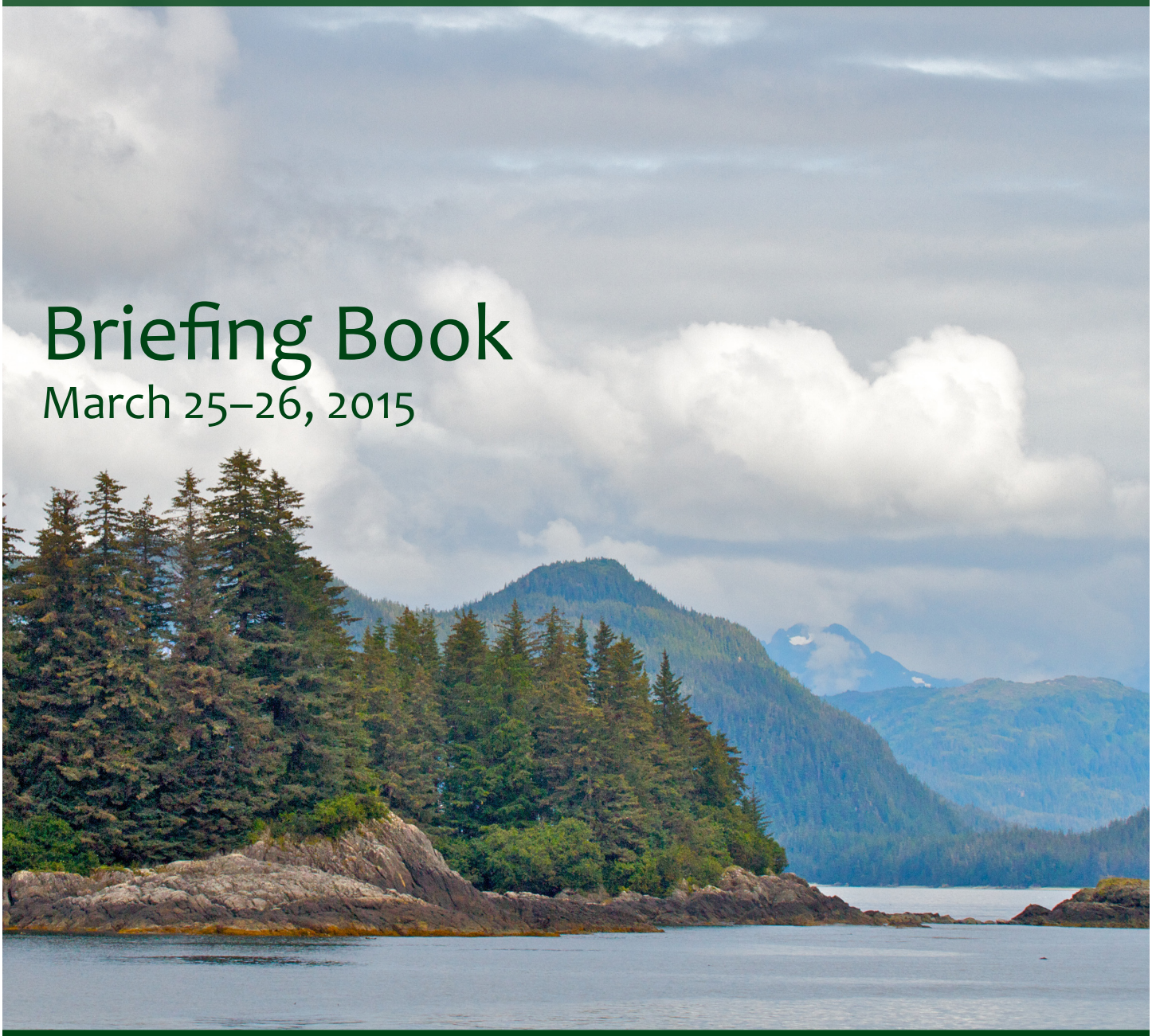
Review of the Alaska Sea Grant College Program



Briefing Book

March 25–26, 2015

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In September 2011 Kate Wynne, with help from NOAA and the Alaska State Troopers, successfully disentangled a gray whale from fishing gear near Kodiak. Photo by Huseyin Biceroglu.

Alaska Sea Grant Program Management and Organization

Alaska, the nation's 49th and only arctic state, is home to more than 170 coastal communities and 735,600 residents, and hosts over a million visitors annually. Alaska Sea Grant serves these groups through research, extension, and education projects and programs. As a Nature Conservancy staff person noted in 2014, Alaska Sea Grant is "on the frontline safeguarding our coastal communities, local economies and marine resources."

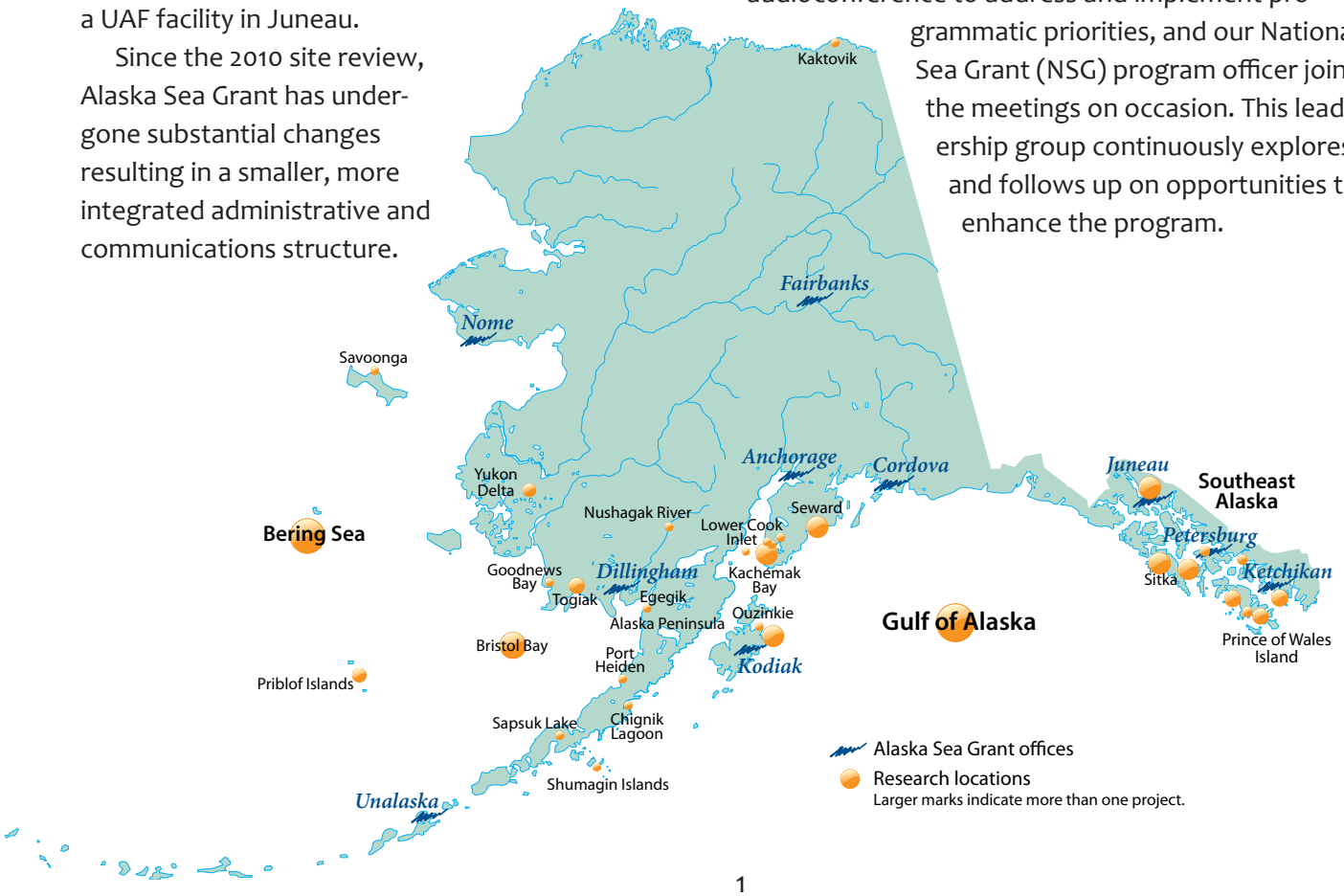
Leadership

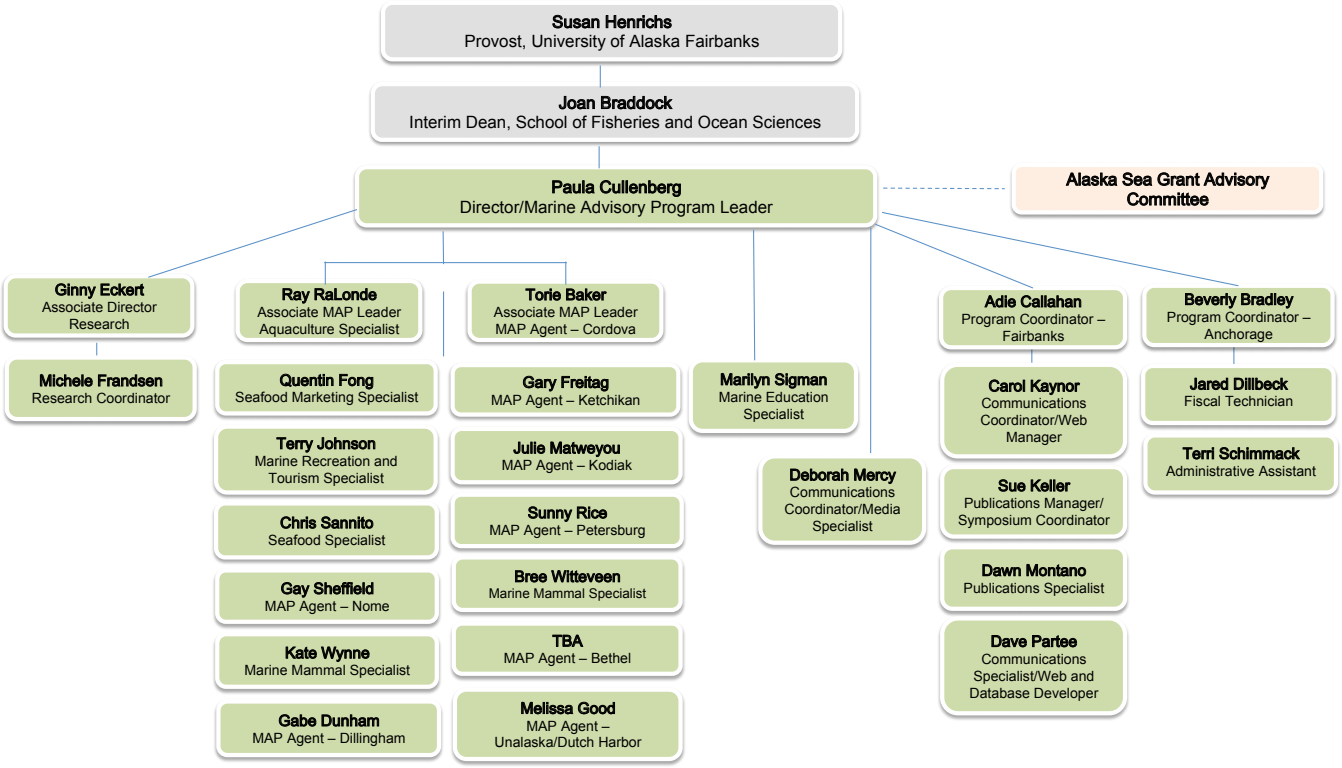
Alaska Sea Grant is administered by the School of Fisheries and Ocean Sciences (SFOS) at Alaska's Land, Sea and Space Grant institution, the University of Alaska Fairbanks (UAF). Fourteen Marine Advisory agents are faculty members located in eight coastal communities. Communications, administration and research support staff are on the UAF campus in Fairbanks as well as in Anchorage; the associate director of research is located at a UAF facility in Juneau.

Since the 2010 site review, Alaska Sea Grant has undergone substantial changes resulting in a smaller, more integrated administrative and communications structure.

Following Dave Christie's retirement in 2013, Paula Cullenberg, former associate director and longtime Marine Advisory Program (MAP) leader, became Alaska Sea Grant's director. She continues to lead the Marine Advisory Program with support from two MAP faculty members, Torie Baker and Ray RaLonde. Adie Callahan and Beverly Bradley became co-program administrative coordinators. Bradley is the lead coordinator for the extension component of the program, and Callahan coordinates the program as a whole. Deborah Mercy and Carol Kaynor became co-leads of the communications component of Alaska Sea Grant. Ginny Eckert, UAF fisheries professor, holds a new, quarter-time position as associate director of research. Marilyn Sigman, faculty member and education specialist, leads Alaska Sea Grant's marine education programming. These individuals collectively represent nearly 100 years of experience with Alaska Sea Grant, and form a strong and effective program Management Team.

The Management Team meets monthly via audioconference to address and implement programmatic priorities, and our National Sea Grant (NSG) program officer joins the meetings on occasion. This leadership group continuously explores and follows up on opportunities to enhance the program.





In 2014, Alaska Sea Grant's communications, extension, and education were merged as one project in the omnibus. This reflects more integration among major components of the program. Marine Advisory Program, administration and communications staff are a cohesive group, despite the 350 miles separating the two main offices.

Anchorage is the largest city in Alaska, and much travel in the state requires a layover there. Traveling Marine Advisory faculty often take advantage of that layover to connect and communicate with the director and Anchorage staff. The staff in Fairbanks maintain close relationships with the School of Fisheries and Ocean Sciences on the UAF campus. The Anchorage and Fairbanks fiscal, administrative and communications staff contact each other daily through conference calls and electronically.

Geographic distance and isolation is a reality in Alaska. Despite these challenges, the Alaska Sea Grant staff and Marine Advisory faculty stay connected through an established, consistent internal and external communication system. The director is highly engaged with all the program's components and activities, and is attuned to challenges and opportunities. She sends a weekly update and hosts a monthly program-wide meeting via audioconference. A monthly Alaska Sea Grant update is distributed to the program, university administrators, and the Alaska Sea Grant Advisory Committee. Program and fiscal documents are made available on an internally maintained faculty and staff website and on Google Drive. Once a year, all Alaska Sea Grant staff and faculty are in the same room together for a three-day meeting—which rotates among coastal communities—to discuss and coordinate program-wide initiatives, review annual progress, engage in professional development activities and reconnect as a program.

Role in the University

The University of Alaska has been a strong partner and home for Alaska Sea Grant for 45 years. Alaska Sea Grant has been hosted by the UAF School of Fisheries and Ocean Sciences since the school's inception 28 years ago, and represents approximately 20% of the school's budget and faculty members. Currently SFOS is in a leadership transition with an interim dean and a national search for permanent dean. Alaska Sea Grant Director

Cullenberg serves on the dean search committee and is a member of the SFOS executive team.

Alaska Sea Grant programs connect with all universities in the state. Marine Advisory agents work with other faculty in the university system, including UAF, University of Alaska Southeast and University of Alaska Anchorage, to build community connections. Alaska Sea Grant provides research support and traineeships to many graduate students in the university system and cosponsors the high school National Ocean Sciences Bowl with SFOS and others. Over the last three years, Alaska Sea Grant has worked closely with the UA Vice President for Workforce Programs and a team of university leaders to develop the Fisheries, Seafood and Maritime Initiative endorsed by the UA President and Board of Regents.

Strategic Planning

Alaska Sea Grant is a strong, respected program in a state deeply dependent on the health of its marine resources. The director, with the help of the Advisory Committee and other partners, catalyzes forward-looking actions across Alaska through extension, research and education. Research projects address a variety of state needs via a biennial request for proposals inside and outside the state's three public universities. The education and communications functions serve all Alaskans through publications, scientific meetings, technical training workshops and curricula. MAP faculty members serve on over 75 key local, state and national advisory boards, commissions and committees.

Our 2014–2017 strategic plan is aligned with the National Sea Grant strategic plan in four focus areas: Healthy Coastal Ecosystems, Sustainable Fisheries and Aquaculture, Resilient Communities and Economies, and Environmental Literacy and Workforce Development. These help to define Alaska Sea Grant's goals as well as align our work with national and regional Sea Grant initiatives. With the input of our Advisory Committee, staff and faculty, we have narrowed the focus of the goals and reduced the number of performance measures in our strategic plan. The focus areas and goals are interdependent—progress toward any one of them inevitably addresses another. Strategies and anticipated outcomes guide the short- and long-term work of the program. The document will continue to help management think strategically about the areas we choose to invest in, particularly as needs and resources evolve.

Reporting

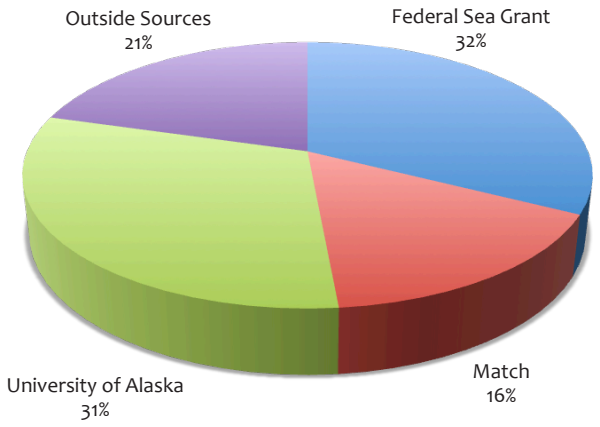
Alaska Sea Grant's monthly self-reporting process and in-house database enables us to closely track, evaluate and report local, regional and national impacts of research, education and extension activities. Complete information is submitted to the National Sea Grant Planning, Implementation, and Evaluation Resources (PIER) system in time for required annual reports. Grant reports are submitted on schedule to the National Oceanic and Atmospheric Administration (NOAA) and other grantors. Additionally, we prepare an annual report that we distribute to stakeholders (Advisory Committee, partners, university administrators, etc.) using the information submitted to the PIER database. Publications are sent to the National Sea Grant Library as they are published by Alaska Sea Grant and scientific journals.

Diversified Funding

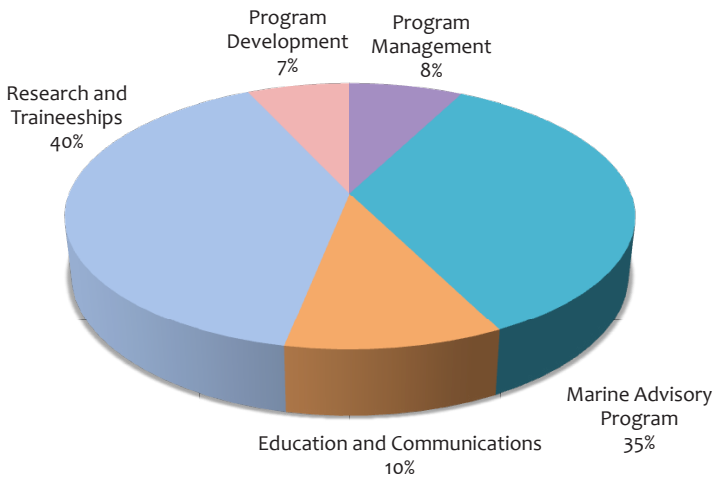
Alaska Sea Grant relies on a diverse funding portfolio leveraged with Sea Grant federal and University of Alaska Fairbanks (state funds) support. This is critical now that Alaska is moving into a time of state budget constriction due to the recent drop in oil prices.

Alaska Sea Grant's federal funds had essentially been unchanged since 2006. However, Alaska Sea Grant saw a modest increase in federal funds in 2014 resulting from the recently implemented National Sea Grant reallocation policy. UAF funds meet the federally required match component; this funding has historically been enhanced with additional

Alaska Sea Grant Funding Sources



Alaska Sea Grant Federal Funding Distribution



support from the university to cover faculty salaries and facilities.

Core (base) funding of the program from combined federal and university dollars is leveraged with a variety of outside funding sources that support Alaska Sea Grant priorities. The total match and other funds managed by our program average twice the federal dollars received. Approximately one-third of the program's overall budget comes from competitive grants, cooperative agreements and donations from industry, tribal, university, nonprofit, federal and other state partnerships, as detailed in the program's PIER report.

We have been successful in several Sea Grant National Strategic Initiatives (NSIs), including climate change adaptation, aquaculture and invasive species. Close collaboration with other marine-focused groups led to successful funding of COSEE Alaska, enabling the hire of our education specialist.

Alaska Sea Grant generates direct program income in two ways—through bookstore sales and from fees for conferences, trainings and workshops. Those funds are tracked in Alaska Sea Grant revenue accounts, and used to produce and reprint publications or to operate the event.

The University of Alaska Fairbanks is anticipating a state budget cut in 2015 and potentially the following year, which will undoubtedly impact Alaska Sea Grant. As state dollars become tighter, Alaska Sea Grant continues to improve efficiencies, evaluate processes and seek new partnerships to remain fiscally strong. An example is the recent hire of a Marine Advisory agent in Unalaska/Dutch Harbor, funded by the State of Alaska and National Sea Grant. The position became vacant after almost 10 years, and no new university funds were available. Alaska Sea Grant leveraged federal funds with another university program, and built a joint position to ensure that the nation's largest seafood port continues to have an Alaska Sea Grant presence.

Partnering with Industry to Support Alaska's Fishermen

In 2013 CoBank, a national cooperative bank that serves rural businesses, donated $100,000 for long-term support of the Alaska Young Fishermen's Summit and fishing business training provided by the Alaska Sea Grant Marine Advisory Program. Said Leili Ghazi, CoBank's western region president, "We believe we have a responsibility to help those who are just starting out in these industries and the young people who will shape the future. In Alaska, where fishing is such an important part of the state's economy, it makes good business sense for us to support the professional development of the next generation of commercial fishermen."

Maintaining diversity in funding enables Alaska Sea Grant to stay on mission and focus on serving its stakeholders.

Recruiting Talent

Alaska Sea Grant seeks creative and innovative research proposals that address issues of healthy coastal ecosystems, sustainable fisheries and aquaculture, and resilient communities and economies. We support researchers who can respond to critical needs in Alaska to ensure that communities and stakeholders find the greatest value in their research. We work hard to include students in the research, supporting the next generation of scientists. The principal vehicle for research and recruitment is the biennial request for preproposals (RFP), which leads to a limited and targeted request for full proposals. We expect and encourage researchers to think of themselves as partners with Alaska Sea Grant in developing, completing and extending their projects.

We cast a wide net in the RFP to encourage a broad range of topics that link to Alaska Sea Grant's strategic plan. Alaska Sea Grant has clarified the level of student support, developed a completely online submission process, funded new principal investigators and, via the new associate director, is staying in touch with research initiatives and needs across the state.

The RFP is distributed in December of even-numbered years to the three state-funded universities and one private university in Alaska, along with other research entities inside and outside the state such as other universities, state and federal agencies, regional science centers and tribal science groups. The RFP identifies focus areas, and directs investigators to our strategic plan and to preproposal writing and submission instructions on our website. The RFP also provides notice that projects must include an appropriate outreach/education component. Grant seekers are encouraged to discuss proposal ideas with the director and/or other Management Team members.

Preproposals are short documents that allow us to evaluate their relevance to key research issues and potential impacts of the research. Preproposals are reviewed by a panel composed of Advisory Committee members, Management Team members, university faculty, and agency science experts. Roughly 40–50% of the preproposals are selected for full proposal submission. The full proposals undergo a confidential, electronic-based review by peers, preferably out-of-state. Reviewers are asked to provide both positive and negative comments on the validity and significance of the proposed science, its applicability to important problems, and the quality of the approach, methodologies, facilities and investigators. The proposal evaluation criteria used are those established by National Sea Grant.

Alaska Sea Grant RFP Timeline

December (even years)	RFP issued
January (odd years)	Preproposals due via online submission
February	Preproposal panel meeting
March	Invitations issued to submit full proposals
May	Full proposals due via online submission
Spring/summer	Proposals undergo peer review
August/September	Technical panel review, selection of projects
September	Recommendations for funding (LOI) submitted to National Sea Grant
November	Omnibus proposal due to NSGO
February (even years)	Funding available—earliest possible start date for projects to begin

RFP = request for proposals. LOI = letter of intent. NSGO = National Sea Grant Office.

A technical review panel composed of experts in relevant fields—again, preferably from out-of-state—conducts a final review and ranking of the full proposals. Alaska Sea Grant's NSG program officer and Management Team members also attend the review and may provide comments. The role of this panel is to interpret the peer reviews within the specialized field of the proposal under consideration, evaluate the proposal's strengths and weaknesses and its importance from both scientific and applied perspectives, and assign a numerical rating using the same criteria as the peer review form. Each panel member serves as discussion leader for three or four proposals and provides a written summary. In most cases, there is great consistency between the peer reviews and the technical panel. Projects are prioritized based on panel scores, but final funding decisions are made by the director who may take into account other factors, such as program balance and funding available.

Efforts at fine-tuning the process have resulted in fewer submitted full proposals that are more on-topic, reducing the burden on reviewers and researchers; previously we funded only 30% of submitted proposals whereas now we fund over 65%. Our current research portfolio (including newly funded coastal resilience projects) contains projects and subawards with eight institutions, representing a diverse research funding allocation. We provided funding to 21 graduate students between 2010 and 2013.

In some cases, projects may be strengthened to reflect panel and peer reviewer comments before being accepted as part of the omnibus proposal for approval by the National Sea Grant Office. Guidance is provided to improve outreach and community involvement strategies. In special cases, where there is potential to mentor new researchers and/or encourage new lines of research of particular interest to Alaska Sea Grant, investigators may be encouraged to undertake a pilot or reduced-scope study. After this rigorous process, we are confident in funding the most applicable research.

Alaska Sea Grant has worked to increase the social sciences in our research portfolio despite limited social science research capacity in the state. Each research cycle has seen at least one or two social science proposals funded, including seven graduate student traineeships. For example, a series of three projects funded by Alaska Sea Grant beginning in 2010 examines the expanding sea otter population in Southeast Alaska. The projects use scientific research and local traditional knowledge to look at otter numbers, impacts on fisheries, and mitigation strategies. A related project funded by the North Pacific Research Board in 2010 examines interactions between sea otters and commercially important prey.

Alaska Sea Grant allocated approximately $300,000 of supplemental funding from National Sea Grant in 2014 to fund research projects on coastal resilience. A specially designated RFP on this

Number of Alaska Sea Grant Omnibus Research Projects and Students Supported

	2010	2011	2012	2013	2014
Preproposals		34		25	
Preproposal institutions		12		7	
Proposals		14		11	
Proposal institutions		5		3	
Projects		4		8	
PIs (not co-PI)		4		8	
Institutions		1		3	
Students supported*	17	13	10	6	8
Continuing projects*	9	13	5	7	5

**Students and continuing projects may be counted in more than one year.*
Note: This table does not include coastal resilience or Sea Grant National Strategic Initiative projects. PI = principal investigator.

topic was distributed in June and five new projects were selected in a competitive review process in September. The new projects address climate change impacts, including kelp forest and groundfish community changes, sea level fluctuations, and changes in fishing behaviors resulting from shifts in species distributions, as well as a decision tool for managing marine invasive species.

Program development funds allow Alaska Sea Grant the flexibility to respond quickly to research, education and outreach opportunities that are germane to the program's mission. Funds during 2010–2013 provided seed money for new projects, supported graduate students, fostered partnerships and leveraged funds with outside financial partners. Requests for program development funds are evaluated by the Management Team, and requests in excess of $10,000 undergo a peer review process.

Examples of program development fund spending are octopus tagging research; community forums and meetings such as the Copper River Delta Science Symposium, Kodiak Area Marine Science Symposium and the Fisheries Policy Forum at ComFish Alaska; student travel to present research results; *Alaska Seas and Rivers* curriculum in-service training; and the Alaska Tsunami Bowl (National Ocean Sciences Bowl) high school quiz competition.

Stakeholder Engagement

Alaska is a vast state with a 34,000-mile coastline, about three-quarters of the country's continental shelf, and a land mass approximately one-third the size of the lower 48 states. Alaska also has the lowest population in the Sea Grant state network at approximately 735,600. About 75% of the population lives along the coast; however, most of Alaska's over 170 coastal communities, including the state's capital, are not connected by road.

Alaska's distinctive indigenous cultures—Iñupiat, Yup'ik, Athabaskan, Aleut, Eyak, Tlingit, Haida, Tsimshian—rely heavily on marine and watershed resources, focusing on fish such as salmon and halibut and on marine mammals such as bowhead whales. Native peoples have survived and thrived in Alaska for over 10,000 years because of the rich and abundant resources in Alaska's oceans and rivers. The relationship that subsistence users, both Native and non-Native, have with marine resources is unparalleled anywhere in the country. In some parts of the state, 500 pounds of wild fish, shellfish, marine mammals, birds and plants are consumed per person each year. At any time during the year, many Alaskans have seafood from a personal harvest or gift in their freezer or smokehouse or canned on their shelves. The relationship Alaska residents have with their marine environment is deep and personal.

Alaska is the workplace and tourism destination of thousands of people each year. Over 60% of the nation's fish and shellfish are harvested off Alaska's shores. In 2011, there were more than 63,000 seafood-industry-related jobs worth $1.7 billion in labor income. More than one million tourists come to Alaska annually to fish and view marine wildlife, mountains and glaciers.

Alaska Sea Grant has a 45-year history of working with individuals, communities, industry, tribes, agencies, scientists, and K–12 teachers and students, responding to critical concerns of coastal Alaskans. As a small program in a large, resource-dependent state, our role is to know and interact with these stakeholders and to foster partnerships to gain science-based understanding of issues, resulting in problem solving and forward-moving actions. We are a trusted and crucial link in connecting far-flung Alaskans concerned about coastal community resilience and marine conservation.

Alaska Sea Grant hosts the Alaska Marine Policy Forum every two months, providing valuable news about upcoming legislation, research funding, and state and federal marine policy issues. The forum was launched in 2009 by Director Paula

Cullenberg and Molly McCammon of the Alaska Ocean Observing System. Every two months more than two dozen Alaska professionals—government, fishing industry, NGOs, scientists—call in to update each other on events and changes in marine policy and regulations in the state, region and nation. In 2013, 90% of survey respondents said the forum was useful. Strengths are the broad scope of topics, hearing from congressional and legislative staff, receiving timely information and confirming or refuting rumors. Nearly 250 Alaskans receive regular notification of the forums.

Advisory Committee

Fundamental to our stakeholder engagement is the Alaska Sea Grant Advisory Committee, formally established in 2003. The active 27-member committee consists of state, federal, tribal, industry and nonprofit leaders who understand Alaska Sea Grant's role in the state. The committee meets annually for two days to discuss priority issues and help Alaska Sea Grant set direction for the coming year. The committee's charter, adopted in November 2010, defines the purpose, sets guidelines for appointments, and establishes terms of service for the Advisory Committee. Members are appointed by the Alaska Sea Grant director and serve at the director's discretion for a normal term of four years; terms are renewable. The committee has had a good mix of longevity and turnover, with four new members joining in 2014.

Alaska Sea Grant also engages the creativity of the committee in other roles during the year, such as review of research preproposals. Strong relationships with members have led to a variety of funding opportunities, including donations from Princess Cruises and from CoBank via the Commercial Fisheries and Agriculture Bank. Members are encouraged to provide input to the director at any time and they serve as communicators about Alaska Sea Grant to their peers and colleagues around the state. The longevity of many members and their active and lively participation during annual meetings indicate their interest and investment in our work.

Extension

Alaska Sea Grant's stakeholders are diverse, including resource users such as commercial, subsistence and recreational fishermen; tribal and municipal governments; industry trade associations; nonprofit organizations; and state and federal agencies working on marine conservation issues, seafood harvesting and processing, coastal community resilience, environmental literacy and others.

The Alaska Sea Grant Marine Advisory Program (MAP) extension agents and specialists are the primary conduits for stakeholder engagement statewide. MAP faculty live and work in eight

Statewide Advisory Committee Provides Targeted Guidance

Alaska Sea Grant's Advisory Committee brings together leaders in the state who share many focus areas with Alaska Sea Grant. They are busy, involved people and ask to have their time well used during the annual two-day meeting. For the October 2014 meeting, we asked members to prepare by considering three emerging issues in the state and how Alaska Sea Grant could address them. At the meeting, Management Team members guided the committee through facilitated working groups that discussed (1) research priorities for the upcoming request for proposals, (2) how to work with K–8 schools to incorporate Alaska Seas and Rivers Week into their yearly schedule, and (3) approaches in developing a new Alaska Sea Grant State Fellowship Program. This targeted, facilitated effort resulted in substantial input. Three of the five opportunities for the first state fellowship program are from Advisory Committee member agencies. Five Advisory Committee members are reviewing the preproposals submitted in response to the RFP and two will serve on the review committee for the state fellowship.

Alaska Sea Grant Advisory Committee

Term Expires		Sector													Region					
		State Government	Federal Government	NGO	Elected Official	Community Development	Education	Fishing Industry	Forestry	Mariculture	Mining	Native Organization	Oil and Gas	Tourism	Southeast	Southcentral	Southwest	Northwest	Interior	North Slope
15	**James Balsiger** *Administrator, Alaska Region, National Marine Fisheries Service*		•												•					
15	**Steve Borell** *Executive Director, Alaska Miners Association*										•					•				
16	**Bruce Bustamante** *Vice President, Community and Public Affairs, Princess Cruises*													•		•				
15	**Peggy Cowan** *Superintendent, North Slope Borough School District*						•													•
15	**Steve Davis** *Regional NEPA Coordinator, National Marine Fisheries Service (alternate)*		•													•				
15	**Pete Esquiro** *former Exec. Director, Northern Southeast Regional Aquaculture Association*							•		•					•					
16	**John Garner** *Chief Operating Officer, North Pacific Seafoods*							•												
15	**Kelly Harrell** *Executive Director, Alaska Marine Conservation Council*			•												•				
15	**Rick Harris** *Executive Vice President, Sealaska Corporation*								•						•					
16	**Geoff Haskett** *Alaska Regional Director, US Fish and Wildlife Service*		•													•				
17	**Lela Klingert** *President, Commercial Fishing and Agriculture Bank*							•								•				
18	**Jennifer Lincoln** *Director, NIOSH Division of Safety Research*		•													•				
15	**Molly McCammon** *Executive Director, Alaska Ocean Observing System*			•												•				
18	**Vera Metcalf** *Director, Eskimo Walrus Commission*			•								•						•		
15	**Henry Mitchell** *Fisheries Consultant*							•								•				
15	**Daniel O'Hara** *Mayor, Bristol Bay Borough*				•	•											•			
15	**Mary Pete** *Director, University of Alaska Fairbanks Kuskokwim Campus*						•										•			
17	**Fred Schlutt** *Director, Cooperative Extension Service*						•												•	
15	**John Shively** *Executive Committee Member, Resource Development Council*					•										•				
18	**Chris Siddon** *Scientist, Alaska Department of Fish and Game*	•													•					
15	**Jeff Stephan** *Manager, United Fishermen's Marketing Association*							•								•				
15	**Bill Streever** *Environmental Studies Leader, BP Exploration*												•			•				
15	**Arliss Sturgulewski** *Former state senator*	•			•											•				
16	**Joe Thomas** *Deputy Commissioner, Alaska Dept. of Labor and Workforce Development*	•																	•	
15	**David Wigglesworth** *Coastal Program Manager, US Fish and Wildlife Service (alternate)*		•													•				
16	**Bob Winfree** *Alaska Regional Science Advisory, National Park Service*		•													•				
17	**Dave Witherell** *Deputy Director, North Pacific Fishery Management Council*		•													•				

coastal communities. This place-based approach facilitates stakeholder trust, affords our program an intimate understanding of issues and impacts, and provides the opportunity for appropriate responses and innovative solutions for local priorities. Agents are in unique positions to build effective, relevant partnerships to solve problems and act as a catalyst for change using expertise in the MAP network, resources of the University of Alaska, and statewide resources. Our coastal agents team with statewide specialists in marine education, seafood processing, marine mammals, recreation and tourism, aquaculture and marketing to provide an extensive network of resources to coastal communities.

Alaska is home to a wide range of ocean ecosystems and climate conditions, from the icy Arctic Ocean to the storm-swept northwestern coast to the temperate waters of Southeast Alaska. Alaska Sea Grant's work across the state reflects this diverse geography. For example, Healthy Coastal Ecosystems, a national focus area, is highly relevant in our state, but the focus varies—in southern Southeast Alaska there is concern about the threat of invasive species; in Kodiak, paralytic shellfish poisoning is a significant health issue; and in northwestern Alaska, climate change impacts are threatening villages. Resilient Communities and Economies in the Bristol Bay region translates into fishing access retention, while in the Arctic, increased shipping traffic threatens the health of marine mammals, the preferred food source of generations of Alaska Natives who inhabit the region.

While issues vary widely, outreach and extension methods shared among MAP agents include the following:

- Long-term residence in the region increases credibility, resource sharing and programming efficiencies;
- Assessing extension program priorities through evidence-based information facilitates development of long-, mid- and short-term, outcomes-based goals;
- Linking stakeholders and scientists in a two-way interaction and with the best available science improves research design and relevance and provides resources that strengthen local decision-making;
- Increasing understanding encourages participation in the public process and building partnerships enhances reach and impact;
- Strong integration with Alaska Sea Grant's communications team leads to outreach tools ranging from low-tech word-of-mouth to video-conferencing, web services and social media;
- Specialists work on a statewide level serving as a resource to coastal agents and communities of interest.

As tenure-track faculty members in the UAF School of Fisheries and Ocean Sciences, Marine Advisory agents have the unique opportunity to engage closely with campus-based faculty. This includes linking researchers with community

Mentoring Teams for New Extension Faculty Prevent Isolation and Build Program Cohesiveness

Most Marine Advisory faculty work far from main university campuses and each other. To provide program connections, a three-person mentoring team is created when new faculty are hired. The team includes the director and two senior agents who share interests or expertise. Each team meets formally via phone at least twice a year and team members talk with new faculty at least every month. This enables the new Marine Advisory agent to develop a responsive extension program, understand long-term planning and impact assessment, and navigate through the university promotion and tenure process. For new faculty working in isolation, the mentoring teams provide a valuable opportunity to consult about their work. The process builds camaraderie from afar and encourages each agent to take ownership for administering the program in their location.

members before, during and after research begins; having a presence in local career fairs in coastal communities; recruiting and mentoring university students; and hosting videoconferenced classes, seminars and regional science conferences of interest to local residents. As a statewide program, we collaborate closely with UAF, UAS, UAA, and rural campuses through our local agents. In some cases, MAP offices reside within university facilities.

Education

Alaska Sea Grant supports K–12 students and their teachers through curricula, partnering with informal educators, and training and coaching National Ocean Sciences Bowl teams. We provide graduate traineeships and fellowships, offer professional development to the current and future workforce, and link researchers through international fisheries symposia. We offer informal education via numerous workshops and classes on a variety of subjects to Alaskans across the state.

A full-time marine education specialist was hired by Alaska Sea Grant five years ago through our collaboration with partners in COSEE Alaska. As that national program has phased out, Alaska Sea Grant leveraged federal Sea Grant dollars to maintain this position. Alaska Sea Grant's marine education specialist is focused on building partnerships among marine educators in the state, supporting new and seasoned researchers to develop broader impacts, and supporting Alaska school science, technology, engineering and mathematics (STEM) work and links to the Next Generation Science Standards. With the COSEE Alaska focus on integrating Alaska Native knowledge with Western science, Alaska Sea Grant education efforts have had an emphasis on responsiveness to Alaska Native cultures, both in terms of engaging Alaska Natives in science education and in promoting the recognition of Alaska Native heritage in relation to stewardship of natural resources for all Alaska students.

Alaska Sea Grant's *Alaska Seas and Rivers,* a curriculum for grades K–8, has its roots in local "Sea Week" programs that began in Juneau more than 30 years ago. Those programs evolved into the six-volume *Alaska Sea Week Curriculum Series* published by Alaska Sea Grant. In 2009, the online curriculum, *Alaska Seas and Rivers,* was completed. This curriculum remains the only place-based integrated marine and aquatic curriculum in the state. Alaska Sea Grant is working to reinvigorate the concept of Alaska Seas and Rivers Week as a community-school partnership to encourage marine and environmental literacy. Alaska Sea Grant was a partner in the development of the Alaska Environmental and Natural Resource Education Plan; the Alaska Seas and Rivers Week program is key to its implementation through a new model of professional development and ongoing teacher support. The model is being disseminated regionally to environmental educators in the Pacific Northwest.

The Anchorage School District, which has 50,000 students and is one of the largest and most culturally diverse school districts in the United States, is working with Alaska Sea Grant's marine education specialist to incorporate marine literacy into the STEM program. The Career and Technical Education department at the Anchorage School District is also partnering with Alaska Sea Grant; we have formalized that relationship as a school-business partnership. At the high school level, Alaska Sea Grant supports the National Ocean Sciences Bowl through coaching by Marine Advisory extension agents and supporting the coordination and operation of the competition.

Alaska Sea Grant's graduate student funding is notable because of its applied and interdisciplinary focus. Former graduate students say Alaska Sea Grant plays a key role in leading to their career success after graduation. Since the early 1980s, nearly 100 former Alaska Sea Grant–funded graduate students have reported filling professional positions in federal and state agencies, academic institutions, and nongovernmental organizations. As employees, these former students are now contributing to the wise use of coastal natural resources. Alaska Sea Grant funding ranged from a few semesters of tuition to four years of funding on long-term research projects for master's and PhD degrees. These graduate students are usually in the School of

Fisheries and Ocean Sciences, with advisors—including Marine Advisory faculty—focusing on fisheries, oceanography, seafood science and marine biology.

The Alaska Sea Grant marine education specialist developed and co-taught a 600-level UAF graduate class, "Communicating Ocean Science," and co-facilitated the popular half-day "Communicating Ocean Science" workshop—held at the annual Alaska Marine Science Symposium—for marine scientists, educators and science outreach specialists.

Workforce Development

Alaska Sea Grant's professional and leadership development for seafood harvesters and processors in Alaska has resulted in a unique niche for the program.

The Alaska Young Fishermen's Summit (AYFS) is a highly anticipated and positive event in the state that continues to receive national attention. Over 360 young commercial fishermen, representing 45 ports, have participated in AYFS since it began in 2007. More than 50 organizations and vessels have sponsored participants, donated funds, or joined as mentors and speakers. The three-day professional development sessions focus on science and regulation, markets, business management, networking and participation in the public process. As one participant wrote, "It gave me a great perspective on my future, and what I need to do to get to where I want to be as an Alaska fisherman."

The Alaska Seafood Processing Leadership Institute (ASPLI) gives rising managers in the seafood processing industry 21 days of professional development training, plus mentoring on an in-plant project over a 6 month period. ASPLI has been offered four times with a total of 54 participants who were identified, sponsored and assigned a mentor by their seafood company.

Alaska Sea Grant has provided professional development programs on other topics as well, including shellfish aquaculture training, seafood processing quality assurance/quality control training, hazard analysis critical control point (HACCP) classes, starting a specialty food business, marine refrigeration, and boat and equipment maintenance training.

Informal Education

Named for a pioneer of the Alaska crab industry, the Lowell Wakefield International Fisheries Symposium Series brings together marine science researchers for an in-depth, multiday symposium on an emerging topic. Alaska Sea Grant has coordinated the symposia since 1982; the 2015 Lowell Wakefield Symposium will be the 30th. Topics are developed collaboratively by representatives of state and federal fisheries agencies and research institutes, all of which contribute toward the cost of holding the symposium. The 2010 symposium drew participation from around the world to discuss recent findings in ecosystem-based fisheries management. In 2011, "Fishing People of the North" brought social science perspectives of international presenters to Alaska. In 2013, the symposium advanced our understanding of present and future responses of arctic marine ecosystems to climate change at all trophic levels. Last year's symposium, "Fisheries Bycatch: Global Issues and Creative Solutions," brought together 120 people from 14 nations.

Alaska Sea Grant Marine Advisory agents host community science lecture series and regional science conferences across the state. These science talks, which are held in collaboration with local agencies, bring in consistently strong audiences in small communities. The Kodiak Area Marine Science Symposium, held in 2011 and 2014, was initiated by Alaska Sea Grant marine mammal specialist Kate Wynne. It is the only science conference focused on fisheries and ecosystem research conducted in the Kodiak area. More than 11,400 people from 48 communities attended talks and conferences co-hosted by Alaska Sea Grant in the last four years.

Communications

Alaska Sea Grant uses multiple means of communication to reach stakeholders who are diverse in their

Alaska Sea Grant Catalyzes Statewide Resource through Collaboration

With Alaska's changing climate, there is a growing interest in monitoring and observing in all areas of the state. Due to a lack of information on basic practices and recommended approaches, scientists with great ideas and community members wanting to collect good data had to start from scratch. COSEE Alaska and Alaska Sea Grant's marine education specialist partnered with the Alaska Ocean Observing System to pull in other partners, secure funding from NSF and host a statewide workshop to identify best practices for community-based monitoring in Alaska. The result is a shared website and a handbook to guide new and continuing programs. Via collaboration and a core partnership, Alaska Sea Grant is able to serve communities statewide in community-based monitoring efforts.

access to electronic media, backgrounds, age and culture, and interests. Alaska Sea Grant's communications team contributes to increasing environmental literacy, provides a conduit for disseminating research results, and help ensure that outreach efforts reach intended audiences. Communication products offer information on the environment, fisheries, marine recreation, coastal community development, marine safety and more. From 2010 to 2013, Alaska Sea Grant published 86 educational products and distributed more than 97,000 publications and other products. Our books earned 17 national awards during this time.

Communications team members are located in the Fairbanks and Anchorage offices and together support all areas of the program—program management and development, research, education and the Marine Advisory Program. The team works on publication production and bookstore sales; produces videos, websites, newsletters, news releases and social media posts; and supports symposia, workshops, classes, and other trainings hosted by Alaska Sea Grant.

Marine Advisory faculty identify information needs, conduct research and/or write materials to address those needs, and provide the material to the communications group to package most appropriately (e.g., video, book, brochure, website, or news story) and distribute to users. From 2010 to 2013, 53 products were generated by Marine Advisory faculty and produced by the communications group.

Alaska Sea Grant–funded research generates results and information that is important to convey to the public. The communications group helps announce requests for new research via web and news releases. As researchers generate information, the communications group packages it as news releases, newsletter articles, project summary pages on the web, and reports. We have received good national and state press coverage on a number of research projects in recent years; articles also have appeared as features on the National Sea Grant website and in *Aurora* magazine, a twice-yearly periodical published by UAF. The communications group also coordinates scientific meetings to provide a forum for information exchange, and publishes proceedings that disseminate the research reported at the symposia.

Communications support for Alaska Sea Grant education work includes maintaining the *Alaska Seas and Rivers* curriculum website, producing educational publications, and promoting educational activities via attendance at events, news stories, announcements, and social media.

The communications group provides support to Alaska Sea Grant program management by reporting to the National Sea Grant Office, producing materials for the Advisory Committee, managing the program website, and producing an annual report for the public.

The monthly electronic newsletter *Fishlines* is Alaska Sea Grant's broad connection to local, state, nationwide, and international partners and the public, informing them about coming events and Alaska Sea Grant accomplishments and highlights. The newsletter is sent to about 800 people.

In 2013, Alaska Sea Grant communications was reorganized and streamlined, with Deborah Mercy and Carol Kaynor as co-leads. The smaller staff is cross-trained, team-oriented, and skillful at finding creative ways to respond to the needs of the program. While the publications enterprise at Alaska Sea Grant has been reduced in scope, it continues to be productive and to fill an information need in the state.

Collaborative Network/NOAA Activities

Alaska Sea Grant works collaboratively in all our initiatives and programs, as a leader and catalyst or as a partner. More than 300 partnerships range from financial support to participation in joint projects and initiatives, to guidance via the Advisory Committee and other planning mechanisms.

The network of federal, state, tribal and nonprofit groups in Alaska that are working on marine issues is tightly connected and collaborative on many levels. This reflects the unique nature of our state, where 61% of Alaska's land is owned and managed by the federal government (National Park Service, US Forest Service, Bureau of Land Management, US Fish and Wildlife Service, etc.), 27% is owned by the state, 11% by Alaska Native corporations, 1% by Alaska Native Claim Settlement Act reserves, and less than 1% by private landowners. Fisheries and marine mammals are managed by multiple state and federal agencies, creating a complex system of management that is generally functional but at times can have conflicting missions. Helping Alaskans understand and participate in this process has become a substantial role for Alaska Sea Grant.

Alaska Sea Grant is a member of the NOAA Alaska Regional Collboration Team, allowing us broad access to NOAA resources around the state. Examples of our close connection with NOAA and other federal agencies include:

- Participation in the North Pacific Fishery Management Council (NPFMC) process by serving on the council's Rural Outreach Committee and with National Marine Fisheries Service (NMFS) by serving on the Alaska Scientific Review Group.
- Active involvement in the NOAA Alaska Region Marine Mammal Stranding Network in Ketchikan, Kodiak, Unalaska/Dutch Harbor and the Bering Strait region.
- Close connection with invasive species efforts with NMFS Protected Resources, the Alaska Department of Fish and Game and the Smithsonian Environmental Research Center.
- NOAA and NPFMC are hosts in the Alaska Sea Grant State Fellowship Program, support the Wakefield Symposium, and have participated regularly in the Alaska Young Fishermen's Summit.
- NOAA, National Park Service, US Fish and Wildlife Service, and NPFMC are all represented on the Alaska Sea Grant Advisory Committee and contribute to research priority setting and strategic planning.
- Alaska Sea Grant was a partner in COSEE Alaska with the Alaska Ocean Observing System (AOOS), Alaska SeaLife Center, UAF School of Fisheries and Ocean Sciences and UAF Center for Cross-Cultural Studies.
- Locally, Marine Advisory agents have strong relationships with federal agency personnel. For example, Nome agent Gay Sheffield has close relationships with US Coast Guard personnel working on search and rescue and oil spill response in the Arctic. Prince William Sound agent Torie Baker sits on the US Coast Guard's national Fishing Vessel Safety Advisory Committee as one of three Alaskans.
- The Gulf of Alaska Apex Predator-Prey project (GAP), a study of the interaction of marine mammals, seabirds, fish, and human predators and their prey in the western Gulf of Alaska, represents a long-standing partnership with NOAA

Providing a Forum for Arctic Coastal Hunters

Gay Sheffield, Alaska Sea Grant's Marine Advisory agent in Nome, is well aware of the effects of climate change on the lives of people in her region. As the ice cap has decreased in extent, marine transportation related to oil development and shipping in the Northern Sea Route and the Northwest Passage has increased dramatically. In 2013, Alaska Sea Grant coordinated the first local summit on marine transportation issues in the Bering Strait, bringing industry and agency representatives to Nome to answer the questions of local tribal representatives. Foremost in the minds of residents is food security, given the high dependence on marine mammals and other marine life for subsistence food. The forum resulted in broader understanding and new relationships among residents and agencies, and a full-time marine transportation specialist hired by the local Alaska Native nonprofit organization.

and a major collaborative effort with many other agencies and organizations. The Bureau of Ocean Energy Management (BOEM) plans to use GAP's high-quality time-series data, which has been collected since the mid-1990s, to identify areas of concern for marine mammals when BOEM reviews future oil lease sites in the Kodiak area.

We have strong and ongoing partnerships with many state agencies. Some examples include:

- The Food Safety and Sanitation Program, in the Alaska Department of Environmental Conservation, works with us on HACCP, seafood processing quality control, smoked seafood workshops, shellfish aquaculture training, shellfish farm permitting, community sampling for paralytic shellfish poisoning, seafood labeling requirements and oil spill response.
- The Alaska Department of Fish and Game is actively involved with the Alaska Young Fishermen's Summit, is a long-time cosponsor of the Wakefield Symposium, works with us on shellfish aquaculture management and permitting and invasive species monitoring, and is represented on our Advisory Committee.
- The Alaska Department of Labor and Workforce Development and Department of Commerce, Community and Economic Development are actively working with Alaska Sea Grant on workforce development programs and training initiatives.

Other significant partnerships in Alaska include those with municipal and tribal governments and with industry. For example:

- A partnership with the North Slope Borough Department of Wildlife Management connects Bering Strait Marine Advisory agent Sheffield with bowhead whale hunters in the Arctic to collect data on the health of the populations.
- The Alaska Marine Safety Education Association, co-founded by a Kodiak Marine Advisory agent 30 years ago, is a leading national marine safety training organization that continues to partner closely with Alaska Sea Grant to offer safety training and create educational videos and publications, many of which are distributed through the Alaska Sea Grant bookstore.
- Alaska Sea Grant is a partner in "Every Halibut Counts," a project that aims to change the way charter boat crews and sport fishermen handle halibut. The gentle handling practices are recommended by a steering committee of six charter boat captains and advisors from the Alaska Department of Fish and Game and the International Pacific Halibut Commission. Alaska Sea Grant produced a brochure, a laminated placard, and a video. The Alaska Marine Conservation Council coordinates the project with funding from the National Fish and Wildlife Foundation.
- An Alaska Sea Grant–funded research project documenting marine mammal ecology and harvesting patterns among hunters in three coastal communities includes close collaboration

with the Bristol Bay Native Association and tribal village councils, as well as statewide and regional marine mammal councils and commissions and the University of Alaska Fairbanks.

One of the broadest, most collaborative initiatives in which Alaska Sea Grant has taken a leadership role is the University of Alaska's Fisheries, Seafood and Maritime Initiative. Director Cullenberg has co-chaired this initiative, which includes a 25-member, cross-university working group and an 18-member industry group. The initiative has produced the *Alaska Maritime Workforce Development Plan,* the first time this sector of Alaska's economy has identified itself as the largest private employer in the state, with more than 70,000 employees. The industry group is leading response actions by the university, state agencies and industry to grow the number of Alaskans working in highly skilled maritime positions statewide.

Sea Grant Network Activities

Alaska Sea Grant is active in the National Sea Grant network. The 2012 Sea Grant Week, hosted amid a torrential rainstorm in Girdwood, Alaska, was attended by nearly 200 people representing 32 Sea Grant programs. Ray RaLonde, Marine Advisory aquaculture specialist, received the 2012 Superior Outreach Program Award from the Sea Grant Extension Assembly at this Sea Grant Week.

Petersburg Marine Advisory agent Sunny Rice, a member of the leadership team of the national Fisheries Extension Network, joined with other Sea Grant programs and a University of Minnesota team to develop business planning tools for commercial fishing operations. The Alaska Sea Grant director led professional development workshops at the 2014 Sea Grant Week in Florida. We have sent four extension agents to the National Sea Grant Academy.

Great distance and high costs in time and finances often challenge Alaska's ability to connect with other Sea Grant programs. Alaska is so large and so far removed from the contiguous 48 states that it is the only state defined by NOAA as its own "region." We enjoy long-term relationships with the Washington and Oregon Sea Grant programs through our relative geographic proximity, shared fisheries, and common ocean processes, albeit with a 1,500-mile separation.

The National Sea Grant Academy has built many inter-program bridges, and Alaska Sea Grant has participated in every academy since its inception. These connections have created many synergies. For example, when the BP Deepwater Horizon oil spill occurred in 2010, Marine Advisory agent Torie Baker responded to a call for assistance from Louisiana Sea Grant Director LaDon Swann, whom she had met at the first academy. Baker offered support by visiting the region and assisting with town meetings, and by identifying appropriate Alaska resources from the 1989 *Exxon Valdez* oil spill. Baker continues to mentor Gulf of Mexico extension agents on outreach strategies for spill research.

Success in Sea Grant National Competitions

Alaska Sea Grant has successfully obtained funding through seven National Sea Grant initiatives in climate change adaptation, coastal hazards, invasives and aquaculture. In one example, Ketchikan Marine Advisory agent Gary Freitag teamed up with an investigator from the Smithsonian Environmental Research Center to implement a framework for detecting and rapidly responding to marine invasive species in Alaska. Among the many outcomes of this project were the establishment of a statewide volunteer network for detection of invasive species, as well as Smithsonian-led bioblitz activities in Sitka and Ketchikan.

Climate change adaptation funds from National Sea Grant supported the development of an Alaska climate change adaptation video and a decision tool. The decision tool was used in the village of Shaktoolik (one of 31 villages identified as high risk by the Government Accounting Office) to decide to "stay and defend" their village. The plan was used to receive funding to build a vegetated berm, one of the recommended erosion mitigation tools.

Examples of Sea Grant Network Partnerships

Marine Advisory agent Sunny Rice represents Alaska on the Fisheries Extension Network committee. She co-hosted webinars in the NSG FEN series, and helped launch and coordinate the FEN Conference in San Diego. Partners: Fisheries Extension Network (nationwide).

After the BP Deepwater Horizon oil spill, Marine Advisory agent Torie Baker visited the Gulf of Mexico region to assist with town meetings and provide resources. She mentors Gulf extension agents on outreach strategies. Partners: TX, LA, MS, AL.

Aquaculture specialist Ray RaLonde consults with shellfish culture researchers in Washington and Oregon, through his leadership position in the Western States Aquaculture Association. Partners: WA, OR.

Seafood marketing specialist Quentin Fong exchanges information with seafood direct marketing experts at Washington and California Sea Grant programs, including reviewing a website for direct marketers. Partners: WA, CA.

Marine education specialist Marilyn Sigman and COSEE collaborated with Sea Grant educators to host the 2012 National Marine Educators Association conference and to increase diversity in careers through education that is responsive to Native cultures. Partners: FL, HI, OR, WA, CA.

Marine Advisory agent Izetta Chambers trained residents on NEPA procedures at workshops, via a grant she secured from the NSG Law Center. Partner: NSG Law Center.

Sunny Rice and extension agents from Mississippi, Maine, and Washington are revising fishing business tools with help from a Saltonstall-Kennedy grant. Partners: MS, ME, WA.

At the invitation of South Carolina Sea Grant, Sunny Rice shared information with 30 shrimpers at TAA workshops, gave a presentation on community cold storage at the South Carolina Seafood Summit, and hosted 20 SC shrimp fishermen in Petersburg. Partner: SC.

Sunny Rice assisted California Sea Grant agents as they looked at the Southeast Alaska Regional Dive Fisheries Association as a model for collaborative data collection for emerging fisheries. Partner: CA.

To boost seafood quality, Marine Advisory agent Terry Reeve partnered with Washington Sea Grant to conduct workshops that spurred orders for 350 slush-ice bags for fishermen. Partner: WA.

Alaska Sea Grant hosted 2012 Sea Grant Week in Alaska. Partners: 32 Sea Grant programs and NSG Office.

Washington Sea Grant and the NSG Office co-staffed a booth with Alaska Sea Grant at the annual convention of the American Fisheries Society in Seattle in 2011. Partners: WA, NSG Office.

Media specialist Deborah Mercy created the video *Launch Your Career with a Sea Grant Knauss Marine Policy Fellowship.* Partners: NSG Office for use by all programs.

Communications coordinator Carol Kaynor is on a subcommittee working on Sea Grant Program Expectations for Sea Grant–Funded Researchers. Partners: NSG Law Center, TX, VA, MI, NY, CT, So. Cal.

Communications specialist Dave Partee provides logos and logo guidance for the Sea Grant network. Partners: All programs.

Gary Freitag helped coordinate and participated in a marine invasive tunicate workshop with Oregon Sea Grant, and shares invasive species monitoring information with Sea Grant agents. Partners: OR, WA, CA.

Washington Sea Grant Seafood Industry Specialist Pete Granger, a long-time partner in seafood direct marketing, coached new fisheries entrants in understanding market, quality and business challenges at the 2013 Alaska Young Fishermen's Summit. Partner: WA.

NEPA = National Environmental Policy Act. TAA = Trade Adjustment Assistance. NSG = National Sea Grant.

Management Team and Program Structure

The Alaska Management Team structure is working very well and producing excellent results. Nonetheless, care should be taken to remove some of the work burden from one of the management team member's shoulders and, at the same time, clear up the current ambiguity over supervision lines. While these workload and supervision issues appear to be minor concerns, addressing them now is preferable to waiting until a problem does arise.

Response: Since the last site review, the program has reorganized in 2013 to form a new management and administrative staff structure. Paula Cullenberg, former associate director and Marine Advisory Program (MAP) leader, became director, resulting in a single reporting line to the School of Fisheries and Ocean Sciences. Marine Advisory management duties continue to be led by Cullenberg with support from two MAP faculty, Torie Baker and Ray RaLonde. A quarter-time associate director of research, University of Alaska Fairbanks faculty Ginny Eckert, also was added. Alaska Sea Grant has more strongly integrated the administrative, extension, education, research and communications functions of the program.

Enhancing efforts to build the pool of candidates for Knauss Fellowships is important for enlarging the program's national impact. These fellows serve as a pool of talented potential employees with both Washington DC experience and strong academic backgrounds.

Response: We recruit Knauss applicants using a variety of methods statewide. Targeted emails are sent to graduate students, faculty members, and state and federal agencies. Fellowship information is sent out via news releases, university announcements, web pages, posters, fellowship-specific seminars and scientific meetings. In 2011 we produced a YouTube video for use on Alaska Sea Grant and National Sea Grant Office websites. Between 2010 and 2014, four students have applied through our program. Even though Alaska's graduate student pool is small compared to many states, we successfully recruited a Knauss Fellow for 2015 who is working for the House Natural Resources Committee. In 2015, we are initiating the first Alaska Sea Grant State Fellowship program, modeled after the Knauss Fellowship.

Strategic and Implementation Plans

As AKSG takes steps to achieve their strategic objectives they should consistently bear in mind how those steps will be translated into action. Among the components of Alaska Sea Grant the communications program seems to enjoy the best success in this regard.

Response: With the support of National Sea Grant and our Advisory Committee, work has been done that addresses this suggestion. Details are in the body of this document under "Strategic Planning."

Research Priorities and Objectives

AKSG may wish to spend some effort on better integrating its program-wide strategic priorities into decisions in the research portion of the program. Also AKSG should consider spreading some of the tasks associated with recruiting researchers, research proposal review, and selection and project monitoring among a few staff rather than concentrate this in the Director's position.

Response: Alaska Sea Grant requests that research proposals clearly address one of the four focus areas defined in our strategic plan, and proposals are evaluated for their relevance to program strategic priorities. The program invested in a quarter-time associate director of research with a strong science research background to strengthen the Alaska Sea Grant connection with principal

investigators and students. The reorganization of staff also created a research coordinator position to focus fully on research administration.

Sea Grant Advisory Committee

The [Advisory Committee] board should adopt basic bylaws defining the length of terms for members and the procedure for reappointment of existing members and appointment of new members. This should not be interpreted as a suggestion that existing members should be displaced or that that there should be a limitation on the number of terms served by a member. However, a regular schedule for reviewing and renewing appointments helps assure that the membership continues to be composed of those who are really interested in serving on the board.

Response: Details on the Advisory Committee Charter are in the body of this document under "Advisory Committee." In 2014 four new members joined the Advisory Committee, representing the Eskimo Walrus Commission, the National Institute for Occupational Safety and Health, the Alaska Department of Fish and Game, and North Pacific Seafoods.

Marine Advisory Program (MAP) Agents

When additional funding can be identified, the MAP program needs to be expanded to meet the Program's desire to move into climate and Arctic issues and to serve communities (particularly indigenous communities) along the north coast of the state. In addition MAP expertise in coastal and offshore petroleum exploration, extraction and site rehabilitation would open up new opportunities for collaboration with this important Alaskan industry.

Response: Climate change, increased marine traffic impacting subsistence food security, and international fisheries management implications are among the many emerging issues and substantial concerns in the Arctic. Three Alaska Sea Grant Marine Advisory faculty are located in the congressionally defined Arctic and are engaged with local residents from the Aleutians to subsistence villages on the North Slope. Our Bering Strait Marine Advisory agent will represent arctic science at NOAA Science Days in March 2015. We have focused a number of Wakefield symposia on emerging climate and arctic issues. Alaska Sea Grant is working with the rest of the NOAA Alaska Regional Collaboration Team to address the effects of a changing climate and changing Arctic.

The stakeholder input received from the MAP program and the Sea Grant Advisory Committee needs to be regularly integrated with the Alaska Sea Grant research agenda, and with a longer-term vision for Alaska Sea Grant. In programs such as this one, with high levels of stakeholder engagement, there is always a tension between responding to the urgent needs identified by the stakeholders and giving attention to those longer-term issues where the crisis is not immediate and solutions may require extended effort over time; but the resolution of the issue will, nonetheless, be important to Alaska. AKSG is aware of the need for this integration and it appears to be happening informally. However, AKSG should consider establishing a more explicit process for assuring that the challenge of issue integration, and the need for sustained attention to longer-term issues are being considered and addressed on a regular basis.

Response: The current (2014–2017) Alaska Sea Grant strategic plan was the guidance document for the language of our coastal resilience call for proposals and current request for proposals. As associate director of research and an active faculty member and researcher, Ginny Eckert brings a deep understanding of state issues, as do the director and the extension associate leaders. Targeted discussions of current and emerging issues have been an important component of the past two Alaska Sea Grant annual meetings, and the 2014 Advisory Committee meeting included similar discussions. One example of sustained attention to a long-term issue is the Alaska King Crab Research, Rehabilitation and Biology (AKCRRAB) program (see sidebar).

Research Partnership Builds Capacity, Creates New Knowledge

The Kodiak king crab fishery was a strong economic force in Alaska until it crashed in the early 1980s. An Alaska Sea Grant workshop in 2006 kicked off a research program that has published 30 peer-reviewed articles, supported eight graduate students and built a unique partnership among federal, state, university, industry and community groups. The Alaska King Crab Research, Rehabilitation and Biology collaborative research program examines the potential to raise red and blue king crab in a hatchery to rehabilitate crashed stocks in the wild. In 2014 research divers outplanted red king crab for the first time near Kodiak, and after five months they have found that crab survival is similar to natural populations. Over 20 partners contribute by collecting broodstock, donating funds, writing grant proposals and doing outreach. Alaska Sea Grant has provided leadership and outreach for the program since it began.

Web Presence and Database

The program should consider increasing the opportunity for public access to Sea Grant material by making more of information in the database available and searchable on line. Ideally, relevant information in the database should be accessible via commonly-used external web search engines such as Google, Yahoo, and Bing.

Response: Alaska Sea Grant has been serving search-engine-accessible information from our database to the web since 2009, and we are continually expanding public and search-engine access to content. A database of research projects went online in March 2010. The bookstore was updated to database-driven web pages in 2011; meetings and workshops became fully database-driven in 2014.

Collaborative Network/NOAA Activities

The annual report list 359 collaborations between AK SG and industry, communities, local, state, and federal agencies, and academic communities. While this is a powerful example of collaboration, it would be even more meaningful to illustrate collaborations via vignettes throughout the list.

Response: The *Alaska Sea Grant College Program Annual Report for October 2010–September 2011*, and the *Alaska Sea Grant College Program Annual Report for October 2011–September 2012* list partners and their roles. In this briefing book we have highlighted numerous examples of key partnerships.

The linkages between Alaska Sea Grant and federal agencies are very strong. The linkages to state agencies (beyond Fish and Game) seem less so, and would be worth exploring further.

Response: State agencies have been and continue to be significant partners on a variety of issues. In addition to the examples below, partnerships with four other state agencies are highlighted in the "Collaborative Network/NOAA Activities" section.

- Alaska Department of Commerce, Community, and Economic Development, Alaska Climate Change Impact Mitigation Program: Shaktoolik climate adaptation plan and the *Alaska Oyster Growers Manual*
- Alaska Department of Transportation: Shaktoolik climate adaptation plan
- Alaska Department of Natural Resources: shellfish farm permitting

While maintaining its fine efforts in collaborating with industry, communities, and the Federal agencies, Alaska Sea Grant should become involved in more intra-Sea Grant collaborations across the network. Excellent opportunities exist for building on Alaska's program strengths in climate change, marine mammals, and paperless management.

Response: Please see the "Collaborative Network Activities" section above.

Front cover photographs: Dave Partee (large photo); inset photos, left to right: Dave Partee, Deborah Mercy, Casey McConnell, Deborah Mercy.

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Sea Grant Alaska

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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
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School of Fisheries and Ocean Sciences