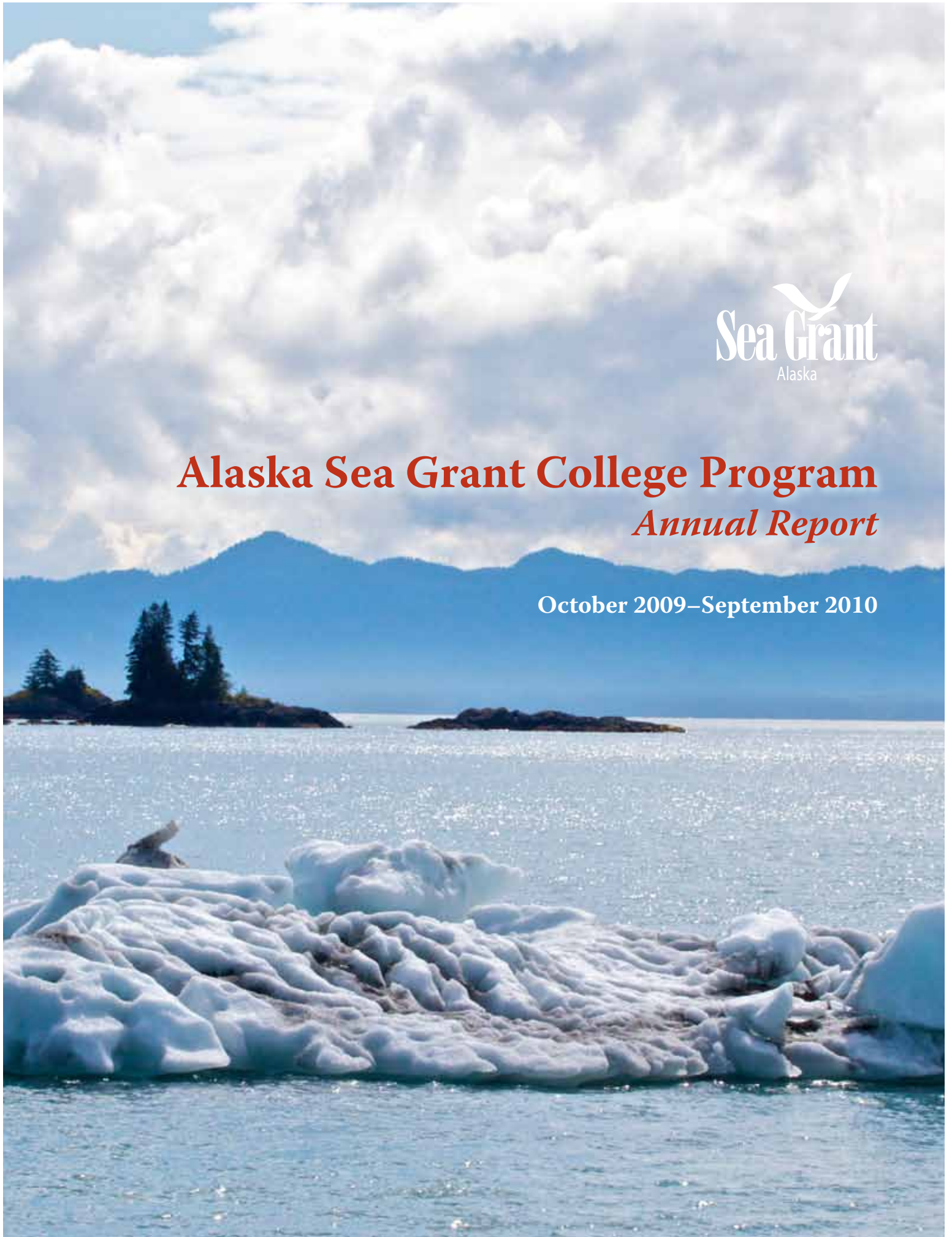




# **Alaska Sea Grant College Program** *Annual Report*

October 2009–September 2010



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# Alaska Sea Grant College Program Annual Report

## Sea Grant Serving Alaska for Forty Years



In 1970 the University of Alaska received its first grant from the National Sea Grant College Program, to fund a study on pinnipeds in the Bering and Chukchi seas. And so, Sea Grant came to Alaska. In the four decades since, Alaska Sea

Grant (ASG) research and outreach has spawned improvements in commercial fishing safety, marine resource management, seafood processing technology and products, fisheries research, K-12 marine education, and shellfish aquaculture, to name a few areas important to the people of Alaska. Our Marine Advisory Program (MAP), Wakefield Fisheries Symposium series, and educational publications and videos all have combined to effectively convey information to support the wise use and conservation of Alaska’s marine and coastal resources. This report describes highlights of the past year.

### STATE, UNIVERSITY PROVIDE PERMANENT SUPPORT FOR MAP AGENTS

In May 2010, the Alaska State Legislature and the University of Alaska Fairbanks (UAF) provided new permanent funding for six MAP positions in coastal Alaska. This means that 14 out of 16 MAP faculty, located in 10 coastal Alaska communities, now hold permanently funded UAF faculty appointments. Extraordinary support was delivered by municipal and tribal governments, tourism operators, fishing groups, seafood processors, educators, subsistence and sport harvesters and other community members from across the state, through calls, letters, and personal contacts to the Alaska State Legislature and Governor Sean Parnell. Members of the ASG Advisory Committee also provided considerable support for this effort. This outpouring of help resulted in

the State appropriation of \$300,000 to the UAF operating budget with an equal amount provided by UAF. Five previously grant-funded MAP positions—Petersburg, Cordova, Unalaska, Dillingham, and Nome, are now fully funded, and Kodiak will soon have a resident MAP agent for the first time in 14 years.

### ASG RECEIVES STELLAR NATIONAL REVIEW

ASG underwent its required national program review by a federally appointed assessment team in May 2010. The site visit team examined ASG’s management and planning structure, collaborative activities, and extension and outreach. This review sets a benchmark against which we will assess the growth and effectiveness of ASG approximately every four years. Limited amounts of merit-based core funding from the National Sea Grant College Program are expected to be distributed based in part on the results of these noncompetitive national reviews.

Thanks to the dedication and skill of our entire staff, the team’s final report was highly positive. It describes our management, outreach, and collaborations/partnerships as outstanding, and singles out our communication and extension efforts as “excellent and among the best in the entire Sea Grant network.” The range and quality of our publications is described as “stunning,” the scale and engagement of our MAP program as “impressive,” and our relationship with the University of Alaska as “exemplary.”

The site visit team recognized that the ASG Advisory Committee is interested, engaged, strongly supportive, relevant, very well led, and representative of the many resource interests in the state—one of the best in the national network. ASG’s formal connection with the UAF School of Fisheries and Ocean Sciences works well, is productive, and yields substantial benefits to ASG and the University of Alaska.

The report closed with, “This is an energized program that knows where it’s going. Great praise is due to the members of the program and to their external supporters for building ASG to its present level of excellence.”

## Research, Education, and Extension Activities Address ASG's Five Strategic Focus Areas

The following examples reflect the breadth and variety of ASG sponsored activities across Alaska but they represent only a fraction of the total program.

### Healthy Coastal Ecosystems

Goal: Sustained, well-managed, and healthy marine, coastal, and watershed ecosystems in Alaska.

#### Mercury Concentrations in Kenai Peninsula Wetlands

Mercury contamination from local industrial sources or carried on wind currents from distant lands is a world-wide problem.

In 2009, ASG researchers Laura Mujica and Eric Holmberg, University of Alaska Anchorage Department of Chemistry, began a pilot project to determine concentrations of total mercury and methylmercury in water and bottom sediments of wetlands on the western Kenai Peninsula. Both compounds can be highly toxic and can be distributed through the atmosphere from anthropogenic sources including coal-fired power stations.

From each of 23 sites researchers collected 38 samples of water, sediment, and soil for a baseline survey. A preliminary report indicates that 21% of the samples have critical levels of methylmercury, and 42% have significant levels of methylmercury. If confirmed these data will require further evaluation. The water and sediment samples were analyzed at the USGS Mercury Research Lab in Madison, Wisconsin. The U.S. Fish and Wildlife Service and the State of Alaska are partners in this study.

#### Uncertainties in Integrated Age-Structured Assessment Models

Without good information and analysis in a fisheries stock assessment, major errors in management can occur and not be observed until it is too late to take action. As part of their ongoing work to improve stock assessment models, SFOS fisheries professor Terry Quinn, and ASG doctoral student Peter John-Hulson, are developing techniques to address this issue by incorporating and evaluating uncertainty in data sets used in integrated age-structured assessment models. During 2009, analysis of the effect of data weighting, the first major mathematical component of the project, was completed and a paper submitted to the peer-reviewed *ICES Journal of Marine Science*.



A humpback whale in Sumner Strait, Southeast Alaska.

SUNNY RICE

#### Reducing Fishing Boat Interactions with Growing Marine Mammal Populations

As the number of humpback whales increases in Alaska, the frequency of unwanted interactions between whales and fishing gear also grows. To help fishermen in southeastern and southcentral Alaska avoid or deter such interactions, MAP faculty members Kate Wynne and Sunny Rice are directing a research and outreach project that is expected to reduce the frequency and impact of whale entanglements in fishing gear. The fishing industry and NOAA's Office of Protected Resources are partners, and the project is funded in part by the North Pacific Research Board.

An immediate impact of a 2009 MAP-led workshop was the increased involvement of local fishermen in addressing the accidental capture of whales in salmon nets. Deterrent techniques suggested by fishermen are being evaluated for effectiveness and impact on whale behavior. After more work, the MAP investigators expect to identify devices that are easy to deploy and effective at alerting whales to nearby gear, but with limited noise impact. An effective deterrent device would have substantial economic impact, reducing the need for gear repairs and potentially easing fishing restrictions in areas of frequent whale interactions.

#### Responding to Marine Mammal Stranding and Entanglements with Fishing Gear

MAP faculty members Kate Wynne (Kodiak), Reid Brewer (Unalaska), and Gary Freitag (Ketchikan) support the NOAA Office of Protected Resources Marine Mammal Stranding Network, by providing responses to entanglements and strandings and education/outreach about entanglement reduction to fishermen. In addition, the team collects tissue samples from dead marine mammals in the three communities. In 2010 these samples were used by the National Marine Fisheries Service to determine increased threat to marine mammals from pollution and human interaction.

### Pacific Giant Octopus Tagging Study in the Bering Sea

The Pacific giant octopus, the world's largest octopus species, plays an important role as predator and prey in nearshore ecosystems. To learn more about the role of this octopus in Bering Sea and Aleutian ecosystems, Unalaska MAP agent Reid Brewer is undertaking a three year, North Pacific Research Board-funded study. The results will be useful to ecologists and fisheries managers in Alaska.

The study uses colored Visible Implant Elastomer (VIE) tags to identify individuals and accurately determine population size, distribution, mortality, movement, and growth. Of about 860 octopus that have been tagged, 103 have been recaptured at least once. This demonstrates that VIE tags provide an effective new way to tag a soft-bodied species that has never before been successfully tagged.

### Community-Based Coastal Environmental Monitoring

Strong concern by coastal communities for the well being of local ecosystems is the basis for a number of observation and baseline sampling programs coordinated by MAP agents. In the past year MAP has coordinated

sampling for invasive green crabs in partnership with the Smithsonian Environmental Research Center, testing for the accuracy of a domoic acid field test, and monitoring for beached dead birds as an indicator of environmental change with the University of Washington COASST program. In Unalaska and Ketchikan and communities on the Alaska Peninsula, over 150 volunteer hours have been logged on coastal monitoring programs in 2009-2010. Community monitoring projects are a cost effective way to involve communities in locally relevant issues, to provide meaningful educational opportunities to residents of all ages, to inform decision makers, and to maximize the effectiveness of scarce research personnel and dollars in monitoring Alaska's vast coastline.

### Shellfish Biotoxin Monitoring for Potential Health Concerns

In summer 2010, one death from paralytic shellfish poison (PSP) occurred in Juneau and several illnesses were reported in Kodiak. Community-based monitoring programs for PSP may be the only practical way to assure the safe harvest of shellfish for personal use. MAP aquaculture specialist Ray RaLonde, in partnership with the Aleutian Pribilof Island Association, is developing community monitoring programs for PSP in Akutan, Unalaska, Sand Point, and King Cove. This pilot project will help determine whether local field tests are effective in reducing the incidence of PSP among subsistence shellfish consumers.

Related activities include coordinating with the Alaska Department of Environmental Conservation to create communication tools and response protocols, testing blue mussels as an indicator species for domoic acid toxicity in subsistence bivalve harvests, and evaluating a field test kit for domoic acid in partnership with Mercury Scientific Lab. Funding in part for these projects is from the North Pacific Research Board.



KURT BYERS

Ketchikan Marine Advisory agent Gary Freitag checks an invasive species trap.



DAVE PARTEE

A family enjoys an afternoon of foraging in Jackolof Bay, Alaska.



KURT BYERS

Kodiak, Alaska.

## Sustainable Coastal Development

Goal: Diverse and sustainable coastal communities, where residents have the knowledge and skills they need to adapt to natural and man-made changes in resource use and availability.

### Alaska Coastal Community Youth and the Future

Many Alaska rural coastal communities are experiencing a net outmigration of young people. To help find out more, ASG researcher Marie Lowe of the University of Alaska Anchorage, and master's student Robyn Miller, surveyed youth in Alaska's coastal fishing communities to examine their perceptions and perspectives on their lives now, and their future goals. The project also looks at community in- and outmigration in the context of changing economic conditions in the communities.

Researchers worked with 44 males and 44 females from Sitka, Kodiak, Petersburg, Craig, and Ouzinkie. Youths ranked 20 occupations in order of value/prestige. The highest-ranking occupations were artist, mechanic/welder, pilot, fisherman, health care worker, store/small business owner, construction worker, teacher, and chef/cook. Lower to mid-range ranking occupations included biologist and computers. Lowest ranking were charter boat operator, guide, harbor master, longshoreman, hairdresser, fish processor, mayor, post office clerk, and office worker.

### Coastal Communities Seek Economic Sustainability through Diversification

The goal of the nonprofit OceansAlaska Marine Science and Mariculture Center in Ketchikan is to help diversify the local and regional economy. MAP Ketchikan agent Gary Freitag is president of the OceansAlaska board of directors. In the past year foundation pads were completed and a final design was developed for the Mariculture Center, which will be used for training and research in support of the shellfish mariculture industry. This activity has resulted in several jobs and contributed over \$1 million to the local economy. The board's Mariculture Council is responsible for developing an education and research program.

The southeast Alaska town of Pelican contacted MAP to address recent declines in the economy. Pelican has been losing halibut deliveries as a result of changing delivery patterns from the Individual Fishing Quota (IFQ) system. MAP business specialist Glenn Haight and seafood marketing specialist Quentin Fong worked with community members in Pelican to develop a strategic plan for training, research, and investment—in tourism, alternative processing, fleet infrastructure, and community wellness.

In the Native Village of Quinhagak, on the Bering Sea coast, concern by community members about erosion of old village sites led to a partnership between the village and archaeologists from Aberdeen University and UAF. Bethel MAP agent Terry Reeve has worked with researchers and the community over the last few years to develop this partnership, organize a field camp, and promote tourism. Immediate impacts from the project have been economic returns from village support of the field crews, and preservation of many important archaeological items.

In Kodiak, Quentin Fong worked closely with members of the Hispanic community conducting the workshop "How to Start a Business in Kodiak." A number of small businesses were considered and an El Salvadoran restaurant was opened showing a net profit of \$7,000 for its first nine months in operation.

### Citizen Science Provides Economic and Stewardship Opportunities

Gastineau Guiding, a Juneau-owned excursion company, sought MAP's partnership for a second season of their Citizen Science tour in Gastineau Channel. MAP agents helped GG develop a program that included phytoplankton sampling and marine mammal and bird sightings. Data are collected daily at the same cruise location, and are used in a phytoplankton database and as baseline information on whale behavior and identification. In addition to collecting valuable data, the excursion offers a continuing opportunity to educate cruise ship passengers about Alaska's waters. In 2010 this tour attracted 1,500 visitors and was especially attractive to family groups. With the entry of family-oriented Disney cruises into the Alaska market in 2011, a significant increase can be anticipated.

## Safe and Sustainable Seafood Supply

Goal: Safe, sustainable, and sought-after seafood products providing stable economic returns to Alaska communities.

Goal: Commercial, sport, and subsistence fisheries will remain biologically and economically healthy, and remain a long-term economic force in coastal communities.

### Seafood Processors Aim to Enhance Energy Efficiency

Reductions in energy costs by seafood processors have the potential to increase returns to harvesters and processors. To help seafood processors save money on energy costs, MAP is partnering with the Alaska Energy Authority in a two-year project to increase energy efficiency of Alaska seafood processors. Partners include MAP faculty members Torie Baker and Chuck Crapo, as well as faculty and students at the UAF Institute of Northern Engineering. Small processors around the state will be trained to use an energy efficiency kit to audit energy use. Large processors will be visited by UAF engineers who will recommend ways to reduce energy use.

### Opportunities to Expand Seafood Markets

To help expand the Alaska fishing industry and improve profits, Quentin Fong provided consultations on expanding markets for underdeveloped fishery species such as dogfish, and locating uncommon markets such as the Australian flatfish market. Fong also consulted with processors about business costs and efficiencies of different product forms. This year, consultations with Alaska Fresh Seafoods, International Seafoods of Alaska, Lofoten Fish Company, and several direct marketers helped them make informed decisions about whether to expand.

### Trained Fishermen Work to Improve Seafood Quality

HACCP and sanitation courses are offered two times a year in Anchorage to a statewide audience and often regionally by MAP seafood specialist Chuck Crapo. In 2010, for the first time, credit was offered for HACCP training through the UAF Bristol Bay Campus. Several members of the Togiak Traditional Tribe attended, and responded that the training was very well received and that they would be able to use the class with Copper River Seafoods, their partner in the Togiak fishery.

Port-based onboard refrigeration classes were offered in Ketchikan and Sitka, giving fishermen the skills needed to maintain chilling during the season, ensuring high quality seafood.

### FishBiz Bolsters Seafood Industry

Through its Fisheries Business Assistance Program (FishBiz), led by Juneau-based business specialist Glenn Haight, MAP is the leading provider of financial technical assistance to Alaska's fishermen.

Training sessions on direct marketing, financial planning, and business management were held in person and via distance education around Alaska. Two new publications—*Calculating Profitability for a Direct Marketing Operation* and *Tips for Direct Marketers: Working with a Broker or Trader*—were published by ASG. In addition, Haight developed a program to help fishermen determine the value of direct marketing, and consulted with individuals interested in direct marketing.

### Supporting the Next Generation of Alaska's Commercial Fishing Fleet

MAP's Alaska Young Fishermen's Summit provides fishermen from around Alaska with professional development opportunities in business management, marketing, safety, the regulatory process, and participation in public process. The third summit, organized by MAP agents Torie Baker and Sunny Rice, attracted 47 participants from 21 communities to Anchorage in December 2009. Attendance was also high at an optional third-day workshop, which included training in drill instructor safety, board of directors participation, and direct marketing. Participants especially appreciated the caliber of the presenters and the opportunity to network with other fishermen. Surveys of participants in the earlier summits indicate increased participation in community affairs and management forums such as North Pacific Fishery Management Council meetings.

MAP faculty members Glenn Haight, Izetta Chambers, and Terry Johnson worked with the Bristol Bay Economic Development Corporation for the second year, to support their permit retention program through the "Business of Fish" workshop. Topics included insurance coverage, fuel efficiency, and direct marketing. Retention is an important issue, as the number of locally held Bristol Bay salmon permits is under 25%, an all-time low.

### Enhancing Public Participation through Training

Alaskans who want to learn how they can influence the formation of national environmental policy may attend MAP educational workshops in Dillingham in fall 2010. MAP agent Izetta Chambers received a grant from the National Sea Grant Law Center to develop and deliver the workshops, covering the National Environmental Policy Act (NEPA) and North Pacific Fishery Management Council processes.



## Residents and Fishing Industry Learn about Community Development Quotas

In years following the 1996 implementation of the halibut and sablefish Individual Fishing Quota program, Alaska communities experienced losses of fishing quota and jobs. The 2004 Community Quota Entities (CQE) program was designed to restore fish allocation to communities, but only one CQE has purchased quota by 2010.

To help Alaska fishing communities understand CQEs, MAP presented a workshop in 2009, cosponsored by the North Pacific Fisheries Trust and the Gulf of Alaska Coastal Communities Coalition. Paula Cullenberg, MAP coastal community development specialist, helped organize the workshop. In 2010, ASG published the proceedings, *Community Quota Entities*. The book describes how small Alaska coastal communities can use CQEs to build equity to purchase and lease fishing quota. MAP faculty member Glenn Haight will use the book in a national catch shares workshop at Pacific Marine Expo in Seattle, in November 2010.

## King Crab Research Publicity Spurs \$10,000 Industry Donation

Over the past 12 months, ASG compiled and distributed 10 issues of *News Flash* to 450 people, and posted issues on the ASG website. *News Flash* is a free electronic newsletter that highlights our Alaska King Crab Research, Rehabilitation, and Biology (AKCRRAB) project. Articles are frequently picked up by the fishing media.

In September 2010, prompted by a story published in *Seafood Business* magazine, Santa Monica Seafoods donated \$10,000 from their sustainability fund to ASG in support of AKCRRAB production and habitat research. Santa Monica Seafoods is a family-owned seafood distributor with annual sales of about 20 million pounds. Their donation provides a gift that is needed to

establish a new Crab Research fund at the UA Foundation. The fund will be managed like the very successful PCCRC (Pollock Conservation Cooperative Research Center), which has provided over \$10 million for fisheries research at SFOS. The Crab Research fund is managed by the SFOS dean and the ASG director and will have an advisory board representing industry and community entities.

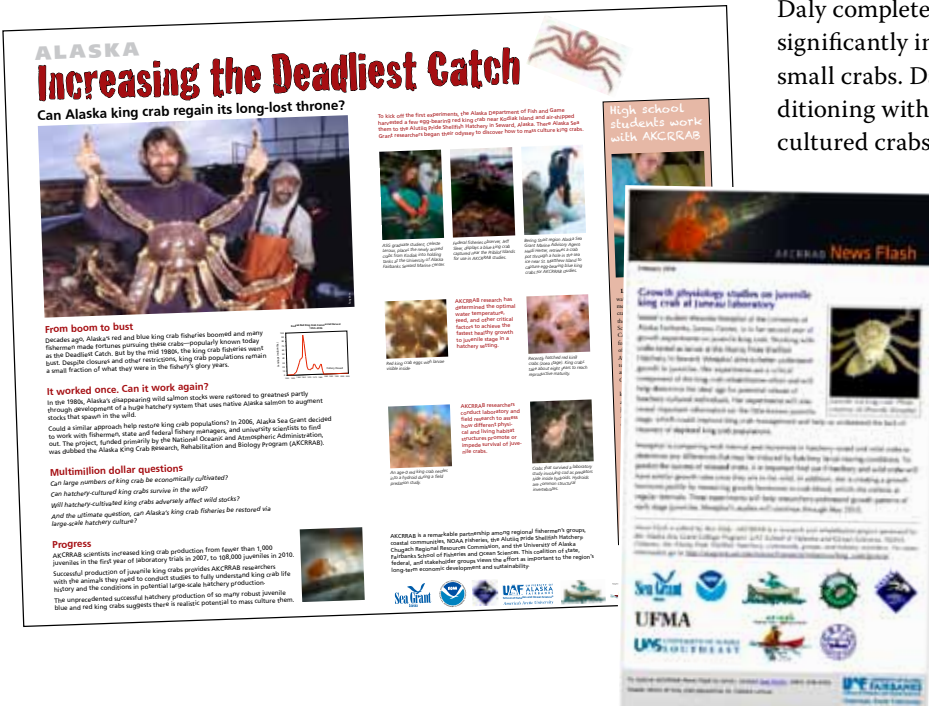
AKCRRAB was featured on the ASG poster displayed at national Sea Grant Week in New Orleans in October.

## Alaska Red King Crab Enhancement: Juvenile Growth and Field Habitat Studies

In 2006, ASG director Brian Allee brought together a diverse group to initiate a program to research the development of hatchery techniques for king crab cultivation, and the habitat and biological research needed to eventually rehabilitate collapsed Alaska wild red and blue king crab stocks.

In 2010, for the second consecutive year, over 100,000 first stage juvenile red king crabs were produced from approximately 20 wild-caught broodstock, at the Alutiiq Pride Shellfish Hatchery in Seward. ASG research biologists Jim Swingle and Ben Daly achieved over 50% survival to the post-larval stage and 20% to the first juvenile stage. This is an increase from less than 1,000 juveniles in 2007.

The juveniles produced in 2010 are being used in experiments in Juneau, Seward, Kodiak, and Newport, Oregon, to investigate large-scale nursery requirements, tagging techniques, and ecological fitness of hatchery-cultured king crabs. SFOS Juneau master's student Miranda Westphal began her second year of growth experiments on juveniles, while doctoral student Jodi Pirtle has completed her series of experiments in survival under predation and other pressures. Pirtle's results suggest that crab survival will be higher in areas with complex habitats that provide shelter from predation. Doctoral student Ben Daly completed experiments confirming that size grading significantly improves hatchery survival, especially with small crabs. Daly also began research to determine if conditioning with predators enhances survival of hatchery-cultured crabs.





KURT BYERS

MAP aquaculture specialist Ray RaLonde discusses size measurements of Alaska farmed oysters with Ketchikan agent Gary Freitag.

### Quality of Molluscan Broodstock Oysters Raised in Kachemak Bay

Researchers Ray RaLonde and SFOS M.S. student Stuart Thomas are evaluating mature market-ready oyster characteristics in the second phase of the Alaska Molluscan Broodstock Program, to develop pedigreed oysters to supply in-state oyster farmers with high-yielding hatchery-raised seed.



KURT BYERS

Ray RaLonde measures 1-year-old oysters from a southeast Alaska farm.

Oysters from the top seven family lines in Kachemak Bay, Alaska, and Thornedyke Bay, Washington, were collected in October 2009, and transported for analysis to the Hatfield Marine Science Center and the UAF Fishery Industrial Technology Center. They were assessed for size and condition, and for percent ash, protein, lipids, and glycogen. While most characteristics were similar for oysters from both states, oysters from Washington were longer,

wider, deeper, and had greater meat and shell weights than those from Alaska. Research is continuing to improve top producing lines for Alaska.

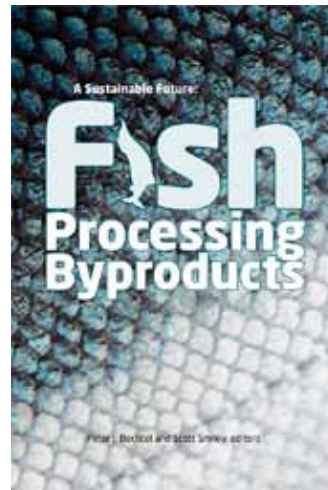
### Economically Extract Salmon Head Oil for Use by Small Alaska Processors

Fish oil made from discarded salmon heads, bones, and entrails has huge market potential for health food supplements and nutraceuticals. Subramaniam Sathivel, formerly with the UAF Fishery Industrial Technology Center and now with Louisiana State University, is evaluating the effects of different extraction processes on the chemical and physical properties of red salmon oils.

Four salmon oil extraction processes were used to extract oil from red salmon heads, one of which recovered significantly higher amounts of crude oil. Salmon oils were evaluated for fatty acids, vitamin E, free fatty acid (FFA), peroxide values, moisture, water activity, and color. ASG graduate students Yuting Wan (M.S.) and Huaixia Yin (Ph.D.) are participating in this study.

### New Book Describes Uses for Seafood Byproducts

The Alaska seafood industry has explored innovative products from seafood processing wastes, including protein meals, fish oils, solubles, and fish bone. Researchers have found that byproducts derived from processing of fish for human consumption can frequently be made into human food ingredients. To identify the needs of users and stimulate development of lucrative new products from byproducts, in 2009 the Alaska Fisheries Development Foundation (AFDF) sponsored the conference, A Sustainable Future: Fish Processing Byproducts. Partners were ASG, U.S. Department of Agriculture/Agricultural Research Service/Subarctic Agricultural Research Unit, and the UAF SFOS Fishery Industrial Technology Center. ASG Education Services coordinated logistics and registration, provided guidance on conference promotion, and published the proceedings in 2010.





## Hazard Resilience in Coastal Communities

Goal: Healthy, safe Alaskans and resilient coastal communities in the face of marine and coastal hazards.

### Resources Provided to Gulf of Mexico Communities

During the Deepwater Horizon spill, Cordova MAP agent Torie Baker responded to a request from Mississippi Alabama Sea Grant Consortium, and visited the Gulf of Mexico in May 2010 to share her experiences from the *Exxon Valdez* oil spill. Gulf residents were particularly interested in the peer counseling program that was initiated in Alaska after the 1989 spill. After Baker returned, ASG public information officer Doug Schneider recorded an interview with her. Download the audio at [seagrant.uaf.edu/news/10news/05-27-10oil-spill-visit.php](http://seagrant.uaf.edu/news/10news/05-27-10oil-spill-visit.php).

### Alaskans Adapting to Climate Change

An Alaska climate change adaptation “decision planning tool” was developed by MAP marine recreation and tourism specialist Terry Johnson, and a website and adaptation fact sheets were created at [www.marineadvisory.org/climate](http://www.marineadvisory.org/climate). In Scammon Bay, Johnson and MAP leader Paula Cullenberg met with residents to discuss local climate change impacts, and Cullenberg spoke at the Yukon River Drainage Fishermen’s Association annual meeting in Nulato. Johnson also presented the planning tool at the annual conference of the National Association of Natural Resource Extension Professionals (ANREP) in Fairbanks, and in Valdez, Cordova MAP agent Torie Baker gave a tour to ANREP

participants, focusing on climate change and fisheries. Instructional media specialist Deborah Mercy completed the video *Faces of Climate Change*, in partnership with the Alaska Ocean Observing System, North Pacific Research Board, and Alaska Marine Conservation Council. She will create a second video on how Alaskans are adapting to climate change, funded in part by National Sea Grant. Partial support for Johnson’s work is provided by the Alaska Center for Climate Assessment and Policy at UAF.

### Supporting a Marine Safety Culture in Alaska



Boating without the Boys, a course created by the Alaska Marine Safety Education Association (AMSEA), was taught by MAP

agents Torie Baker and Sunny Rice to full classes in Cordova and Petersburg. Fisherman safety drill classes were taught in Cordova and Unalaska, and Reid Brewer in Unalaska and Heidi Herter in Nome taught marine safety and survival to schoolchildren. In a survey after the Nome class, 41% noted that because of the class, they were more likely to wear a PFD.

A new edition of the *Man Overboard* video was produced by Deborah Mercy in partnership with AMSEA. Paula Cullenberg was elected chairman of the AMSEA Board of Directors.



KURT BYERS

Cooperative Extension Service agent Sonja Koukel (center) talks with MAP agents Heidi Herter (left) and Sunny Rice. In November 2009, ASG MAP and the Alaska Center for Climate Assessment and Policy sponsored a three-day workshop for the Alaska Community-Based Climate Change Adaptation Outreach Program with extension and outreach professionals. The purpose was to develop a statewide outreach program to help Alaskans understand climate change impacts, and to develop proactive strategies to adapt to predicted environmental, social, and economic change.



KURT BYERS

MAP marine recreation and tourism specialist Terry Johnson gives a presentation on climate change adaptation at the annual conference of the National Association of Natural Resource Extension Professionals.

## Marine Literacy and Stewardship

Goal: Alaska residents and visitors understand, appreciate, and safely and sustainably enjoy Alaska's marine and coastal environments.

### COSEE Alaska: Center for Ocean Science Education Excellence

COSEE Alaska entered its second year, coordinated by MAP marine education specialist Marilyn Sigman. COSEE Alaska assists researchers in communicating effectively with educators and the public. COSEE Alaska sponsored the "Communicating Ocean Sciences" workshop at the Alaska Marine Science Symposium, and a meeting of SeaNet, an organization linking scientists with educators. COSEE Alaska coordinated the education and outreach strand of an ocean acidification workshop, leading a breakout discussion with scientists, journalists, and educators, and hosted a well-attended Google Ocean workshop. COSEE Alaska also sponsored several rural ocean science fairs linking science with traditional knowledge from community members. Funding for COSEE is from the National Science Foundation.



### Linking Science with Coastal Communities

In a number of coastal communities, MAP agents link community members with the research carried out in their regions.

In Unalaska, Reid Brewer hosted the Western Alaska Integrated Science Conference (WAISC), which focused on local research on fisheries, public health, anthropology, subsistence, mining, energy, and small business. The

conference had 40 speakers and was attended by over 100 scientists, resource managers, subsistence users, commercial fishermen, and the public. Brewer also hosted an exhibit at the Museum of the Aleutians of photographs taken while diving along the Aleutian chain.

Also in Unalaska, 200 community members attended six lectures at the Museum of the Aleutians as part of the Forum on Alaska Marine Issues series, begun in 2004. In Cordova, MAP cosponsored a similar speaker series with the Prince William Sound Science Center.

### Encouraging Young Alaskans in Marine and Fisheries Careers

MAP coordinates the Alaska Marine Science and Fisheries Careers Coalition, a network of employers, educators, and stakeholders working to enhance recruitment and retention in marine and fisheries careers. The coalition hosts the Future Alaskans in Fisheries website at [www.sfos.uaf.edu/future](http://www.sfos.uaf.edu/future) to provide information to students, teachers, and employers. This year they created the first online job board in Alaska that is dedicated to marine and fisheries internship and employment opportunities. The coalition also works with NOAA Fisheries in Alaska to implement the Magnuson Stevens Act, section 109, directing NOAA to develop a marine and fisheries training program to target underserved populations in these fields.

MAP agents in Ketchikan, Petersburg, and Unalaska coached National Ocean Sciences Bowl teams. Gary Freitag taught Fisheries of Southeast Alaska and Oceanography via Elluminate Live as part of the UAS Fisheries Technology Associate Degree Program, in Ketchikan. The classes helped three students get jobs in fisheries. Reid Brewer taught a college-level marine science seminar in Unalaska and Heidi Herter taught an intensive summer field biology course for one UAF credit to village high school students at Salmon Lake. In Unalaska, MAP hosted activities for K-12 students, the annual Tide Pool Posse field camp, and intertidal ecology and coastal safety at the Qawalangin Tribe's annual culture camp.



Prince William Sound, Alaska.

DAVE PARTEE

### Publications and Videos Go to the State, Nation, and World

From October 1, 2009 thru September 30, 2010, ASG filled 1,240 orders for 240 different ASG educational products and distributed 24,140 items to 48 states and 17 countries. Of those, 15,750 publications and videos went to Alaskans, including Alaska retailers who in turn sold ASG products to Alaskans and visitors. Cost recovery via sales was \$80,000. The National Sea Grant Library distributed nearly 48,000 ASG publications as PDFs worldwide, an increase of about 11,000 over the previous year. In terms of number of educational products distributed by the National Sea Grant Library relative to state populations served, ASG is far ahead of all other Sea Grant programs.

### Paperless Publications on The Rise

ASG Education Services is moving quickly into producing more electronic (“paperless”) publications, with the goal of offering most publications as free or for-sale PDFs, downloadable from our online bookstore. To greatly improve accounting for PDF “hits” and downloads, in mid 2010 we implemented a technique to route downloads through our online bookstore shopping cart. Because the shopping cart requires engagement by the user beyond a simple mouse click, and because web search “robots” cannot negotiate the shopping cart, most downloads will be executed by human beings who actually want the publications. Our system will allow us to learn who downloaded PDFs and provide a way to later contact users to inquire about the usefulness of the items.

**Resiliency of Gadid Stocks to Fishing and Climate Change**  
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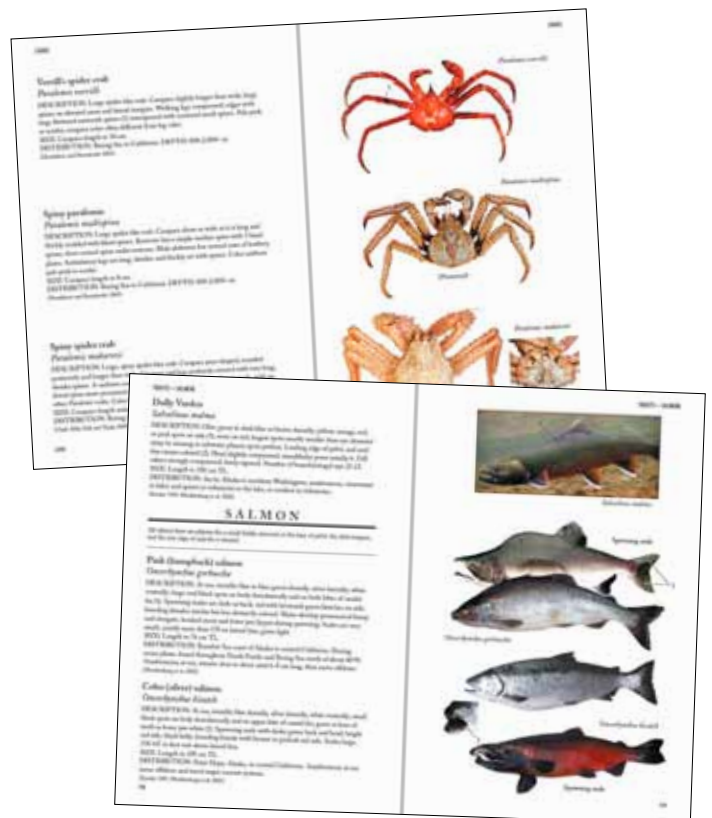
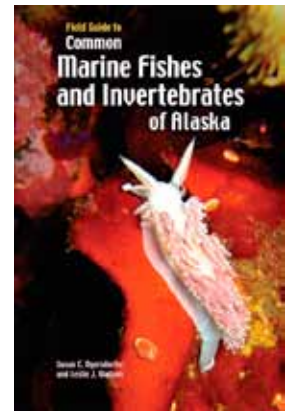
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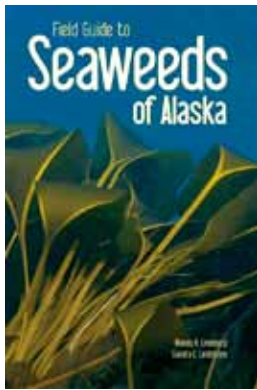
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Hardcover book	\$50	Add to Cart
PDF download—entire book [16.7 MB]	\$45	Add to Cart
PDF download—individual chapters	\$2.75 each	Show chapters

**Description**  
 The peer-reviewed articles in this book shed light on the intertwined effects of fishing

### ASG and ADFG Produce Guide to Alaska Fishes and Invertebrates

The Alaska Department of Fish and Game collaborated with ASG to publish *Field Guide to Common Marine Fishes and Invertebrates of Alaska*, by ADFG marine biologists Susie Byersdorfer and Leslie Watson. The 360-page book describes more than 400 species, and includes color photos taken by the authors during annual trawl surveys. The book fills a void left by the long out-of-print guide by NOAA biologist Doyne Kessler, *Alaska's Saltwater Fishes and Other Marine Life* (1985). Among the kudos for the new book is this from Doug Woodby, chief fisheries scientist, ADFG: “This valuable field guide offers a wealth of photographs and concise text to assist in the identification of many of the species of fish and invertebrates likely to be encountered in waters off Alaska. It will prove to be a treasured source to marine scientists, fishery observers, teachers, and anyone interested in the fabulous diversity of marine life found in our waters.”

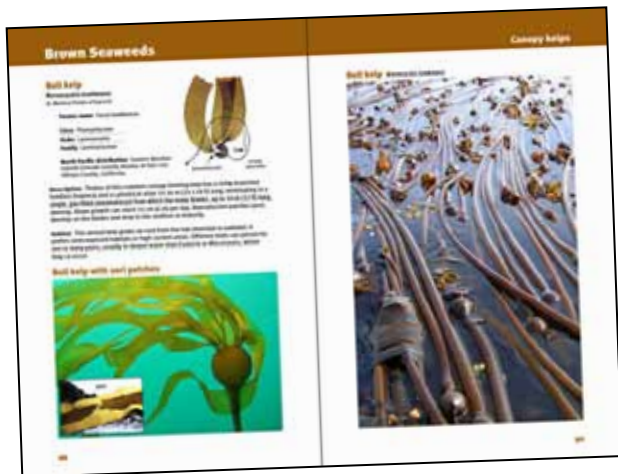




### Seaweed Guide Fills Constituent Need

A field guide to Alaska seaweeds has been one of the most frequently requested books by ASG constituents over the past two decades, according to ASG Education Services manager, Kurt Byers. ASG filled the long-standing need this September with the publication of *Field Guide to Seaweeds of Alaska*, by NOAA Fisheries biologist

Mandy Lindeberg and University of British Columbia scientist Sandra Lindstrom. The 188-page book is the only print guide to Alaska seaweeds that describes species north and south of the Alaska Peninsula. It features outstanding color photos, most by Lindeberg, and descriptions of the 100 most common marine seaweeds, lichens, and seagrasses of Alaska. In 2006 Lindeberg generated a buzz among seaweed scientists around the world when she discovered a new genus (and species) of kelp in the Aleutian Islands, dubbed “golden V.” A photo of golden V is on the book cover. NOAA Fisheries and the Cook Inlet Regional Citizens Advisory Council contributed major funding toward book production.



### Teaching Teachers about Salmon and the Environment

To improve science education in Alaska’s schools, ASG partners with UAF Cooperative Extension and the U.S. Fish and Wildlife Service to provide annual Salmon in the Classroom teacher-training sessions that are focused on a subject familiar to most students—salmon. Salmon in the Classroom and other workshops also provided an opportunity to train teachers in the ASG-sponsored *Alaska Seas and Rivers* curriculum.

## New Research Portfolio for 2010-2011

Three new competitive federal grants received in late summer 2010, together with internal match funding, total over \$1 million.

**Ray RaLonde**, MAP aquaculture specialist, received a \$284,000 grant (including match) from an aquaculture fund administered by National Sea Grant, to help reinvigorate the state’s sluggish shellfish farming industry. RaLonde, with MAP marketing specialist Quentin Fong, Ketchikan agent Gary Freitag, business specialist Glenn Haight, and media specialist Deborah Mercy, will conduct a shellfish farming instructional program to help the Alaskan Shellfish Growers Association write a best practices manual and assist communities in developing aquaculture plans, and work toward identifying up to 20 new farm sites. The grant will also support education and training for high school students and new farmers, economics research, business support, technology transfer for farmers, and infrastructure assessment for communities interested in aquaculture.

**Gary Freitag**, MAP agent in Ketchikan, in partnership with the Smithsonian Environmental Research Center, received a \$599,975 grant (including match) from an invasive species fund administered by National Sea Grant. The grant will be used to train local citizen scientists in 30 coastal communities to carry out a new statewide marine invasive species monitoring and detection program.

**Ginny Eckert**, SFOS Juneau Fisheries faculty member, received a \$460,000 grant (including match), from an aquaculture fund administered by National Sea Grant, for a study of predation and other performance attributes of hatchery-raised king crab. The goal is to better understand how hatchery-raised crab will fare if released into the wild. The project has several state and federal partners and is among the studies needed to advance the Alaska King Crab Research, Rehabilitation and Biology (AKCRRAB) program.

In addition:

**Kate Wynne**, MAP marine mammal specialist in Kodiak, received a \$137,000 Prescott grant from the NOAA Fisheries Office of Protected Resources and ASG. Wynne will use the grant to train and equip MAP agents to respond to marine mammal strandings and to collect data and tissue samples.

### NEW OMNIBUS PROJECTS

ASG received approximately \$1 million in federal funding to support marine research and graduate students through 2012. ASG issued a request for proposals in December 2008, and received 33 pre-proposals. Of these, 16 projects were developed into full proposals. The following projects

were selected following a proposal review process that included science peers and an advisory panel.

### Ecological, Economic, and Social Changes as a Result of Sea Otter Recolonization in Southern Southeast



A sea otter feeds on an octopus in Prince William Sound. Photographed under Letter of Confirmation No. MA-043219 from the U.S. Fish and Wildlife Service.

Ginny Eckert, SFOS Juneau faculty member, and Sunny Rice, Petersburg MAP agent, with graduate student Zach Hoyt, are investigating the impact of increasing sea otter populations in Southeast on commercially important geoduck clams, California sea cucumbers, red sea urchins, and Dungeness crab. They will evaluate the potential economic and societal impacts of sea otter predation on commercial

fishing and fishing-dependent communities. During 2010, researchers conducted several meetings with fishermen to learn their views on the impact of sea otters on the environment and their livelihoods. U.S. Fish and Wildlife Service began aerial surveys to estimate total numbers of sea otters in the region, the first such survey in decades. Partners include USFWS, Alaska Department of Fish and Game, Southeast Regional Dive Fisheries Association, and local communities.

### Increased Variance as a Leading Indicator of Reorganization in Alaskan Marine Ecosystems: An Empirical Test

Gradual environmental change can lead to abrupt reorganizations in marine ecosystems. Such changes can be economically and socially devastating to Alaska fishing communities. Michael Litzow, Farallon Institute, and Franz Mueter, SFOS Juneau faculty member, will conduct a retrospective analysis of crustacean populations with the goal of creating a technique to predict sudden environmental change by monitoring patterns of gradual change in ecosystem variables. The ability to accurately forecast environmental change could help Alaska fisheries managers and fishing communities mitigate the effects of abrupt change, helping to minimize economic and social disruption.

### Identifying Red and Blue King Crab Stocks for Sustainable Harvest and Sustainable Coastal Alaskan Communities

In Alaska, multiagency, industry, and private efforts are under way to improve the understanding and technology to hatch and raise red and blue king crab, as a means to one day rebuild wild stocks in parts of the state. However,

fishery managers lack an important management tool—an understanding of the genetic structure and mating behavior of these important wild stocks—that will be essential for planning and managing any future release program. In this project, David Tallmon, UAS faculty member and UAF SFOS affiliate faculty, will extend a comprehensive analysis of red king crab stocks, already under way, to include blue king crab as well.

### Low-Intensity, Low-Cost Management of Salmon Fisheries

Conventional in-season management of salmon fisheries uses test fisheries, escapement surveys, and other intensive monitoring to determine catch openings and closings. These techniques can be labor-intensive and expensive. Low-intensity management approaches, such as a regular schedule of fisheries openings, may provide satisfactory escapements and harvests at a much lower cost. In this study, Milo Adkison, SFOS Fairbanks faculty member, together with SFOS M.S. student Justin Carney, will examine historical data to determine whether and under what conditions fixed-schedule fishery openings can be a cost-effective alternative to intensive in-season management methods.

### Seasonal and Interannual Patterns of Larvaceans and Pteropods in the Coastal Gulf of Alaska, and Their Relationship to Pink Salmon Survival

Research has revealed that juvenile pink salmon prefer to eat two understudied zooplankton groups, larvaceans and thecosome pteropods, and that salmon survival and adult returns may be tied to the availability of this diet. Russ Hopcroft, UAF SFOS faculty member, will examine zooplankton collected during previous research expeditions to estimate composition, abundance, biomass, and production of larvaceans and pteropods. He will also undertake experimental work to determine growth rates of major larvacean and pteropod species, so that their availability to higher trophic levels can be calculated under varying conditions. The data will enable relationships between the production of these zooplankton groups and salmon survival to be determined.

### Parsimony in Integrated Age-Structured Assessment Models: Modeling of Time-Dependent Parameters and Uncertainty in a Changing Environment

Without good information and analysis in a stock assessment, errors in management can occur and not be observed until it is too late to take action. In this project, UAF SFOS faculty member Terry Quinn will continue ASG-funded research to improve and evaluate methods of incorporating uncertainty into integrated age-structured pollock fishery assessment models, with a view to ongoing improvement of the models as tools for fisheries management.

## Alaska Sea Grant Marine Advisory Program Conferences, Workshops, Presentations, and Teaching, 2009-2010

Year	Month	Title	Instructor/presenter	Location	Attendees
2009	February	AMSEA Drills Class	Baker	Cordova	10
2009	February	Better Process Control School	Crapo	Anchorage	13
2009	February	HACCP	Crapo	Anchorage, Eagle River, Soldotna, Wasilla, Homer, Emmonak, Juneau, Palmer, Chignik Lagoon, Kodiak	27
2009	February	Sanitation	Crapo	Anchorage, Eagle River, Soldotna, Homer, Juneau, Kodiak	15
2009	February	HACCP	Crapo	Indian	7
2009	February	Sanitation	Crapo	Indian	7
2009	February	Increasing Rural Alaskans and Alaska Natives in Fisheries and Marine Science, Alaska Forum for the Environment	Cullenberg	Anchorage	20
2009	February	Presentation on Alaska Sea Grant to Alaska Trollers Assoc.	Freitag	Sitka	10
2009	February	COE Technical Support Workshop, Direct Marketing Talk	Greg Fisk	Anchorage	50
2009	February	FishBiz Workshop: Is Direct Marketing for You	Haight	UATV	
2009	February	FishBiz Workshop: Starting a Seafood Cooperative	Haight	UATV	
2009	February	UATV FishBiz Workshop Series: Global Food Marketing	Haight, Fong	UATV	53
2009	February	FishBiz Workshop: SWAMC	Haight, Fong	Kodiak	10
2009	February	IPY Seminar: Antarctica Photographs (Lauren Dick)	Herter	Nome, Wales, Brevig Mission, Unalakleet, Teller	72
2009	February	IPY Seminar: Mutiny Murder and Cannibalism The Tragic Tale of A.W Greely (Terrence Cole)	Herter	Nome	
2009	February	HAB Status in Alaska	RaLonde	Portland, OR	
2009	February	Shellfish Mariculture in Alaska (Hatchery Manager's Meeting)	RaLonde	Juneau	
2009	February	Alaska Private Nonprofit Salmon Aquaculture Research Initiative (Hatchery Managers Meeting)	RaLonde	Juneau	
2009	February	Catcher/Seller Program in Bethel Region, Salmon Markets, and What's MAP	Reeve	Bethel	10
2009	February	Southeast Subsistence Resource Advisory Council Presentation: Sea Otter—Fisheries Interactions in Southeast Alaska	Rice	Petersburg	15
2009	February	Business Planning		Kodiak	53
2009	March	Shrimpers Training: Lowering Your Fishing Fuel Bill	Fisk	Juneau, Petersburg	20
2009	March	Harbor Seal Necropsy (2 marine biology classes, KHS)	Freitag	Ketchikan	50
2009	March	Understanding RSDAs (Regional Seafood Development Association)	Haight	Juneau	25
2009	March	Starting a Seafood Cooperative	Haight	Juneau	9
2009	March	FishBiz Workshop: Understanding RSDAs	Haight, Baker, O'Sullivan, Waldrop	UATV	
2009	March	FishBiz Workshop: Lowering Your Fishing Fuel Bill	Haight, Fisk	UATV	
2009	March	FishBiz Workshop: Wild Seafood Exchange in Seattle	Haight, Granger	Seattle	30
2009	March	FishBiz Workshop: Business Succession	Haight, Rice	UATV	
2009	March	Survival Swimming	Herter	Nome	127
2009	March	Survival Swimming	Herter	Nome	60
2009	March	IPY Seminar: Inspiration for the Iditarod, Leonhard Seppala (Gay Salisbury)	Herter	Nome	70
2009	March	Iditarod Talk: Climate Change and Bering Sea Animals	Herter	Nome	10
2009	March	Iditarod Talk: Little Diomed Blue King Crabs	Herter	Nome	5
2009	March	Catcher/Seller in Bethel Region (for Kuskokwim Salmon Management Group)	Reeve	Anchorage	
2009	March	Drifter Buoy Project (for Kuskokwim Salmon Management Group)	Reeve, Danielson	Anchorage	
2009	March	Wild Seafood Exchange Presentation: Petersburg Community Cold Storage	Rice	Seattle	20
2009	March	Shrimp Fishermen Exchange	Rice, Haight, Fisk	Juneau, Petersburg	9
2009	March	Observer Training Class	Wynne	Anchorage	15
2009	April	Refrigeration Workshop, ComFish	Baker	Kodiak	27
2009	April	Survival Suit Race/SFOS Programs, Oceanography Cruise	Baker	Cordova	26
2009	April	AMSEA Drills Conductor	Baker	Cordova	15
2009	April	AMSEA Drills Conductor	Baker	Cordova	13
2009	April	First Artificial Reef in Alaska, PWS Science Center	Baker, Reynolds	Cordova	27
2009	April	Russian and PWS Fur Trading Activities in 1800s	Baker, Yarzukina, Kolimets	Cordova	43

Year	Month	Title	Instructor/presenter	Location	Attendees
2009	April	Newly Categorized Wind Events	Baker, Zingone	Cordova	18
2009	April	Natural Geography in Shore Areas	Brewer	Fairbanks	40
2009	April	Business Planning	Fong	Cordova	20
2009	April	Alaska in Global Seafood Market	Fong	Cordova	11
2009	April	Alaska in Global Seafood Market	Fong	Kodiak	14
2009	April	Geoduck Harvesting and Marketing	Freitag	Ketchikan	
2009	April	Understanding RSDAs	Haight	Ketchikan	8
2009	April	Business of Fish	Haight	Ketchikan	5
2009	April	FishBiz Workshop: Risk Management for a Fishing Operation	Haight	UATV	
2009	April	FishBiz Workshop: Alternative Fishing Technologies	Haight, Fisk	UATV	
2009	April	FishBiz Workshop: Shellfish Farming Profits and Operations	Haight, RaLonde	UATV	
2009	April	Risk Management for Fishermen and Shellfish Operations	Haight, RaLonde	UATV	20
2009	April	Western Alaska Interdisciplinary Science Conference	Herter	Nome	
2009	April	Resources for Sustainability Education: Lessons from Alaska, Int. Bioethics Forum Presentation	Sigman	Madison, WI	60
2009	April	Oasis Earth, UAA	Steiner	Anchorage	50
2009	April	Overview of Exxon Valdez Oil Spill	Steiner	Anchorage	50
2009	April	Mammal Entanglement in Fishing Gear, ComFish	Wynne	Kodiak	
2009	April	Observer Training Class	Wynne	Anchorage	15
2009	May	Refrigeration	Baker	Homer	30
2009	May	Refrigeration	Baker	Anchorage	30
2009	May	Forum of Aleutian Marine Issues: CG Healy 2009 Sampling Cruise	Brewer	Unalaska	20
2009	May	Forum of Aleutian Marine Issues: Responsible Wildlife Viewing	Brewer, Johnson	Unalaska	20
2009	May	HACCP	Crapo	Platinum, AK	
2009	May	Business Planning Workshop, Kodiak Island Counseling Center	Fong	Kodiak	12
2009	May	Role of Alaska Seafood in U.S. Food Marketing Structure	Fong	Beijing, China	
2009	May	Oceanographic Sampling Techniques	Freitag	Ketchikan	10
2009	May	Fisheries and Invasive Species (5th Grade Class)	Freitag	Ketchikan	50
2009	May	The Oceans (MSL 111)	Herter	Unalakleet, Brevig Mission, Shishmaref, Stebbins	10
2009	May	Challenges and Opportunities in the NW Alaska Commercial Fisheries	Herter, Knapp	Nome	60
2009	May	Sitka Sound Science Center Luncheon Presentation: Harmful Algal Blooms in Alaska	RaLonde		21
2009	May	Indigenous and Western Science Observations on Climate Change	Sigman	Anchorage	40
2009	May	Marine Mammal Identification	Wynne	Anchorage	10
2009	May	Kodiak's Marine Mammals and Research	Wynne	Kodiak	9
2009	May	Observer Training Class	Wynne	Anchorage	15
2009	May	Humpback Whale Interactions with Net Fisheries	Wynne, Rice	Petersburg	15
2009	June	Meet the Scientist: Science Night	Baker, Sigman	Valdez	
2009	June	Meet the Scientists: Science Night	Baker, Sigman	Cordova	
2009	June	A Sea Change: Imagine a World without Fish	Brewer	Unalaska	30
2009	June	Ocean Watch Slide show, Unalaska Senior Center	Brewer	Unalaska	13
2009	June	Crustacean Anatomy Class	Brewer	Unalaska	18
2009	June	Forum of Aleutian Marine Issues: Aleutian Wildflower Complexes and Mosses	Brewer, Talbot	Unalaska	30
2009	June	Introduction to Business Planning	Fong	Kodiak	9
2009	June	Business of Fish	Haight	Dillingham	20
2009	June	Community Adaptation to Climate Change	Johnson, Cullenberg	Anchorage	20
2009	July	Qawalangin Tribe, Camp Qungaayux	Brewer	Unalaska	60
2009	July	Tide Pool Posse Camp	Brewer	Unalaska	8
2009	July	Crustacean Anatomy, Unalaska Summer School	Brewer	Unalaska	18
2009	July	Live Plankton (4th grade classes)	Freitag	Ketchikan	25
2009	July	IPY Seminar: What Does Sea Ice Tell Us about Things to Come?	Herter	Gambell, Shaktoolik, Nome	56

*Conferences, Workshops, Presentations, and Teaching, continued*

Year	Month	Title	Instructor/presenter	Location	Attendees
2009	July	COSEE Alaska: People, Ocean, and Climate Change	Sigman	Vancouver, B.C.	40
2009	August	Boating without the Boys	Baker	Cordova	15
2009	August	Elderhostel Presentation: Local and Regional Marine Life	Brewer	Unalaska	18
2009	August	NACTEC Field Biology Course: Salmon Lake	Herter	Nome, St. Michael, Savoonga	7
2009	August	Domoic Acid Test Kit Study: Training Session	RaLonde	Sitka	2
2009	August	Domoic Acid Test Kit Study: Training Session	RaLonde	Naukati	1
2009	August	Domoic Acid Test Kit Study: Training Session	RaLonde	Ketchikan	3
2009	August	Domoic Acid Test Kit Study: Training Session	RaLonde	Annette Island	4
2009	August	Domoic Acid Test Kit Study: Training Session	RaLonde	Petersburg	8
2009	August	Domoic Acid Test Kit Study: Training Session	RaLonde	Homer	4
2009	August	Domoic Acid Test Kit Study: Training Session	RaLonde	Cordova	3
2009	August	Harmful Algae Blooms	RaLonde	Cordova	30
2009	August	PSP for the General Public	RaLonde	Petersburg	11
2009	August	Advance Marine Science, Petersburg High School: Careers in Marine Science	RaLonde	Petersburg	32
2009	August	Aquaculture Class: What Is Domoic Acid	RaLonde	Petersburg	13
2009	August	Biology Classes (2): Identification and Life History of Bivalves	RaLonde	Petersburg	30
2009	August	Bivalve Shellfish of Alaska (2-3rd grade classes)	RaLonde	Petersburg	30
2009	August	Commercial Vehicle Law Enforcement Presentation by DOT	Rice	Petersburg	15
2009	August	Alaska Seas and Rivers Workshop	Sigman	Tatitlek, Chenega, Whittier	20
2009	August	Mammal Identification, UAA Observer Training Center	Wynne	Anchorage	15
2009	August	Observer Training Class: Marine Mammal Identification	Wynne	Anchorage	15
2009	September	Partnerships between Universities and Museums	Brewer	Unalaska	15
2009	September	Marine Life of the Aleutian Islands	Brewer	Unalaska	120
2009	September	Forum of Aleutian Marine Issues: NMFS	Brewer, Barbeaux	Unalaska	18
2009	September	Village Based Entrepreneurship Class	Chambers	New Stuyahok	8
2009	September	Studying Fisheries, Scholarships and Impacts of Fisheries on Communities (Middle School Students)	Chambers	New Stuyahok	30
2009	September	Sea Urchin Markets in Japan and Hong Kong	Fong, Freitag	Ketchikan	
2009	September	Oceanography 101, Distance Ed.	Freitag	Bethel, Haines, Eagle River, Kodiak, Yakutat, Palmer, Juneau, Ketchikan, Neets Bay	16
2009	September	FishBiz Workshop: Financial Management	Haight	Haines	
2009	September	Pacific Shellfish Growers Assoc. Presentation: The potential of Intertidal Geoduck Aquaculture in Alaska	RaLonde	Cordova	41
2009	September	Careers in Marine Mammal Science	RaLonde	Petersburg	
2009	September	What Is Domoic Acid	RaLonde	Petersburg	
2009	September	Biology of Bivalves	RaLonde	Petersburg	
2009	September	PSP for the General Public	RaLonde	Petersburg	
2009	September	Field Training for Mercury Scientific Domoic Acid Field Test Kit	RaLonde	Homer, Annette Island, Cordova, Petersburg	
2009	September	Tongass Rainforest Festival Presentation	Rice	Petersburg	450
2009	October	Panel Discussion: Local Entrepreneurs	Baker	Cordova	12
2009	October	Interannual Variability of Zooplankton within PWS	Baker, Bell	Cordova	16
2009	October	Alaska Wildlife Viewing trails	Baker, Peluso	Cordova	13
2009	October	Coral Reefs of the Andaman Sea	Baker, Villalon	Cordova	52
2009	October	Customer and Marketing Basics	Fong	Cordova	12
2009	October	Train the Trainers: Money Management	Fong	Kodiak	
2009	October	Invasive Species: (general public)	Freitag	Ketchikan	50
2009	October	Marine Invasive Species Sampling in Ketchikan	Freitag	Ketchikan	
2009	October	Shellfish Summit	Freitag	Ketchikan	30
2009	October	Oceanography 101	Freitag	Ketchikan	15
2009	October	FishBiz Workshop: Financial Management	Haight	Bethel	10
2009	October	FishBiz Workshop: Financial Management	Haight	Craig	
2009	October	Surviving Cold Water Emergencies	Herter	Koyuk	85
2009	October	Surviving Cold Water Emergencies	Herter	Shaktoolik	40



Year	Month	Title	Instructor/presenter	Location	Attendees
2009	October	Surviving Cold Water Emergencies	Herter	Shishmaref	100
2009	October	Survival Swimming	Herter	Nome	39
2009	October	Humans and the Ocean	Herter	Teller, Brevig Mission	10
2009	October	Impacts of New Science Education Programs in Rural Alaska	Herter	Juneau	
2009	October	HACCP	Herter, Crapo	Nome, Unalakleet, Savoonga	10
2009	October	Alaska Shellfish Summit Presentation: Accomplishments and Status of the Alaska Mariculture Industry	RaLonde		28
2009	October	Salmon in the Classroom Teacher Workshop	Sigman	Fairbanks	20
2009	October	COSEE Alaska: Ways of Knowing about Ocean Climate Change. Alaska Science and Math Teachers Conference	Sigman	Juneau	60
2009	October	Alaska State Harbormaster's Meeting Presentation	Wynne	Kodiak	30
2009	November	Board of Fisheries Training Workshop	Chambers	Dillingham	14
2009	November	Board of Fisheries Training Workshop	Chambers	Koliganek	6
2009	November	Village-Based Entrepreneurship	Chambers	Koliganek	20
2009	November	Break-Even Analysis for Agricultural Res. Service Fish Waste Project	Fong	Kodiak	
2009	November	Climate Change Adaptation: Train the Trainer	Johnson, Cullenberg	Fairbanks	26
2009	November	Alaskan Shellfish Grower Association Presentation: Domoic Acid in Alaska	RaLonde		24
2009	November	Alaska Shellfish Grower Association Presentation: Ocean Acidification and Shellfish hatchery Production	RaLonde		28
2009	December	The Oceans (MSL 111)	Brewer	Unalaska	2
2009	December	Alaska's Role in the Global Food Marketing Structure	Fong	Anchorage	5
2009	December	Introduction to Direct Marketing	Haight, Fong, Fisk	Anchorage	9
2009	December	Little Diomed Blue King Crab Presentation to Interagency Crab Meeting	Herter	Anchorage	20
2009	December	Survival Swimming	Herter	Nome	39
2009	December	Business Plan Development	Reeve	Quinhagak	10
2009	December	Business Plan Development	Reeve	Bethel	10
2009	December	Quickbooks Training	Reeve	Bethel, Quinhagak, Eek, Goodnews Bay	10
2009	December	Alaska Host Training	Reeve	Bethel	
2009	December	Alaska Young Fishermen's Summit 2009 (Two days of workshops, students from 21 communities)	Rice, Baker	Anchorage	50
2009	December	Marine Mammal Identification and Bycatch	Wynne	Anchorage	10
2009	December	Observer Training Class: Marine Mammal Identification and Bycatch Reporting	Wynne	Anchorage	15
2010	January	Whales and Dolphins in Alaska	Brewer	Unalaska	
2010	January	Diving in Alaska	Brewer	Unalaska	
2010	January	Worms and Vermicomposting	Chambers	Dillingham	100
2010	January	HACCP	Crapo, Chambers	Dillingham	3
2010	January	Sanitation	Crapo, Chambers	Dillingham	3
2010	January	Alaska Sea Grant MAP Presentation for Legislature's Fish Caucus	Cullenberg	Juneau	10
2010	January	Structure of Food Marketing Systems (FS611)	Fong	Kodiak	4
2010	January	Fisheries of Southeast Alaska (FT120)	Freitag	Ketchikan, Juneau, Petersburg, Haines, Auke Bay, Eagle River	15
2010	January	Cruising Southwest Alaska	Johnson	Seattle	20
2010	January	Preparing to Cruise Remote Alaska Waters	Johnson	Seattle	
2010	January	Response and Intervention System for Climate Change Induced PSP, at Alaska Marine Science Symposium	RaLonde	Anchorage	300
2010	January	Introduction to Aquaculture (Fish 336)	RaLonde	Distance Ed.	12
2010	January	Poster at Alaska Marine Science Symposium	Rice, Brewer, Wynne	Anchorage	300
2010	January	Communicating Ocean Science	Sigman	Anchorage	100
2010	January	Ocean Acidification: Research, Adaptation, and Outreach	Sigman	Anchorage	100
2010	January	SEANET Meeting	Sigman	Anchorage	100
2010	January	Using Google Earth (Ocean) to Communicate Research	Sigman	Anchorage	80
2010	January	Planning workshop for COSEE Ocean Science Fairs in Inupiaq Region	Sigman	Anchorage	10
2010	January	Gulf Apex Predator Whale Research Objectives, Progress, and Findings: Presentation to NPFMC Steller Sea Lion Mitigation Committee	Wynne	Seattle	
2010	January	Seasonal Prey Use and Partitioning of Sympatric Whale Species in Kodiak, Alaska	Wynne, Witteveen, Foster	Quebec City, Quebec	

## Alaska Sea Grant Publications October 2009–September 2010

### BOOKS

- Bechtel, P.J. and S. Smiley, eds. 2010. A Sustainable Future: Fish Processing Byproducts. Alaska Sea Grant, University of Alaska Fairbanks, AK-SG-10-02, Fairbanks. 340 pp.
- Byersdorfer, S.C. and L.J. Watson. 2010. Field Guide to Common Marine Fishes and Invertebrates of Alaska. Alaska Sea Grant, University of Alaska Fairbanks, SG-ED-67, Fairbanks. 360 pp.
- Cullenberg, P. 2010. Gillnet Hanging, 4th edn. Alaska Sea Grant, University of Alaska Fairbanks, MAB-29, Fairbanks. 20 pp.
- Lindeberg, M.R. and S.C. Lindstrom. 2010. Field Guide to Seaweeds of Alaska. Alaska Sea Grant, University of Alaska Fairbanks, SG-ED-69, Fairbanks. 192 pp.
- Nuka Research and Planning Group, LLC. 2010. Alaska Clean Harbors Guidebook. Alaska Sea Grant, University of Alaska Fairbanks, SG-ED-68, Fairbanks. 80 pp.

### BROCHURES, FACT SHEETS

- Chambers, I. 2010. Basic Startup Guide for the Direct Market Fisherman. Alaska Sea Grant, University of Alaska Fairbanks, ASG-51, Fairbanks. 6 pp.
- Folkens, P., ed. 2010. Marine Mammals of the Eastern North Pacific, 3rd edn. Alaska Sea Grant and A Higher Porpoise Design Group, M-17, Fairbanks.
- Haight, G. 2010. Calculating Profitability for a Direct Marketing Operation. Alaska Sea Grant, University of Alaska Fairbanks, ASG-47, Fairbanks. 12 pp.
- Haight, G. and J. Liboff. 2010. Tracking Your Money: A Quick Guide for Alaska's Skiff Fisherman and Catcher-Seller. Alaska Sea Grant, University of Alaska Fairbanks, ASG-50, Fairbanks. 2 pp.
- Herter, H. 2009. Western Alaska Interdisciplinary Science Conference Workshop "Applied Fisheries Research Priorities" Workshop Whitepaper. Alaska Sea Grant, University of Alaska Fairbanks, M-99, Fairbanks. 9 pp.
- Rice, S., Q. Fong, and G. Haight. 2010. Tips for Direct Marketers: Working with a Broker or Trader. Alaska Sea Grant, University of Alaska Fairbanks, ASG-49, Fairbanks. 4 pp.

### PEER-REVIEWED JOURNAL ARTICLES

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## Alaska Sea Grant Media Placement February 2009–January 2010

Sixteen Alaska Sea Grant news releases were distributed, and 52 media placements were tracked. In addition, at least 10 stories were aired or published in the media based on media interviews with Alaska Sea Grant Marine Advisory agents.

## NEWS RELEASES

### Scientists look to fourth year of crab hatchery research

18 December 2009

Scientists studying how to hatch and raise large numbers of larval Alaska king crab recently received wild adult king crab broodstock for another year of research.

### Alaska's young fishermen to gather to become savvy businessmen, chart industry future

28 October 2009

The next Alaska Young Fishermen's Summit will be held in Anchorage, December 7-9, 2009. The summit is the third in the series for people just getting started in commercial fishing, and who want to take leadership roles in the industry.

### UAF seafood scientist receives international acclaim

9 October 2009

For Chuck Crapo, an Alaska Sea Grant Marine Advisory Program seafood scientist at the University of Alaska Fairbanks School of Fisheries and Ocean Sciences, decades of toil and commitment were recently rewarded.

### CoastWise Alaska radio service highlights marine topics and connects the university to coastal communities

1 October 2009

CoastWise Alaska is a new, free audio news and feature service that spotlights stories about coastal Alaska science, business, and the environment.

### Science symposium announcement: Ecosystems 2010: Global Progress on Ecosystem-Based Fisheries Management

30 September 2009

Alaska Sea Grant is pleased to announce the 26th Lowell Wakefield Fisheries Symposium, Ecosystems 2010: Global Progress on Ecosystem-Based Fisheries Management. This international meeting will take place November 8-11, 2010, in Anchorage, Alaska.

### Boating, marine species ID books published by Alaska Sea Grant

24 September 2009

Three new publications from Alaska Sea Grant highlight subjects sure to be of interest to Alaska boaters, marine scientists and other people curious about Alaska's marine environment.

### Bristol Bay region welcomes local as new Marine Advisory Program agent

9 September 2009

Bristol Bay, home to Alaska's largest wild commercial salmon fishery, once again has an Alaska Sea Grant Marine Advisory Program (MAP) agent to help fishermen, seafood processors and marketers, and other marine resource users.

### Christie to lead Alaska Sea Grant

23 July 2009

The University of Alaska Fairbanks has appointed David Christie as the director of the Alaska Sea Grant College Program.

### Alaska Sea Grant Marine Advisory Program releases videos aimed at helping commercial fishermen improve salmon quality

15 May 2009

The Alaska Sea Grant Marine Advisory Program has released a series of nine videos on improving salmon quality. The videos were produced with gillnet fishermen in mind, but much of the information will be valuable to all gear types.

*Media Placement, continued*

**Fishermen invited to marine refrigeration workshops in Kodiak, Homer, Anchorage**

16 April 2009

The Alaska Sea Grant Marine Advisory Program is offering marine refrigeration workshops for commercial fishermen.

**Alaska Center for Ocean Science Education Excellence hires noted Homer educator**

26 March 2009

Marilyn Sigman, a respected marine science educator from Homer, has been named education specialist for the recently established Alaska Center for Ocean Science Education Excellence (COSEE Alaska) in Anchorage.

**Sea Grant publishes proceedings of Aleutian Energy-Fisheries Workshop**

25 March 2009

Proceedings from a statewide workshop on offshore oil and gas development near the Aleutian Islands and Bristol Bay is now available from the Alaska Sea Grant College Program.

**Oil spill legal experts reunite for 20th anniversary of Exxon spill**

18 March 2009

A series of public events reunite the Alaska Sea Grant Legal Research team on the 20th anniversary of the Exxon Valdez oil spill.

**Facing hard times, South Carolina shrimpers look to Alaska for help**

6 March 2009

South Carolina shrimp fishermen come to Alaska to take part in a unique exchange with Alaska fishermen, biologists, and fisheries business experts.

**Marine Advisory Program news highlights**

29 January 2010

MAP news: agent appointed to boating board, agent funding sought, partnership formed with ecotour company to promote science education.

## Alaska Sea Grant Awards and Honors October 2009–September 2010

### EXTENSION

2010 Hometown Hero Award, City of Unalaska Convention and Visitors Bureau for outstanding contribution of effort and service to tourism in the community: Reid Brewer

### PUBLICATIONS

Gold award, 4 color popular publications category, Association for Communication Excellence (ACE) Critique and Awards Competition 2010: *2010 Alaska Coastal Calendar*

First Place, Calendar category, National Association of Government Communicators (NAGC) Blue Pencil Competition 2010: *2010 Alaska Coastal Calendar*

First Place, Graphic Design. National Association of Government Communicators (NAGC) Blue Pencil Competition 2010: *Field Guide to Squids and Octopods of the Eastern North Pacific and Bering Sea*

Silver Award, Direct Mail, Association for Communication Excellence (ACE) 2010: 2009 Catalog/mass mailing envelope combination

Bronze award, 4 color popular publications category Association for Communication Excellence (ACE) Critique and Awards Competition 2010: *Field Guide to Squids and Octopods of the Eastern North Pacific and Bering Sea*

American Library Association, Notable Government Documents 2010: *Clean Boating for Alaskans, North Aleutian Basin Energy-Fisheries: Workshop Proceedings, and Field Guide to Squids and Octopods of the Eastern North Pacific and Bering Sea*

# Alaska Sea Grant Collaborative Partners

## February 2009–January 2010

### Federal partners

AmeriCorps	Volunteers in Marine Advisory Program.
Centers for Disease Control, National Institute for Occupational Safety and Health, Commercial Fishing Safety Program	MAP helped distribute safety DVD.
Consortium for Oceanographic Research and Education (CORE)	MAP and ASG support National Ocean Sciences Bowl by coaching teams and building website.
Department of Agriculture, Cooperative State Research, Education and Extension Service	Funded installation of shellfish safety remote sensors, a MAP project.
Department of Agriculture, Trade Adjustment Assistance Program	Funded Intensive Technical Assistance program. Partner in TAA and Intensive Technical Assistance project for salmon fishermen.
Department of Agriculture, United States Forest Service	Partner on the Tongass Rainforest Festival in Petersburg.
Department of Agriculture, United States Forest Service, Cordova Ranger District	Cosponsored the Boating without the Boys boating class in Cordova.
Department of Commerce, Pacific States Marine Fisheries Commission	Johnson is an advisor, and is on NOAA's Energy in Fisheries Symposium steering committee working with PSMFC, organizer of the symposium. MAP coordinated with PSMFC to restart net recycling programs.
Department of Education	Funded Alaska Seas and Rivers Curriculum through the Alaska Dept. of Education.
Department of the Interior, Fish and Wildlife Service	Advisory Committee member. Partner in book published by ASG, <i>Field Guide to Bird Nests and Eggs of Alaska's Coastal Tundra</i> . Contribute samples and data to investigate sea otter mortality.
Department of the Interior, Geological Survey	Advisory Committee member.
Department of the Interior, Minerals Management Service	Partner in workshop and book ASG published, <i>North Aleutian Basin Energy-Fisheries</i> .
Department of the Interior, National Park Service	Advisory Committee member. They advise the MAP Climate Adaptation Project.
Environmental Protection Agency	Content contributor to ASG book <i>North Aleutian Basin Energy-Fisheries</i> .
Exxon Valdez Trustee Council	Partner in Exxon Valdez oil spill 20th anniversary event.
National Oceanographic Partnership Program, Alaska Ocean Observing System	Advisory Committee member. MAP did outreach on a Prince William Sound large-scale experiment. Helped develop Alaska Seas and Rivers online curriculum.
National Science Foundation, Centers for Ocean Science Education Excellence (COSEE)	Funded MAP marine education specialist.
NOAA Alaska Fisheries Science Center	Author and funding partner in ASG books, <i>Field Guide to Squids and Octopods of the Eastern North Pacific and Bering Sea</i> , and <i>Field Guide to Seaweeds of Alaska</i> . Partner in Wakefield Symposium. Helped develop Alaska Seas and Rivers online curriculum.
NOAA Alaska Marine Mammal Stranding Network	Assisted with sea lion book manuscript. Contribute samples and data to investigate marine mammal strandings/mortality.
NOAA Alaska Regional Marine Research Program	Funded project to survey for marine research priorities.
NOAA Fisheries	Advisory Committee member. Partner in Wakefield Symposium. Partner in book published by ASG, <i>Marine Debris in Alaska</i> . Partner in Alaska King Crab Research, Rehabilitation and Biology Program. Partner in development of international fishery observer programs and study of marine mammal trophic interactions and population dynamics.
NOAA Kachemak Bay National Estuarine Research Reserve	Partner on MAP Climate Adaptation Project. Employees are collecting samples using the Mercury Scientific domoic acid field test kit as part of an NPRB project.
NOAA's Kasitsna Bay Laboratory	Employees are collecting samples using the Mercury Scientific domoic acid field test kit as part of an NPRB project.
North Pacific Fishery Management Council	Advisory Committee member. Helped fund Alaska Young Fishermen's Summit. Assisted with sea lion book manuscript. Cullenberg is member of Rural Community Outreach Committee.
North Pacific Research Board	Donated money for Wakefield Symposium. Partner in research on whale deterrents. ASG funded student awards at NPRB-sponsored Alaska Marine Science Symposium.
Smithsonian Environmental Research Center	Partner in Alaska invasive species project.
U.S. Coast Guard	A partner with MAP (Johnson) on State Boating Safety Council.

### Local, state, and tribal partners

Alaska Board of Fisheries	Sponsor and provided speakers at the Alaska Young Fishermen's Summit.
Alaska Commercial Fishing and Agriculture Bank	Sponsor and provided a speaker at the Alaska Young Fishermen's Summit.
Alaska Cooperative Extension Service	Advisory Committee member. Collaborative partner in Juneau. Co-presented at a MAP workshop about starting seafood cooperatives. Partner on MAP Climate Adaptation Project.
Alaska Department of Commerce, Community and Economic Development, Div. of Investments and Alaska Energy Authority	Participated in Alaska Young Fishermen's Summit and other related conferences. Advisor on MAP Climate Adaptation Project.
Alaska Department of Commerce, Community and Economic Development, Office of Economic Development	Participated in and helped organize Alaska Young Fishermen's Summit, a session on regional seafood development associations, and joined other presentations.
Alaska Department of Education and Early Development	Partner in online curriculum published by ASG, Alaska Seas and Rivers.
Alaska Department of Environmental Conservation	Partner in book published by ASG, <i>Alaska Clean Harbors Guidebook</i> . MAP identified algae pest in Chukchi Sea for DEC.
Alaska Department of Fish and Game	Advisory Committee members. Partner in book published by ASG, <i>Field Guide to Common Marine Fishes and Invertebrates of Alaska</i> . Partner in Wakefield Symposium. Assisted with sea lion book manuscript. MAP works with ADFG on mariculture experiments.
Alaska Department of Natural Resources, Alaska Coastal Management Program, Div. of Alaska Coastal Zone Management	Presented at MAP-coordinated Geoduck Harvesting and Marketing workshop. Employees are collecting samples using the Mercury Scientific domoic acid field test kit as part of an NPRB project.
Alaska Division of Homeland Security and Emergency Management	Purchased 1,000 copies of ASG's <i>Ocean Fury: Tsunamis in Alaska</i> videos, which they also originally helped fund.

**Local, state, and tribal partners, continued**

Alaska Office of Boating Safety	Partner (with Johnson) on Resurrection Bay supplement to <i>Alaska Boaters Handbook</i> (in press). Johnson is on the Alaska Boating Safety Council.
Alaska Seafood Marketing Institute	Chambers is on the ASMI Salmon Committee.
Aleutians East Borough	Partner in workshop and book ASG published, <i>North Aleutian Basin Energy-Fisheries</i> .
Aleutian Islands Risk Assessment	Brewer is on advisory panel.
Alutiiq Museum	Distribute ASG educational products.
Anchorage School District	MAP helped with science fair.
Bering Straits School District	MAP taught students.
Bristol Bay Native Association	MAP helped with training, business, seafood harvesting advice.
Bristol Bay Borough	Advisory Committee member.
Chenega Corporation	Participated in Community Quota Entities workshop and contributed to proceedings.
Chugach Heritage Foundation	Funded ASG book <i>Our Changing Sea</i> (to be published).
City of Cordova	MAP has helped improve fishing income there.
City of Nome	Lifeguard co-taught a survival swimming and marine safety course with MAP.
City of Pelican	MAP agents helped them with strategic planning.
City of Petersburg	Rice is on Economic Development Council and Fisheries Advisory committee.
City of Seward	Supporter of ASG's Alaska King Crab Research, Rehabilitation and Biology Program.
City of Unalaska	Funded ASG book (to be published) on Aleutians underwater photo/natural history.
Clausen Memorial Museum	Partner on the Tongass Rainforest Festival in Petersburg
Cook Inlet Regional Citizens Advisory Council	Supported new book <i>Field Guide to the Seaweeds of Alaska</i> . Helped fund book Alaska Clean Harbors Guidebook.
Dillingham Planning Commission	Chambers is on the commission.
Fairbanks North Star Borough School District	Partner in Alaska Seas and Rivers curriculum development.
Interior Distance Education of Alaska	Distribute ASG educational products to homeschoolers.
Juneau Economic Development Council	Partner in Juneau fisheries development projects.
Juneau School District	Helped develop Alaska Seas and Rivers online curriculum.
Ketchikan School District	MAP teaches students on research vessel Jack Cotant.
Kodiak Chamber of Commerce	MAP shared fisheries economics info at meetings. ASG sponsored their ComFish Alaska Fisheries Policy Forum, and they provided ASG with complementary exhibit space.
Kodiak Filipino Women's Council	Sponsored Introduction to Business Planning workshop.
Kodiak Women's Resource and Crisis Center	MAP taught financial management to women.
Lower Kuskokwim School District	Helped develop Alaska Seas and Rivers online curriculum.
Matanuska-Susitna Borough School District	Helped develop Alaska Seas and Rivers online curriculum.
Museum of the Aleutians	Team with MAP to host Forum of Alaska Marine Issues.
Native Village of Eyak	Partner in seine recycling effort.
Nelson Lagoon Village	Partner in workshop and book ASG published, <i>North Aleutian Basin Energy-Fisheries</i> .
North Slope Borough School District	Advisory Committee member.
Ounalashka Corporation	Funding support for book to be published by ASG, on Aleutians underwater photo/natural history.
Petersburg Chamber of Commerce	Partner on Tongass Rainforest Festival in Petersburg.
Petersburg High School	Partner on Petersburg's National Ocean Sciences Bowl team and student research projects. Students are collecting samples using the Mercury Scientific domoic acid field test kit as part of an NPRB project.
Petersburg Indian Association	Partner on the Tongass Rainforest Festival in Petersburg.
Petersburg Public Library	With MAP, hosted 2nd Tongass Rainforest Festival in Petersburg.
Pratt Museum	Funded for book, <i>Our Changing Sea</i> (to be published).
Qanirtuuq, Inc.	MAP helped villages with business and education.
Qawalangin Tribe of Unalaska	Brewer taught at culture camp held by this organization.
Quinhagak Village Corporation	MAP advised them on equipment and logistics for archaeology project.
Ray Stedman Elementary School, Petersburg	MAP provides speakers in classrooms opportunistically.
Southeast Conference	MAP has helped the region with economic development and a quality environment.
The Imaginarium Science Discovery Center	Distribute ASG educational products.
Unalaska School District	They provide MAP office space. MAP teaches in the schools and has implemented valuable programs.
Village of Port Graham	Partner in book ASG will publish, <i>Our Changing Sea</i> .
Western Regional Aquaculture Center	RaLonde is on board of directors.

**NGO partners**

Alaska Association of Harbormasters and Port Administrators	Partner in book published by ASG, <i>Alaska Clean Harbors Guidebook</i> .
Alaska Federation of Natives	MAP assists with Marketplace grants to help entrepreneurs.
Alaska Fisheries Development Foundation	Partner in symposium and book ASG published <i>A sustainable future: Fish processing byproducts</i> .
Alaska Forum, Inc.	MAP presented at their Alaska Forum on the Environment.
Alaska Geographic Association	Largest distributor of ASG educational products.
Alaska Marine Conservation Council	Advisory Committee member. Partner in <i>Clean Boating for Alaskans</i> book.

Alaska Marine Safety Education Association	ASG faculty affiliate.
Alaska Science Consortium	Helped develop Alaska Seas and Rivers online curriculum.
Alaska SeaLife Center	Assisted with sea lion book manuscript. Distribute ASG educational products.
Alaska Small Business Development Center	MAP brought director of Rural Outreach Program for Entrepreneurs to Bethel and Quinhagak to train residents in business development.
Alutia	Joined with MAP for a workshop on regional seafood development associations.
Association for Communication Excellence	Several staff are members. Each year ASG publications win awards through this professional organization.
Association of Latin Women in Alaska	MAP helped them with business enterprises.
Bristol Bay Regional Seafood Development Association	Joined with MAP for a workshop on regional seafood development associations.
Center for Alaskan Coastal Studies	Helped develop Alaska Seas and Rivers online curriculum. Helped provide content to ASG book <i>Marine Debris in Alaska</i> .
Central Bering Sea Fishermen's Association	Partner in Alaska King Crab Research, Rehabilitation and Biology Program.
Coastal Observation and Seabird Survey Team (COASST)	Some MAP agents are seabird monitors for COASST.
Cook Inletkeeper	Partner in book published by ASG, <i>Alaska Clean Harbors Guidebook</i> . Assisted with <i>Clean Boating for Alaskans</i> book.
Ecotrust	Partner in workshop and book ASG will publish, <i>Community Quota Entities</i> .
Gulf of Alaska Coastal Communities Coalition	Partner in workshop and book ASG published, <i>North Aleutian Basin Energy-Fisheries</i> . Partner in Alaska King Crab Research, Rehabilitation and Biology Program. Cosponsored, with MAP, the Community Quota Entity programs workshop.
Gulf of Alaska Keeper	Helped provide content to ASG book <i>Marine Debris in Alaska</i> .
Island Trails Network	Helped provide content to ASG book <i>Marine Debris in Alaska</i> .
Kodiak Whalefest 2009	MAP presented public seminar.
Marian Center, Kodiak	Fong is on board of directors. MAP supports economic development for immigrants.
Marine Conservation Alliance Foundation	Partner in Wakefield Symposium. Sponsor of Alaska Young Fishermen's Summit. Helped provide content for ASG book <i>Marine Debris in Alaska</i> .
National Association of Government Communicators	Byers is a member. Each year ASG publications win awards through this professional organization.
Northern Southeast Regional Aquaculture Association	Advisory Committee member.
Nuka Research and Planning Group, LLC	Partner in book published by ASG, <i>Alaska Clean Harbors Guidebook</i> .
OceansAlaska	Freitag is on board of directors, actively developing this new mariculture education and research facility.
Petersburg Economic Development Council	Rice is on council.
Petersburg Marine Mammal Center	Partner on large whale entanglement project, ASG sea otter project, and summer science lecture series.
Prince William Sound Regional Citizens Advisory Council	Collaborated on <i>Exxon Valdez</i> 20th Anniversary seminars.
Providence Kodiak Island Counseling Center	MAP taught business info to clients.
Rasmuson Foundation	Funded book <i>Our Changing Sea</i> (to be published).
Resurrection Bay Conservation Alliance	Helped provide content to ASG book <i>Marine Debris in Alaska</i> .
Solutions That Endure	Advisory Committee member.
Southeast Alaska Regional Dive Fisheries Association	Partner on ASG sea otter project. Presented at MAP coordinated Geoduck Harvesting and Marketing workshop
Southeast Rainforest Wild	Joined with MAP for a workshop on regional seafood development associations.
Southwest Alaska Municipal Conference	Sponsored a business planning workshop in Kodiak, presented by MAP.
Wild Food Development Center (Cordova)	MAP helped with business plans. MAP partnered with them to get \$70,000 grant from USDA Rural Development to buy custom vans to house shipping equipment to be used by direct marketers staging fresh seafood air shipments.
World Wildlife Fund	Partner in workshop and book ASG published, <i>North Aleutian Basin Energy-Fisheries</i> . Advisor on projects. WWF Russia assisted on sea lion book manuscript.

### International partners

Canadian Underwater Harvesters Association	Presented at MAP-coordinated Geoduck Harvesting and Marketing workshop.
Dr. Abdoulaye dJiba, Dakar, Senegal	Partner in W. African marine mammal stranding network.
Fisheries and Oceans Canada	Partner in Wakefield Symposium.
Food and Agriculture Organization (United Nations)	Partner in Wakefield Symposium.
ICES (International Council for the Exploration of the Sea)	Partner in Wakefield Symposium.
International Pacific Halibut Commission (U.S.)	Sponsor and provided speaker to Alaska Young Fishermen's Summit.
Marine Research Institute (Norway)	Partner in Wakefield Symposium.
North Pacific Marine Science Organization (PICES)	Partner in Wakefield Symposium.
Pacific Salmon Commission	Freitag is on a technical committee in efforts to manage fisheries.
Senegal Minister of Fisheries	Collaborated (w/NOAA and MAP) to deliver a fishery observer workshop to federal biologists.
Zoological Institute, Russian Academy of Sciences, St. Petersburg, Russia	Partner in book published by ASG, <i>Illustrated Keys to Free-Living Invertebrates of Eurasian Arctic Seas and Adjacent Deep Waters</i> .

### Industry and business partners

Airborne Technologies, Inc.	Helped provide content for ASG book <i>Marine Debris in Alaska</i> .
Alaska Boats & Permits, Inc.	Participated in Alaska Young Fishermen's Summit.
Alaska Charter Association	Contributed content to <i>Charter Log</i> newsletter.
Alaska Fresh	MAP did HACCP audit.
Alaska Independent Tenderman's Association	Partner in whale entanglement project.
Alaska Longline Fishermen's Association	Participated in Alaska Young Fishermen's Summit.

**Industry and business partners, continued**

Alaska Marine Lines	Partner in seine recycling effort.
Alaska Miners Association	Advisory Committee member.
Alaska Shellfish Growers Association	Active on ASG's Alaska King Crab Research, Rehabilitation and Biology Program steering committee.
Alaska Spirit LLC	MAP helped with product, quality, training, business.
Alaska Tide Book Company	Partner in books published by ASG, <i>2010 Tide Tables</i> .
Alaska Trollers Association	Supported Alaska Young Fishermen's Summit.
Aleutian Isle	Supported Alaska Young Fishermen's Summit.
Aleutian Pribilof Island Association	Partner in book to be published by ASG on Aleutians underwater photo/natural history.
Aleutian Pribilof Island Community Development Association	Partner in Alaska Young Fishermen's Summit
Alutiiq Pride Shellfish Hatchery	Partner in Alaska King Crab Research, Rehabilitation and Biology Program
Amazon booksellers	Distribute ASG educational products.
At-sea Processors Association	Contributor workshop and proceedings book, <i>North Aleutian Basin Energy-Fisheries</i> .
Blue Starr Oyster Co	MAP helped with marketing, product quality.
BP	Advisory Committee member. Partner in research project.
Bristol Bay Economic Development Corporation	Led and administered Bristol Bay training sessions. Supported Alaska Young Fishermen's Summit.
Bristol Bay Regional Seafood Development Association	Partner in Alaska Young Fishermen's Summit.
Central Bering Sea Fishermen's Association	Funder and active on ASG's Alaska King Crab Research, Rehabilitation and Biology Program steering committee.
Chugach Corporation	Funded book, <i>Our Changing Sea</i> (to be published).
Coastal Villages Region Fund (Western Alaska CDQ)	Partner in Alaska Young Fishermen's Summit. Worked with MAP to train employees in a new fish plant.
Conoco Phillips Earth Energy Partners Program	Helped fund book <i>Alaska Clean Harbors Guidebook</i> .
Copper River/Prince William Sound Marketing Association	MAP helps boost economy, quality, and future of fisheries there.
Copper River Seafoods	MAP helped train workers and with plant operations.
Cordova District Fishermen United	Partner in Alaska Young Fishermen's Summit. Partner in developing fisherman safety packet.
Dan Hull, F/V Gretchen S	Supported Alaska Young Fishermen's Summit. Member, ASG Advisory Committee.
Eric Rosvold, F/V Defiant	Supported Alaska Young Fishermen's Summit.
Favco Seafood	Cooperator on PSP work with MAP.
Gastineau Guiding Service	MAP helped them develop pilot of a citizen science program: Cruise With Purpose; data and observations will be stored and used by scientists.
Graystar Pacific Seafood Ltd.	Contributor to energy-fisheries workshop and proceedings book.
Icicle Seafoods Inc.	Partner in Alaska Young Fishermen's Summit.
Integrated Marine Systems	Partner in Marine Refrigeration courses.
International Seafood of Alaska Inc.	MAP advised on product quality methods.
Jerry Liboff	Participated in Alaska Young Fishermen's Summit, other training sessions, and coauthor on ASG publication <i>Tracking Your Money</i> .
Kachemak Bay Gear Shed	Partner in refrigeration workshops.
Kachemak Shellfish Growers Cooperative	MAP is technical advisor.
Kanektok River Adventures	MAP helped start their business.
Kawerak, Inc.	MAP helped teach villagers, and teamed with Kawerak to host scientist talks.
Kodiak Fish Company	Partner in Alaska Young Fishermen's Summit.
Kruzof Fisheries LLC	Collaborator and participant in Alaska Young Fishermen's Summit.
Laine Welch, Fish Radio	ASG sponsored this commercial fishing news radio program. Welch promotes ASG and educational products on radio and in print column.
Law Offices of Mark Manning	Participated in Alaska Young Fishermen's Summit and other training sessions.
Lofoten Fish Company	Partner in the Tongass Rainforest Festival in Petersburg.
Lu Dochtermann, F/V Stormbird	Procured crab stock for ASG's Alaska King Crab Research, Rehabilitation and Biology Program.
Mercury Scientific	MAP is validating a domoic acid test.
National Fishermen Magazine	Partner in Alaska Young Fishermen's Summit.
Northwest Farm Credit Service	Supported Alaska Young Fishermen's Summit.
Norton Sound Economic Development Corporation	Partner in Alaska King Crab Research, Rehabilitation and Biology Program. Partner in Alaska Young Fishermen's Summit.
Norton Sound Health Corporation	MAP partnered with them to teach cold water emergencies.
Ocean Beauty Seafoods	MAP did HACCP audit.
Pacific Seafood Processors Association	Partner in Alaska Young Fishermen's Summit.
Petersburg Vessel Owners Association	Partner in Alaska Young Fishermen's Summit, whale entanglement project, and ASG sea otter project.
Polaris Strategic Consulting (M. Matthews)	Consulting for ASG strategic plan.
Prince William Sound Aquaculture Association	MAP has helped with safety training, education, and biology research.
Prince William Sound Regional Seafood Development Association	Joined MAP in workshop on Regional Seafood Development Associations.
Princess Tours	Advisory Committee member. Funded MAP.
Resource Decision Support (M. Merritt)	Consulting on regional marine research priorities plan.
Resource Development Council for Alaska, Inc.	Advisory Committee member.
Royal Dutch Shell Oil Co.	Funded energy-fisheries workshop and proceedings book.
Schiedermayer & Associates Alaska Inc.	Supported Alaska Young Fishermen's Summit.
SeaFisk Consulting	Consultant on fisheries business projects and compiled book <i>Community Quota Entities</i> .



Sealaska Corporation	Advisory Committee member.
Skagit River Steel and Recycling, Inc.	Helped provide content for ASG book <i>Marine Debris in Alaska</i> .
Southeast Alaska Fishermen's Alliance (SEAFA)	Partner in Alaska Young Fishermen's Summit.
Southeast Alaska Seiners Association	Partner in Alaska Young Fishermen's Summit.
Southern Southeast Regional Aquaculture Association	MAP provided information and help with cold storage, marketing, and vessel operation.
Stan Stephens Glacier and Wildlife Cruises	Advisory Committee member.
Stellar Financial Services, Juneau	Joined MAP in workshop on Fisheries Business Succession.
TDX Power	MAP has helped with science and other operations.
Trident Seafoods Corp.	MAP provided training, and help with business management, refrigeration, and marketing.
Trillium Technology Solutions, LLC	Database development.
Unalaska Native Fishermen Association	MAP has supported through workshops, public lectures, and media.
United Catcher Boats	Supported Alaska Young Fishermen's Summit.
United Fishermen of Alaska	Partner in Alaska King Crab Research, Rehabilitation and Biology Program. Assisted in development of Alaska Young Fishermen's Summit.
United Fishermen's Marketing Association	Advisory Committee member.
Yukon Delta Fisheries Development Association	Partner in Alaska Young Fishermen's Summit.
Yukon River Drainage Fisheries Association	Partner in Alaska Young Fishermen's Summit.

### Academic institution partners

Alaska Vocational Technical Education Center	Partner in refrigeration workshops.
Bodø University (Norway)	Partner in workshop and book ASG published, <i>North Aleutian Basin Energy-Fisheries</i> .
Clemson University	Partner in South Carolina shrimper exchange.
Colegio de Biologos de Costa Rica	Partner in fisheries observer training.
East Carolina University	Partner in book ASG will publish, <i>Combining Inupiaq and Scientific Knowledge: Ecology in Northern Kotzebue Sound, Alaska</i> .
Hatfield Marine Science Center	Distribute ASG educational products. Collaborator on shellfish research.
Hawaii Pacific University	Helped provide content for ASG book <i>Marine Debris in Alaska</i> .
Iowa State University, Farmers Transition Center	Co-presented on a MAP workshop about business succession.
Louisiana State University	ASG funded LSU researcher.
Northwestern Alaska Career and Technical Center	Teacher co-taught a survival swimming and marine safety course with MAP.
Oregon Coast Aquarium	Distribute ASG educational products.
Prince William Sound Science Center	Cohosted science talks with MAP.
UAF Pollock Conservation Cooperative Research Center	ASG produced research report for PCCRC, funded by PCCRC.
University of Alaska Workforce Development Program	Purchased \$15,000 mobile refrigeration unit for Marine Refrigeration workshops in Homer and Anchorage.
University of Alaska Anchorage	Hosted <i>Exxon Valdez</i> 20th anniversary seminar.
University of Alaska Anchorage Center for Economic Development	Co-presented at a MAP workshop about starting seafood cooperatives.
University of Alaska Anchorage Automotive Diesel	Partner in refrigeration workshops.
University of Alaska Anchorage North Pacific Fisheries Observer Training Center	Wynne taught marine mammal identification and bycatch class as part of NOAA's groundfish observer training.
University of Alaska Fairbanks	MAP promotes fisheries degree programs.
University of Alaska Fairbanks, Alaska Center for Climate Assessment and Policy	Partner in MAP Climate Adaptation Project.
University of Alaska Fairbanks Summer Sessions	Cosponsor of Alaska Book Festival, ASG staff served on planning committee.
University of Alaska Press	Book marketing partner. Funded book, <i>Our Changing Sea</i> (to be published).
University of Alaska Southeast, UATV	Aired several MAP training sessions over statewide cable station.
University of Alaska Southeast, School of Management	Co-presented at the Alaska Young Fishermen's Summit.
University of British Columbia	Partner in Wakefield Symposium.
University of Minnesota	Partner in Trade Adjustment Assistance and Intensive Technical Assistance project.
University of Tromsø	Partner in Wakefield Symposium.
Virginia Institute of Marine Science	Partner in Wakefield Symposium.
Washington State University Center for Risk Management	Funded Alaska Young Fishermen's Summit.
Washington State University Extension	Partner in Trade Adjustment Assistance and Intensive Technical Assistance project.
Woods Hole Oceanographic Institution	MAP assisted with dinoflagellate research for a WHOI scientist.

### Sea Grant program partners

California Sea Grant	MAP facilitated at CSG-sponsored symposium.
Hawaii Sea Grant	Partner in book to be produced: Hawaii-Pacific marine mammal and turtle guide.
National Sea Grant Law Center	Helped fund and support <i>Exxon Valdez</i> oil spill 20th anniversary event.
Rhode Island Sea Grant	Partner in book marketing for book <i>Guide to Marine Mammals and Turtles of the U.S. Atlantic and Gulf of Mexico</i> .
South Carolina Sea Grant	ASG brought a group of South Carolina fishermen to Alaska for training and exchange.
Washington Sea Grant	Led the Wild Fish Exchange and advised on technical publications. Partner in Trade Adjustment Assistance and Intensive Technical Assistance project.
Virginia Sea Grant	Organized Sea Grant working group on catch share programs.

## Alaska Sea Grant Funding Sources October 2009-September 2010

<b>Base program funding</b>		
NOAA/National Sea Grant Office	Sea Grant Core Funding	1,507,000
School of Fisheries and Ocean Sciences/UAF	State Operating and Match Funds	2,125,900
<b>National Sea Grant</b>		
NOAA/NSGO	Fisheries Extension Enhancement	124,183
NOAA/NSGO	Alaskan Regional Marine Research Plan	125,000
NOAA/NSGO	Video: Adapting to Climate Change	24,998
NOAA/NSGO	Climate Change Adaptation for Alaska's Marine Resource-Dependent Communities	29,974
NOAA/NSGO	Sea Grant Aquaculture Program 2010: Expanding Community-Based Shellfish Aquaculture Opportunities in Alaska through Technology Transfer, Education, and Planning Outreach to Shellfish Farmers	99,149
NOAA/NSGO	Implementing an Early Detection and Rapid Response (EDRR) Framework for Non-Indigenous Marine Species in Alaska with Citizen Science	399,885
NOAA/NSGO	Sea Grant Aquaculture Research Program 2010: Red King Crab Aquaculture in Alaska: Release Strategies and Critical Ecosystem Interactions	303,359
<b>Federal agencies</b>		
Alaska Ocean Observing System	AOS: Climate Change in Alaska's Seas	11,999
NOAA	Gulf Apex Predators 09: Whales as Sentinels in a Changing Environment	120,000
NOAA	<i>Marine Debris in Alaska: Coordinating Our Efforts</i> , Book Reprint	3,910
NOAA	King Crab Aquaculture and Enhancement in Alaska	199,800
NOAA	Social Vulnerability to Climate Change in the Alaskan Coastal Zone	49,618
NOAA Fisheries	Scoping Workshop for MSA Section 109 by the Alaska Marine Science and Fisheries Career Coalition, Fall 2010	72,472
NOAA Fisheries	Support for Marine Education Programs	30,000
NOAA Fisheries Office of Protected Resources	John H. Prescott Marine Mammal Rescue Assistance Grant	98,635
NOAA/NMFS	Arctic Region Coordination Workshop	80,027
NOAA/NMFS	Production of Book, <i>Field Guide to Seaweeds of Alaska</i>	24,000
National Science Foundation	COSEE Alaska: People in a Changing Climate	150,000
North Pacific Fishery Management Council	Support of Wakefield 2010: Global Progress on Ecosystem-Based Fisheries Management	10,000
<b>State and local governments</b>		
Alaska Energy Authority	Efficiency of Alaska Seafood Processing	114,288
Alaska Department of Environmental Conservation	Production of Alaska Clean Harbors Guidebook	9,994
Alaska Department of Fish and Game	Support of Wakefield 2010: Global Progress on Ecosystem-Based Fisheries Management	12,000
Qawalangin Tribe of Unalaska	Support for Unalaska Marine Advisory Agent	22,111
<b>Academic organizations</b>		
UAF Bristol Bay Campus and USDA	MAP Agent Support	10,000
East Carolina University and National Science Foundation	Production of Book, Kotzebue Sound Ecology Guide	7,000
University of Alaska Center for Economic Development and USDA	Assistance to Cooperatives	30,000
University of Mississippi and National Sea Grant Law Center	Education and Outreach Activities in Southwest Alaska in Response to National Environmental Policy Act (NEPA) and North Pacific Fishery Management Council Processes	24,956
Washington State University	USDA Trade Adjustment Assistance Intensive Technical Assistance (TAA-ITA) Program for Alaska Resident Salmon Permit Holders and Crewmembers	250,000
<b>Nongovernmental agencies</b>		
Alaska Marine Safety Education Association	Production of Two Training Videos for AMSEA	40,500
Aleut Corporation	Printing Book on Aleutian Underwater Photographs	1,000
Cook Inlet RCAC	Production of Book, <i>Field Guide to Seaweeds of Alaska</i>	7,000
Marine Conservation Alliance	Support of Wakefield 2010: Global Progress on Ecosystem-Based Fisheries Management	2,500
<b>Industry and business</b>		
BP Exploration (Alaska) Inc.	Sea Grant Sedge Seeding Study	82,603
Pollock Conservation Cooperative Research Center	Support of Wakefield 2010: Global Progress on Ecosystem-Based Fisheries Management	5,000
Santa Monica Seafoods	Alaska King Crab Research, Rehabilitation and Biology Program Support	10,000

International organizations		
Food and Agriculture Organization of the United Nations	Support of Wakefield 2010: Global Progress on Ecosystem-Based Fisheries Management	5,000
International Pacific Halibut Commission	Halibut Brochure Reprinting	2,000
Research organizations		
North Pacific Research Board	Avoiding and Responding to Humpback Whale Bycatch in Coastal Alaskan Fisheries: A Cooperative Approach, Phase I	150,000
North Pacific Research Board	Using Blue Mussels as an Indicator Species for Testing Domoic Acid Toxicity in Subsistence Bivalve Harvest	62,750
North Pacific Research Board	Tagging Studies to Estimate Local Biomass, Growth, and Natural Mortality of Pacific Giant Octopus ( <i>Enteroctopus dofleini</i> )	175,678
North Pacific Research Board	Field Studies in Support of Stock Assessment for the Pacific Giant Octopus <i>Enteroctopus dofleini</i>	18,151
North Pacific Research Board	Support of Wakefield 2010: Global Progress on Ecosystem-Based Fisheries Management	10,000
Income accounts		
	Publication Income	80,000
	Workshops Income	32,000
<b>Total funding</b>		<b>6,754,440</b>

## Alaska Sea Grant Directory

### ADMINISTRATION

David Christie	Director, Fairbanks
Adie Callahan	Program Coordinator, Fairbanks
Michele Frandsen	Program Manager, Fairbanks
Karina Gonzales	Administrative Assistant, Fairbanks

### RESEARCH

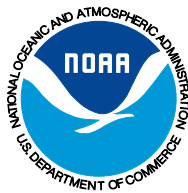
Ben Daly	Research Biologist, Seward
Jim Swingle	Research Biologist, Seward

### EDUCATION SERVICES

Kurt Byers	Education Services Manager, Fairbanks
Jen Gunderson	Publications Coordinator, Fairbanks
Carol Kaynor	Web and Database Coordinator, Fairbanks
Sue Keller	Publications Manager/Editor, Fairbanks
Kathy Kurtenbach	Sales and Marketing Coordinator, Fairbanks
Dawn Montano	Distribution Assistant, Fairbanks
Dave Partee	Communications Designer, Fairbanks
Doug Schneider	Information Officer, Fairbanks

### MARINE ADVISORY PROGRAM

Paula Cullenberg	Associate Director/MAP Leader/Coastal Community Development Specialist, Anchorage
Torie Baker	Marine Advisory Agent, Cordova
Beverly Bradley	Program Coordinator, Anchorage
Reid Brewer	Marine Advisory Agent, Unalaska
Julie Carpenter	Administrative Coordinator/Fiscal Officer, Anchorage
Izetta Chambers	Marine Advisory Agent, Dillingham
Chuck Crapo	Seafood Quality Specialist, Kodiak
Jerry Dzugan	MAP Affiliate Faculty, Sitka
Quentin Fong	Seafood Marketing Specialist, Kodiak
Gary Freitag	Marine Advisory Agent, Ketchikan
Glenn Haight	Fisheries Business Specialist, Juneau
Terry Johnson	Marine Recreation and Tourism Specialist, Anchorage
Deborah Mercy	Program Development Media Specialist, Anchorage
Ray RaLonde	Associate Leader/Aquaculture Specialist, Anchorage
Terry Reeve	Marine Advisory Agent, Bethel
Sunny Rice	Marine Advisory Agent, Petersburg
Marilyn Sigman	Marine Education Specialist, Anchorage
Briana Witteveen	Marine Mammal Research Technician, Kodiak
Kate Wynne	Marine Mammal Specialist, Kodiak



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