were the Food and Drug Administration's Gulf Coast Seafood Laboratory, U.S. Forest Service, Alaska SeaLife Center, and the Alaska Department of Fish and Game. Results showed that *Vp* had become well established throughout Prince William Sound. Scientists also

discovered the presence of another *Vp* strain in Southeast Alaska waters.

Impact We now know that yearly monitoring is needed to prevent *Vp* outbreaks. As a direct result of Alaska Sea Grant activities in this area, the U.S. Department of Agriculture awarded \$168,000 through its Cooperative States Research Education and Extension program to microbiologist Brian Himelbloom at the Fishery Industrial Technology Center. The funds have allowed Himelbloom to upgrade his laboratory facilities to conduct genetic testing via PCR (polymerase chain reaction), needed to identify and quantify strains of *Vp*. This grant gives researchers in Alaska the ability to conduct analyses that previously could only be done outside the state by the Food and Drug Administration.

Paralytic shellfish poison

Situation Paralytic shellfish poison (PSP) is a significant threat in Alaska. It affects recreational, subsistence, and commercial harvests of seafood, and impacts the economy of the state in terms of lost revenue for commercial harvests, health care costs, and reduced spending by recreational users. Each year, people become ill after eating PSP-infected shellfish collected by recreational and subsistence users from untested beaches. Occasionally people have died after eating PSP-contaminated seafood.

Response Alaska Sea Grant's involvement with PSP research extends back to 1993, when molecular geneticist Gerald Plumley, of the University of Alaska Fairbanks Institute of Marine Science, launched a decade-long effort to identify and characterize the genes involved in the production of saxitoxin, the etiological agent of paralytic shellfish poisoning.

Impacts Major accomplishments include

- 1 Providing strong evidence that bacteria associated with saxitoxin-producing strains of *Alexandrium lusitanicum* do not synthesize saxitoxins;
- 2 Development of Tn5 mutagenesis strategy for a bacterium, *Pseudomonas stutzeri*, that may form symbiotic associations with *Alexandrium lusitanicum*;
- 3 Identification of a histidine kinase gene in *Pseudomonas stutzeri* that plays a role in antibiotic sensitivity and in regulating growth when co-cultured with *Alexandrium lusitanicum*;
- 4 Development of methods for growing saxitoxin-producing strains of cyanobacteria, extracting DNA, and development of DNA libraries for genome mapping to identify the genes involved in saxitoxin synthesis;
- 5 Graduation of master's students Andrew Krohn, Julie Matweyou, and Tracie Toivanen.

Response Concurrent with efforts to unravel the genetic mysteries of PSP, researchers led by Ray RaLonde of the

Marine Advisory Program have since 2001 been assisting Jellett Biotek Ltd. of Nova Scotia, Canada, in field tests of their MIST[®] rapid PSP test kit, a test that is faster, safer, and more reliable than the 24-hour mouse test. The Jellett test kit was developed in collaboration with the National Research Council of Canada, Institute for Marine Biosciences. The test kit is designed for use in the laboratory to quickly test for the presence of the marine saxitoxin that causes PSP, but can be readily used in the field, for testing subsistence or recreationally gathered shellfish.

Impact Participation by researchers, including microbiologist Brian Himelbloom, have led to improvements in the test kit. The Jellett MIST[®] test kit has been approved for use in the United States since 2004, and remains the first and only animal-friendly rapid test for a marine biotoxin.

Sea ice biota off Barrow, Alaska

Situation The annual explosion of sea ice–dependent algal growth in the Arctic Ocean fuels a food web that is both complex and fragile. The food web may change in face of climate warming that has dramatically reduced sea ice cover over much of the Arctic. Before the ice disappears altogether, Alaska Sea Grant–supported scientists are learning as much as they can about the role of coastal ice in nurturing marine life along Alaska's arctic coast. It's believed that sea ice supplies algae with nutrients, and the habitat (a thin layer of low-salinity surface water) that sustains the region's amphipods, fish, seals, and polar bears.

Response Researchers Rolf Gradinger, Bodil Bluhm, and graduate student Mette Nielson, of the University of Alaska Fairbanks Institute of Marine Science, collected amphipods and algae off the coast of Barrow. They traced carbon-13 and nitrogen-15 in amphipods and their food sources.

Their findings confirm the importance of sea ice and that the sea ice role in the nutrient balance is declining, something that may lead to the unraveling of the arctic food web. The researchers worked closely with Alaska Native residents of the arctic coast and other scientists working in the region, delivering presentations on their work and forming collaborations with residents and other scientists. In turn, the scientists gained insight into the region's traditional knowledge.

Impact This knowledge is proving useful as researchers and coastal communities want to improve predictions of how the environment may change with warming trends.

14 Success in Achieving Planned Outcomes

This program review covers a period of important transition in both leadership and activities within Alaska Sea Grant. Most of the projects funded since 2001 occurred under two strategic plans. Newly funded projects (2006–2008) are under the current 2004–2010 Strategic Plan. Changes in management and researchers did occur,

with some investigators moving on to other universities. In some cases, the researcher continued the proposed research from their new location or the proposed work continued in Alaska with junior researchers. We accomplished a positive shift with Education Services increasing marketing and visibility efforts.

Overall goals and objectives were met as outlined in the respective implementation plans that are provided on the enclosed CD. For the period 2002–2004, 88% of the projects achieved stated objectives. For the period 2004–2006, 100% of the 29 objectives were achieved as outlined in the implementation plan. Success can also be measured as stakeholders served, media stories and interviews, Web site visits and downloads, students educated, research projects managed, presentations made, outreach and scientific publications, and awards, among others. Evidence of the high productivity of Alaska Sea Grant in these areas appears elsewhere in this briefing book.

Although it is premature to assess successful outcomes for the present funding cycle (2006–2008), an exception to that would be S. Sathivel's project to develop microencapsulated salmon powder for nutraceutical markets. Interest has already been expressed by a food processor and the

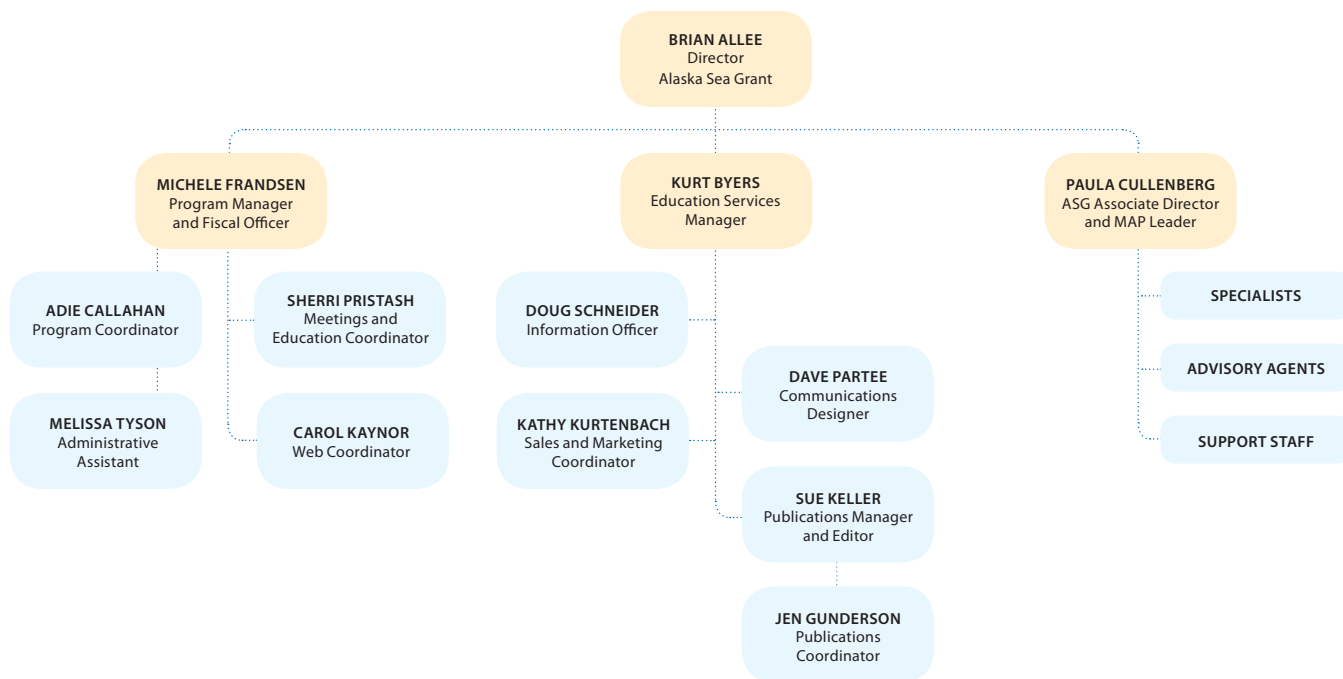
researcher is currently processing the powder.

Now that we have established a Management Team and Advisory Committee and developed a new strategic plan and implementation plan, we have a mechanism to evaluate success on planned outcomes. The Management Team will monitor thematic changes within NOAA and National Sea Grant, and will reflect those changes, as appropriate, in updates to our 2004–2010 Strategic Plan, as it is a living document.

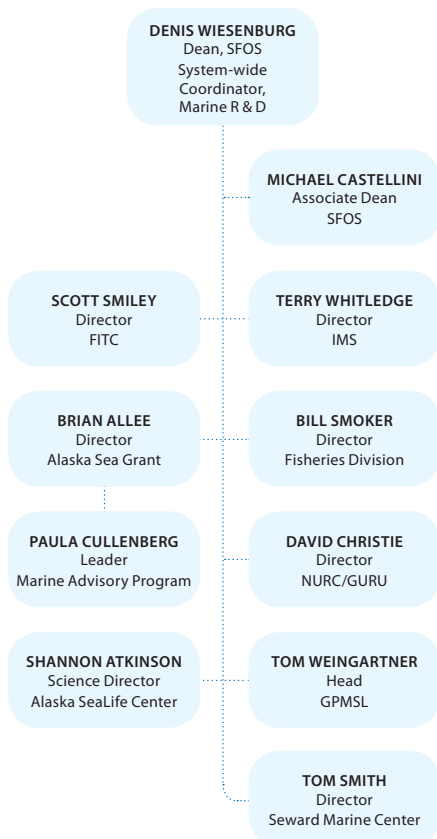
Continued input will be received from our Advisory Committee, surveys of constituents, community meetings in association with local events, marine science conferences, and annual staff retreats as described in Appendix 11, Planning and Implementation Model. Relationships we maintain with resource management agencies, research bodies, educational entities, Native organizations, industry members, and others will continuously provide insights on where we should apply our efforts and will influence how we update our strategy.

As a final note, we look forward to the enumeration of management-critical research priorities resulting from the Alaska Regional Marine Research Plan effort funded by the National Sea Grant Office.

Alaska Sea Grant Organizational Chart



SFOS ORGANIZATIONAL CHART

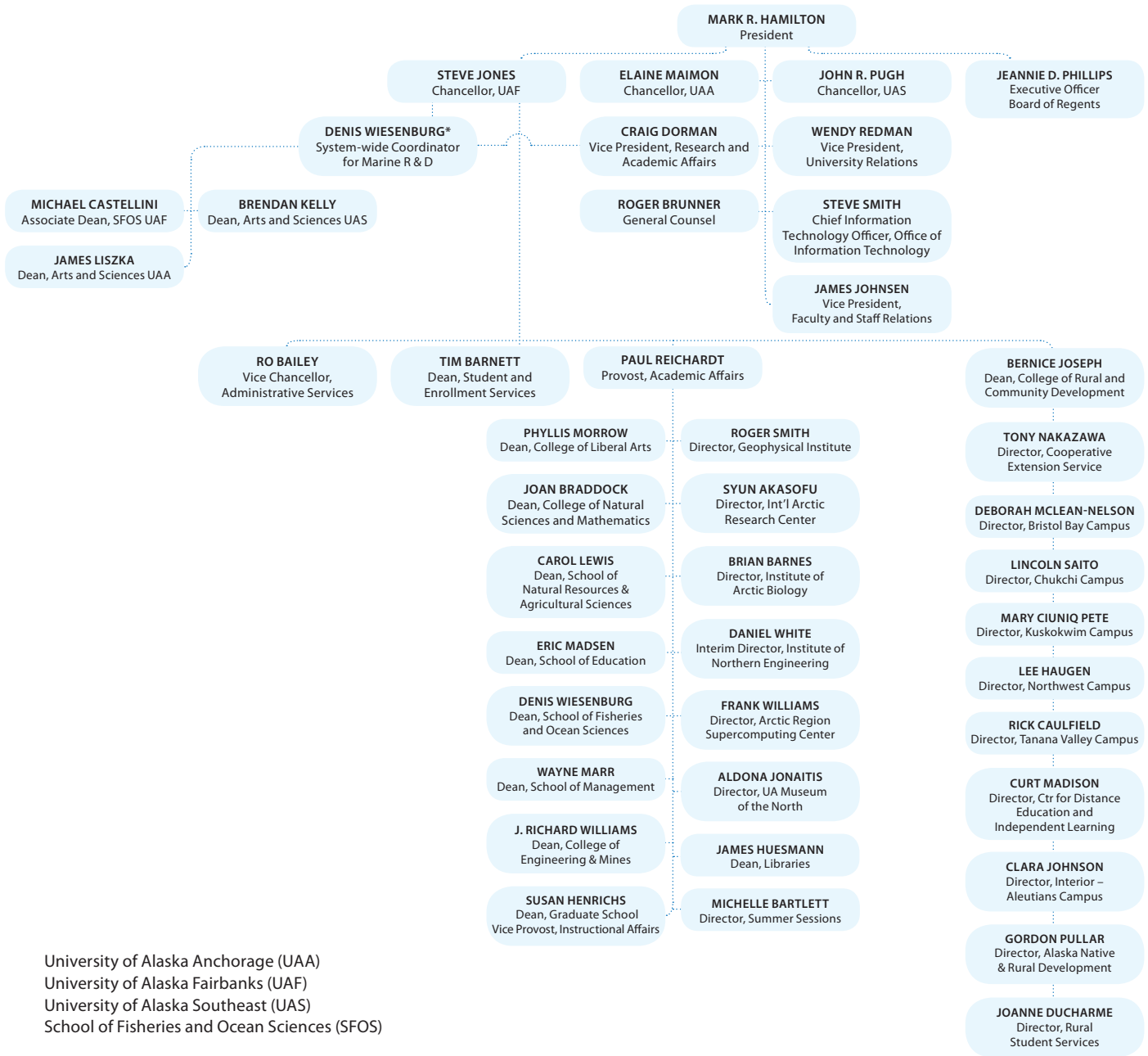


Alaska Sea Grant Management Team

UNITS

- Alaska Sea Grant (ASG)
- Alaska SeaLife Center
- Fisheries Division
- Fishery Industrial Technology Center (FITC)
- Graduate Program in Marine Science and Limnology (GPMSL)
- Institute of Marine Science (IMS)
- Marine Advisory Program (MAP)
- National Undersea Research Center/Global Undersea Research Unit (NURC/GURU)
- School of Fisheries and Ocean Sciences (SFOS)
- Seward Marine Center

University of Alaska Organizational Chart



University of Alaska Anchorage (UAA)
 University of Alaska Fairbanks (UAF)
 University of Alaska Southeast (UAS)
 School of Fisheries and Ocean Sciences (SFOS)

* Alaska Sea Grant Director Brian Allee reports to Denis Wiesenburg

APPENDIX 3

**Alaska Sea Grant Marine Advisory
Program Faculty, 2006**

Faculty	Location	Rank	Years of extension service
Torie Baker	Cordova	Research Assistant Professor	3
Reid Brewer	Unalaska	Research Assistant Professor	2
Liz Brown	Dillingham	Assistant Professor	3
Chuck Crapo	Kodiak	Professor	23
Paula Cullenberg	Anchorage	Professor	10
Quentin Fong	Kodiak	Associate Professor	7
Dolly Garza	Ketchikan	Professor	23
Terry Johnson	Homer	Professor	15
Don Kramer	Anchorage	Professor	26
Ray RaLonde	Anchorage	Professor	15
Terry Reeve	Bethel	Assistant Professor	2
Sunny Rice	Petersburg	Research Assistant Professor	8
Rick Steiner	Anchorage	Professor	26
Kate Wynne	Kodiak	Professor	18

APPENDIX 4

Advisory Committee

Subcommittee	Name, title, organization	State Government	Federal Government	Nongovernment Organization	Elected Official	Community Development	Education	Fishing/Seafood Industry	Forestry	Aquaculture	Mining	Native Interests	Subsistence Users	Oil and Gas Development	Environmental Conservation	Research Institution	Tourism/Recreation	Southeast Alaska	Southcentral Alaska	Southwest Alaska	Northeast Alaska	Interior Alaska	North Slope of Alaska
	James Balsiger, Ph.D. <i>Administrator, Alaska Region, National Marine Fisheries Service</i>		•															•	•	•	•	•	•
	Marcia Blaszak <i>Regional Director, National Park Service</i>		•															•	•	•	•	•	•
F	Steve Borell, PE <i>Executive Director, Alaska Miners Association</i>										•							•	•	•	•	•	•
S	Dorothy Childers <i>Program Director, Alaska Marine Conservation Council</i>			•											•			•	•	•	•	•	•
S	Peggy Cowan <i>Superintendent, Juneau Borough Schools</i>					•												•					
	Pete Esquiro <i>Executive Director, Northern Southeast Regional Aquaculture Association</i>						•			•								•					
S	Mark Fina, Ph.D. <i>Senior Economist, North Pacific Fishery Management Council</i>		•															•	•	•	•	•	•
	Terry Gardiner <i>Consultant</i>						•											•	•				
	John Goering, Ph.D. <i>Professor Emeritus, University of Alaska Fairbanks</i>						•															•	
F	Rick Harris <i>Executive Vice President, Sealaska Corporation</i>								•									•					
	Frank Hill <i>Co-Director, Alaska Rural Systemic Initiative</i>					•						•						•	•	•	•	•	•
S	Dan Hull <i>Leader, Groundfish Division, Cordova Fishermen United</i>							•											•				
	Lt. Alan McCabe <i>U.S. Coast Guard, Juneau</i>		•															•	•	•	•	•	•
	Molly McCammon <i>Executive Director, Alaska Ocean Observing System</i>			•														•	•	•	•	•	•
	Thomas Melius <i>Regional Director, U.S. Fish and Wildlife Service</i>		•															•	•	•	•	•	•
	Henry Mitchell <i>Fisheries Consultant</i>							•											•	•	•	•	•
F	Tony Nakazawa, Ph.D. <i>Director, Cooperative Extension Service, University of Alaska Fairbanks</i>					•												•	•	•	•	•	•
S	Art Nelson <i>Chairman, Alaska Board of Fisheries</i>							•										•	•	•	•	•	•
	Daniel O'Hara <i>Chair, Bristol Bay Region, Fish and Wildlife Advisory Committee</i>		•									•	•					•	•	•			
	Mary Pete <i>Director, University of Alaska Fairbanks Kuskokwim Campus</i>					•						•	•					•	•	•	•	•	•
	Ralph Seekins <i>Alaska State Senator</i>	•		•																		•	
	John Shively <i>Vice President for Government and Community Relations, Holland America</i>																•	•	•	•	•	•	•
	Orson Smith, PE, Ph.D. <i>Ocean Engineering Associate Professor, University of Alaska Anchorage</i>						•									•		•	•	•	•	•	•
S	Jeff Stephan (Advisory Committee Chair) <i>Manager, United Fishermen's Marketing Association</i>					•	•											•	•	•			
	Stan Stephens <i>President, Stan Stephens Glacier and Wildlife Cruises</i>																•					•	
F	Bill Streever, Ph.D. <i>Environmental Studies Leader, BP Exploration</i>													•					•				•
	Arliss Sturgulewski <i>Swalling and Associates, CP</i>			•	•													•	•	•	•	•	•

F = Funding, S = Strategic Planning

APPENDIX 5

Management Team and Advisory Program Full Time Equivalent and Funding Sources Dedicated to Sea Grant

	Sea Grant		State funds through School of Fisheries and Ocean Sciences	External grants and funds
	Sea Grant federal funding	State matching funds		
Management Team				
Brian Allee, director	0.10	0.25	0.5	0.15
* Paula Cullenberg, associate director	0.17	0.42	0.21	0.12
Kurt Byers	0.15	0.50	0.05	0.30
Michele Frandsen	0.40	0.40	0.2	
Advisory faculty				
* Torie Baker	0.67		0.08	0.08
* Reid Brewer	0.76		0.08	0.08
Liz Brown	0.17	0.33	0.28	0.22
* Chuck Crapo	0.06	0.06	0.38	
* Quentin Fong	0.06	0.06	0.38	
* Dolly Garza	0.13	0.04	0.08	0.08
* Terry Johnson	0.12	0.21	0.51	0.08
Don Kramer	0.08	0.17	0.58	0.17
Ray RaLonde	0.21	0.30	0.38	0.11
Terry Reeve	0.17	0.13	0.45	0.25
* Sunny Rice	0.67		0.08	0.08
* Rick Steiner	0.08	0.08	0.67	
Kate Wynne	0.17	0.17	0.54	0.12

* Not on 12 month contract

APPENDIX 6

National Competition Funding— National Strategic Initiatives, Fellowships, Enhancements, and Pass-Through Awards

Funding area	Year 1 (98–99)	Year 2 (99–00)	Year 3 (00–01)	Year 4 (01–02)	Year 5 (02–03)	Year 6 (03–04)	Year 7 (04–05)	Year 8 (05–06)
North Pacific Observer Training Center	388,900	404,000	373,300	402,800	617,500	755,060	752,400	702,300
Invasive Species	92,405							
OAR/NSG Steller Sea Lion Outreach					475,000			
Population Dynamics Fellowship			38,000	38,000	38,000			
Coastal Communities Development					50,000			
Fisheries Extension Enhancement					15,000		198,692	198,692
Minority Serving Institutions				100,000	95,550			
Total number of projects	2	1	2	3	6	1	2	2

APPENDIX 7

Distribution of Core Federal and Matching Funds among Program Areas

Funding sources			Distribution of funds											
Year	SG	Match	Research		Extension		Education		Program development and rapid response		Communications		Administration	
			SG	Match	SG	Match	SG	Match	SG	Match	SG	Match	SG	Match
1	(98–99)	1,314,676	734,620	449,013	93,253	431,672	271,599	144,843		43,412	150,715	228,984	95,021	140,784
2	(99–00)	1,404,013	707,184	342,446	39,900	447,676	205,997	115,226		224,959	164,549	315,388	109,157	145,899
3	(00–01)	1,347,000	691,918	429,031	34,560	432,244	288,907	127,502		78,670	169,783	220,723	109,770	147,728
4	(01–02)	1,347,000	690,196	406,818	57,037	414,289	296,743	160,812		86,020	169,771	181,308	109,290	155,108
5	(02–03)	1,447,000	881,591	297,461	8,348	464,484	244,504	222,544	82,640	184,512	168,997	337,336	109,002	208,763
6	(03–04)	1,429,500	935,456	222,609	17,532	461,240	255,658	247,045	94,647	233,978	153,545	350,000	111,083	217,619
7	(04–05)	1,434,500	753,888	283,079	12,904	414,360	198,300	344,885	109,411	167,057	105,085	190,150	120,034	243,123
8	(05–06)	1,429,500	788,021	258,506	13,551	409,225	207,006	376,710	114,986	159,672	104,924	199,757	120,463	252,721

APPENDIX 8

Additional Program Funding

Principal investigator	Title	Funding agency	End date	Dollar amount
Vera Alexander Kurt Byers	Production of PICES History Book	National Science Foundation	31-Apr-05	18,000
Brian Allee	<i>Biological Field Techniques for Lithodid Crabs</i> Book Production	Alaska Dept. Fish & Game	30-Jun-05	33,221
Brian Allee	Conference on National Standard 8	NOAA	30-Sep-05	50,000
Brian Allee	Alaska Crab Enhancement and Rehabilitation Workshop	Kodiak Island Borough	31-Mar-06	10,000
Brian Allee	Alaska Crab Enhancement and Rehabilitation Workshop	North Pacific Research Board	31-Mar-06	5,000
Brian Allee	Alaska Crab Enhancement and Rehabilitation Workshop	City of Kodiak	31-Mar-06	10,000
Brian Allee	Alaska Crab Enhancement and Rehabilitation Workshop	Aleutian Pribilof Island Community Development Association	31-Mar-06	1,500
Brian Allee	Alaska Crab Enhancement and Rehabilitation Workshop	Alaska Crab Coalition	31-Mar-06	500
Brian Allee	Alaska Crab Enhancement and Rehabilitation Workshop	Gulf of Alaska Coastal Coalition	31-Mar-06	500
Brian Allee	Alaska Crab Enhancement and Rehabilitation Workshop	Central Bering Sea Fishermen's Association	31-Mar-06	1,000
Brian Allee	Copper River Salmon Workshop No. 1: Elevating Our Collective Knowledge to a Common Level	Ecotrust	31-Mar-06	7,000
Brian Allee	<i>Northern Harbors and Small Ports</i> Book Production	Alaska Dept. Transportation	31-Dec-05	30,000
Brian Allee	Produce <i>Gulf of Alaska</i> Book	Alaska Dept. Fish & Game	30-Jun-05	49,383
Brian Allee	Wakefield 06 ADFG Participant Support	Alaska Dept. Fish & Game	30-Jun-06	12,219
Brian Allee	Wakefield 05 ADFG Participant Support	Alaska Dept. Fish & Game	31-Dec-05	10,000
Brian Allee	Wakefield 04 ADFG Participant Support	Alaska Dept. Fish & Game	31-Dec-04	5,000
Brian Allee	Wakefield 03 ADFG Participant Support	Alaska Dept. Fish & Game	31-Dec-03	10,000
Brian Allee	Wakefield 05 Support	American Fisheries Society	31-Dec-05	10,000
Brian Allee	Alaska Sea/River Week Curriculum	Alaska Dept. Education	30-Jun-09	582,882
Brian Allee	Wakefield 06 Participant Support	NOAA Fisheries	31-Dec-06	5,000
Brian Allee	Wakefield 05 Participant Support	NOAA Fisheries	31-Dec-05	10,000
Brian Allee	Wakefield 04 Participant Support	NOAA Fisheries	31-Dec-04	10,000
Brian Allee	Wakefield 03 Participant Support	NOAA Fisheries	31-Dec-03	10,000
Brian Allee	Wakefield 06 NPFMC Participant Support	North Pacific Fishery Management Council	31-Dec-06	10,000
Brian Allee	Wakefield 05 NPFMC Participant Support	North Pacific Fishery Management Council	31-Dec-05	10,000
Brian Allee	Wakefield 04 NPFMC Participant Support	North Pacific Fishery Management Council	31-Dec-04	10,000
Brian Allee	Wakefield 03 NPFMC Participant Support	North Pacific Fishery Management Council	31-Dec-03	10,000
Brian Allee Jennifer Reynolds	Marine Habitat Mapping Technology Workshop for Alaska	North Pacific Research Board	1-May-08	150,000
Kurt Byers	NPMR Arctic Science Journeys Radio	North Pacific Marine Research Program	30-Jun-03	130,555
Kurt Byers	Proceedings of the 2nd International Seafood Byproducts Conference	Alaska Fisheries Development Foundation	31-Dec-03	9,305
Kurt Byers	<i>Field Guide to Bird Nests and Eggs of Alaska's Coastal Tundra</i>	US Fish & Wildlife Service	30-Jun-04	1,500
Kurt Byers	Tsunamis in Alaska Video Project	Alaska Div. Emergency Services	30-Jun-02	10,000
Kurt Byers	Tsunamis in Alaska Video Project	Geophysical Institute, UAF	30-Jun-02	10,000
Chuck Crapo	Just in Time Seafood Training	Alaska Seafood Marketing Institute; Alaska Dept. Commerce, Community and Economic Development	30-Jun-06	30,000
Chuck Crapo Brian Paust	Bitter Crab Utilization Options	NOAA	31-Oct-02	57,728
Chuck Crapo Donald Kramer Robert Foy	Understanding Chalky Halibut	International Pacific Halibut Commission	31-Jul-03	43,649
Paula Cullenberg	Conference on National Standard 8: Year 2	NOAA	31-Mar-07	50,000
Paula Cullenberg	Coordination of Seabird Deterrent Gear Tests by Longline Fishermen in Southeast Alaska and PWS	US Fish & Wildlife Service	10-Jul-08	176,988
Paula Cullenberg	Marine Safety Training in Unalaska	Alaska Marine Safety Education Association	30-Jun-05	20,850
Paula Cullenberg	Review and Evaluate National Marine Fisheries Service Observer Safety Training	Alaska Marine Safety Education Association	22-Mar-04	23,269
Paula Cullenberg	Seafood Processing and Marketing Training Program for Western Alaska	Pollock Conservation Cooperative Research Center	31-Dec-06	65,937

Appendix 8, Additional Program Funding

Principal investigator	Title	Funding agency	End date	Dollar amount
David Atkinson Reid Brewer	Social Vulnerability to Climate Change in the Alaskan Coastal Zone	NOAA	31-Jul-10	1,370,000
Paula Cullenberg	Support for a Marine Advisory Agent, Based in Nome, to Serve the Bering Strait Region	Norton Sound Economic Development Corporation	31-May-09	118,000
Paula Cullenberg Torie Baker Sunny Rice	USDA Trade Adjustment Assistance Intensive Technical Assistance (TAA-ITA) Program for Alaska Resident Salmon Permit Holders and Crewmembers FY 06-07	Washington State University	14-Sep-07	500,000
Paula Cullenberg Terry Johnson Quentin Fong	Development and Delivery of a Fisheries Business Technical Assistance Program for Alaskans	Alaska Dept. Commerce, Community and Economic Development	30-Jun-06	520,000
Paula Cullenberg Reid Brewer	Marine Safety Training in Unalaska	Alaska Marine Safety Education Association	30-Jun-06	10,490
Paula Cullenberg William Butler	Trade Adjustment Act: Marine Advisory Program	Washington State University	14-Sep-05	754,539
Ron Dearborn	Wakefield 02 ADFG Participant Support	Alaska Dept. Fish & Game	31-Dec-02	6,000
Ron Dearborn	Wakefield 01 ADFG Participant Support	Alaska Dept. Fish & Game	31-Dec-01	8,000
Ron Dearborn	Wakefield 02 Participant Support	NOAA Fisheries	31-Dec-02	6,000
Ron Dearborn	Wakefield 02 NPFMC Participant Support	North Pacific Fishery Management Council	31-Dec-02	6,000
Ron Dearborn	Wakefield 01 NPMFC Participant Support	North Pacific Fishery Management Council	31-Dec-01	8,000
Quentin Fong	Outreach and Extension in Aquaculture, Agriculture and Agro-Forestry for Socially Disadvantaged Farmers in Micronesia, Hawaii, and Alaska	University of Hawaii, Hilo	14-Sep-07	21,727
Quentin Fong	Bridging Gaps to Insure Long Term Viability of Small Tropical Mariculture Ventures in Hawaii and U.S.-Affiliated Islands	University of Hawaii, Hilo	15-Aug-06	97,108
Quentin Fong	Salmon Marketing Techniques	USDA	15-Aug-05	81,247
Brenda Konar Kate Wynne Susan Hills	Fish Assemblages Associated with Sea Lion Haul-Outs	NOAA Fisheries	31-Dec-03	175,559
Don Kramer	Developing a Seafood Processing and Marketing Training Program for Western Alaska	Pollock Conservation Cooperative Research Center	30-Jun-04	40,000
Kristine Long Chuck Crapo Joan Braddock	Food Preparation and Marketing for Alaska Consumers	USDA CSREES	31-Aug-06	286,128
Deborah McLean Paula Cullenberg	Increase Participation of Alaska Natives in NOAA Sciences, BBC NOAA EPP/MSI	NOAA	30-Sep-06	58,906
Deborah McLean Paula Cullenberg	Watershed and Community Mapping of the Nushagak-Mulchatna Drainage	NOAA	31-Dec-06	299,260
Deborah Mercy	Seabird Bycatch Video	University of Washington	31-Oct-03	15,000
Tony Nakazawa Don Kramer	Food Quality: Salmon Quality Implementation Project	USDA CSREES	14-Sep-02	327,460
Brenda Norcross Kate Wynne	Steller Sea Lion Prey Use in Kodiak	North Pacific Marine Research Program	30-Jun-03	250,000
Brian Paust	Freight Consolidation	USDA	31-Dec-03	22,864
Ray RaLonde	<i>Vibrio parahaemolyticus</i> Applied Research for Alaskan Oyster Farms	UA President's Special Projects	1-Apr-06	5,000
Ray RaLonde	Support for Exploring On-Bottom Shellfish Aquaculture for Alaska Mariculture Conference	Pacific Aquaculture Caucus	1-Sep-02	10,000
Ray RaLonde	<i>Vibrio parahaemolyticus</i> Applied Research for Alaskan Oyster Farms	Alaska Dept. Environmental Conservation	31-Aug-05	7,000
Doug Schneider	Video Analysis/Editing Workstation for Graduate Students and Faculty of UAF SFOS	UAF Technology Advisory Board	30-Sep-03	16,200
Susan Sugai	NOSB Participant Support 2005-2006	Consortium for Oceanographic Research & Education	30-Jul-06	19,250
Susan Sugai	NOSB Participant Support 2004-2005	Consortium for Oceanographic Research & Education	30-Jul-05	19,250
Susan Sugai	NOSB Participant Support 2003-2004	Consortium for Oceanographic Research & Education	30-Jul-04	19,250
Susan Sugai	NOSB Participant Support 2002-2003	Consortium for Oceanographic Research & Education	30-Jul-03	15,000
Susan Sugai	NOSB Support	University of Alaska Foundation	30-Jun-07	12,000
Susan Sugai	NOSB Western Alaska Support	Pollock Conservation Cooperative Research Center	30-Sep-05	6,625
Susan Sugai	Travel Funds for High School Student Teams from off the Road System to Participate in 2003 Alaska Regional NOSB	University of Alaska Foundation	31-Dec-04	4,854
Susan Sugai Deborah Mercy	Enhancing Rural High School Involvement in North Pacific Resource Issues through Participation in Alaska Regional NOSB	North Pacific Research Board	30-May-07	100,000

Principal investigator	Title	Funding agency	End date	Dollar amount
Denis Wiesenburg Brian Allee	Converting Alaska Fish Byproducts into Value Added Ingredients and Products	USDA Agricultural Research Service	29-Sep-06	2,045,216
Kate Wynne	Harbor Seal Population and Diet Assessments: 2004	Alaska Dept. Fish & Game	31-Mar-05	5,150
Kate Wynne	Harbor Seal Project: Kodiak FY03	Alaska Dept. Fish & Game	31-Mar-03	10,009
Kate Wynne	Harbor Seal Project: Kodiak FY02	Alaska Dept. Fish & Game	31-Mar-02	10,739
Kate Wynne	Humpback Whale Photo Identification Study off Southern Kodiak Island	NOAA	30-Dec-03	6,189
Kate Wynne	Predation on Northern Fur Seals in the Pribilof Islands: A Baseline Study Phase 1: Traditional Knowledge Survey and Local Fisheries Interactions	University of Alaska Foundation	30-Nov-06	66,479
Kate Wynne	Scientific Oversight of Steller Sea Lion Research Conducted by the Aleutians East Borough	Aleutians East Borough	30-Jun-06	74,698
Kate Wynne	Shallow Water Nearshore Fish Assemblages	Pollock Conservation Cooperative Research Center	31-Mar-06	6,000
Kate Wynne Robert Foy Charles Buck	2004 Gulf Apex Predator-Prey Study (GAP)	NOAA	31-May-06	2,400,580
Kate Wynne Robert Foy Charles Buck	Gulf Apex Predator-Prey Study (GAP)	NOAA	30-Nov-04	2,914,504

Research Projects

Start date	End date	Federal dollars	Principal investigator	Project no.	Project title	Theme	Description
2/1/2000	7/31/2003	\$84,362	Bruce Finney	R/31-05	Long-Term Variability in Alaska Sockeye Salmon 2: Effects of Past Warm Climate on Salmon Abundance	Impacts on Salmon Industry	Determined the nature of salmon return fluctuations prior to the start of commercial fishing.
2/1/2000	7/31/2003	\$304,796	Anthony Gharrett William Smoker	R/31-06	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon.	Impacts on Salmon Industry	Long-term research—the first comprehensive study of outbreeding depression in Pacific salmon, which looked at deleterious/beneficial aspects of gene flow among natural salmon populations.
2/1/2000	7/31/2005	\$61,086	Milo Adkison	R/31-07	Setting Escapement Goals to Account for Climatic Fluctuations and Uncertainty	Impacts on Salmon Industry	Determined how to set escapement goals when the stock-recruitment relationship is changing in response to climate.
2/1/2000	1/31/2002	\$40,678	Terrance Quinn II	R/101-01	Has Local Depletion of Walleye Pollock Occurred in Steller Sea Lion Critical Habitat?	Marine Environmental Issues	Provided a scientific basis for management actions, and suggested studies to examine local pollock depletion in greater depth.
2/1/2000	7/31/2003	\$131,365	Charles Crapo	R/51-01	Managing Salmon Fisheries for Quality	Impacts on Salmon Industry	Provided data to factor quality of raw product into salmon management plans. Most management allows escapement into rivers before fishing is opened, resulting in fish with exhausted fat reserves, poor color, and soft texture.
2/1/2000	7/31/2003	\$123,158	Charles Crapo Brian Himelbloom	R/51-02	Maintaining Salmon Quality Aboard Fishing Vessels and on Shore	Impacts on Salmon Industry	Investigated addition of chlorine, water replacement, super-chilling, pH adjustment, and filtering during refrigerated seawater operations to control bacterial growth and increase salmon quality.
2/1/2000	1/31/2002	\$79,216	Keith Criddle	R/33-01	Precision of Prohibited Species Bycatch Estimates for Pooled and Individual Bycatch Quotas	Wiser Utilization of Fisheries	Developed a statistical framework for exploring costs of achieving levels of precision as a function of observer coverage and number of vessels for monitoring bycatch.
9/1/2000	5/31/2003	\$113,353	Terrance Quinn II Lewis Haldorson	R/100-01	Bering Sea Flatfish Growth Dynamics	Ecosystems & Habitats	Helps in understanding relationships between flatfish recruitment and environmental variability, age-specific growth, and population variability.
2/1/2001	7/31/2003	\$45,546	F. Gerald Plumley	R/95-02	Paralytic Shellfish Poisoning: Characterization of Saxitoxin Genes	Diversification of Alaska's Economy	A long-term study to identify, clone, and characterize genes involved in the synthesis of bacterial PSP toxins.
9/1/2001	7/31/2003	\$50,000	Paula Cullenberg	A/152-01a	Coastal Community Development and Assistance Project	Impacts on Salmon Industry	A needs assessment was conducted and a coastal economic development program was developed.
2/1/2002	7/31/2004	\$24,553	Terry Johnson	A/152-12	Charter Log and Boatkeeper Publication Series	Diversification of Alaska's Economy	2-3 Charter Log newsletters are produced per year. There are 38 online Boatkeeper articles.
2/1/2002	12/31/2005	\$22,285	Terry Johnson	A/152-13	Development of Voluntary Guidelines for Marine Wildlife Viewing	Diversification of Alaska's Economy	An outline of proposed voluntary guidelines was drafted, and meetings were held with stakeholders in Juneau, Sitka, Homer, and at the annual meeting of Alaska Wilderness Recreation Tourism Association.
2/1/2002	7/31/2004	\$29,717	Raymond RaLonde	A/152-14	Paralytic Shellfish Poisoning Outreach, Monitoring, and Research Project	Diversification of Alaska's Economy	25 public presentations were made in 8 communities, 16 training sessions were held for the Jellett kit, and residents tested 25 shellfish samples.
2/1/2002	7/31/2004	\$20,823	Raymond RaLonde	A/152-15	Purple Hinge Rock Scallop Aquaculture Development for Alaska	Diversification of Alaska's Economy	2+ years of grow-out research took place for purple hinge rock scallop, and scallops were tested for PSP with the Jellett kit.
2/1/2002	7/31/2004	\$50,189	Raymond RaLonde	A/152-16	Coastal Development and Shellfish Aquaculture for Prince of Wales Island, Alaska	Diversification of Alaska's Economy	1,346 acres of preapproved farm sites were made available for leases, and applications now take less than a day to complete. Grow-out studies for oysters took place on Annette Island.
2/1/2002	7/31/2005	\$62,260	F. Gerald Plumley	R/95-03	Identification of the Cyanobacterial "Saxitoxin Genes"	Diversification of Alaska's Economy	A long-term study to identify, clone, and characterize genes involved in the synthesis of bacterial PSP toxins.
2/1/2002	7/31/2006	\$37,220	Michael Stekoll	R/97-01	A Model System to Examine Delayed Effects of Pollution Exposure	Diversification of Alaska's Economy	Evaluated a model showing multigenerational effects, and determining if crude oil exposure reduces survivorship and reproductive output of fish.

Start date	End date	Federal dollars	Principal investigator	Project no.	Project title	Theme	Description
2/1/2002	7/31/2004	\$49,811	Paula Cullenberg	A/152-01	Coastal Community Development Program and Fisheries Assistance Project	Impacts on Salmon Industry	Fisheries business assistance program initiated, Bristol Bay internship initiated, local residents were trained in capacity building program, Managing Fisheries—Empowering Communities conference planning began.
2/1/2002	7/31/2005	\$79,296	Milo Adkison Bruce Finney	R/31-08	Understanding the Role of Marine-Derived Nutrients in Population Dynamics of Sockeye Salmon	Impacts on Salmon Industry	Determined influence of salmon carcasses on freshwater productivity in 46 Alaska lakes using contemporary spawner-recruit data, nutrient budget, and stable nitrogen isotopes in sockeye smolts.
2/1/2002	7/31/2004	\$17,412	Deborah Mercy	A/152-08	National Ocean Sciences Bowl Video Program	Marine Environmental Issues	3 videos were produced.
2/1/2002	7/31/2004	\$31,927	Kate Wynne	A/152-09	Sightings and Samples: A Community-Based Research Effort	Marine Environmental Issues	26 volunteers reported 194 sightings of 6 cetacean and 2 pinniped species; and data from 21 carcasses went to the NOAA Alaska Region Marine Mammal Stranding Network.
2/1/2002	1/31/2004	\$26,411	Donald Kramer	A/152-10	Marine and Fisheries Adult Education Workshops for Yukon-Kuskokwim Area	Marine Environmental Issues	Conducted adult education workshops in Yukon-Kuskokwim Delta region in fisheries and related fields.
2/1/2002	1/31/2004	\$36,037	Richard Steiner	A/152-11	Alaska Resource Issues Forum Television Series	Marine Environmental Issues	The program brings together key people on controversial environmental issues. Four programs were produced, on salmon industry, marine protected areas, wolf control, and conservation vs. development.
2/1/2002	7/31/2005	\$46,224	Terrance Quinn II	R/101-02	Generalized Models of Local Depletion for Walleye Pollock in Steller Sea Lion Critical Habitat	Marine Environmental Issues	In sea lion habitat, local depletion of pollock occurs during the fishing season, but they can be quickly replaced by immigration. A paper being published in <i>Natural Resource Modeling</i> is likely to be much-cited.
2/1/2002	7/31/2005	\$101,955	Michael Castellini	R/101-03	The Seasonal and Biochemical Nutritional Variance in Pollock as a Food for Marine Mammals	Marine Environmental Issues	Quantified nutritional variance in pollock over seasonal and developmental time frames, and related it to seasonal changes in pinniped nutritional physiology.
2/1/2002	7/31/2004	\$85,662	Brenda Konar	R/31-09	Utilization of Alaska Kelp Beds by Commercially Important Fishes	Marine Environmental Issues	Determined habitat preferences in kelp beds by juvenile and adult fish, and followed seasonal changes in kelp cover and fish groups over one year—information valuable to fishery managers in protecting fish nurseries.
2/1/2002	7/31/2004	\$30,145	Charles Crapo Quentin Fong	A/152-02	Technical Assistance Program for Alaska Seafood Processors	Wiser Utilization of Fisheries	Conducted marketing workshops, and advised and transferred marketing information to more than 100 people and several companies.
2/1/2002	7/31/2004	\$14,569	Donald Kramer	A/152-03	Seafood Technology Literature Log	Wiser Utilization of Fisheries	An annotated bibliography of literature covering new seafood technologies was assembled.
2/1/2002	7/31/2005	\$36,370	Quentin Fong Charles Crapo	A/152-04	Assortment Analysis of Hong Kong Seafood Products	Wiser Utilization of Fisheries	Product attribute data from this study help U.S. seafood producers understand price points and retail packaging requirements in the Hong Kong market, as well as branding strategies of competitors.
2/1/2002	7/31/2005	\$40,571	Quentin Fong Terry Johnson	A/152-05	Herring Market Survey	Wiser Utilization of Fisheries	To investigate feasibility of developing herring products and market channels in Belgium, Germany, and France, researchers conducted a mail survey to identify consumption patterns, price, and quality preferences.
2/1/2002	5/31/2005	\$101,316	Edward Kolbe	A/152-06	Technology Transfer to Enhance Seafood Plant Productivity	Wiser Utilization of Fisheries	Research on plant productivity was conducted and courses and training materials were provided.
2/1/2002	7/31/2004	\$88,087	Donald Kramer Charles Crapo Edward Kolbe	A/152-07	Training Assistance for Alaska Processors	Wiser Utilization of Fisheries	Provided training needed by seafood companies to comply with state and federal regulations for seafood processing.

2002

Start date	End date	Federal dollars	Principal investigator	Project no.	Project title	Theme	Description
2/1/2002	7/31/2004	\$107,453	Keith Criddle Mark Herrmann	R/32-02	An Economic Analysis of the Pacific Halibut Commercial Fishery	Wiser Utilization of Fisheries	IFO increased halibut prices to fishermen, driving some seafood processors out of business. Lengthening the halibut fishing season would prevent a market for farmed halibut. Results are used by the North Pacific Fishery Management Council to manage the charter halibut sport fishery.
7/1/2002	7/31/2005	\$35,000	Paula Cullenberg	A/152-17	Alaska FEE: Workshops on Change in the Salmon Industry	Impacts on Salmon Industry	2 workshops were held: Options for Restructuring the Salmon Fishery, and Building a Community Seafood Processing and Cold Storage—Is It Right for Your Community?
7/1/2002	7/31/2005	\$30,000	Paula Cullenberg	A/152-18	Alaska Regional FEE: Future of West Coast Commercial Fisheries	Impacts on Salmon Industry	The Fishermen's Direct Marketing Manual was produced.
2/1/2004	1/31/2007	\$48,313	Rolf Gradinger Bodil Bluhm	R/101-04	Sea Ice Biota off Barrow, Alaska: An Important Food Source for Higher Trophic Levels in Coastal Alaskan Waters?	Coastal Ecosystem Health and Public Safety	Researchers constructed models that show the relative contribution of ice-derived carbon to the nutrient needs of amphipods and to the environment.
2/1/2004	1/31/2007	\$175,710	Anthony Gharrett William Smoker	R/31-10	Effects of Hybridization between Seasonally Distinct Pink Salmon Subpopulations: A Model for Outbreeding Depression in Pacific Salmon (Phase I)	Economic Leadership	In this long-term study researchers are examining outbreeding depression in hybrids between related populations of early and late-run pink salmon in both even and odd broodyears.
2/1/2004	1/31/2007	\$60,793	Terrance Quinn II	R/31-11	Multispecies Assessment Models for Fisheries Management	Economic Leadership	By including diet information with fisheries data in a statistical model, the investigator is improving the reliability and usefulness of multispecies models for ecosystem-based fisheries management.
2/1/2004	1/31/2007	\$125,076	Thomas Shirley	R/31-12	Larval Advection and Retention of Alaskan Dungeness Crab: Interactions in Phylogeography and Stock Structure	Economic Leadership	Provided key information for the conservation and management of Dungeness crabs, by establishing the stock structure and optimum unit for management.
2/1/2004	1/31/2006	\$68,516	Susan Hills Janice Straley	R/33-02	Humpback Whale Entanglement Rates in Fishing Gear in Southeast Alaska	Economic Leadership	The humpback whale entanglement rate in Glacier Bay is relatively high. This information will be used to make informed management decisions.
2/1/2004	1/31/2007	\$55,573	Alexandra Oliveira Charles Crapo Brian Himelbloom	R/51-03	Quality Inspection of Alaska Salmon Using Two Portable Odor Detection Devices	Economic Leadership	Researchers found that correct odor classifications were detected 85–92% of the time by the Cyrano 320 when used to "sniff" pink salmon belly cavity odors.
2/1/2004	1/31/2007	\$25,484	Subramaniam Sathivel Charles Crapo Brian Himelbloom	R/54-01	Developing Protein Powder and Edible Coating for Salmon from Underutilized Arrowtooth Flounder	Economic Leadership	Developing ingredients from arrowtooth may bring new opportunities to the seafood industry, and the protein coating may enhance the quality of salmon filets and add value to salmon industries.
2/1/2004	1/31/2007	\$57,117	F. Gerald Plumley Andrew Lang	R/95-04	Paralytic Shellfish Poisoning: Bacteria as Regulators of <i>Alexandrium</i> Growth and Toxin Synthesis	Economic Leadership	A long-term study to identify, clone, and characterize genes involved in the synthesis of bacterial PSP toxins.
2/1/2004	1/31/2007	\$50,079	Gordon Haas	R/72-01	Combining Traditional Ecological Knowledge with Fisheries Science to Facilitate and Guide Partnered Management and Studies on Anadromous Whitefish	Education & Human Resources	The project gathered local traditional ecological knowledge of whitefish, that can be used to elucidate stocks, distribution, life history, and habitat in the Yukon River Delta.
5/1/2004	4/30/2009	\$596,076	Brian Allee Paula Cullenberg	A/152-22	Fisheries Extension Enhancement (FEE) for Alaska: Two Projects—Fisheries in Transition and Capacity Building for Environmental Monitors	Fisheries Extension	Hired two agents to work with coastal fisheries, regional economic bodies, and state and federal fisheries agencies to address economic declines through technical assistance in business, marketing, processing, and regulation. The agents will also partner with fishermen and Alaska Native organizations to increase capacity for local involvement in habitat monitoring, marine mammal assessment, and fisheries technician work.

2002

2004

Start date	End date	Federal dollars	Principal investigator	Project no.	Project title	Theme	Description
2/1/2006	1/31/2008	\$56,912	Orson Smith	A/75-02	Responses to Coastal Erosion in Alaska: A Guide for Coastal Residents, Businesses, Resource Managers, Engineers, and Builders	Coastal Communities & Economics	The investigator will prepare a peer-reviewed guide describing the nonstructural responses and constructed responses to coastal erosion. Alaska Sea Grant will publish the book.
2/1/2006	1/31/2008	\$197,348	Keith Criddle Mark Herrmann	R/32-03	A Global Analysis of Salmon Prices: How Low Can They Go?	Coastal Communities & Economics	Researchers will estimate how low Alaska salmon prices need to drop to stay competitive, and which industry reorganizations would raise product prices or lower production costs to keep the industry economically viable.
2/1/2006	1/31/2008	\$83,286	Raymond RaLonde Chris Langdon Ford Evans	R/42-01	Improving Yields of Pacific Oysters in Alaska	Coastal Communities & Economics	Researchers in Alaska and Oregon will do growth experiments on Pacific oysters, to select fast-growing broodstock for seed for Alaska's shellfish industry.
2/1/2006	1/31/2008	\$31,197	Russell Hopcroft	R/101-05	The Seasonal and Interannual Patterns of Larvaceans and Pteropods in the Coastal Gulf of Alaska, and Their Relationship to Pink Salmon Survival	Ecosystems & Habitats	This project will provide the first detailed characterization of larvaceans and pteropods in the Gulf of Alaska, and will describe their impact on pink salmon survival.
2/1/2006	1/31/2008	\$26,035	Russell Hopcroft	R/101-06	The Interannual Variability of Zooplankton within Prince William Sound, Alaska: Assessment of the ZooScan System as a Tool for Optimizing Juvenile Pink Salmon Release	Ecosystems & Habitats	Researchers will assess 20 years of data on zooplankton abundance to relate cycles to time of juvenile salmon release; and will test ZooScan, a digital imager that measures abundance, biomass, and composition of zooplankton.
2/1/2006	1/31/2008	\$55,338	Terrance Quinn II	R/31-14	Multispecies Fisheries Models for Ecosystem Decision Support	Ecosystems & Habitats	The study will alter North Pacific Fishery Management Council harvest goals in a model for five species in the Gulf of Alaska, to evaluate alternative harvest strategies.
2/1/2006	1/31/2008	\$96,342	Gordon Kruse Thomas Weingartner	R/31-15	Analysis of the Collapse of the Kodiak Red King Crab Stock and Fishery	Ecosystems & Habitats	Researchers will conduct a retrospective analysis of the Kodiak red king crab stock and fishery, including natural and human-caused factors involved in the rise, collapse, and failure to rebuild.
2/1/2006	1/31/2008	\$57,453	John Horne Deborah Burwen	R/21-01	Acoustic Behavior of Salmon	Fisheries	Investigators will better understand how fish behavior influences the acoustic signal, in order to help scientists produce more accurate assessments of salmon returns and improve salmon management.
2/1/2006	1/31/2008	\$191,571	Anthony Gharrett Milo Adkison William Smoker Raymond RaLonde	R/31-13	Outbreeding Depression in Pink Salmon: Effects of Hybridization between Seasonally Distinct Subpopulations (Phase 2)	Fisheries	In this long-term study researchers are examining outbreeding depression in hybrids between related populations of early and late-run pink salmon in both even and odd broodyears.
2/1/2006	1/31/2007	\$58,290	Gunnar Knapp	R/32-04	Economic Impacts of Alaska Fisheries	Fisheries	The researcher will analyze economic impacts and benefits of Alaska's sport, commercial, and subsistence fisheries, drawing on data and analyses from a variety of sources, to help Alaska policy-makers make good decisions.
2/1/2006	1/31/2008	\$1,844	Brian Himmelbloom Alexandra Oliveira	R/51-04	Alaska Oyster Safety: Monitoring and Identification of <i>Vibrio parahaemolyticus</i>	Seafood Science & Technology	Researchers will set up a 1/2 monitoring and testing system with aquaculture farms, and study cold-water tolerance of the pathogen, to find ways to prevent its accumulation in oysters.
2/1/2006	1/31/2008	\$15,145	Subramaniam Sathivel Charles Crapo	R/54-02	Developing Microencapsulated Fish Oil Powder from Alaska Salmon Oil for Nutraceutical Markets	Seafood Science and Technology	This study will develop an encapsulation delivery system for salmon oil and enriched salmon oil for use as food ingredients.
2/1/2006	1/31/2008	\$146,657	Raymond RaLonde Dean Stockwell	R/95-05	Paralytic Shellfish Poisoning in Alaska: Characterizing Toxin Distribution in Bivalves and Toxin Uptake, Retention, and Depuration in the Littleneck Clam (<i>Prorhacca staminea</i>)	Ecosystems and Habitats	Researchers will measure the ability of littleneck clams to accumulate and cleanse themselves of PSP, and test the effectiveness of the Jellett PSP Rapid Test Kit, with the long-range goal of reducing human illness from consuming contaminated shellfish from noncertified beaches.

Start date	End date	Federal dollars	Principal investigator	Project no.	Project title	Theme	Description	
2006	4/1/2006	1/31/2007	\$72,855	Lianna Jack Donna Willoya	A/143-01	Ma-ku (Dead Beached Sea Mammal): An Alaska Natives' Field Guide to Stranding Response	Ecosystems and Habitats	Researchers will work with Alaska Native groups, scientists, and resource agencies to produce a field guide for marine mammal stranding response specific to the needs of Alaska Natives.
2007	2/1/2007	1/31/2008	\$18,422	Charla Sterne	A/141-01	Endangered Species and Sea Duck Teaching Kits for Coastal Alaska Public School Districts	Marine and Aquatic Science Literacy	To foster better understanding of sea ducks and their coastal habitats, investigators will develop and deliver K-8 curricula and teaching kits to 13 schools in Western Alaska and the Aleutian Islands.
	2/1/2007	1/31/2008	\$68,110	Kimberly Trust Paul Flint Tuula Hollmen Reid Brewer	R/101-07	Exposure of Wintering Sea Ducks to Disease Agents and Parasite Burdens in Southwest Alaska	Ecosystems and Habitats	Findings will aid in management of a threatened species, and provide information about community wastewater treatment.

Development Fund Projects

Principal investigator	Project number	Title	Description
Tom Shirley	RR/01-01	Seasonal Movements of Golden King Crab	The study tracked 26 golden king crabs fitted with ultrasonic tags, horizontally and vertically, to provide life history data on this valuable crab species.
Bruce Finney Amy Hiron	RR/01-02	Geographic Gradients of Stable Isotope Ratios in the Gulf of Alaska	Researchers used zooplankton to identify regions of high and low primary productivity in the Gulf of Alaska.
Dmitry Dukhovskoy	GC/01-02	Decadal Variability of the Freshwater Flux in the Arctic Basin—North Atlantic System	Hypothesis: a two-way interaction between the Arctic Ocean and the North Atlantic is a foundation for auto-oscillatory behavior of a sea ice-ocean-atmosphere climate system with decadal variability.
Hector Douglas	GC/01-01	Planktivorous Auklets as Biomonitor of Environmental Change in Marine Food Webs	Evidence suggests an auklet odorant may function as a courtship pheromone, and may also interfere with ectoparasites.
Joan Braaddock	RR/01-05	Characterization of Luminous Bacteria from Yukon River Salmon Using <i>luxA</i> Probes	Investigators identified luminous bacteria growing on fish harvested for subsistence use in Alaska.
Kurt Byers	RR/01-06	Tsunami Run-up Public Education Video	Produced a video on tsunamis that shows physics of tsunamis, and tells how to prepare for and respond to tsunamis.
Lilian Alessa	RR/02-01	GIS-coupled Social Spatial Data Mapping of Coastal Environmental Values in the Kenai Peninsula	Correlated GIS data on the Kenai Peninsula to physical data and land use; useful for coastal management baseline information as tourism increases.
Gordon Kruse	RR/02-02	Environmental Cues for Herring Spawning and Inseason Fishery Management	Developed predictive model tools for herring spawn timing, spawning locations, and roe content for fishery managers in Togiak, Alaska's most valuable herring fishery.
David Musgrave	RR/02-04	Planning Funds for SALMON (Sea-Air-Land Modeling and Observing Network)	Plans were made to place instruments in Prince William Sound to track currents, temperature and salinity, for an ocean circulation model.
Brenda Konar	RR/02-06	Isotopic Analysis of Kelp Forest Food Webs: A Comparison Study	Isotope analysis to help define a food web at the Boulder Patch in the Beaufort Sea.
C. Peter McRoy	RR/02-07	The Eelgrass Ecosystem of Izembek Lagoon: Retrospective Analysis and Development of a Protocol for Future Monitoring	Compiled a database of Izembek Lagoon biological, chemical, and physical data for analysis.
Kevin Budsberg	GC/02-01	Temperature and Salinity Tolerance and Sequencing of <i>LuxRI</i> of the Luminous <i>Photobacterium phosphoreum</i> Isolated from Yukon River Salmon	Looked at DNA for two genes, the effect of NaCl, optimal growth temperatures, and nutritional versatility of the bacteria.
Olav Ormseth	GC/02-02	The Influence of Ocean Temperature on the Biology and Ecology of Pacific Cod in Alaskan Waters	Recorded cod energetics and reproduction in response to temperature changes in the lab, and correlated historical recruitment data and regional stock responses to ocean temperatures.
Susan Hills	RR/03-01	Entanglement in Fishing Gear by Humpback Whales in Southeastern Alaska	Estimated rate of entanglement in fishing gear for humpback whales in southeastern Alaska, by looking at scars.
Mark Herrmann	RR/03-02	An Economic Analysis of Producing and Exporting Alaska Salmon Protein Powder to China	Production and marketing of protein powder from Alaska salmon may provide a niche market for an Alaska industry needing new markets.
Anthony J. Garrettt	RR/03-04	Population Structure in Alaskan Pacific Ocean Perch (<i>Sebastes alutus</i>), Phase III	Microsatellite genetic study of Pacific ocean perch, the Alaska rockfish species that is the largest contributor to rockfish harvest.
William W. Smoker	RR/03-06	Comparison of Aggression and Dominance Behavior in Chinook Salmon Derived from Hatchery and Wild Broodstocks	Hybrid fish were significantly more aggressive than wild derived fish.
Wongyu Park	GC/03-01	Glacier Bay as a Natural Field Laboratory for Measuring the Effects of Global Climate Changes on Larval Crab Recruitment	Rearing crabs at the warmer fiord mouth and at colder glacial fronts may show how Dungeness crabs respond to climate change.
Jeremy Kasper	GC/03-02	Modeling the Effects of River Discharge, Windstress, and Sea Ice on Arctic Coastal Circulation	Clarified the dynamics governing the transport and dispersal of freshwater on arctic shelves using the Regional Ocean Modeling System.
Ginny Eckert	RR/04-01	Larval Ecology and Settlement Dynamics of Dungeness Crab in an Alaskan Marine Reserve	Plankton and oceanographic sampling was done at 84 stations in Glacier Bay in summer 2004.
Nicola Hillgruber	RR/04-02	Early Life History of Eulachon (<i>Thaleichthys pacificus</i>): Age Validation and Growth in Berners Bay, Alaska	Used otoliths to examine timing of emigration and duration of stay of eulachon larvae in the estuary.
Richard Steiner	RR/04-03	Oil Spill Technical Advisory Services	Steiner was spill technical advisor in Pakistan, gave spill prevention workshops in 3 countries for the U.S. State Department, and gave talks on 15th anniversary of Exxon Valdez Oil Spill.
Richard Steiner	RR/04-04	Global Change Workshops	Steiner gave workshops, published editorials, and proposed carbon emission funds and climate change commission to Congress.
Ole Mathisen	RR/04-05	Alagnak Sockeye Escapement	Analyzed data to optimize escapement of sockeye salmon in Alaskan streams.
Kurt Byers	RR/04-06	ASJ Supplement	Freelance writers were hired to produce 6 Arctic Science Journeys Radio stories, to supplement efforts of Alaska Sea Grant staff.

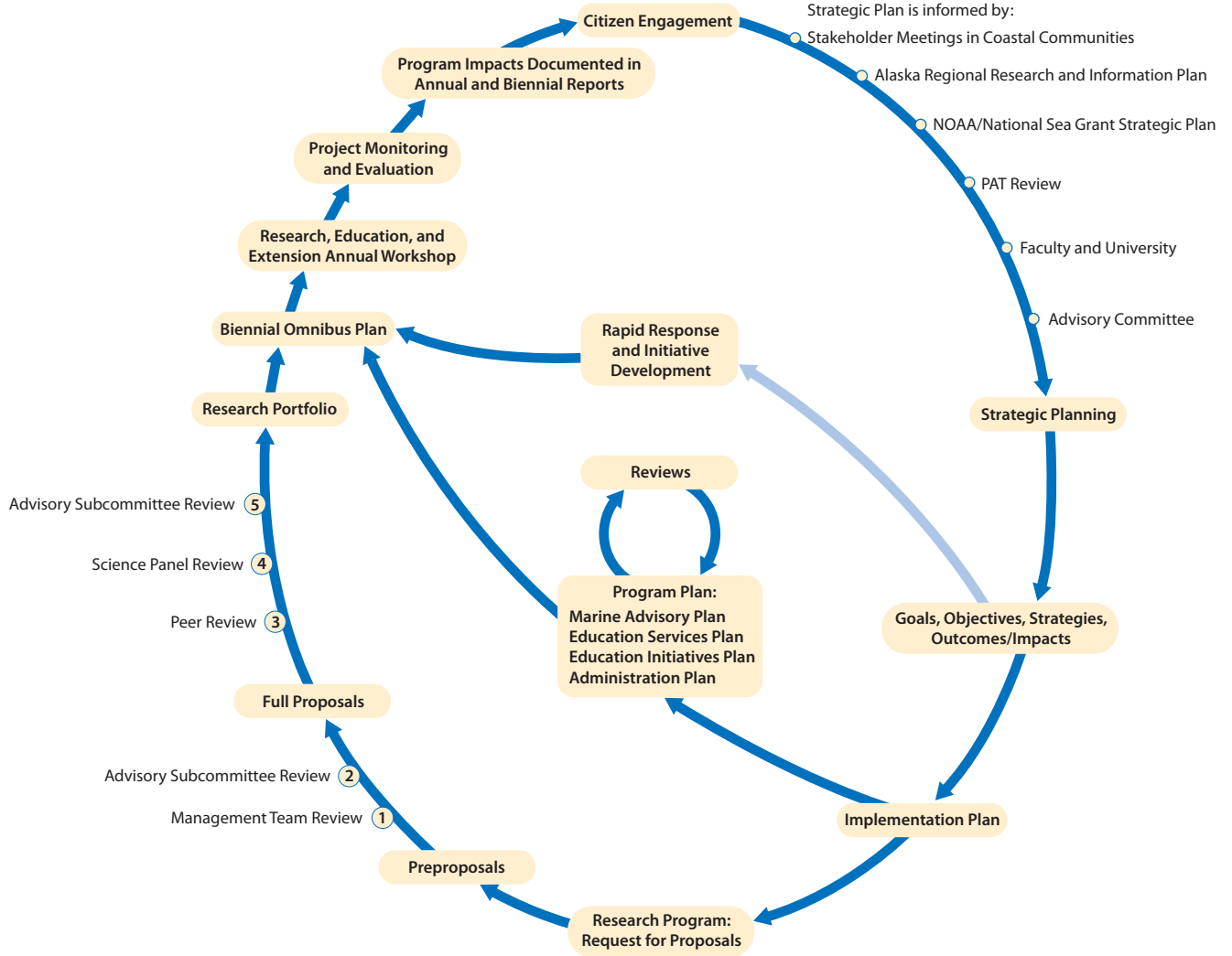
Principal Investigator	Project number	Title	Description
Katrin Iken Brenda Konar	RR/04-07	Essential Habitats in Our Arctic Front Yard: Nearshore Benthic Community Structure	Mapped and inventoried biologically diverse Camden Bay, on coastal Arctic, using scuba sampling.
Katrin Iken	RR/04-08	Community Composition, Population Dynamics, and Nutritional Status of Intertidal Clams in Kachemak Bay, Alaska, in Relation to Oceanographic Conditions	While feeding strategies of clams are consistent over the different sampling areas, isotope signals do show slight shifts among regions.
Nicola Hillgruber	RR/04-09	Spawning Distribution and Habitat of Sockeye Salmon (<i>Oncorhynchus nerka</i>) in the Chilkat River Drainage	In 2003-2004, 82-84% of fish tagged when entering river were successfully reaching spawning locations.
Brian Himeibloom Alexandra Oliveira	RR/04-11	Rapid Identification of Fish Spoilage Bacteria through Cellular Fatty Acid Profiles and Carbon Substrate Utilization Patterns	Tested accuracy of 2 CFAP microbial identification systems in a spoilage study, verifying bacteria spoilage identifications via inoculated fish studies.
Sarah Story	GC/04-01	A Mesocosm Study of Biological Interaction between Sea Ice and Water Column: Effects of Nutrient and Light Variations on Ice Algal Growth	How are ice algal communities capable of adapting to varying light and nutrient supply resulting from seasonal and annual variability?
Elizabeth Calvert	GC/04-02	Effects of Global Change on Floating Kelp Beds in Southeast Alaska: The Impacts on Recruitment of Commercially Important Fish Species	Fish biomass is significantly greater at canopy kelp sites than non-canopy, and abundance is greater at the bottom of all sites.
Reid Brewer	RR/05-01	Support of Aleutian Life Forum Addressing Selendang Ayu Oil Spill.	The purpose behind the conference was to address important issues that have arisen in the wake of the <i>Selendang Ayu</i> oil spill. Proceedings were produced in 2006.
Gordon Kruse	RR/05-02	Evaluation of Commercial Spiny Dogfish Fishery	Study will develop a bioeconomic model to evaluate the sustainability and economic viability of a new commercial fishery for spiny dogfish in Alaska.
Raymond Ralonde	RR/05-03	<i>Vibrio parahaemolyticus</i> Testing in Prince William Sound	Study showed that sinking oysters below the thermocline to cooler water temperatures can prevent accumulation of <i>Vp</i> .
Peter Stortz	RR/05-04	Rural Teachers In-service	Plan and implement 4-H Natural Resource and Youth Development program teacher training in Bethel.
Nate Bickford	RR/05-05	Developing a Fisheries Undergraduate Research Laboratory	Employ Native Alaskan undergraduates in Fisheries Research
Brad Stevens Loren Buck	RR/05-06	Effects of Food Density on Larval Survival of blue king crab	Conduct research on embryonic development, hatching, and habitat selection by larval and juvenile blue king crab.
Chuck Crapo	RR/05-07	Evaluating Production Processes for Salmon Powder	This project will evaluate several approaches to producing salmon powder from pink and/or chum salmon.
Ralph Elston Peter Becker	RR/06-01	Susceptibility of Native Littleneck clams (<i>Protothaca staminea</i>) and Manila clams (<i>Venerupis</i> [=Tapes] <i>philippinarum</i>) to the infectious clam disease, QPX	If native littleneck clams and/or Manila clams are susceptible to QPX disease, it is critically important to establish this fact and to make the knowledge available through a scientific publication and presentations to shellfish producers, sellers and the public to minimize the chance of QPX infected hard clams to West Coast waters.
Brenda Konar	RR/06-02	Walrus Foraging Grounds in the Bering Sea	This project will help determine the current status of Pacific walrus feeding grounds and also determine how feeding grounds and walrus diet have changed with the receding ice conditions that are now prevalent.
Peter Stortz	RR/06-03	Rural Teachers In-service	Plan and implement 4-H Natural Resource and Youth Development program teacher training in Fairbanks.
Brian Allee	RR/06-04	Alaska Crab Enhancement and Rehabilitation Workshop	The Alaska Crab Enhancement and Rehabilitation Workshop brought together a group of international scientists doing cutting-edge research on cultivation and stock enhancement of crabs and lobsters.
Hector Douglas	RR/06-05	Measuring Carotenoids and Fatty Acid Profiles as Indicators of Condition in Juvenile Pacific Salmon	This study relates carotenoid levels to fatty acid profiles in juvenile Pacific salmon demonstrating its potential utility in research surveys.
Ole Mathisen	RR/06-06	Education Manual for Pedro Lake Schools	A manual for grade school children in the Pedro Lake area will be produced.
Brian Allee	RR/06-07	Support of King Crab Enhancement Graduate Studies	Support provided for Celeste Leroux and Sara Persselin
William W. Smoker Raymond Ralonde	RR/06-08	Study Design for Laboratory Trial: Improved Effectiveness of Hatchery Salmon Smolt production	Compare winter dormancy to conventional hatchery practice of reduced feeding for smolt of two salmon species, in the laboratory. Benefits will include more ft smolt from hatcheries, and more biologically and economically efficient hatcheries.
Maria Brownlee	RR/06-09	Alaska Sea/River Week Curriculum Development	Update, revise, and expand the Alaska Sea/River Week curriculum guides to increase the science and environmental literacy of students and to align curriculum with the new education standards and requirements
Alan Springer	RR/06-10	Killer Whale Ecology and Distribution in Alaskan Ecosystems	Researchers will use visual and acoustic monitoring to get information on abundance, distribution, and predation rates of killer whales on northern fur seals near St. Paul Island, the largest fur seal rookery in the North Pacific.

2004

2005

2006

Planning and Implementation Model



Strategic Planning Process



Project Selection and Principal Investigator Institution

	Cycle 1 (02–04)	Cycle 2 (04–06)	Cycle 3 (06–08)	Total
Preproposal	35	41	51	127
Home institution	23	35	29	87
Non-home institution	12	6	22	40
Full proposals	15	17	33	65
Home institution	9	15	21	45
Non-home institution	6	2	12	20
Proposals funded	8	12	15	35
Home institution	6	12	9	27
Non-home institution	2	0	6	8
Number of different submitting institutions	6	4	10	

Leadership by Staff and Faculty on Boards and Committees

MANAGEMENT TEAM

Brian Allee DIRECTOR

Alaska Ocean Observing System, Board Member
Kachemak Bay Research Reserve Coastal Training Program, Advisory Committee
Scientific and Statistical Committee of the Pacific Fishery Management Council,
Past Member
Sea Grant Association Liaison to the Sea Grant Extension Leaders Assembly
Sea Grant Seafood Science and Technology Theme Team, Co-Chair
Technical Review Panel of the Washington State Salmon Recovery Funding Board,
Past Member
USDA-Funded Marketing Trade and Management of Fisheries and Aquaculture
Resources Project, Administrative Advisor
Western Regional Aquaculture Center, University of Washington, Board of Directors,
Past Chair and present member

Paula Cullenberg ASSOCIATE DIRECTOR, MARINE ADVISORY PROGRAM LEADER, PROFESSOR OF FISHERIES

Alaska Marine Safety Education Association, Board Member
National Sea Grant Assembly of Extension Program Leaders, Secretary/Treasurer
National Sea Grant Assembly of Extension Program Leaders, Fisheries Extension
Enhancement Committee

Susan Sugai ASSOCIATE DIRECTOR (FORMER)

U.S. Arctic Research Commission, appointed by President Bush

Kurt Byers EDUCATION SERVICES MANAGER

Alaska Association of Harbormasters and Port Administrators
Alaska Natural Resource and Outdoor Education Association, Life Member,
Past President
Alaska Travel Industry Association
Association for Communication Excellence
National Association of Government Communicators
National Sea Grant Communicators Network Steering Committee, Chair
National Sea Grant Fisheries Theme Team
National Sea Grant Outreach Working Group

Michele Frandsen PROGRAM MANAGER

National Council of University Research Administrators
National Sea Grant Fiscal Officers Network
National Sea Grant Research Coordinators Network

STAFF

Adie Callahan PROGRAM COORDINATOR

American Fisheries Society

Julie Carpenter MARINE ADVISORY PROGRAM FISCAL OFFICER

University of Alaska Fairbanks Staff Council

Jen Gunderson PUBLICATIONS COORDINATOR

Association for Communication Excellence

Carol Kaynor WEB COORDINATOR

Association for Communication Excellence
National Sea Grant Webmasters
University of Alaska Fairbanks Distributed Technicians
University of Alaska Fairbanks, School of Fisheries and Ocean Sciences,
Web Redesign Steering Committee

Sue Keller PUBLICATIONS MANAGER

Association for Communication Excellence, Alaska State Representative
National Association of Government Communicators
National Sea Grant Communicators Network, National Sea Grant Library Committee
National Sea Grant Communicators Network, Sea Grant Week Publications Awards
Committee, Past Member

Kathy Kurtenbach SALES AND MARKETING COORDINATOR

Alaska Travel Industry Association
Association for Communication Excellence
Museum Store Association, Affiliate

Dave Partee COMMUNICATIONS DESIGNER

Association for Communication Excellence
National Association of Photoshop Professionals
University of Alaska Fairbanks Distributed Technicians
University of Alaska Fairbanks, School of Fisheries and Ocean Sciences,
Web Redesign Steering Committee

Sherri Pristash MEETINGS AND EDUCATION COORDINATOR

Alaska Ocean Observing System Marine Education Advisory Group
Alaska Summer Research Academy, Marine Biology Module Organizing Group
American Fisheries Society
Association for Communication Excellence
Wakefield Symposium Organizing Committees

Doug Schneider INFORMATION OFFICER

Association for Communication Excellence

Melissa Tyson ADMINISTRATIVE ASSISTANT

International Association of Administrative Professionals

MARINE ADVISORY FACULTY

Torie Baker MARINE ADVISORY AGENT

American Fisheries Society
Association of Natural Resources Extension Professionals
City of Cordova Fish Advisory Committee, Vice Chair
Cordova District Fishermen United
Exxon Valdez Trustee Council Public Advisory Group, Commercial
Fishing Representative
Prince William Sound/Copper River Advisory Committee to Alaska Boards of Fish
and Game, Secretary
United Fishermen of Alaska
University of Alaska Fairbanks Native Language Education Program
and Yup'ik Language Proficiency Certificate Program Review Committee, Chair

Reid Brewer MARINE ADVISORY AGENT

Aleutian Life Forum Conference, Chair
American Association for the Advancement of Science
American Academy of Underwater Sciences
American Fisheries Society
Professional Association of Divers Incorporated
Selendang Ayu Oil Spill Fisheries Work Group
Selendang Ayu Oil Spill Subsistence Science Work Group
The Smithsonian Institution
Western Society of Naturalists

Liz Brown MARINE ADVISORY AGENT

Alaska Food Safety Advisory Committee
American Fisheries Society
Bristol Bay Coastal Resource Service Area, Board Member
Dillingham Planning Commission
Institute of Food Technologists Aquatic Food Products Division, Executive Committee
Pacific Fisheries Technologists, Secretary and Alaska Representative
Southwest Alaska Recycling Committee, Chair
University of Alaska Fairbanks Faculty Curricular Affairs Committee
University of Alaska Fairbanks Faculty Senate

Chuck Crapo SEAFOOD QUALITY SPECIALIST

Alaska Board of Fisheries, Salmon Industry Restructuring Panel
University of Alaska Fairbanks Campus-Wide Post Tenure Review Committee
University of Alaska Fairbanks MAP Unit Peer Promotion and Tenure Committee
University of Rhode Island, Graduate Advisory Committee, Chong M. Lee

Quentin Fong SEAFOOD MARKETING SPECIALIST

Alaska Salmon Legislative Task Force, Asset to Marketing Subcommittee
Alaskan Shellfish Growers Association, Advisor
American Agricultural Economics Association
American Fisheries Society
International Institute of Fisheries Economics and Trade
Kodiak Branding and Marketing Committee
Mother Ocean Education Foundation Inc., Board of Directors
North American Association of Fisheries Economists, Interim Executive Committee
North American Association of Fisheries Economists
University of Alaska Fairbanks, Bering Strait Marine Advisory Agent Hiring
Committee, Chair
University of Alaska Fairbanks, Analytical Seafood Chemistry Faculty
Search Committee
University of Alaska Fairbanks, Graduate Advisory Committee, Cathy Xu, (Co-Chair);
Erin Harrington
University of Alaska Fairbanks, Seafood Engineering Faculty Search Committee
University of Alaska Fairbanks, Statewide Natural Resource Initiative Planning
Committee
USDA Committee on Seafood Markets, Trade, and Environment

Dolly Garza MARINE ADVISORY AGENT

University of Alaska Fairbanks, Graduate Advisory Committee, Della Cheney,
Dorothy Larson, Lianna Jack
University of Alaska Fairbanks, MAP Unit Peer Promotion and Tenure Committee

Terry Johnson MARINE ADVISORY AGENT

Alaska Wilderness Recreation Tourism Association Conference Committee
American Fisheries Society
Kachemak Bay Ecotourism Network Steering Committee
National Association of Charterboat Operators
Pacific States Marine Fisheries Commission, Advisor
University of Alaska Fairbanks, Faculty Appeals and Oversight Committee
University of Alaska Fairbanks, MAP Unit Peer Promotion and Tenure Committee

Don Kramer SEAFOOD TECHNOLOGY SPECIALIST

Alaska Seafood Marketing Institute, Salmon Quality Committee
Alaska Seafood Processors Advisory Committee
American Fisheries Society
Institute of Food Technologists Student Paper Awards Committee, Chair
National Sea Grant Seafood Science and Safety Theme Team
National Seafood HACCP Alliance Steering Committee
Pacific Fisheries Technologists Student Paper Awards Committee, Chair
Phi Tau Sigma
Sigma Xi
University of Alaska Fairbanks, MAP Unit Peer Promotion and Tenure Committee

Ray RaLonde ASSOCIATE MAP LEADER AND AQUACULTURE SPECIALIST

Alaska Shellfish Growers Association
American Fisheries Society
National Shellfisheries Association
Pacific Aquaculture Consortium, Board of Directors
University of Alaska Fairbanks, Graduate Advisory Committee, Erin Harrington,
Jim Swingle, John Pugh
University of Alaska Fairbanks, MAP Unit Peer Promotion and Tenure
Committee, Chair
Western Regional Aquaculture Consortium (USDA), Board of Directors, Extension
Subcommittee, Chair
World Aquaculture Society

Terry Reeve MARINE ADVISORY AGENT

Alaska Marine Conservation Council
Alaska Natural History Association
Anchorage Museum of History and Art
Bering Sea Fishermen's Association
Bethel Visitors Information Panel
National Audubon Society
Returned Peace Corps Volunteers Association
Yukon River Drainage Fisheries Association

Sunny Rice MARINE ADVISORY AGENT

Narrows Broadcasting Corporation On-air, Past Board Member
Petersburg Economic Development Council, Cold Storage Oversight Committee, Chair
Petersburg Fish and Game Advisory Committee
Petersburg Planning and Zoning Commission
Petersburg Transportation Advisory Committee

Rick Steiner MARINE CONSERVATION SPECIALIST

Buryat Expert Review Commission, and Irkutsk Expert Review Commission,
Foreign Expert
The Coastal Coalition, Co-Founder/Director
EarthRights Institute Land Value Taxation, Advisor
International Advisory Group for Caspian Revenue Watch, Open Society Institute
International Union for the Conservation of Nature (IUCN) Commission on
Environmental, Economic, and Social Policy
IUCN International Scientific Review Panel for Western Gray Whale/Offshore Oil
Development off Sakhalin Island, Russia
National Wildlife Federation, Prince William Sound Alliance and Copper River Delta
Coalition
Shipping Safety Partnership, Co-Founder

Kate Wynne MARINE MAMMAL SPECIALIST

Alaska Department of Fish and Game, Alaska Steller Sea Lion Restoration Team
Alaska Sea Grant 22nd Wakefield Symposium, Sea Lions of the World, Organizing
Committee Co-Chair
National Marine Fisheries Service, Alaska Scientific Review Group
National Marine Fisheries Service, Steller Sea Lion Recovery Team
National Marine Fisheries Service, Steller Sea Lion Research Coordination Committee
North Pacific Research Board, Steering Committee Advising on Integrated
Ecosystem Research Plan
Structure of Population, Level of Abundance, and Status of Humpbacks, Steering
Committee
U.S. Dept. of Commerce, Marine Fisheries Advisory Committee
U.S. Fish and Wildlife Service, Southwest Alaska Sea Otter Recovery Team
University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, Faculty of
the Future Committee, Chair

APPENDIX 15

Principal Investigator, Faculty, and Staff Awards

Name	Year	Organization	Award
Milo Adkison	2003–2004	U.S. State Department	Fulbright Scholar, CONICET, Puerto Madryn, Argentina
Kurt Byers Terry Johnson Sue Keller Kathy Kurtenbach Doug Schneider	2005	Association for Communication Excellence	Outstanding Professional Skill Award for Publishing
Keith Criddle	2006	University of Alaska Fairbanks	Ted Stevens Distinguished Professor of Marine Policy
Paul J. Flint	2003	U.S. Geological Survey	Superior Service Honor Award
	2001, 2002, 2004	U.S. Geological Survey	STAR Award
Anthony Gharrett	2006	University of Alaska Fairbanks	Emil Usibelli Distinguished Teaching, Research and Service Awards, for research
Dolly Garza	2003	Honoring Alaska's Indigenous Literature	Alaska Native Literature Award
Terry Johnson	2001	U.S. Secretary of Transportation	Partnership for Excellence Award
Gunnar Knapp	2003–2004	University of Alaska Anchorage	Chancellor's Award for Excellence, research
Don Kramer	2006	Pacific Fisheries Technologists	30 years service award
	2003	University of Alaska Fairbanks	Recognition for service as Marine Advisory Program director 1985-2003
Gordon Kruse	2001–present	University of Alaska Fairbanks, School of Fisheries and Ocean Sciences, Juneau	President's Professor of Fisheries (endowed chair)
Andrew Lang	2002	Nestle Corporation	Nestle Award for best phage paper in <i>Journal of Bacteriology</i>
Terrance J. Quinn II	2001	National Academies of Science, Engineering, and Medicine	National Associate
Doug Schneider	2006	Sigma Xi Alaska Chapter	Certificate of Recognition for exemplary contributions to public understanding of science
Rick Steiner	2005	United Nations and the Pakistan government	Commendation for serving as Chief Technical Advisor to Government of Pakistan on natural resource damage after <i>Tasman Spirit</i> oil spill
	2004/2005	International Who's Who of Professionals	Listed
	2001	Ecotrust	Ecotrust Conservation Fellow
Melissa Tyson	2006	International Association of Administrative Professionals, Polar Chapter	\$500 professional development scholarship

Partners

PRINCIPAL AND ASSOCIATE INVESTIGATOR AFFILIATIONS

Universities

Bermuda Biological Station for Research
Oregon State University Hatfield Marine Science Center
Queen's University, Ontario, Canada
Texas A&M University
University of Alaska Anchorage
Institute of Social and Economic Research
School of Engineering
University of Alaska Fairbanks
Cooperative Extension Service
Cooperative Fisheries Unit
Department of Economics
Fishery Industrial Technology Center
Institute of Marine Science
Marine Advisory Program
School of Fisheries and Ocean Sciences
School of Management
Seward Marine Center
University of Alaska Southeast Department of Natural Sciences
Utah State University Department of Economics
Woods Hole Oceanographic Institution

Agencies

Alaska Department of Fish and Game
The Alaska Sea Otter and Steller Sea Lion Commission
Alaska SeaLife Center
North Pacific Fisheries Observer Training Center
U.S. Department of Agriculture, Agriculture Research Service
U.S. Fish and Wildlife Service
U.S. Geological Survey Alaska Science Center

PARTNERSHIP ORGANIZATIONS

U.S. Colleges and Universities

Alaska Pacific University
Alaska Vocational Technical Education Center
California State University Moss Landing Marine Lab
Center for Habitat Studies
Clatsop Community College
Cornell University School of Ornithology
Indiana State University
Kenai Peninsula College
Oregon State University
Coastal Oregon Marine Experiment Station
Food Innovation Center
Hatfield Marine Science Center Molluscan Broodstock Program
Industrial Assessment Center
Oregon Sea Grant
Prince William Sound Community College
Seattle Community College
Scripps Institution of Oceanography
Sheldon Jackson College
University of Alaska
Arctic Region Supercomputing Center
Office of Information Technology
University of Alaska Anchorage
College of Business and Public Policy
Institute of Social and Economic Research
University of Alaska Fairbanks
Alaska Native Language Center
Art Department
Center for Global Change
College of Rural Alaska
Cooperative Institute for Arctic Research
Earthquake Information Center
Geophysical Institute
Institute of Arctic Biology
International Arctic Research Center

University of Alaska Fairbanks (continued)
Pollock Conservation Cooperative Research Center
Rasmuson Library
School of Fisheries and Ocean Sciences
Advisory Council
School of Natural Resources and Agricultural Sciences
West Coast and Polar Regions Undersea Research Center
University of Alaska Press
University of Alaska Southeast Professional Education Center
University of California
University of Hawaii
Hawaii Sea Grant
University of Minnesota Extension Service
University of Rhode Island
Rhode Island Sea Grant
University of Washington
Marine Advisory Services
Washington Sea Grant
University of Wisconsin
Virginia Institute of Marine Science
Washington State University School of Biological Sciences
Western Washington University

Associations, Foundations, Institutes

Alaska Aerospace Development Corporation
Alaska Center for the Environment
Alaska Community Action on Toxics
Alaska Conservation Foundation
Alaska Druggers Association
Alaska Fisheries Development Foundation
Alaska Fishing Industry Relief Mission
Alaska Forum for Environmental Responsibility
Alaska Groundfish Data Bank
Alaska Association of Harbormasters and Port Administrators
Alaska Marine Conservation Council
Alaska Marine Safety Education Association
Alaska Natural History Association
Alaska Natural Resource and Outdoor Education
Alaska Ocean Observing System
Alaska Oceans Network
Alaska Oceans Program
Alaska Science and Technology Foundation
Alaska Science Consortium
Alaska Shellfish Growers Association
Alaska Underwater Science Foundation
Alaska Wildlife Alliance
Aldo Leopold Wilderness Research Institute
Aleut Corporation
Aleutian Pribilof Island Association
Aleutian Pribilof Island Community Development Association
American Academy of Underwater Sciences
American Fisheries Society
Arctic Yukon Kuskokwim Sustainable Salmon Initiative
At-Sea Processors Association
Barrow Arctic Science Consortium
Bering Sea Fishermen's Association
Bristol Bay Native Association
Bristol Bay Science and Research Institute
Center for Alaskan Coastal Studies
Center for Marine Conservation
Central Bering Sea Fishermen's Association
Chignik Salmon Cooperative
Coastal Villages Region Fund
Consortium for Oceanographic Research and Education (CORE)
Cook Inlet Keeper
Cordova District Fishermen United
CyberLynx (homeschool program)

Douglas Island Pink and Chum Inc.
Ecological Society of America
Ecotrust
Educational Training Co.
Exxon Valdez Trustee Council
Fundy Fixed Gear Council
Greenpeace USA Inc.
Gulf of Alaska Coastal Communities Coalition
Interior Distance Education of Alaska
Kachemak Shellfish Mariculture Association
Kenai River Professional Guide Association
Kenai River Sportfishing Association
Kuskokwim River Fishermen's Management Working Group
Made in Alaska
Maine Island Trail Association
The Mountaineers
Museum Store Association
National Association of Government Communicators
National Fish and Wildlife Foundation
National Food Processors Association
The Nature Conservancy
New England Trawl Systems
North Gulf Oceanic Society
Northwest Urban Indian Community
Norton Sound Economic Development Corporation
Ocean Advocates
Oceana
Oceans Blue Program
Olga-Moser Bay Seafood Producers Alliance
Pacific Environment
Pacific Fisheries Technologists
Pacific Seabird Group
Pacific Seafood Processors Association
Pacific States Marine Fisheries Commission
People for Puget Sound
Pribilof Island Collaborative
Prince of Wales Island Citizen's Advisory Council
Prince of Wales Island Community Holding Corporation
Prince William Sound Aquaculture Corporation
Prince William Sound Keeper
Raven Correspondence School
Regional Seafood Development Association
Seafood HACCP Alliance
Shipping Safety Partnership
Sitka WhaleFest
Southwest Alaska Municipal Conference
Unalaska Native Fisherman Association
United Fishermen of Alaska
United Fishermen's Marketing Association
U.S. Global Ocean Ecosystems Dynamics (GLOBEC)
Gulf of Alaska Monitoring Program
Western Regional Aquaculture Center
Yukon Delta Fisheries Development Association
Yukon River Drainage Fisheries Association

Museums and Science Centers

Alaska SeaLife Center
Alutiiq Museum
Hatfield Marine Science Center
The Imaginarium Science Discovery Center
Monterey Bay Aquarium
Oregon Coast Aquarium
Pratt Museum
Prince William Sound Science Center
Seattle Aquarium
University of Alaska Museum
University of Puget Sound Slater Museum of Natural History
Western Foundation of Vertebrate Zoology

Private Industry

Alaska Aqua Farms
Alaska Seafood International
Alaska Tide Book Company

Appendix 16, Partners

Al-Lou's Fish
Alutiiq Pride Shellfish Hatchery
Amazon booksellers
Barnes and Noble booksellers
Boat U.S.
Bristol Bay Economic Development Corporation
Calista Corporation
Calendar Club, L.L.C.
Cook Inlet Books
Dancing Salmon Fisheries
Digital Observer, Inc
EDAW Inc.
Englund Marine Supply Fish Expo Inc.
Enviro-Pak Smoking Ovens
Favco Seafood
Fleet Refrigeration
Graystar Pacific Seafood Ltd.
Great Alaskan Seafood Company
Hearthside Books
Hydroacoustic Technology, Inc.
Iceberg Seafood Company
Icicle Seafoods Inc.
Indian Valley Meats
Jellett Biotech Ltd.
Joma Wild Seafoods
Joycraft Marine Safety Equipment
Kenai Fjords Tours
Kodiak ComFish Alaska
Kodiak Fish Company
LGL Limited
McDowell Group
Mikunda, Cottrell & Co.
Nor'westerly Food Technology Services
North Pacific Processors Inc.
Northern Economics Inc.
Ocean Beauty Seafoods Inc.
Orca Book and Sound
Organizational Learning Tools Inc.
Pacific Star Seafoods
Peter Pan Seafoods, Inc.
Resource Analysts International
ResourcEcon, Inc.
Robert Hale Booksellers
Rose Fisheries
Roseann Dunham Bookkeeping
Sea Crest Seafood Market Developers
SeaFisk Consulting
Silver Lining Seafood
Sitka Sound Seafoods
Solomon Gulch Hatchery
Sound Metrics Corp.
Switlik Parachute Co.
Taku Smokeries
TDX Corporation
Title Wave Books
Trillium Technology Solutions, LLC
UniSea Inc.
Wells Fargo Bank
West Marine
Wild Salmon Direct
Wizard Works
Wrangell Insurance Center

GOVERNMENT

Native Agencies

Central Council: Tlingit and Haida Indian Tribes of Alaska
Native American Fish and Wildlife Society
Alaska Region
Qaalugin Tribe
Qutekac Native Tribe
Southeast Alaska Inter-Tribal Fish and Wildlife Commission

Local Agencies

Anchorage International Airport
Anchorage School District

City/Borough of Juneau School District
City of Craig
City of Fairbanks
Cordova High School
Dillingham Planning Commission
Fairbanks North Star Borough School District
Juneau School District
Kodiak Chamber of Commerce
Lower Kuskokwim School District
Matanuska-Susitna Borough School District
North Slope Borough
Port of Valdez
Unalaska City School District
Unalaska Parks, Culture and Recreation Center

Alaska Agencies

Alaska Coastal Management Program Division of Governmental Coordination
Alaska Commercial Fisheries Entry Commission
Alaska Commercial Fishing and Agriculture Bank
Alaska Department of Commerce, Community and Economic Development
Division of Community and Business Development
Division of Investments
Alaska Department of Education and Early Development
Alaska Department of Environmental Conservation
Division of Environmental Health
Seafood Processing and Development
Alaska Department of Fish and Game
Division of Commercial Fisheries
Division of Marine Mammals
Kodiak Advisory Committee
Alaska Department of Natural Resources Division of Oil and Gas
Alaska Department of Transportation
Alaska Division of Emergency Services
Alaska Division of Governmental Coordination
Coastal Zone Management Program
Alaska Division of Homeland Security and Emergency Management
Alaska Fisheries Revitalization Strategy
Alaska Legislative Salmon Industry Task Force
Alaska Office of Boating Safety
Alaska Seafood Marketing Institute
Alaska Science and Technology Foundation
Alaska Small Business Development Center
Governor's Ocean Policy Cabinet

Federal Agencies

Alaska Regional Marine Research Program
Minerals Management Service
National Oceanic and Atmospheric Administration
Coastal Ocean Program
Environmental Entrepreneurship Program for Minority Serving Institutions
Kachemak Bay National Estuarine Research Reserve
NOAA Fisheries Auke Bay Laboratory
NOAA Fisheries Kodiak Fisheries Research Center
NOAA Fisheries National Marine Mammal Laboratory
NOAA Fisheries Northeast Fisheries Science Center
NOAA Fisheries Office of Protected Species, Alaska Region
NOAA Fisheries Pacific Marine Environmental Laboratory
NOAA Fisheries, Restricted Access Management, Alaska Region
NOAA National Ocean Service Coast Survey
NOAA National Tsunami Hazard Mitigation Program
West Coast and Alaska Tsunami Warning Center
National Park Service Subsistence Division

National Science Foundation
Alaska Native Science Commission
Arctic Research Commission of the United States
North Pacific Fishery Management Council
North Pacific Research Board
Smithsonian Institution Arctic Studies Center
U.S. Centers for Disease Control, National Institute for Occupational Safety and Health
U.S. Department of Agriculture
Cooperative State Research, Education and Extension Service Special Grants Program
Fisherman's Assistance Program
Trade Adjustment Assistance
U.S. Department of Education, Educational Resources Information Center
U.S. Environmental Protection Agency, *Indian General Assistance Programs (IGAP) Alaska Tribal Recipients*
U.S. Fish and Wildlife Service
Alaska Maritime National Wildlife Refuge
Division of Migratory Bird Management
Federal Subsistence Board
Izembek National Wildlife Refuge
Marine Mammal Management
Office of Subsistence Management Partners in Fisheries
Yukon Delta National Wildlife Refuge
U.S. Food and Drug Administration
U.S. Forest Service
U.S. Geological Survey

INTERNATIONAL PARTNERS

Commander Islands Nature Protection Association
Danish Institute for Fisheries Research
Ecole des Mines de Paris, Centre de Geostatistic
Fisheries and Oceans Canada
Northwest Atlantic Fisheries Centre
Bedford Institute of Oceanography
Pacific Biological Station
Food and Agriculture Organization, United Nations
French Research Institute for Exploitation of the Sea (IFREMER)
International Bering Sea Forum
International Bird Rescue and Research Center
International Pacific Halibut Commission
Kamchatka Institute of Ecology and Natural Resource Management
Marine Research Institute, Norway
North Pacific Marine Science Organization (PICES)
Pacific Fisheries Research Center (TINRO-Center), Russia
Petroleum Environmental Network—China
Sakhalin Environment Watch
Simon Fraser University School of Resource and Environmental Management
University of British Columbia Marine Mammal Research Unit
University of Cape Town
World Conservation Union
World Wildlife Fund

SELECTED NEWS MEDIA

Alaska Fisherman's Journal
Anchorage Daily News
Aquaculture International
Alaska Business Monthly
Alaska Public Radio
AlaskaOne Public Television
Associated Press
Coast Magazine
Intrafish.com
National Fisherman
National Public Radio
Pacific Fishing
Rueters News Agency
Sea Technology
Worldcatch.com

Marine Advisory Workshops

Date	Title	Presenter/ coordinator	Location	No. attendees	No. hours	No. communities served
2002	HACCP Training, 8 sessions	Kramer, Crapo	7 communities	128	24	
2002	Salmon Quality for Processors, 26 sessions	Crapo	5 communities	1,021	40	
2002	Water Quality Training, 4 sessions	RaLonde	4 communities	62	132	34
3/02	Guiding Your Way to a New Career	Johnson	Anchorage	10		
4/02	Marketing Alaska Spot Prawns to Europe	Fong	Petersburg	8		
4/02	Creating a New Paradigm for Oil and Society	Steiner	Siberia, Russia	30		
4/02	Live Crab, Direct Marketing and Quality Control	Paust	Nome	5		
4/02	Alaska Marine Mammal Observer Program	Wynne	Kodiak	20		
4/02	Groundfish Marine Mammal Observer Training	Wynne	Kodiak	50		
4/02	Oasis Earth, Earthwalk March	Steiner	Seattle	200		
5/02	Recommendations for Update on Injured Species	Steiner	Anchorage	50		
5/02	Siberia Village Workshops on Oil and Gas Issues	Steiner	Siberia, Russia	10		
5/02	Cosmic Manifest Destiny	Steiner	Denver, CO	10		
5/02	Tigers, Rainforests, Albatrosses, and Humans	Steiner	Japan	30		
6/02	Aquatic Products Marketing Workshop	Fong	Hilo, HI	15		
6/02	Natural Resource Policy Debates on Public Television	Steiner	Naples Beach, FL	30		
6/02	Public Participation in Oil and Gas Projects	Steiner	Azerbaijan	30		
6/02	Salmon Quality for Fishermen	Crapo	Cordova	5	2	
7/02	Citizens Oversight of Oil and Gas Projects	Steiner	Baku, Azerbaijan	30		
7/02	Nunivak Island Halibut Workshops	Steiner	Mekoryuk	12		
7/02	PSP Training	RaLonde		22	3	7
7/02	Rural Community Pearl Farm Business Management Workshop	Fong	Kodiak	8		
7/02	Creating a Space Environment Commission	Steiner	UK	25		
7/02	Improving Ocean Governance	Steiner				
7/02	Seaweeds	Garza	Craig, Ketchikan	91		
9/02	BIA Technician Training, Fish Hatcheries	RaLonde	Fairbanks	18	2	10
9/02	Direct Marketing of Sea Cucumber from Kodiak	Fong	Kodiak	4		
9/02	Environmental Monitoring	RaLonde		60		
9/02	Fish Husbandry, Fish 411	RaLonde	Sitka	6	3	2
9/02	Fisheries Biology, Fish 436	RaLonde	Fairbanks	6	3	6
9/02	Groundfish Marine Mammal Observer Training	Wynne	Kodiak	29		
9/02	PSP Training, 2 sessions	RaLonde	Anchorage	20	6	7
9/02	Science Methods for Teachers	RaLonde		8		
9/02	Seafood Marketing Workshop	Fong	Kodiak	6		
9/02	Socially Conscious Investment	Steiner	Juneau	30		
9/02	Water Quality Monitoring, 3 sessions	RaLonde	Anchorage, Fairbanks	92	68	43
10/02	Low Power Radio for Education, Harbormasters	Johnson	Seward	30		
10/02	Community Processing Center Development	Paust	Wrangell	6		
10/02	Designating Earth's Moon as a World Heritage Site	Steiner	Houston, TX	35		
10/02	Direct Marketing, 4 sessions	Paust	Dillingham, Naknek Ketchikan	48		
10/02	Environmental Aspects of Oil Pipelines	Steiner				
10/02	Proposal for Prince William Sound Herring Fishery Buyback	Steiner	Valdez	6		
10/02	University of Alaska Lands Management Debate	Steiner	Anchorage	30		
10/02	Alternative Harvesting Technologies: Salmon Industry Restructuring	Johnson	Anchorage	50		
10/02	Science Methods for Teachers	RaLonde	Anchorage	8	8	3
10/02	Sanitation Training	Kramer, Crapo	Anchorage	21		
10/02	Options for Restructuring Alaska's Salmon Fisheries	Cullenberg	Anchorage	127		

Appendix 17, Marine Advisory Workshops

Date	Title	Presenter/ coordinator	Location	No. attendees	No. hours	No. communities served
11/02	Technical Review of Russia/China Environmental Assessment	Steiner	Siberia, Russia	6		
11/02	Alternative Harvesting Gear, Fish Expo	Johnson	Seattle, WA	50		
12/02	Southeast Subsistence Uses and Values	Garza	Ketchikan	75		
2003	HACCP Training, 9 sessions	Kramer, Crapo	7 communities	112		
2003	Salmon Quality for Processors, 8 sessions	Crapo	5 communities	308	128	
1/03	Seagull Contaminants	Garza	Anchorage	10		
1/03	Citizens Oversight of Oil and Gas Projects	Steiner	New York, NY			
1/03	Environmental Considerations for Russian Oil and Gas Projects	Steiner	Washington, DC			
1/03	Oasis Earth: Planet in Peril	Steiner	Anchorage	25		
1/03	Direct Marketing: Salmon Industry Restructuring	Johnson	Anchorage	30		
1/03	Direct Marketing Workshop, 6 sessions	Fong	8 cities in OR, WA, AK	153		
1/03	Alaska Native Co-Management of Sea Otter, 2 sessions	Garza	Masset Skidegate, BC	60		
1/03	Economic Value of Ecological Systems	Fong	Marshall Islands			
1/03	Enhancing the Quality and Markets for Alaska Salmon	Cullenberg	Anchorage	98		
1/03	Sanitation Training	Kramer	Yakutat	27		
1/03	Seagull Egg Contaminant Project, 3 sessions	Garza	Mekoryuk, Sitka	85		
2/03	Better Process Control School	Crapo, Kramer	Anchorage	9		
2/03	Sanitation Training, 3 sessions	Crapo, Kramer	Anchorage, Dillingham	25		
3/03	Water Quality Monitoring I	RaLonde	Anchorage	17	33	10
4/03	Science for Resource-Dependent Communities: One Grantee's View, NOAA	Wynne	Anchorage	30		
4/03	Sea Lion Information	Garza	Craig	13		
4/03	Sea Otter Small Boat Surveys	Garza	Craig	8		
4/03	Establishing a Regional Citizens Advisory Council for Bering Sea	Steiner	Girdwood	75		
4/03	Groundfish Marine Mammal Observer Training	Wynne	Kodiak	26		
4/03	Public Oversight of Oil and Gas Projects	Steiner	Washington, DC			
4/03	Mariculture, Fish 412	RaLonde	Sitka	6	2	6
4/03	QAPP (Quality Assurance Project Plan) Training	RaLonde	Anchorage	15	6	12
4/03	Water Quality Monitoring, 3 sessions	RaLonde	Homer, Anchorage	46	66	15
4/03	Seaweeds, 4 sessions	Garza	3 communities	40		
4/03	The Future of Alaska's Salmon Returns	Cullenberg	Anchorage	65		
5/03	A Global Permanent Fund	Steiner	Juneau			
5/03	Alaska's Prince William Sound and Cook Inlet	Steiner	Seattle			
5/03	Sanitation Training	Kramer	Hooper Bay	9		
5/03	Shellfish Aquaculture, Sheldon Jackson College	RaLonde		10		
5/03	Water Quality Training	RaLonde		30		
5/03	Commercial Fishing in Petersburg	Rice	Petersburg	30	1	
6/03	Retort Training	Crapo	Kodiak	14		
6/03	Alaska: Last Frontier/Lost Frontier	Steiner	Kantishna	12		
6/03	Biodiversity and the Extinction Crisis	Steiner	Kantishna	12		
6/03	Global Warming and Alaska	Steiner	Kantishna	12		
6/03	Water Quality Training, 2 sessions	RaLonde	Nondalton	9	12	9
6/03	Salmon Quality for Fishermen	Crapo	Kenai	27	2	
7/03	Handling Ready to Eat Seafoods, 2 sessions	Crapo	Petersburg, Juneau	18	4	
7/03	Plant Sanitation for Seafood Processors, 2 sessions	Crapo	Juneau	41	4	
7/03	Water Quality Training, 2 sessions	RaLonde	Craig	13	33	6
7/03	BIA Technician Training	RaLonde	Fairbanks	11	3	12
7/03	Teacher Training for 4-H Fisheries Program	RaLonde	Fairbanks	10	8	10
8/03	Seafood Quality Workshop	Crapo	Hawaii	16		
9/03	Planning Aquaculture in the State of Maryland	RaLonde	Silver Spring, MD	35	9	
9/03	QAPP (Quality Assurance Project Plan) Training	RaLonde	Anchorage	14	8	6
9/03	Economic Feasibility of Small-Scale Pearl Farms in the Central Pacific	Fong	Marshall Islands	6		
9/03	HACCP and Smoked Seafood Processing	Crapo	Prince William Sound	12		

Date	Title	Presenter/ coordinator	Location	No. attendees	No. hours	No. communities served
10/03	Seafood Processing Business Development, 2 sessions	Crapo, Kramer	Valdez	8		
10/03	Preventing and Treating Seasickness, IFISH	Johnson	Sitka	40		
10/03	Marketing Workshop for Hawaiian Aquaculture Products	Fong	Honolulu, HI	8		
10/03	Water Quality Recertification	RaLonde	Anchorage	31	3	12
10/03	Rural Tourism Development, Open World Program	Johnson	Homer	8		
11/03	PSP Testing and Training	RaLonde	Metlakatla	6	6	1
11/03	Clam Aquaculture Practices for Alaska	RaLonde	Anchorage	23	2	4
11/03	Fish Smoking Class, 2 sessions	Crapo	Prince William Sound	12		
11/03	QAPP (Quality Assurance Project Plan) Training	RaLonde	Anchorage	22	3	10
11/03	Direct Marketing, Fish Expo	Johnson	Seattle	45		
11/03	Water Quality Monitoring	RaLonde	Anchorage	35		
11/03	Community Cold Storage and Seafood Processing Plant: Is It Right for Your Community?	Cullenberg, Rice	Anchorage	94		
12/03	Water Quality Monitoring	RaLonde	Anchorage	35	3	15
2004	Salmon Quality for Processors, 5 sessions	Crapo	4 communities	143	12	
2004	TAA, 256 workshops and 56 audioconferences	Baker, Cullenberg, Brown, Rice, Garza, Reeve, Brewer	83 communities	4,200	5,400	161
1/04	Cold Storage Workshop	Paust, Cullenberg	Anchorage	95		
1/04	Beaches and Shoreline, Parks and Rec Field Class	Brewer	Unalaska	15		
1/04	Private-Nonprofit Hatchery Opportunities in Shellfish Aquaculture	RaLonde	Sitka	33	1	5
1/04	Village Based Entrepreneurship	Brown	Dillingham			
2/04	Sanitation Control Program, 2 sessions	Kramer	Indian Valley, Cordova	26	16	3
3/04	Sanitation Control Program	Kramer	Kake	5	8	2
3/04	Marine Environmental Monitoring	RaLonde	Craig	11	40	4
4/04	Sanitation Control Program	Kramer	King Salmon	18	8	4
4/04	Seafood Smoking	Crapo	Prince William Sound	11		
4/04	Fish Processing Workshop	Brown	Dillingham	50		
4/04	Identifying Kodiak's Whales	Wynne	Kodiak	65		
4/04	Nuts and Bolts of Seafood Processing	Brown, Fong	Dillingham	84		
5/04	Marine Environmental Monitoring	RaLonde	Kodiak	13	40	3
5/04	Sanitation Control Program	Kramer	Indian Valley, Anchorage	16	16	11
5/04	Small Boat Seabird Avoidance Methods	Rice	Anchorage	10		
5/04	Commercial Fishing in Petersburg	Rice	Petersburg	30	1	
5/04	Best Management Practices for Community Aquaculture	RaLonde	Honolulu, HI	83	1	
6/04	Seafood Quality Control	Crapo	Kodiak	10	2	
6/04	Seafood Quality for Direct Marketers	Crapo	Yakutat	8	2	
6/04	Handling Ready to Eat Seafoods	Crapo	Sitka	47	2	
6/04	Sanitation for Processors	Crapo	Ketchikan	13	2	
6/04	Sanitation Control Program	Kramer	Quinahagak	8	8	6
7/04	Sanitation Control Program	Kramer	Pelican	12	8	1
7/04	Under the Sea, Junior Marine Biologist Field Class	Brewer	Unalaska	15		
7/04	Shellfish Aquaculture as an Economic Opportunity	RaLonde	Victoria, BC	70	1	
7/04	PSP Training for Aleutian Pribilof Monitoring	RaLonde	Sand Point	10	8	3
8/04	Seaweed Biology and Ecology Workshop	RaLonde	Craig	12	6	6
8/04	Water Quality Training Phase II	RaLonde	Homer	18	33	7
8/04	Call of the Wild, Unalaska Wildlife Field Class	Brewer	Unalaska	14		
8/04	Smoked Fish Workshop	Garza	Ketchikan	6		
9/04	Seafood Processor Business Development	Kramer	Prince William Sound	20		
9/04	Better Process Control School	Kramer	Anchorage	11		10
9/04	Smoked Fish Workshop, 2 sessions	Garza	Craig, Thorne Bay	16		
9/04	Water Quality Training, 2 sessions	RaLonde	Homer, Anchorage	30	36	13
9/04	Watershed Planning	RaLonde	Juneau	40	1	9

Date	Title	Presenter/ coordinator	Location	No. attendees	No. hours	No. communities served
9/04	Planning Aquaculture as a Community Economic Opportunity	RaLonde	Makah Reserve, WA	14	4	2
10/04	Planning Aquaculture as a Community Economic Opportunity	RaLonde	Port Angeles, WA	22	4	3
11/04	Seafood Processor Business Development	Crapo Kramer	Kenai	11		
11/04	Sanitation Control Program	Kramer	Kenai	18	8	7
11/04	Seafood Quality	Kramer	Seward	14		
12/04	Sanitation Control Program	Kramer	Valdez	9	8	2
12/04	Environmental Monitoring for <i>Vibrio</i>	RaLonde	Anchorage	34	2	4
12/04	Shellfish Aquaculture Workshop	RaLonde	Anchorage	90	5	21
12/04	Capacity Building of Rural Alaskans in Fisheries/Environmental Monitoring and Research	Cullenberg	Anchorage	85		
2005	Biosampling and Necropsy Training	Wynne	Kodiak	3		
2005	HACCP Training, 8 sessions	Kramer	5 communities	60	60	32
2005	Salmon Quality for Processors, 7 sessions	Crapo	4 communities	283	14	
2005	TAA, 60 workshops and 7 audioconferences	Baker, Johnson, Brown, Rice, Reeve, Cullenberg, Garza	24 communities	167	82.5	45
1/05	Camp Qualangui, Native Culture Camp	Brewer	Unalaska	70		
2/05	Water Quality Recertification Training	RaLonde	Anchorage	23	4	14
2/05	Sanitation Control Program	Kramer	Anchorage	2	8	2
2/05	Direct Marketing and Business Resources	Johnson	Kenai	16		
2/05	Rural Ecotourism Development	Johnson	Bethel	6		
2/05	Water Quality Training Phase III	RaLonde	Anchorage	12	8	5
2/05	Better Process Control School, 2 sessions	Crapo, Kramer	Anchorage	11		
2/05	Alaska Salmon Enhancement Research Workshop	RaLonde	Anchorage	16	10	7
2/05	AMSEA Vessel Safety Drills Certification	Baker	Cordova	23	18	1
2/05	Food Processing and Prevention Course	Crapo	Kodiak	3		
3/05	Citizenship in a Democracy	Steiner	Anchorage			
3/05	Edible Seaweeds	Garza	Petersburg	24		
3/05	<i>Selendang Ayu</i> : The Future of Shipping Safety	Steiner	Anchorage	45		
3/05	Sanitation Control Program	Kramer	Indian Valley	13	8	5
3/05	Village Entrepreneurship	Brown, Kramer	Indian	14		
4/05	Cetacean History and Problems, Alaska Stranding Network Outreach Workshop	Wynne	Kodiak	4		
4/05	Gillnet Hanging and Mending 2	Baker	Cordova	21		
4/05	Introduction to Seafood Processing	Kramer, Crapo	Kenai	14		
4/05	Intertidal Foods	Garza	Ketchikan	10		
4/05	AMSEA Vessel Safety Drills	Baker	Cordova	12		
4/05	AMSEA Vessel Safety Drills Certification	Baker	Cordova	16	18	1
4/05	Small Boat Survey	Garza	Craig	6		
4/05	Managing Fisheries, Empowering Communities	Cullenberg, Johnson	Anchorage	175		
4/05	Water Quality Training Phase I	RaLonde	Anchorage	20	33	18
4/05	Small Boat Survey	Garza	Hydaburg	6		
4/05	Current Topics in Seafood Science	Crapo	Kodiak	3		
4/05	Seafood Processing and Prevention	Crapo	Kodiak	3		
4/05	Onboard Handling	Crapo	Cordova	45		
4/05	Edible Seaweeds, 5 sessions	Garza	4 communities	40		
4/05	Oil and Gas Leasing Panel Discussion	Brown, Steiner	Dillingham	radio		
5/05	Arctic Shipping Workshop	Steiner	Norway			
5/05	Production and Distribution of Lightweight Streamer Lines	Rice	Seattle	18		
5/05	Commercial Fishing in Petersburg	Rice	Petersburg	30	1	
5/05	Shellfish Aquaculture for Sheldon Jackson College	RaLonde	Sitka	5	4	5
5/05	Bull Kelp	Garza	Craig	9	8	1
5/05	Seafood Marketing, 3 sessions	Fong	3 communities	33	16	2
5/05	Sanitation Control Program	Kramer	Anchorage	11	8	7

Date	Title	Presenter/ coordinator	Location	No. attendees	No. hours	No. communities served
5/05	Marine Biology for Elementary Students	RaLonde	Seward	20	16	
5/05	Plant Sanitation for Seafood Processors	Crapo	Kodiak	48	2	
5/05	Aquaculture and Agriculture Workshop	RaLonde	Fairbanks	19	10	5
6/05	Salmon Quality for Fishermen, 4 sessions	Reeve	4 communities			
6/05	Marine Mammal Observer Training	Wynne	Anchorage	14		
6/05	Sanitation Control Program	Kramer	Quinahagak	7	8	7
6/05	Plant Sanitation for Seafood Processors	Crapo	Kodiak	14	2	
6/05	Salmon Quality for Fishermen, 2 sessions	Crapo	Kodiak, Wrangell	12	5	
6/05	Ship Creek Salmon Derby	RaLonde	Anchorage	200+	16	
6/05	Small Boat Seabird Avoidance Methods	Rice	Portland, OR	6		
6/05	Subsistence Use of Seaweed	Garza	Kodiak	36		
6/05	Kodiak Campus Cultural Awareness Course for Island Teachers	Garza	Kodiak	39		
6/05	Handling Ready to Eat Seafoods, 2 sessions	Crapo	Juneau, Haines	11	4	
6/05	Plant Sanitation for Seafood Processors	Crapo	Juneau	22	2	
6/05	Edible Seaweeds	Garza	Kodiak	38		
7/05	Seafood Processing	Crapo, Kramer	King Salmon	11		
7/05	Running Your Business	Crapo, Kramer	Wrangell	6		
7/05	Handling Ready to Eat Seafoods	Crapo	Sitka	36	2	
8/05	Alaska Ocean Observing System Workshop	RaLonde	Cordova	35	6	12
8/05	Sanitation Control Program	Kramer	Craig	8	8	4
8/05	Water Quality Training, 2 sessions	RaLonde	Homer	21	33	14
8/05	Shipping Safety and Protection of National Wildlife Refuges	Steiner	Homer			
8/05	Aleutian Life Forum	Brewer	Unalaska	100		
9/05	Senator Stevens Reception	RaLonde	Fairbanks	200+	6	
9/05	Commercial Fishing in Petersburg	Rice	Petersburg	15	2	
9/05	Fish Identification	Kramer	Anchorage			
9/05	Marine Finfish Farming Task Force Workshop	RaLonde	Anchorage	17	1	
9/05	Shipping Safety Partnership Perspectives	Steiner	Anchorage			
9/05	Business Planning for Aquaculture Development Workshop	RaLonde	Metlakatla	9	7	1
9/05	Salmon Roe Processing	Brown, Reeve	Dillingham	15		
10/05	Sanitation Control Program	Kramer	Anchorage	7	8	4
10/05	Social and Environmental Accountability of the Private Sector	Steiner	Geneva, Switzerland			
10/05	Business Planning for Shellfish Aquaculture	RaLonde		6		
10/05	PSP Information, Monitoring, Prevention, and Testing	RaLonde		12		
10/05	Seafood Processor Orientation and Safety Course	Kramer	Seward	10		4
10/05	Shellfish Farming Opportunities	RaLonde	Annette Island	8		
10/05	The Graying of the Petersburg Fleet	Rice	Petersburg	30		
11/05	Water Quality Training	RaLonde	Fairbanks	14	6	14
11/05	Fish and Water Quality Lecture, Alaska Pacific University	RaLonde	Anchorage	8	2	
12/05	Aquaculture Lecture Series	RaLonde	Fairbanks	6	4	
12/05	Raft Culture of Pacific Oysters, British Columbia Technique	RaLonde	Anchorage	18	2	
2006	HACCP Training, 12 sessions	Kramer	5 communities	71	160	30
2006	Salmon Quality for Processors, 13 sessions	Crapo	12 communities	320	28	
1/06	Marine Mammal Observer Training	Wynne	Anchorage	8		
1/06	Transferring Your Fishing Business	Rice	Petersburg	16		
1/06	Sanitation Control Program	Kramer	Bethel, Anchorage	11	16	4
1/06	International Ocean Observing System Workshop, Alaska Representative	RaLonde	St. Petersburg, FL	50	8	
2/06	Alaska Ocean Observing System Web Site Tutorial	Baker	Cordova	16	4	1
2/06	New Directions in Value Added Seafoods	Crapo		6		
2/06	Onboard Freezing	Crapo, Fisk, Rice	Petersburg	5		
2/06	Better Process Control School	Kramer	Anchorage	8	16	8
2/06	Marine Mammals and Commercial Fishing: Coexisting in Alaska Waters?	Wynne	Anchorage	65		

Date	Title	Presenter/ coordinator	Location	No. attendees	No. hours	No. communities served
2/06	Seafood Processing Workshop	Brown Kramer	Naknek	28	12	8
2/06	Seafood Marketing Workshop, 2 sessions	Brown	Naknek	55		
2/06	AMSEA Vessel Safety Drills Certification	Baker	Cordova	8	18	1
3/06	Sanitation Control Program	Kramer	Kenai	11	8	4
3/06	Cook Inlet on the Rocks	Steiner	Homer			
3/06	Seabird Avoidance on Small Alaska Longliners	Rice	Juneau	25		
3/06	Marine Wildlife Viewing, Alaska Wilderness Recreation & Tourism Association	Johnson	Sitka	8		
3/06	Pacific Fisheries Technologists	Brown, Kramer	Anchorage	125		
3/06	Charter Vessel Insurance, ComFish	Johnson	Kodiak	7		
3/06	Seasickness Prevention and Treatment, ComFish	Johnson	Kodiak	7		
3/06	Ten Tips for Safe, Enjoyable Boating, Sportsmen's Show	Johnson	Anchorage	12		
3/06	Fishery Technologist Workshop	RaLonde	Anchorage	90	20	
3/06	Remote Ecotourism	Johnson	Homer	10		
3/06	Responsible Marine Wildlife Viewing, Deep Creek Charter Association	Johnson	Ninilchik	30		
3/06	Crab Enhancement Workshop	RaLonde	Kodiak	40	3	6
3/06	PSP Public Education, ComFish	RaLonde	Kodiak	90	6	15
3/06	PSP: The Alaska Program, Sheldon Jackson College	RaLonde	Sitka	3	2	
4/06	Commercially Smoked Seafood Products, 2 sessions	Brown	King Salmon, Dillingham	13		
4/06	Sanitation Control Program	Kramer	Cordova	7	8	2
4/06	Alaska Seafood Processing Leadership Institute	Crapo	Kodiak	10		
4/06	Salmon Quality Handling, 2 sessions	Crapo, Rice	Petersburg, Wrangell	35		
4/06	Planning Your Business	Reeve	Bethel	4		
4/06	Responsible Marine Wildlife Viewing, Kasitsna Bay Ecotourism Network	Johnson	Homer	40		
5/06	Sanitation Control Program	Kramer	Kodiak	12	8	10
5/06	Assessing Underwater Noise from Oil Tankers	Steiner				
5/06	Commercial Fishing in Petersburg	Rice	Petersburg	20-40	1	
5/06	Preventing the Spread of Rats at Harbors, Pacific Coast Conference	Johnson	Juneau	30		
5/06	Salmon Quality and Marketing Updates	Baker	Cordova	45		
5/06	Fish Identification, Observer Training Center	Kramer	Anchorage	7		
5/06	Marine Mammal Observer Training	Wynne	Anchorage	16		
5/06	Water Quality Monitoring Phase I	RaLonde		13		
5/06	Commercial Canning Seafood	Brown	Dillingham	5		
5/06	Bristol Bay Hydrocarbon Panel Discussion	Brown	Dillingham	25		
5/06	Responsible Marine Wildlife Viewing, 6 sessions	Johnson	5 communities	109		
5/06	Salmon Quality and Marketing Updates	Baker	Cordova	35		
5/06	<i>Vibrio parahaemolyticus</i> Research & Studies from the Alaska Experience	RaLonde		10		
5/06	Plant Sanitation for Seafood Processors	Crapo	Kodiak	102	2	
6/06	Water Quality Monitoring Phase I	RaLonde	Anchorage	21	33	18
6/06	PSP Training for Aleutian Pribilof Monitoring	RaLonde	Anchorage	2	6	
6/06	Plant Sanitation for Seafood Processors	Crapo	Ninilchik	18	2	
6/06	Handling Ready to Eat Seafoods, 2 sessions	Crapo	Homer, Juneau	7	4	
6/06	Responsible Wildlife Viewing Oceans Fest	Johnson	Anchorage	10		
6/06	Sanitation for Processors, 3 sessions	Crapo	Ketchikan, Cordova	133	6	
6/06	Home Canning Workshop	Brown	Dillingham	5		
8/06	Coastal Hazards Meeting	Brown	Dillingham			

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VIDEOS

2001

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Steiner, R., moderator. 2001. Sea lions, fishermen, and fish: The debate. Alaska Resource Issues Forum. Alaska Sea Grant Marine Advisory Program. 60 min.

Steiner, R., moderator. 2001. Global warming and Alaska—Causes, impacts, responses. Alaska Resource Issues Forum. Alaska Sea Grant Marine Advisory Program. 60 min.

2002

Mercy, D. 2002. Broadening horizons: Earning a rural development degree. UAF Department of Alaska Native and Rural Development and Alaska Sea Grant Marine Advisory Program.

Mercy, D. 2002. Tsunami Bowl: Alaska Regional 2002 National Ocean Sciences Bowl. Alaska Sea Grant Marine Advisory Program. 13:10 min.

Steiner, R., moderator. 2002. The future of Alaska's salmon industry. Alaska Resource Issues Forum. Alaska Sea Grant Marine Advisory Program. 60 min.

2003

Mercy, D. 2003. Off the hook in Alaska: Seabird bycatch and longlines. Alaska Sea Grant Marine Advisory Program.

Steiner, R., moderator. 2003. Wolf control in Alaska. Alaska Resource Issues Forum. Alaska Sea Grant Marine Advisory Program. 56:36 min.

Steiner, R., moderator. 2003. Conservation vs. development: The Alaska dilemma. Alaska Resource Issues Forum. Alaska Sea Grant Marine Advisory Program. 57 min.

Steiner, R., moderator. 2003. Marine protected areas in Alaska. Alaska Resource Issues Forum Series. Alaska Sea Grant Marine Advisory Program. 57 min.

2004

Byers, K., and M. Sigman. 2004. Life on the beach: Among friends and anemones. Alaska Sea Grant College Program, Earthwise Media, and Center for Alaskan Coastal Studies. 20 min.

Byers, K. 2004. Ocean fury: Tsunamis in Alaska. Alaska Sea Grant College Program, Geophysical Institute, and Alaska Div. of Homeland Security and Emergency Management. 25 min.

Mercy, D. 2004. Alaska Tsunami National Ocean Sciences Bowl, 2003–2004. Alaska Sea Grant Marine Advisory Program. 13:07 min.

Mercy, D. 2004. Keeping your net wet: Business tools and resources for Alaska salmon harvesters. Alaska Sea Grant Marine Advisory Program. 12:36 min.

Mercy, D. 2004. Safety first: Initial vessel safety check for observers. North Pacific Fisheries Observer Training Center and Alaska Sea Grant Marine Advisory Program.

2005

Mercy, D. 2005. Alaska Tsunami National Ocean Sciences Bowl, 2005. Alaska Sea Grant Marine Advisory Program. 9:51 min.

Mercy, D. 2005. Keeping your net wet. Trade Adjustment Assistance. Alaska Sea Grant Marine Advisory Program. 14 min.

Mercy, D. 2005. Keeping your net wet. Yup'ik version. Trade Adjustment Assistance. Alaska Sea Grant Marine Advisory Program. 21 min.

2006

Mercy, D. 2006. Alaska Tsunami National Ocean Sciences Bowl, 2006. 14:18 min.

Mercy, D. 2006. Quality is in your hands: Salmon skiff fishermen. Alaska Sea Grant Marine Advisory Program. 16:16 min.

Publication Users

Examples of how selected publications are used

Angler's Guide to the Rockfishes of Alaska

Alaska Dept. Fish and Game used 3,000.

Beachwalk brochure

Seattle Aquarium printed 5,000 copies for educational use.

Beating the Odds on Northern Waters:

A Guide to Fishing Safety

7,200 copies were used by safety trainers in 2001–2006

Biological Field Techniques

for Lithodid Crabs

NOAA Fisheries Office for Law Enforcement, 20 books.

Alaska Dept. Fish and Game, 70 books for research.

Aquaculture and seafood companies in Peru, Argentina, Chile, Norway, Germany, Russia, Japan, New Zealand.

Boatkeeper (Web-based)

A U.S. Coast Guard commercial fishing vessel examiner in Ketchikan, AK, uses Boatkeeper articles as handouts for all training, for example, Alaska wildlife trooper training.

Fishing Vessel Insurance

BBT Insurance in Moorehead City, NC, used 50 in a seminar sponsored by Mid-Atlantic Sea Grant Network.

Flat Out Facts about Halibut

Alaska Dept. Fish and Game used 1,000.

Guide to Marine Mammals and Turtles of the U.S.

Atlantic and Gulf of Mexico

Longitude bookseller bought 40 for marine ecotour cruises.

Marine companies in Louisiana and Texas ordered 300 copies to satisfy a requirement that offshore support vessels have animal field guides on board, to identify any animals they might injure.

Guide to Marine Mammals of Alaska

NOAA Fisheries, Santa Rosa, CA, used 40 copies to train new wardens and enforcement agents.

Prince William Sound Community College, AK, used 60 in a wildlife capture class.

National Conservation Training Center, Shepherdstown, WV, used 15.

U.S. Fish & Wildlife Service, Federal Law Enforcement and Training Center, Glynco, GA, used 116.

NOAA Alaska Fisheries Science Center, and National Marine Mammal Laboratory, Seattle, WA, used 380 for fisheries observer training.

Longitude bookseller bought 245 for marine ecotour cruises.

LGL used 15 for observers.

Hundreds were ordered by charter companies.

Guide to Northeast Pacific Rockfishes and Guide to Northeast Pacific Flatfishes

NOAA Fisheries, Santa Rosa, CA, used 40 copies of each to train new wardens and enforcement agents.

U.S. Coast Guard; Alaska Dept. Fish and Game; Archipelago Research, Canada; and West Coast Observer Program, Seattle, used a total of 130 copies of each for training.

Guidelines for Shellfish Farming in Alaska

6 copies used for crew training and to improve profitability of business.

The Gulf of Alaska: Biology and Oceanography

Alaska Dept. Fish and Game used 13.

NOAA Fisheries used 35.

University of Alaska Fairbanks Institute of Marine Science, Seward, used 12.

Exxon Mobile used 57.

Stan Stephens Cruises used 13.

Harmful Algal Blooms on the North American West Coast

Alaska Dept. Environmental Conservation environmental health director, Janice Adair, used it as a resource to solve issues with geoduck PSP sampling, and a conflict with divers.

Outdoor Survival Training for Alaska's Youth, teacher and student manuals

Educational Training in Sitka, AK, used 1,000 copies.

Alaska Marine Safety Education Association used 400.

Anchorage YMCA used 625.

Maniilaq Health Education Program used 625.

School teachers, homeschool families, 4-H, Girl Scouts, Boy Scouts, American Red Cross, National Park Service, Eielson Air Force Base use hundreds.

Also used in California, Florida, Nebraska, New York, Ohio, Vermont, Wisconsin, and other states.

Recipe Bookmarks and Alaska's Ocean Bounty poster

Alaska Marine Highway (ferry system) ordered 325 posters and 40 bookmark sets.

Salmon Migration Game/Discovering Alaska's Salmon book (set)

Alaska 4-H in Palmer used 50 at workshops.

Douglas Island Pink and Chum Hatchery, AK, ordered 105 to sell in their store.

Steller Sea Lion Decline: Is It Food II

Ron Baird, National Sea Grant director, gave away 30 copies on Capitol Hill.

North Pacific Fishery Management Council used 75

NOAA Fisheries used 30.

Exxon Mobile used 23.

Truths and Myths about PSP/Common Clams, Cockles, Scallops, Oysters of Alaska, poster

12 posters placed in medical clinics in remote Prince William Sound communities.

17 posters, Alaska Cooperative Extension.

12 posters, charter business.

Water Wise: Safety for the Recreational Boater

Alaska Marine Safety Education Association used 650 copies

Joseph McCullough, Alaska Dept. Natural Resources, touts it as a resource in the boating safety classes he teaches.

1,300 sold to West Marine's supplier, Robert Hale & Co. Inc. West Marine lists it in their catalog.

BoatU.S. lists it as a reference on their online boating safety course (50,000 users per year), and sells it in their stores.

University of Alaska Fairbanks in Bristol Bay used 50 copies for training.

North Pacific Fishing Vessel Owner's Association used 10 copies.

Publication Reader Feedback

Examples of feedback for selected publications and videos

Alaska Sea Otter Research Workshop: Addressing the Decline of the Southwestern Alaska Sea Otter Population

I found your book very useful for my class project. I was taking Population Dynamics and needed to look at fecundity rates, survival and death rates of juveniles and adult sea otters. I looked everywhere for this information and could not find sources. Your book had all the resources I needed and was quoted throughout my paper.

LESLIE D. DOW, UNIVERSITY OF NEW HAMPSHIRE

Biological Field Techniques for Lithodid Crabs

I use the field manuals for both Lithodid and *Chionoecetes* crabs, very useful. They are compact, well organized and serve as excellent primers for training new personnel.

FRANK MORADO, ALASKA FISHERIES SCIENCE CENTER, SEATTLE, WASHINGTON

Boatkeeper

I've read all your articles in the *Boatkeeper* series and have found them very helpful and informative. 50% of my task as an examiner is educating commercial fishermen; your articles have become standard handouts in all of our training.

TIM CLEPPER, USCG COMMERCIAL FISHING VESSEL EXAMINER, KETCHIKAN

Common Edible Seaweeds in the Gulf of Alaska

I think the publication is great. I appreciate guides that identify Alaska plants and the use aspect is really interesting. I am taking the guides out to our setnet site on Raspberry Island, near Kodiak. I know I will be picking it up often and it will be of interest to guests. I bought a book for our neighbor on Raspberry Island as well.

MIMI HOGAN, ANCHORAGE, ALASKA

Crabs in Cold Water Regions: Biology, Management, and Economics

Thank you so much for sharing your excellent Sea Grant publication with me. It is not only a handsome addition to the book case or alternatively an impressive paper weight, it is a storehouse of valuable and up to date information, which will serve the scientific community, myself included, well for years to come.

PAT MCLAUGHLIN, CHAIR, DECAPOD SUBCOMMITTEE, AMERICAN FISHERIES SOCIETY

Fisheries Assessment and Management in Data-Limited Situations

As a practicing fisheries biologist, I am a big fan of the Alaska Sea Grant Program Symposium series. I regularly dip into them when writing my own papers. I am always amazed how quickly they get published after the event itself. I managed to get one of my own, as joint author of a paper, in *Fisheries Assessment and Management in Data-Limited Situations*. Keep up the great work over there.

GARY JACKSON, RESEARCH SCIENTIST, WESTERN AUSTRALIAN FISHERIES AND MARINE RESEARCH LABORATORIES, NORTH BEACH, WA, AUSTRALIA

Fishlines newsletter

I just wanted to thank you for your electronic newsletter & tell you what a great job you've done! This is a terrific resource! There are a few stories here which would be great to share with NOAA leadership. Thanks & keep up the good work!

AMY PAINTER, NATIONAL SEA GRANT OFFICE

Guide to Marine Mammals of Alaska

I was recently in Skagway and purchased the booklet "Marine Mammals of Alaska" at the Warden's office. All I can say is that it is an excellent publication and cannot really see what could be improved on this. Thank you.

G. VAN WACHEM, NANAIMO, B.C., CANADA

The Gulf of Alaska: Biology and Oceanography

I found this book useful and a worthwhile publication of Alaska Sea Grant. We found it useful and informative. We have placed the book in the libraries on all of our ships that visit Alaska.

JOHN SHIVELY, VICE PRESIDENT GOVERNMENT AND COMMUNITY RELATIONS, HOLLAND AMERICA, ANCHORAGE, ALASKA

I find the publication very useful. It is an excellent review of Gulf of Alaska research on the natural history of the large marine ecosystem (LME), the status of its resources and a great starting point for proposal writing.

FRANK MORADO, ALASKA FISHERIES SCIENCE CENTER, SEATTLE, WASHINGTON

Herring: Expectations for a New Millennium

Extremely useful. Good depth and breadth of information on herring populations worldwide.

J. HOSE, ARROYO GRANDE, CALIFORNIA

The Journey to PICES: Scientific Cooperation in the North Pacific

As a founding father of PICES it is neat to have the history, particularly nice to have it come from the Alaska Sea Grant program in view of the strong role played by key members of the staff in the creation of the organization.

BILL ARON, SCHOOL OF MARINE AFFAIRS, UNIVERSITY OF WASHINGTON, SEATTLE, WASHINGTON

Managing Fisheries—Empowering Communities: Conference Proceedings

Thanks for the opportunity to reflect on the usefulness of the Sea Grant publication: *Managing Fisheries—Empowering Communities*.

As you may know, Paula Cullenberg gave me a copy about a year ago. I felt it important enough to ask for three more copies, since I really wanted to keep mine with all my notes and underlinings. You also may know that I am involved in the development and support of community-based fishery management [CBFM] along the coast of Maine. Your book was a helpful resource for my own learning and

also for assessing some of the options that arise, in terms of various kinds of quotas, and differing community structures in looking at what you have done out there on the other side of this country, and the varied reactions to CBFM.

The contents of the booklet have spawned several new discussions and informed a good many more. I have given copies to my co-chair of the Downeast Groundfish Initiative, Jim Wilson (School of Marine Science, U. of Maine); to Robin Alden, former commissioner of Maine's DMR and now Exec. Director of the Penobscot East Resource Center, and to Geoff Smith, newly appointed head of the marine program of the Maine chapter of The Nature Conservancy.

So, I trust you can see that I was quite pleased with the publication, to say the least. Thanks again for the good work in publishing this extensive report.

TED HOSKINS, MINISTER TO COASTAL COMMUNITIES AND FISHERIES, MAINE SEA COAST MISSION

Marketing and Shipping Live Aquatic Products

An excellent book.

DAVID RAHN, EAGLE HARBOR CO., WEST VANCOUVER, CANADA

Northern Harbors and Small Ports: Operation and Maintenance

As a boat owner in New England, I have an interest in the operation and maintenance of our local harbors. Yours is the only book I've found that succinctly summarizes the issues associated with harbor management. Although there are many issues that are unique to New England and to Alaska, the book was a great starting point.

BETHANY BAKER, REHOBOTH, MASSACHUSETTS

Ocean Fury: Tsunamis in Alaska video

Our copy of the DVD has been checked out five times since we got it in 9/05—and it is currently checked out [4/06]. That's excellent turnover.

CATHY RASMUSSEN, EIELSON AIR FORCE BASE LIBRARY, ALASKA

I find it very useful in my field of Emergency Response and Preparedness. I assist communities by putting together their Emergency Response Plans and do Vulnerability Assessments on water systems. Mainly I find this video useful in portraying exactly how helpless a major catastrophe will make people feel, which drives the point of ERP processes being a good thing to have established prior to any major event.

SHANNON DEWANDEL, PUBLIC WATER SYSTEM SECURITY SPECIALIST, ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, ANCHORAGE, ALASKA

Ocean Treasure: Commercial Fishing in Alaska

I found your book tremendously helpful! In fact I just had an email exchange with Terry Johnson this week and told him that I would love to see our program in Maine do something similar. It is really top notch in its overview of the marine industry. Thanks!

NATALIE SPRINGUEL, MARINE EXTENSION ASSOCIATE, COLLEGE OF THE ATLANTIC, BAR HARBOR, MAINE

Preventing and Treating Seasickness

We are great fans of your publications and have copies of Seasickness and others in each of our charter boats from rockfish to marine mammals. They are all very useful and are used almost every day we are out on the water.

MIKE AND SALLY TROTTER, BARANOF WILDERNESS LODGE, SITKA, ALASKA

Sea Week Curriculum books

I do think (the Sea Week curriculum books) are great materials and will be sure to let readers of my project know where they can purchase them. There seem to be a lot of materials out there for older children but I was having trouble finding anything for the primary grades until I found your materials.

MIRA LIEBERMAN, UNIVERSITY OF WASHINGTON

Surviving Outdoor Adventures

All of the outdoor survival books I bought from your organization have been put in our traveling education kit that focuses on Alaska Survival. I used various pages from the book for 4 survival classes I taught at the Kiana school this year (3rd–5th grade). The students liked the cartoon drawings which led to good discussions about safe traveling practices.

LINDA JESCHKE, EDUCATION SPECIALIST, WESTERN ARCTIC NATIONAL PARKLANDS, ALASKA

Water Wise: Safety for the Recreational Boater

A+!! One of the best safety books I read.

CAPTAIN JAMES LACKEY, USCG, ESCONDIDA, CALIFORNIA

The language used is easygoing wording. The true stories, the humor, is really what captivated my attention! Very well done!

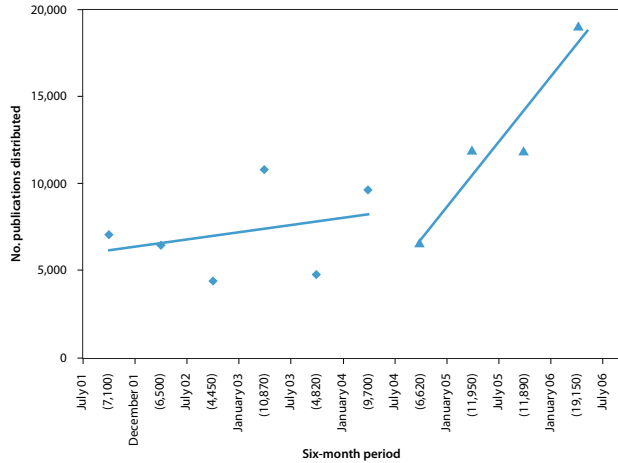
FRANCES E. JOHNSON, TRAVEL SNEAKERS, TEQUESTA, FLORIDA

Publication and Video Awards

	Publication	Author	Organization	Award
2006	<i>2006 Alaska Coastal Calendar</i>		National Association of Government Communicators Communications Concepts	First Place Apex Award of Excellence
	<i>Common Edible Seaweeds in the Gulf of Alaska</i>	D. Garza	National Association of Government Communicators Association for Communication Excellence	Award of Excellence Bronze Award
	AOOS promotional brochure		Association for Communication Excellence	Gold Award
	<i>Biological Field Techniques for Lithodid Crabs</i>	W. Donaldson S. Byersdorfer	Association for Communication Excellence	Gold Award
	<i>Advances in Seafood Byproducts</i>	P. Bechtel	National Association of Government Communicators	First Place
2005	<i>The Bering Sea and Aleutian Islands</i>	T. Johnson	Communications Concepts Association for Communication Excellence Association for Communication Excellence National Association of Government Communicators	Apex Award of Excellence Gold Award production Gold Award graphic design Second Place
	<i>Field Guide to Bird Nests and Eggs of Alaska's Coastal Tundra</i>	T. Bowman	National Association of Government Communicators	First Place
	<i>Life on the Beach</i> video		National Association of Government Communicators	First Place
	<i>Visions of Undersea Alaska Engagement Calendar</i>		National Association of Government Communicators	First Place
	<i>Ocean Fury: Tsunamis in Alaska</i> video	Script by K. Byers and M. Aull	Association for Communication Excellence National Association of Government Communicators	Gold Award script First Place animation; Third Place documentary
	<i>Ocean Fury: Tsunamis in Alaska</i> video	Script by K. Byers and M. Aull	International Cultural Film Symposium	Screening Award
	<i>Guide to Northeast Pacific Rockfishes</i>	D. Kramer V. O'Connell	Association for Communication Excellence	Gold Award cover design
2004	<i>Ocean Treasure: Commercial Fishing in Alaska</i>	T. Johnson	National Association of Government Communicators Association for Communication Excellence	Award of Excellence Silver Award
	<i>Beating the Odds on Northern Waters</i> , 4th edn.	S. Jensen J. Dzugan	Communications Concepts	Apex Award of Excellence
	<i>Boatkeeper</i>	T. Johnson	Association for Communication Excellence	Gold Award
2003	<i>Crabs in Cold Water Regions</i>	A.J. Paul et al. (eds.)	National Association of Government Communicators	Honorable Mention
	"Hard Times at the Haul Out" in <i>Alaska</i> magazine	D. Schneider	Association for Communication Excellence National Association of Government Communicators	Silver Award Second Place
	"Kodiak's Steller Sea Lions," radio	D. Schneider	National Association of Government Communicators	Honorable Mention
	<i>Surviving Outdoor Adventures</i>	M. Allen et al.	Sea Grant Week	Blue Ribbon Award
2002	Herring 2000 Symposium suite of publications		Communications Concepts	Apex Award for Publication Excellence

APPENDIX 23

Publications Distribution Trend



Points represent total publications distributed for six-month periods. Marketing coordinator began marketing focus in September 2004.

APPENDIX 24

Marketing Tactics for Publications and Videos

- ◆ Mail initial announcement/order form to target audience coded in database.
- ◆ List product in Alaska Sea Grant paper catalogs. Catalogs are sent out with target mailings on related topics and distributed at trade shows and displays.
- ◆ List product in our Web illustrated catalog, with description and table of contents, offering secure online ordering.
- ◆ Send targeted mailings, based on buying habits. For example, mail an advertising brochure for several products to retailers in February when they buy for the summer tourist trade.
- ◆ Feature publications on our Web home page.
- ◆ Provide a link on Marine Advisory Web pages, including agent profile pages, to our online catalog.
- ◆ Buy mailing labels for target audiences.
- ◆ Send personal letters to people who can use bulk quantities or promote the book; for example, safety trainers and fishery observer trainers.
- ◆ List with Amazon.com, Barnes&Noble.com, Borders Books, and other Web booksellers.
- ◆ Place PDF of entire publication on our Web site.
- ◆ Provide PDFs of our publications, with summaries and catalog information, to the National Sea Grant Library.
- ◆ Promote products at trade shows and other public and professional exhibits, including Wholesale Alaska Gift Show, Alaska Sea Grant science symposia.
- ◆ Marine Advisory agents and Alaska Sea Grant office distribute books and videos to walk-in customers and at workshops.
- ◆ Display books and distribute catalogs at Cooperative Extension Service in communities statewide.
- ◆ Announce products to other Sea Grant programs.
- ◆ Distribute catalogs and Web address bookmarks at Interior Alaska Distance Education Association homeschool offices.
- ◆ Send copies and summaries to the National Sea Grant Office, NOAA Library, Aquatic Sciences and Fisheries Abstracts, and others designated by the National Sea Grant Office.
- ◆ Announce to abstracting services for print and database listings.
- ◆ Announce products in our newsletter, *Fishlines*, and other newsletters.
- ◆ Send news releases about new products to news and trade media, and advertise on Fish Radio.
- ◆ Mention the product in context of related news or feature story, or in news media tip sheet.
- ◆ Include links to publications with online scripts of Arctic Science Journeys Radio.
- ◆ Link Web catalog pages for related publications to one another
- ◆ Send free copies to journal, newsletter, newspaper, and magazine book reviewers.
- ◆ Send free copies to bookstore buyers and others who might order quantities.
- ◆ Make personal visits and telephone calls to retailers on a regular basis.
- ◆ Sell on campus through University of Alaska Fairbanks organizations, departments, museum gift shop, and bookstore.
- ◆ Sell products through wholesalers and distributors.
- ◆ Work with organizations who cooperate in distribution, such as the Alaska Natural History Association, Alaska Department of Fish and Game, and National Park Service.
- ◆ Assign ISBN number to books and register through Bowker Co., to ensure books are listed in Books in Print.
- ◆ Print library Cataloging in Publication Data in books, to ensure books are listed on library computer databases.
- ◆ Advertise in display ads and classified ads in trade publications.
- ◆ List publications in commercial bookseller print catalogs.
- ◆ Watch for opportunities to publicize a book. For example, we announced that 10% of our sales for 6 months would go to a fund to help Gulf Coast fishermen whose businesses were hurt by hurricanes.
- ◆ Offer a discount sale price for books when they are purchased together—"pair up" books that target a similar audience.
- ◆ Send email announcement for new books to targeted lists, and announce new books on listservs.
- ◆ Produce attractive, educational calendar every year to raise visibility of program, highlighting general-audience publications in a display inside.
- ◆ Print several thousand Alaska tide schedules, with educational information and mention of program and publications; distribute from Marine Advisory offices, to faculty and staff, harbor master offices, and others.
- ◆ Work with book authors to get contacts and ideas for places to promote books.
- ◆ Partner with University of Alaska Press to promote publications.
- ◆ Hold author book signings for new books at events that attract target audience.

Media Relations

ARCTIC SCIENCE JOURNEYS (ASJ) RADIO

2006

On hiatus

2005

Alaska's Oil Field Ravens
Arctic Cooling
Arctic Lakes Shrink, Disappear
Arctic Ozone Loss
Big Oil, Big Whales, Big Trouble
California Sea Lions Venture North
Canada's Shrinking Ice Caps
Deep Sea Coral
Killer Appetites
Tsunami Mystery

2004

Alaska Next Stop for West Nile Virus?
Alaska Salmon Protein May Have China Market
Electronic Nose Sniffs Bad Seafood
Escaped Farmed Salmon in Alaska
Melting Beneath Our Feet
New Alaska Marine Habitat
Reinventing Alaska Salmon Industry
Smooth Sailing
Sneaky Cetaceans
Toxic Farmed Salmon
Wandering Bivalves
Zoo Offers Polar Seabird Refuge

2003

Arctic Ocean Diversity
Beluga Café
El Niño Winners and Losers
Feeding the Bering Sea
Fish Food
Kid Science
Natives Help Scientists
Noisy Oceans
Adapting to Climate Warming
Ocean Diversity
Orcas and Sea Lion Decline
Reindeer Wranglers
Risky Science
Rocket Science
Satellites See Sea Changes
Shuttle Clouds
Tracking Right Whales
Ultimate Whale Watching
Vanished!
Warmer Arctic Hosts New Plants

2002

Disappearing Act
Elephant Seal Slumber
Forest Fire Season Begins
Gambling on Ice
Ghost Pots
Gray Whale Chow Line—Closed?
Hidden Ocean
Jello Plankton
Kodiak's Steller Sea Lions
Life in Ice
More Than Trees
Predicting the Sea
Reindeer Gals
Salmon Boom
Saving City Salmon
Science Sub
Whale Count Results
Sea Lion Numbers Up
Sea Lion Survival

Sea Otter Crash
Seamount Oasis
Sorting Seals
State of the Sea
Steller Sea Lions Say Ahhh
Too Close for Comfort
Wanted: Killer Whale Sightings
Watch Carefully
Wimpy Walrus

2001

Alaska Fire Research
Alaska Getting Shrubbiest
Alaska Marine Species List
Archiving Alaska's Insects
Avalanche!
Bad Air
Bears in My Backyard
Bubble Gum Walrus
Climate Confusion
Crab Pod
Crested Auklets
Deep-Sea Coral
Endangered Wildlife Trade
Exploring Alaska Seamounts
Fingerprinting Pollock
Fireweed
Green Seafood
Humans Cause Climate Warming
Industry Funds Sea Lion Science
Insuring Alaska's Salmon Crop
Kittiwake Contrast
Laser Fish
Mercury in Pike
More! Hunting
Mountains of Change
New Crabs in Alaska
Nuke Plan Threatens Arctic
Plankton Bloom
Polar Bears Change Diet
Right Whale Skeleton
Salmon Getting Smaller
Salmon May Move North
Sick Salmon
Trawling for Answers
Whale Count
What Walrus Eat

Stations airing ASJ Radio each week.

Twenty-nine Alaska radio stations air ASJ radio each week, in more than 42 communities. Several out-of-state stations air it as well:
Earthwatch Radio
The Environment Show
Icicle Networks
Pulse of the Planet
Science Friday
Voice of America
Discovery Channel Radio
Sirius Satellite Radio

NEWS

The following news releases, news briefs, media advisories, and announcements were prepared for Alaska Sea Grant and University of Alaska Fairbanks School of Fisheries and Ocean Sciences.

2006

Alaska dinosaur discovery
Alaska feels the heat
Alaska fire research
Alaska fisheries pioneer dies
Alaska Sea Grant awards \$1 million to marine research

Alaska Sea Grant publishes guide to responsible marine wildlife viewing
Alaska Seafood Processing Leadership Institute to train future leaders
AlaskaFishBiz.org is one-stop resource for fishermen, seafood processors
Amchitka's nuclear legacy (UAF home page multimedia feature)
Cordova Flatfish to join Seward Shrimp Hawks at national ocean science competition
Hatcheries examined as key to Alaska crab recovery
High school students vie for college scholarships, bragging rights in ocean science competition
Sea Grant conference draws international experts to discuss Alaska crab enhancement
SFOS scientists explore gold rush era shipwrecks
Whitledge to lead UAF Institute of Marine Science

2005

Alaska Sea Grant to help Gulf Coast fishermen
Alaska seabird has natural mosquito defense
American Fisheries Society Annual Meeting
Annual Aleutian Life Forum kicks off Chinese connection
Copper River Salmon Workshop No. 1
Edwards memorial planned
Fairbanks seniors visit SFOS
Fishermen's Direct Marketing Manual
Fishing industry research donations top \$5 million
Follow the hidden ocean explorers!
Government/industry partnership helps small fishing vessels meet federal and state seabird regulations
Jewett named Fulbright
Juneau-Douglas captures science bowl
Kruise to chair PICES committee
Kruise to chair NPFMC Scientific and Statistical Committee
MAP aquaculture specialist spotlighted (UAF home page multimedia presentation)
Marine mammal scientist named SFOS associate dean
Metlakatla oysters debut in Fairbanks
NPFMC moves to protect Aleutian seafloor habitat
Pacific rockfish scientists to share research
Pink and Chum Salmon Workshop Feb. 23–25
Researchers to map Beaufort Sea, Cook Inlet currents
Scientists discover new species in Arctic Ocean
Scientists speak at Environment Forum
Sea Grant publications and videos win awards
Sea Grant video featured in first Alaska Ocean Film Festival
Sea Grant/NOAA Fisheries sponsor conference
SFOS attends Marine Science in Alaska Symposium
SFOS explores hidden ocean
SFOS research featured in Polar Biology
SFOS researchers find new uses for salmon byproducts
SFOS staff recognized
State of the salmon
Steiner helps form Shipping Safety Partnership
Subramaniam Sathivel organizes symposium on the applications of chitosan in seafood
Tom Shirley quoted in bottom trawling story
Tsunami video to air on Alaska Public TV
UAF scientists release humpback whale entangled in fishing gear
United Nations, Pakistan thank Steiner

2004

2005 undersea calendar on sale now at Alaska Sea Grant
Alaska coral guide aims to help fishermen, scientists
Alaska Ocean Sciences Bowl to air statewide Oct. 3–4

Alaska salmon may have market as powder in China
 Alaska Sea Grant debuts tsunami video at NOAA HQ, receives national communication award
 Alaska Sea Grant seeks citizen input on coastal research, extension, education needs
 Alaskans hunt for more rhodoliths
 An interview with Dean Wiesenburg
 Arctic Biodiversity Workshop proceedings available
 Bickford awarded NSF Fellowship
 Board of Fisheries names Salmon Industry Restructuring Panel
 Can't keep a good seal down
 Census: Plenty of new species in the sea
 Cliff-climbing scientist saves fallen hiker
 CoML kicks off arctic program
 Commercial fishing jobs leave Alaska
 Conference seeks to kick-start shellfish farming
 Congratulations graduating SFOS students
 Electronic nose, new seafood products, whale research, advisory agents receive funding
 Expedition to study deep sea corals, volcanoes and ocean ridges
 Faculty receive tenure, promotion
 Festival offers sea of educational opportunities
 Hazardous materials alert
 Health of world's sea lions the focus of Wakefield Symposium
 High school teams to make annual pilgrimage to Alaska Region National Ocean Sciences Bowl
 Johnson named MAP Recreation and Tourism Specialist
 Journal: Auklet odor repels ectoparasites
 Kasitsna Bay Laboratory gets a face-lift
 Logo design sought for Aleutian conference
 MAP agents meet with salmon fishermen
 MAP professor says oil spill could have been avoided
 MAP/Sea Grant serve up Alaska shellfish Marine Advisory Program response to oyster vibrio outbreak
 Native name for the new Aleutian volcano: Amchixtam Chaxsxii
 New Marine Advisory Program agents take up positions around the state
 New students at SFOS
 Oceans Alive Video Festival success in Seward
 Oil impact on Aleutian crab fishery expected to be minimal
 Potluck planned for outgoing SFOS dean
 Professor testifies before U.S. Senate
 Profile: Deborah Mercy, Marine Advisory Program
 Recent SFOS graduate at work in Aleutians
 Researchers probe Aleutian depths
 Researchers probe marine mysteries off Alaskan coast
 Russian-American study of Arctic makes international news
 Scientists discover new marine habitat in Alaska
 Scientists publish recommendations for sea otter research
 Scientists to discuss health of world's sea lions
 Sea Grant report highlights research, education, outreach
 Seabirds focus of ecosystem study
 SFOS at international fisheries conference in Vancouver
 SFOS faculty to be honored
 SFOS graduate student returns from Antarctica
 SFOS on scene of Aleutian Island oil spill
 SFOS researchers publish study of fish protein powders
 SFOS scientists ride *Alvin* to ocean depths
 SFOS scientists search for Cold War contamination on Amchitka
 SFOS scientists tag, track humpback whales off Kodiak
 SFOS student receives ARCO grant
 SFOS students receive awards at AFS
 Shellfish conference draws crowd
 Ship of dreams
 Shirley among team studying deep sea coral habitats off Hawaii
 Spring dive class sends 24 to the bottom
 Squid school

State's salmon fishermen optimistic about industry's future
 Stephen Jewett recognized with Usibelli Award
 Sugai to take key post at Center for Global Change
 Sugai's research, work on oil spill spotlighted
 Survey: State's salmon fishermen optimistic about industry's future
 Technical assistance workshops target salmon fishermen applying for Trade Adjustment Assistance
 Time running out for Alaska salmon fishermen to receive benefits, compensation
 U.S., Russian, Canadian, German scientists launch major Arctic Ocean expedition
 UAF seeks candidates for senior faculty position in marine policy
 UAF to take part in study of World War II shipwrecks
 Unalaska MAP agent organizes popular marine issues forum
 Undergraduate student to present seafood research
 Wiesenburg named SFOS dean
 Wildlife Society to honor Stephen Jewett
 World's sea lions the focus of Wakefield Symposium
 Young scientists

2003

Alaska high school students gather in Seward for regional National Ocean Sciences Bowl
 The *Bluefin Odyssey* III visits Alaska's Cook Inlet
 Brian Allee to head Alaska Sea Grant College Program
 Buoys track Cook Inlet currents
 Celebrate Alaska Wild Salmon Week
 Coastal Alaska Observing System on the Web
 Dean search is on at School of Fisheries and Ocean Sciences
 Dillingham gets new Marine Advisory Program agent
 Got something to say? Let us help you get the word out
 Help SFOS at the State Fair
 International scientists gather at UAF to discuss Arctic Ocean biodiversity
 Juneau and Chugiak take top honors in Ocean Sciences Bowl
 More than 30 participate in scientific diving training
 National Research Council seeks public input on North Pacific Science Plan
 Public seafood processing and cold storage facilities
 Scientists map state's first known geologically active undersea volcano
 SFOS administrator elected to international association post
 SFOS graduate to teach marine biology as part of UAF summer camp program
 SFOS students right at home in cold water
 UA Sea Grant scientist named to Arctic Research Commission
 Workshop: The future of Alaska's salmon returns

2002

2003 Alaska Ocean Sciences Bowl draws 24 teams
 Alaska high school students cram for ocean knowledge competition
 Alaska salmon booms once lasted centuries
 Anchorage to host symposium on Alaska's marine environment
 Arctic science conference to start at UAF
 Enhancing the quality and markets for Alaska salmon
 Kodiak High School wins 2002 Alaska Ocean Sciences Bowl
 New associate dean arrives
 North Pacific Marine Science Organization invites application for PICES Intern Program
 PCCRC scientists present research results
 Rasmuson Fisheries Research Center to fund graduate students
 Ray Highsmith quoted in *LA Times*
 Researchers to begin pole-to-pole marine survey
 Second International Seafood Byproducts Conference

SFOS research in *Alaska* magazine
 Students to test ocean science smarts in regional competition
 Wakefield Symposium looks at genetics

2001

Boat insurance and seabird bycatch publications available from Alaska Sea Grant
 Hatcheries have not replaced wild salmon stocks in Prince William Sound
 Industry partners with UAF to find answers to Bering Sea changes
 On-Bottom Mariculture Conference
 Science beneath the sea: Underwater scientists to gather in Seward
 Scientists get crabby
 Scientists plan deep sea research in Alaska
 Sea Grant offers publication on shipping live seafood
 Sea Grant urges boaters to play it safe
 SFOS debuts Web site on bottom trawling study
 UA regents make Lena Point fisheries facility a priority
 UAF, Russia to establish marine science training center in Vladivostok

ALASKA SEA GRANT AND SFOS IN THE NEWS

This list represents placements in major newspapers and magazines; results from Google news searches; and placements provided by scientists, marine advisory agents, and others. (ASG does not use a clipping service to monitor placement of news and radio stories.)

2006

Bristol Bay Crab Stock Collapse
 Exclusive to *Alaska Business Monthly* magazine
 Hidden Ocean Arctic Expedition
 Exclusive to Fairbanks *Daily News-Miner*
 Amchitka's Nuclear Legacy
 Exclusive multimedia presentation for UAF Web site home page
 AlaskaScienceOutreach.com
 Crab Enhancement and Rehabilitation Conference
 FishUpdate.com
 Anchorage *Daily News*
 SITNews.com
 Alaska Report
 Kodiak *Daily Mirror*
 KINY Radio
Alaska Journal of Commerce
 Fish Factor
 Fish Biz
 SITNews.com
 FishUpdate.com
 National Ocean Sciences Bowl
 SITNews.com
 Cordova *Times*
 Responsible Marine Wildlife Viewing
 Fish Radio
 FishUpdate.com
 SmartGear Competition (direct contact with Fish Radio)
 KINY
 SITNews.com
Alaska Journal of Commerce
 Gold Rush—Era Shipwrecks
 Fairbanks *Daily News-Miner*
 KUAC Morning News
 CyberDiver News Network.com
 Alaska Fisheries Pioneer Passes
 Fish Factor
 Lena Point Fisheries Building Groundbreaking
 Intrafish.com
 FishUpdate.com
 Exxon Valdez Oil Spill Reopener (media contacted Rick Steiner)
 Anchorage *Daily News*
 Alaska Sea Grant Funds Research
 Fish Factor

Appendix 25, Media Relations

Courts halt Steller research

Nature.com
Kodiak *Daily Mirror*
Shellfish Farming Diseases (media contacted Ray RaLonde)
APRN AK
Exxon Valdez Oil Spill Reopener (Rick Steiner editorial)
Anchorage *Daily News*

2005

Salmon Powder Study
Fish Factor
Selendang Ayu Oil Spill (media contacts to faculty)
Rick Steiner, Anchorage *Daily News*
Susan Sugai, Anchorage *Daily News*
Stephen Jewett, APRN
Evelyn Brown, APRN Talk of Alaska
Susan Sugai, CBC News
Rhodolith Discovery
Sport Fishing magazine
Salmon Powder Research
Fish Factor
Ocean Fury Video
Alaska Science Forum
National Ocean Sciences Bowl
Alaska Business Monthly
Cordova Times
Juneau Empire
Pollock Conservation Cooperative Research Center funding
Intrafish.com
The Wave.com
Alaska Fisherman's Journal
Steiner and Shipping Safety Partnership
Environmental News Service
Exxon Valdez Oil Spill Trustee Council
Anchorage *Daily News*
Deborah Mercy Film
Outdoor Life Network
Aleutian Shipping Safety Forum
Anchorage *Daily News*
Shellfish Aquaculture (UAF multimedia web feature)
UAF home page
Managing Fisheries, Empowering Communities
Fish Factor
Crab Rehabilitation Workshop
Fish Factor
Seabird Bycatch Prevention Streamers
Alaska Journal of Commerce
Oil Spill Liability Trust Fund (editorial authored by Rick Steiner)
Anchorage *Daily News*
Exxon Valdez Oil Spill Opener (editorial authored by Rick Steiner)
Anchorage *Daily News*
Alaska Sea Grant Communication Awards
Fish Factor
Seaweed Healthy Choice
Ketchikan Daily News
ABC Action News, Philadelphia
Fairbanks Daily News-Miner
Selendang Ayu Oil Spill and University Free Speech Editorials
Anchorage *Daily News*
Kodiak Whale Released by UAF Scientists
APRN
Anchorage *Daily News*
Kodiak Daily Mirror
Alaska Wildlife Alliance
Seattle Post-Intelligencer

Hidden Ocean Discoveries
Reuters Canada
Fairbanks *Daily News-Miner*
ABCNews online
London Telegraph
Scotsman (Scotland)
London *Times*
CNN.com
Anchorage *Daily News*
ABCNews
Hurricane Katrina (Rick Steiner authored editorial)
Anchorage *Daily News*
Seattle Post-Intelligencer
CommonDreams.org
SmirkingChimp.com
CounterCurrents.com
OmegaNews.com
Energy Bulletin
Crested Auklet's Natural Defense
SITNews.com
CBC Health and Science News
Fairbanks *Daily News-Miner*
ESPN Outdoors
Alaska Science Forum
National Public Radio, Living on Earth
Anchorage *Daily News*
Aleutian Life Forum
Dutch Harbor Fisherman
Anchorage *Daily News*
Metlakatla Oyster Project
Fish Factor
Sea Grant Funded Crab Research
Fish Factor/Fish Radio
Graying of the Fleet
Anchorage *Daily News*
USA Today
Valdez Boatlift
BizNewOrleans.com
Selendang Ayu One-Year Anniversary
PlanetArk.com
Reuters

2004

Trade Adjustment Assistance
Kodiak Daily Mirror
Fish Factor
Undersea Volcano Named
Anchorage *Daily News*
Paralytic Shellfish Poison Problems
Kodiak Daily Mirror
New Alaska Sea Grant Books
Kodiak Daily Mirror
Exxon Valdez Oil Spill 15th Anniversary (Rick Steiner editorial)
Anchorage *Daily News*
Eroding Environmental Quality
Seattle Post-Intelligencer
Alaska Sea Grant Community Planning Meetings
Bristol Bay Times
Rhodolith Discovery
SITNews.com
Juneau Empire
Anchorage *Daily News*
Brazil, FAPESP
Spain MASMAR
Turkey
SITNews
MSNBC
ABCNews
National Geographic Spanish edition

Survey of Trade Adjustment Assistance Participants
Intrafish.com
Salmon Powder Research
Pacific Fishing magazine
Shellfish Aquaculture Conference
Intrafish.com
Alaska Journal of Commerce
Selendang Ayu Oil Spill
Truthout.org
Anchorage *Daily News*
Reuters News Service
Seattle Post-Intelligencer
Fairbanks Daily News-Miner

2003

Juneau and Chugiak Take Top Honors in Ocean Sciences Bowl
Kodiak Daily Mirror
Undersea Volcano Might Be Next Aleutian Island
Anchorage *Daily News*
CNN TV and CNN online
Fairbanks Daily News-Miner
Reuters News Service
Alaska Science Forum
MSNBC.com

2002

Second International Seafood Byproducts Conference
Kodiak Daily Mirror
Anchorage *Daily News*
Students to Test Ocean Science Smarts in Regional Competition
Anchorage *Daily News*
Alaska Salmon Booms Once Lasted Centuries
Kodiak Daily Mirror
Ketchikan Daily News
Alaska Science Forum
GeoTimes
Hard Times on the Haulout
Alaska magazine
Oil Tanker Ozone Tests Encourage Experts
Anchorage *Daily News*
Kodiak Daily Mirror
Earthquake Shakes up Web Site
Fairbanks Daily News-Miner
Anchorage *Daily News*
Kodiak Daily Mirror

2001

Industry Partners with UAF to Find Answers to Bering Sea Changes
Worldcatch.com
Scientists Get Crabby
Anchorage *Daily News*
Fairbanks Daily News-Miner
Alaska Feels the Heat of Climate Warming
Alaska magazine
Trawling for Answers
Alaska Fisherman's Journal

Student Support

	Year 1 2001–2002	Year 2 2002–2003	Year 3 2003–2004	Year 4 2004–2005	Year 5 2005–2006	Total
Graduate Research Assistants	15	23	18	22	21	
	\$149,351	\$210,728	\$274,506	\$348,811	\$284,008	\$1,267,404
Global Change Research	2	4	4	3	1	
	\$15,130	\$29,895	\$25,874	\$16,431	\$7,375	\$94,705
Undergraduate Research					4	
					\$9,942	\$9,942
NOAA/NMFS Population Dynamics Fellowship	1					
	\$38,000					\$38,000
National Fisheries Institute	1	1				
	\$5,000	\$5,000				\$10,000
Total students	19	28	22	25	26	
Total dollars	\$207,481	\$245,623	\$300,380	\$365,242	\$301,325	\$1,420,051

Graduate Students

Name	Project	Project name	Discipline	Degree awarded	Degree	Current position
Amy Hiron	RR/01-02	Geographic Gradients of Stable Isotope Ratios in the Gulf of Alaska	Biological oceanography	2001	Ph.D.	Research associate, University of Alaska Fairbanks
Tracie Toivanen [Baker]	R/95-01	Paralytic Shellfish Poisoning: Identification of Bacterial Genes	Marine biology	2001	M.S.	Medical student, University of Wisconsin
	R/95-02	Paralytic Shellfish Poisoning: Characterization of Saxitoxin Genes				
Heather Harmon	R/08-08	Condition and Health of Alaskan Seals and Sea Lions	Marine biology	2001	M.S.	Veterinary student, Colorado
Branka Valcic [Turcin]	RR/99-03	Steller Sea Lion Benefits/Costs	Economics	2001	M.S.	Faculty, University of Alaska Fairbanks
Anna Furniss	R/33-01	Precision of Prohibited Species Bycatch Estimates for Pooled and Individual Bycatch Quotas	Applied mathematics	2001	M.S.	Research analyst, Arbor Research Collaborative for Health, Ann Arbor
Jon Sweetman	R/31-05	Long-Term Variability in Alaska Sockeye Salmon 2: Effects of Past Warm Climate on Salmon Abundance	Biological oceanography	2001	M.S.	Ph.D. student, Biology Department, Queens University, Canada
	R/07-22	Long-Term Variability in Alaskan Sockeye Salmon Abundance				
Monica Bando	GC/00-02	Developing a Nutritional Model of Kodiak Island's Steller Sea Lions	Marine biology	2002	M.S.	Veterinary student, New Zealand
Andrew Matala	R/31-02	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon. Phase 2	Fisheries	2002	M.S.	U.S. Fish & Wildlife Service, Abernathy Fish Technology Center
	NFI/99-01	National Fisheries Institute Scholarship				
John Terschak	E/142-01	Traineeship	Chemical oceanography	2002	Ph.D.	Faculty, University of Alaska Anchorage
Michelle Epp	E/142-01	Traineeship	Oceanography	2002	Ph.D.	Research associate, University of Alaska Fairbanks
Dmitry Dukhovskoy	GC/01-02	Study of the Decadal Variability of the Freshwater Flux in the Arctic Basin–North Atlantic System	Physical oceanography	2003	Ph.D.	Research associate, Florida State University
Eloise Brown	RR/99-02	Field Support for Yellowfin Sole Project	Biological oceanography	2003	M.S.	Ph.D. student, Australia
Sara Gilk	R/31-06	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon. Completion	Fisheries	2003	M.S.	Alaska Dept. Fish & Game
	R/31-02	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon. Phase 2				
Julie Matweyou	R/95-02	Paralytic Shellfish Poisoning: Characterization of Saxitoxin Genes	Biological oceanography	2003	M.S.	Bethel Services, Inc. (environmental remediation), Anchorage
Zachary Hoyt	RR/01-01	Movements of Golden King Crab	Fisheries	2003	M.S.	Alaska Dept. Fish & Game
Kevin Budsberg	RR/01-05	Characterization of Luminous Bacteria from Yukon River Salmon Using <i>lux4</i> Probes	Biology	2004	M.S.	Research associate, University of Wisconsin
	GC/02-01	Temperature and Salinity Tolerance and Sequencing of <i>luxRI</i> of the Luminous <i>Photobacterium phosphoreum</i> Isolated from Yukon River Salmon				
Maria Wessel [Lang]	RR/03-06	Comparison of Aggression and Dominance Behavior in Chinook Salmon Derived from Hatchery and Wild Broodstocks	Fisheries	2004	M.S.	Private consultant
Ivan Wang	R/02-18	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon	Fisheries	2004	M.S.	Biology Department, University of New Mexico
	R/31-02	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon. Phase 2				
	R/31-06	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon. Completion				
Pei (Cathy) Xu	RR/03-02	An Economic Analysis of Producing and Exporting Alaska Salmon Protein Powder to China	Economics	2004	M.S.	Ph.D. student, Agricultural Economics Department, Purdue University
Judy Hamilton	R/31-09	Utilization of Alaska Kelp Beds by Commercially Important Fishes	Marine biology	2004	M.S.	Kachemak Bay National Estuarine Research Reserve, Alaska
Dana Hanselman	E/142-02	National Marine Fisheries Service/ Sea Grant Joint Graduate Fellowship Program in Population Dynamics	Fisheries	2004	Ph.D.	NOAA Fisheries, Auke Bay Lab
David Barto	R/31-05	Long-Term Variability in Alaska Sockeye Salmon 2: Effects of Past Warm Climate on Salmon Abundance	Oceanography	2004	M.S.	Alaska Dept. Fish & Game

Name	Project	Project name	Discipline	Degree awarded	Degree	Current position
Allison Barns	NFI/97-01	NFI Student	Interdisciplinary	2004	M.S.	NOAA Fisheries
Stacey Kalei Shotwell	R/95-01	Paralytic Shellfish Poisoning: Identification of Bacterial Genes	Marine Biology	2004	M.S.	NOAA Fisheries, Auke Bay Lab
Johanna Vollenweider	E/142-01	Traineeship	Fisheries	2004	M.S.	NOAA Fisheries, Auke Bay Lab
Elizabeth Calvert	GC/04-02	Effects of Global Change on Floating Kelp Beds in Southeast Alaska: The Impacts on Recruitment of Commercially Important Fish Species	Fisheries	2005	M.S.	NOAA Fisheries, Auke Bay Lab
Andrew Krohn	R/95-03, R/95-04	Identification of the Cyanobacterial "Saxitoxin Genes"	Marine biology	2005	M.S.	USDA
	R/95-02	Paralytic Shellfish Poisoning: Characterization of Saxitoxin Genes				
Carrie Hoover	R/31-06	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon. Completion	Fisheries	2005	M.S.	Alaska Dept. Fish & Game
	R/31-10	Effects of Hybridization between Seasonally Distinct Pink Salmon Subpopulations: A Model for Outbreeding Depression in Pacific Salmon. Phase 1				
Brian Battaile	R/101-01	Has Local Depletion of Walleye Pollock Occurred in Steller Sea Lion Critical Habitat?	Fisheries	2005	Ph.D.	Postdoctoral fellow, University of British Columbia
	R/101-02	Generalized Models of Local Depletion for Walleye Pollock in Steller Sea Lion Critical Habitat				
Janet Doherty [Neilson]	RR/03-01, R/33-02	Entanglement in Fishing Gear by Humpback Whales in Southeastern Alaska	Marine biology	2006	M.S.	National Park Service
Naoki Tojo	RR/02-02	Environmental Cues for Herring Spawning and Inseason Fishery Management	Fisheries	2006	M.S.	Ph.D. student at Hokkaido University, Japan

Continuing Students

Name	Project	Project name	Discipline	Degree expected	Degree pursuing
Wongyu Park	GC/03-01	Glacier Bay as a Natural Field Laboratory for Measuring the Effects of Global Climate Changes on Larval Crab Recruitment	Fisheries	2006	Ph.D.
	R/31-12	Larval Advection and Retention of Alaskan Dungeness Crab: Interactions in Phylogeography and Stock Structure			
Heidi Herter	RR/04-01	Larval Ecology and Settlement Dynamics of Dungeness Crab in an Alaskan Marine Reserve	Fisheries	2006	M.S.
Mette Nielson	R/101-04	Sea Ice Biota off Barrow, Alaska: An Important Food Source for Higher Trophic Levels in Coastal Alaskan Waters?	Marine biology	2006	M.S.
William Bechtol	R/31-15	Analysis of the Collapse of the Kodiak Red King Crab Stock and Fishery	Fisheries		Ph.D.
Jason Gasper	RR/05-02	Evaluation of Commercial Spiny Dogfish Fishery	Fisheries		Ph.D.
Susan Inglis	R/101-03	The Seasonal and Biochemical Nutritional Variance in Pollock as a Food for Marine Mammals	Marine biology		Ph.D.
Jeremy Kasper	GC/03-02	Modeling the Effects of River Discharge, Windstress, and Sea Ice on Arctic Coastal Circulation	Physical oceanography		Ph.D.
Olav Ormseth	GC/02-02	The Influence of Ocean Temperature on the Biology and Ecology of Pacific Cod in Alaskan Waters	Fisheries oceanography		Ph.D.
Dion Oxman	R/31-06	Conserving Salmon Biodiversity: Outbreeding Depression in Pink Salmon. Completion	Fisheries		Ph.D.
Brian Pyper	R/31-07	Setting Escapement Goals to Account for Climatic Fluctuations and Uncertainty	Fisheries		Ph.D.
Jenefer Bell	R/101-06	The Interannual Variability of Zooplankton within Prince William Sound, Alaska: Assessment of the ZooScan System as a Tool for Optimizing Juvenile Pink Salmon Release	Marine biology		M.S.
Casey Debenham	RR/02-06	Isotopic Analysis of Kelp Forest Food Webs: A Comparison Study	Marine biology		M.S.
Jesse Echave	R/31-10	Effects of Hybridization between Seasonally Distinct Pink Salmon Subpopulations: A Model for Outbreeding Depression in Pacific Salmon. Phase 1	Fisheries		M.S.
Andrew Eller	RR/04-02	Early Life History of Eulachon (<i>Thaleichthys pacificus</i>): Age Validation and Growth in Berners Bay, Alaska	Fisheries		M.S.
Brian Elliott	RR/04-09	Spawning Distribution and Habitat of Sockeye Salmon (<i>Oncorhynchus nerka</i>) in the Chilkat River Drainage	Fisheries		M.S.
Mikal Hendee	A/75-02	Responses to Coastal Erosion in Alaska: A Guide for Coastal Residents, Businesses, Resource Managers, Engineers, and Builders	Civil engineering		M.S.
Corinne Hicken	R/97-01	A Model System to Examine Delayed Effects of Pollution Exposure	Fisheries		M.S.
Jiaqi Huang	RR/05-08	Making Marketable Fish Oil from Salmon Byproducts	Seafood science		M.S.

Appendix 27, Graduate Students

Name	Project	Project name	Discipline	Degree expected	Degree pursuing
Amit Morey	RR/04-11	Rapid Identification of Fish Spoilage Bacteria through Cellular Fatty Acid Profiles and Carbon Substrate Utilization Patterns	Seafood science		M.S.
Katie Palof	RR/03-04	Population Genetic Structure of Pacific Ocean Perch in Alaska	Fisheries		M.S.
Carrie Parris	RR/04-08	Community Composition, Population Dynamics, and Nutritional Status of Intertidal Clams in Kachemak Bay, Alaska, in Relation to Oceanographic Conditions	Marine biology		M.S.
Renee Raudonis	R/95-04	Paralytic Shellfish Poisoning: Bacteria as Regulators of <i>Alexandrium</i> Growth and Toxin Synthesis	Marine biology		M.S.
David Runfola	R/72-01	Combining Traditional Ecological Knowledge with Fisheries Science to Facilitate and Guide Partnered Management and Studies on Anadromous Whitefish	Fisheries		M.S.
Sarah Story	GC/04-01	A Mesocosm Study of Biological Interaction between Sea Ice and Water Column: Effects of Nutrient and Light Variations on Ice Algal Growth	Biological oceanography		M.S.
Stan Triebenbach	RR/06-08	Study Design for Laboratory Trial: Improved Effectiveness of Hatchery Salmon Smolt Production	Fisheries		M.S.
Tadayasu Uchiyama	R/31-08	Understanding the Role of Marine-Derived Nutrients in Population Dynamics of Sockeye Salmon	Fisheries		M.S.
Kray Van Kirk	R/31-11	Multispecies Assessment Models for Fisheries Management	Fisheries		M.S.

Scientific Symposia and Conferences Hosted and in Progress

Title	Date	Location	No. of attendees
Genetics of Subpolar Fish and Invertebrates, 20th Wakefield	May 29–31, 2002	Juneau	96
2nd International Seafood Byproduct Conference	November 10–13, 2002	Anchorage	125
Fisheries in Data-Limited Situations, 21st Wakefield	October 22–25, 2003	Anchorage	112
Sea Lions of the World: Conservation and Research in the 21st Century, 22nd Wakefield	September 30–October 3, 2004	Anchorage	177
Copper River Salmon Workshop I	April 12–14, 2005	Anchorage	87
Managing Fisheries—Empowering Communities	April 21–23, 2005	Anchorage	175
Aleutian Life Forum: The <i>Selendang Ayu</i> Oil Spill	August 16–19, 2005	Unalaska	100
Biology, Assessment, and Management of North Pacific Rockfishes, 23rd Wakefield	September 13–15, 2005	Anchorage	200
Alaska Crab Enhancement and Rehabilitation Workshop	March 14–16, 2006	Kodiak	76
Copper River Salmon Workshop II	March 28–30, 2006	Anchorage	100
Aleutian Life Forum: Community Based Coastal Observation	August 10–13, 2006	Unalaska	
Alaska's Fishing Communities: Harvesting the Future	September 21–22, 2006	Anchorage	
Resiliency of Gadid Stocks to Fishing and Climate Change, 24th Wakefield	October 31–November 3, 2006	Anchorage	
Alaska Young Fishermen Forum	January 25–26, 2007	Anchorage	
Sustainability of the Arctic-Yukon-Kuskokwim Salmon Fisheries	February 6–9, 2007	Anchorage	
Smoked Seafood Products Conference and Workshop	March 5–10, 2007	Anchorage	
Benthic Habitat Mapping Workshop	April 2–4, 2007	Anchorage	