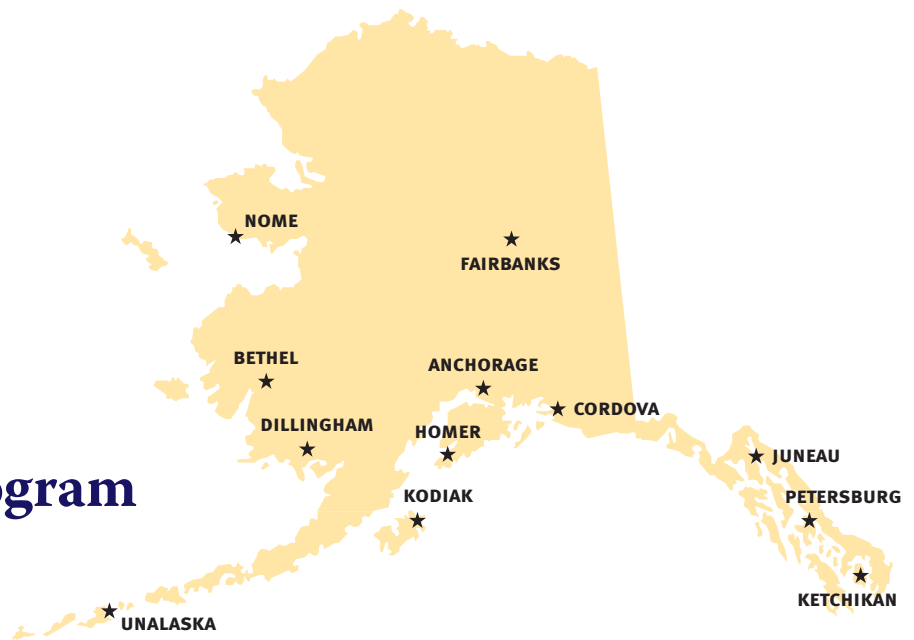


Report to the University of Alaska Regents

Alaska Sea Grant Marine Advisory Program
2008-2009



Alaska Sea Grant Marine Advisory Program



Paula Cullenberg
Associate Director/Marine
Advisory Program Leader
Anchorage



Torie Baker
Marine Advisory Agent
Cordova



Quentin Fong
Seafood Marketing Specialist
Kodiak



Terry Johnson
Marine Recreation and
Tourism Specialist
Anchorage



Izetta Chambers
Marine Advisory Agent
Dillingham



Heidi Herter
Marine Advisory Agent
Nome



Ray RaLonde
Aquaculture Specialist
Anchorage



Glenn Haight
Fisheries Business Specialist
Juneau



Sunny Rice
Marine Advisory Agent
Petersburg



Marilyn Sigman
Marine Education Specialist
Anchorage



Gary Freitag
Marine Advisory Agent
Ketchikan



Reid Brewer
Marine Advisory Agent
Unalaska



Rick Steiner
Marine Conservation
Specialist
Anchorage



Chuck Crapo
Seafood Quality Specialist
Kodiak



Jerry Dzugan
Affiliate Faculty, Marine
Safety
Sitka



Terry Reeve
Marine Advisory Agent
Bethel



Kate Wynne
Marine Mammal Specialist
Kodiak

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Report to the University of Alaska Regents

Alaska Sea Grant Marine Advisory Program 2008-2009

David Christie, Director; Paula Cullenberg, Marine Advisory Leader; Kurt Byers, Educational Services Manager; Michele Frandsen, Program Manager

Introduction

The Alaska Sea Grant Marine Advisory Program (MAP) connects UAF with the people of Alaska. MAP agents are UAF faculty in the School of Fisheries and Ocean Sciences, and they reside in 10 coastal communities. MAP agents work side-by-side with fellow community members to identify how to best use and conserve coastal and marine resources, work that is underpinned by research conducted by UAF scientists and others. In partnerships with community members, MAP zeroes in on workforce development, marine and outdoor safety, marine education, seafood industry and aquaculture development, marine and coastal recreation, resource protection and conservation, adjusting to environmental change, and other issues critical to the well-being of Alaskans.

MARINE ADVISORY PROGRAM PURSUES UNIVERSITY OF ALASKA GOALS

As a faculty unit at the University of Alaska Fairbanks, with a statewide mission within the Alaska Sea Grant College Program, the Marine Advisory Program is guided by the vision, core values, and goals of the University of Alaska as well as the Alaska Sea Grant 2009-2013 Strategic Plan.

University of Alaska Fairbanks mission statement excerpt:

The University of Alaska Fairbanks as the nation's northernmost Land, Sea, and Space Grant University and international research center, advances and disseminates knowledge through creative teaching, research, and public service with an emphasis on Alaska, the North, and their diverse peoples.

University of Alaska Strategic Plan excerpt:

*Goal 5: Responsiveness to State Needs
The University will continuously enhance its capacity to meet the changing needs of Alaska's people and work*

through core programs as well as creative, entrepreneurial arrangements and partnerships to meet those needs. Among the changing conditions affecting the state's needs are continued rapid population growth in Anchorage and surrounding communities, the need for economic diversification, particularly in rural Alaska, and uncertainty regarding the state's ability to provide for its own economic future.

Objectives

- Assess and meet Alaska's current and projected workforce needs.
- Focus on rural Alaska needs.
- Provide support for cultural needs.
- Increase public policy analysis.
- Build community engagement programs.
- Enhance responsiveness to workforce needs.

University of Alaska Fairbanks Strategic Plan excerpt:

- Implement a more comprehensive approach to community engagement.
- Focus appropriate UAF resources on economic development activities in Alaska.
- Generate innovative and useful applications of research that benefit the state of Alaska.
- Grow strategic partnerships with public and private stakeholders, and collaborations with public and private employers in workforce preparation and development programs that are responsive to Alaska's specific needs.

Alaska Sea Grant goal:

Sustained, well-managed, and healthy marine and coastal ecosystems in Alaska

ENTANGLEMENTS BETWEEN WHALES AND VESSELS/GEAR COST FISHERMEN AND MARINE OPERATORS

Although humpback whales are an endangered species in Alaska, their numbers are growing, which increases the potential for interactions with vessels and fishing gear. Collisions between vessels and humpbacks, and entanglement of whales in commercial fishing nets, can injure or kill the animals, hurt mariners, endanger people



CHRIS GRAVES

Unalaska MAP agent Reid Brewer (right), responds to a whale stranding.



GAP PHOTO ARCHIVE, NMFS PERMIT # 1049-1718

MAP researchers tag a humpback whale with a time/depth recorder (yellow) to determine its foraging behavior and potential for dietary overlap with fishermen and other marine consumers. The tag is launched on a crossbow bolt (orange) and sticks to the whale with a suction cup (black).

dispatched to untangle the whales, and spur restrictions on commercial fishing and marine mammal viewing with adverse economic impacts for fishermen and communities.

Kodiak MAP marine mammal specialist Kate Wynne, and Petersburg MAP agent Sunny Rice, initiated a project with commercial gillnetters and seiners in southeastern Alaska and Kodiak to develop practical ways to reduce encounters between mariners and whales. They observed humpback/fishing gear interactions during this summer's fishing season and will use that information to develop biologically sound ways to deter whales from boats and gear. Partners include the National Oceanic and Atmospheric Administration (NOAA) Office of Protected Resources with funding from the North Pacific Research Board.

Wynne, Unalaska MAP agent Reid Brewer, and Ketchikan MAP agent Gary Freitag are active members of NOAA's Alaska Marine Mammal Stranding Network. They disentangle whales from fishing gear, collect tissue samples, and perform necropsies to assess the cause of mortality. This year, the trio has responded to a stranded elephant seal pup, killer whales in Kodiak, and carcasses of sea otters and a Steller sea lion.

ALASKA SEA GRANT TRAINED INTERNATIONAL FISHERY OBSERVERS IN MARINE MAMMAL IDENTIFICATION

The Division of Marine Fisheries in Ghana, Africa, joined the International Commission for the Conservation of Atlantic Tuna in voicing concerns about undocumented levels of marine mammal and turtle bycatch in commercial fisheries in Ghanaian waters. Ghana asked for assistance from the NOAA International Affairs Department in developing a new fisheries observer program to train biologists to collect bycatch samples and data. NOAA

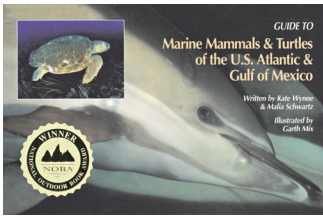


Ketchikan MAP agent Gary Freitag performs a necropsy on a beached seal for Ketchikan High School marine biology students. The seal was most likely the victim of a boat strike.



JOHN LAFARGUE, NMFS

Kate Wynne and participants in the 2008 Joint U.S.- Ghana Fishery Observer Training Workshop toured a Korean trawler (above) and other commercial fishing vessels in Tema Harbor, Ghana.



Authored primarily by Kate Wynne and used in her international fishery observer training efforts, *Guide to Marine Mammals and Turtles of the U.S. Atlantic and Gulf of Mexico* won the 2000 National Outdoor Book Award for best nature guide, the outdoor world's largest and most prestigious book award program.

asked MAP marine mammal specialist Kate Wynne to provide training materials and sampling protocols, and to train 40 fishery observers in marine mammal identification.

Wynne used the book *Guide to Marine Mammals and Turtles of the Atlantic and Gulf of Mexico*, jointly authored by Wynne and Malia Schwartz of Rhode Island Sea Grant and published by Rhode Island Sea Grant, as the text in the Ghana training program.

Wynne's training helped Ghana develop a fishery observer program that is now ensuring the sustainability of the \$100 million a year fishing industry, and is helping protect endangered marine mammals and turtles. This training also led to confirmation of the presence of humpback whales in Ghana's nearshore equatorial waters—a fact not previously documented in the biological literature.

This year Wynne continued her international work with NOAA's Office of Protected Resources by training observers to carry out the first-ever fishery observer programs in Senegal and Costa Rica.

MONITORING FOR CLIMATE CHANGE IMPACTS: COMMUNITY WATCH ON INVASIVE SPECIES AND BIOTOXINS IN SHELLFISH

Increasing coastal water temperatures can enable invasive species to move north into Alaska and provide conditions conducive to harmful algal blooms. MAP agents have led and participated in a number of federal, state, and local coastal monitoring programs to identify invasive species, detect harmful algal blooms that may cause paralytic shellfish poison, and to document other potential effects of climate change.

In Alaska's southernmost waters near Ketchikan and in the Aleutians near Unalaska, Gary Freitag and Reid Brewer worked with the Alaska Department of Fish and Game, Smithsonian Environmental Research Center, and NOAA Office of Protected Resources to monitor for invasive European green crabs and non-native tunicates and bryozoans. They did not find green crabs, but Freitag did find colonies of an invasive tunicate native to Japanese



A "red tide" in Southeast Alaska. Algae account for the color of red tides, and those plankton sometimes carry highly toxic paralytic shellfish poison.



An oyster farmer in Prince William Sound shows undesirable juvenile sea stars that grow with cultured oysters, just one of many challenges faced by Alaska's oyster farmers.

waters, which poses a threat to shellfish. Ominously, a colony was found at a shellfish farm at Metlakatla. This knowledge is important to the Alaska shellfish farming industry and will catalyze research to develop procedures to reduce risk to cultured and native shellfish. Freitag described the program for statewide public radio in May of this year. Freitag and Brewer are also participating

in NOAA's Mussel Watch Program, which monitors for contaminants.

The nation's northernmost Sea Grant extension agent, Heidi Herter, based in Nome, worked with tribal representatives to develop a community water quality sampling program on the Tubutuluk River near Elim, compatible with EPA-established monitoring protocol. Data include water chemistry, river flow, and insect counts.

The abundant shellfish subsistence harvest in Alaska, and the development of commercial shellfish farms, emphasize the importance of safe shellfish consumption to the health and economic well-being of Alaskans. MAP aquaculture specialist Ray RaLonde has worked for many years to educate the public, and monitor the health risks associated with harmful algal blooms and with consumption of tainted shellfish. RaLonde's current focus is on the initiation of a statewide, community-based monitoring program for domoic acid, a natural toxin that can cause serious harm to humans and mammals eating contaminated shellfish.

Water that is warmer than normal can favor growth of the harmful bacterium *Vibrio parahaemolyticus* (*Vp*) in farmed oysters. Responding to a serious outbreak of *Vp* a few years ago, RaLonde worked with oyster farmers to monitor water temperatures and quickly react to temperatures above a threshold level of 15°C by suspending harvest and submerging their oysters into deeper, colder water to thwart the growth of *Vp*.

LINKING THE ALASKA OCEAN OBSERVING SYSTEM TO STAKEHOLDERS IN PRINCE WILLIAM SOUND

The growing Alaska Ocean Observing System, of which Alaska Sea Grant is a member, aims to provide ocean observations and data that are used by scientists nationally and globally, as well as by a wide range of Alaska mariners. Over a two-week period this summer, AOOS conducted Sound Predictions 2009, a field experiment to evaluate models predicting wind, waves, and ocean circulation in Prince William Sound (see www.aos.org). Cordova MAP agent Torie Baker facilitated community outreach during the field experiment and MAP videographer Deborah Mercy shot video footage. Baker and MAP marine education specialist Marilyn Sigman organized a "meet the scientists" event in Valdez and a Cordova gathering where children demonstrated their remotely operated vehicles and attendees viewed balloons that can survey spills at night.

Alaska Sea Grant 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

SUPPORTING COASTAL ALASKA'S LARGEST SMALL BUSINESS: Fi\$HBIZ

The Alaska Fisheries Business Assistance Project, or Fi\$hBiz, was developed by Juneau MAP agent Glenn Haight to enhance the professionalization of Alaska's commercial harvesters and to increase the value of their catch. Formulated in 2004 during the height of the salmon price crisis, Fi\$hBiz is now a statewide program that provides training in financial management and efficiency and brings in more value for fish by improving quality and marketing. While the value of Alaska's salmon has rebounded with new markets, continued challenges arise from higher expectations for quality and increased fuel costs.

PROFESSIONALIZING THE FLEET THROUGH BETTER FINANCIAL SAVVY

In 2008-2009, MAP fisheries business specialist Glenn Haight, based in Juneau, taught The Business of Fish class via the University of Alaska Southeast public access cable television channel and the Internet. A different business topic was covered each week, with experts joining the broadcast from around the state. The televised workshops remain available for viewing online, accompanied by ancillary materials. Fifty-three people participated in the class statewide.

FILLING TODAY'S MARKETS: INCREASING THE VALUE OF THE CATCH THROUGH QUALITY AND MARKETING OF LOCAL CATCH

Alaska's commercial fishermen have increased the value of their catch by producing a better product through careful handling and immediate chilling. For many fishermen, that involves operating onboard chilling systems in remote areas with little or no access to service technicians. Cordova MAP agent Torie Baker partnered with industry and the Alaska Vocational Technical Education Center to teach maintenance and repair of refrigeration systems to commercial fishermen in several of Alaska's fishing ports (Cordova, Petersburg, Kodiak, Homer, and Anchorage). With support from the University of Alaska Workforce Development Program, MAP has purchased a portable refrigeration unit that will be used for classes in Ketchikan, Sitka, and Dillingham this year. Class evaluations have been overwhelmingly positive. One fisherman commented, "Until this class, I understood less about my



Commercial fishermen from Kodiak attend a daylong hands-on class for onboard refrigeration systems, organized by Cordova MAP agent Torie Baker and taught by industry partner Integrated Marine Systems.

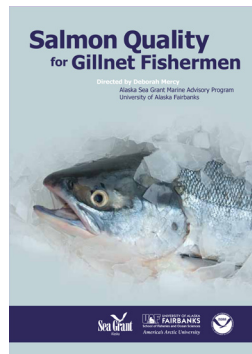


KURT BYERS, ASG

Fuel prices soared in 2008, and MAP responded with practical tips for mariners on how to cut fuel consumption.

reefer than anything else on my boat.” Over 160 fishermen have attended these daylong, filled-to-capacity workshops in the last two years.

MAP released the DVD *Salmon Quality for Gillnet Fishermen* for Alaska salmon gillnetters, on how to handle fish to maintain high quality. The video can be viewed online at the MAP Web site and the DVD is free at the Alaska Sea Grant bookstore. SnoPac, an established salmon buyer in Bristol Bay, gave the DVD to all of their fishermen in the 2009 season.



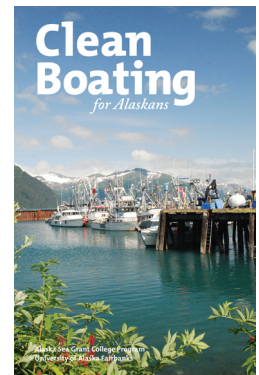
On the Kuskokwim River, Bethel MAP agent Terry Reeve worked with a group of salmon catcher-sellers to direct market their catch at the local farmers markets and to Anchorage fresh markets.

LOWERING COSTS AND GOING GREEN INCREASES PROFITS

Gas and diesel fuel prices skyrocketed in 2008, impacting commercial fishermen as well as subsistence and recreational boaters. Anchorage MAP agent Terry Johnson compiled a set of tips on how to save fuel, which were disseminated via brochures and posters, a Web site, and a news release created by Alaska Sea Grant. Alaska Sea Grant distributed 4,000 brochures and 56 posters (the majority to Alaska harbormasters), and a news release resulted in at least 22 stories in local, state, and national news and trade media. Michigan and Washington Sea Grant programs ordered brochures to distribute to constituents.

MAP also worked with the United Fishermen of Alaska to conduct a survey of commercial fishermen in Alaska to learn how high fuel prices affected them and to collect information from the fishermen on how they conserve fuel. Out of the 126 respondents, 88 percent said the price of fuel changed how they fished, and 62 percent said the price of fuel as a percentage of their gross fishing income had more than doubled in the last five years. The fishermen’s tips on fuel saving were published on our fuel efficiency Web site, <http://seagrant.uaf.edu/map/recreation/fuel-efficiency/survey/survey-results.html>.

MAP agent Terry Johnson coauthored the booklet *Clean Boating for Alaskans*, which tells how boat operations can affect the environment and how to minimize the impact. It is a collaboration of the Alaska Marine Conservation Council, National Park Service, and Alaska Sea Grant Marine Advisory Program.



UNDERSTANDING AND PARTICIPATING IN THE REGULATORY AND PUBLIC PROCESS LEADS TO HEALTHY FISHERIES

To help commercial geoduck dive harvesters increase value from their fishery, Ketchikan MAP agent Gary Freitag hosted a meeting to foster dialogue among the harvesters. Participants included the Southeast Alaska Regional Dive Fisheries Association and independent divers, Alaska Department of Fish and Game, other Alaska stakeholders, and industry representatives from Canada

and Washington. Subjects included marketing and market share competition in the Pacific Northwest, handling geoducks, regulations, and paralytic shellfish poison. As a result of the meeting, harvesters in Alaska and Canada coordinated the timing of their harvests in 2008 so that everyone was better positioned to market their geoducks at optimal times, resulting in higher prices.

Torie Baker and Sunny Rice offered workshops in their communities about how to participate in the Board of Fisheries public process. The sessions were held close to the beginning of the board meeting and participants used their skills from the workshop in the meeting process.

ACCESS TO FISHERIES STOCKS BY LOCAL COMMUNITY MEMBERS IS CRITICAL TO ECONOMIC STABILITY

Joining with Ecotrust and the Gulf of Alaska Coastal Communities Coalition, Alaska Sea Grant MAP cosponsored a two-day workshop on developing Community Quota Entity (CQE) programs. CQEs allow communities to purchase halibut and sablefish quota and then lease it to local residents for economic development. Over 50 participants from communities in southeastern Alaska, Kodiak Island, and along the Gulf of Alaska attended the workshop. Presentations are online.

DEVELOPING ALASKA'S COMMERCIAL SHELLFISH FARMS

The shellfish farm industry, based in southeastern Alaska, Prince William Sound, and Kachemak Bay is a small, coastal industry with growth potential and a source of economic diversification. This year, MAP aquaculture specialist Ray RaLonde, marketing specialist Quentin Fong, and business specialist Glenn Haight, worked with leaders in the shellfish aquaculture industry to develop financial

management tools including the Alaska Shellfish Growers Logbook and a MAP Web site providing guidance on taxes, finances, business management, and aquaculture techniques. The program gained regional and national exposure in 2008 when it was presented at the West Coast Pacific Shellfish Growers Conference and at the annual conference of the National Shellfisheries Association.

In 2009, the Kachemak Shellfish Mariculture Cooperative, consisting of 17 Alaska oyster farmers, completed construction of a \$1.5 million shellfish refrigeration, holding, and retail sales facility on the Homer Spit. Prior to construction, Ray RaLonde helped the farmers write a business plan, apply for grants, plan construction and operational procedures, and develop quality standards. When legal issues stalled the project, RaLonde and Quentin Fong provided the court with a detailed analysis of the likely economic impacts if the project were to be scrapped. The court used the information in reaching its decision to allow resumption of the project. The building opened in 2009.

Ketchikan MAP agent Gary Freitag heads the board of directors of the nonprofit OceansAlaska Marine Science and Mariculture Center in his town. The project is designed to help diversify the local and regional economy that has been hit hard by the loss of timber jobs. The board has secured \$2 million to complete the mariculture component of the facility, and has hired a full-time general manager and several part-time contractors. Groundbreaking took place in August 2009, with Senator Lisa Murkowski participating.

SUPPORT FOR COASTAL BUSINESSES

Cordova resident Ellen Americus won funding in the Alaska Marketplace competition, to commercially grow vegetables. Ellen received business plan coaching from Quentin Fong and Torie Baker, and wrote, "You are the most positive and encouraging of all that helped me. May your enthusiasm help other people achieve their dreams." Two other Marketplace awards went to Yukon-Kuskokwim entrepreneurs, coached by Terry Reeve—Kanektok River Adventures was awarded \$40,000.00 for an ecotourism project, and Fran Reich's fish plant proposal received \$50,000. Our newest MAP agent, Izetta Chambers, based in Dillingham, was also an award recipient from the Marketplace competition sponsored by the Alaska Federation of Natives.



Marie and Ron Bader tend nets on their Moss Island Oyster Farm in Peterson Bay, Kenai Peninsula, Alaska, June 2007.



R. KNECHT

Michael Smith, high school student in Quinhagak, participated throughout the 2009 archeological dig.

ECOTOURISM VIA ARCHEOLOGICAL DIGS IN WESTERN ALASKA

Bethel MAP agent Terry Reeve serves as coordinator and planner for the Quinhagak ecotourism/archeology project in southwestern Alaska. The project is based at the KRA camp near Quinhagak, and involves birding, tundra walks, village visits, and participation in archeological digs. Reeve’s efforts helped locals win an Alaska Marketplace grant (see above).

This summer, a two-week dig yielded 2,000-3,000 artifacts from one house pit site. Items of “museum quality” were discovered daily, including carved artwork, grass mats, rope, and weapons. According to lead archeologist Rick Knecht, of UAF and University of Aberdeen, Scotland, the crews produced the largest cache of Yup’ik artifacts ever collected on the Yukon-Kuskokwim Delta.

Partners include the University of Aberdeen, Bryn Mawr College, UAA Institute of Social and Economic Research, UAF Kuskokwim Campus, AmeriCorps, and the Alaska Department of Commerce, Community, and Economic Development.

BUSINESS STARTUP EFFORTS IN KODIAK

MAP seafood marketing specialist Quentin Fong and former Cooperative Extension faculty member Tony Gasbarro, facilitated a workshop—How to Start a Business in Kodiak, geared to the Kodiak Hispanic community.

According to Sister Barbara Harrington, coordinator of the Marian Center in Kodiak, many local immigrants, especially Hispanic women, want to be business owners. Harrington joined with several local organizations and UAF to organize the Spanish-language workshop aimed at helping Hispanic women launch businesses.

The workshop drew 22 participants, and four families subsequently scheduled consultations with Fong on starting their businesses—two beauty salons, a food kiosk, and a house cleaning business. Fong is now planning to provide train-the-trainers sessions on personal finance for bilingual women in the community.

Alaska Sea Grant goal:

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

BETTER QUALITY, BETTER PROFIT

Poor quality seafood yields poor profits and can even be dangerous to consumers. MAP conducts statewide courses for seafood processors and commercial fishermen on seafood handling, safety, sanitation, and quality. These courses help seafood processors and fishermen comply with federal and state regulations, particularly the federally mandated requirement that seafood processors write and use Hazard Analysis Critical Control Point (HACCP) plans.

In addition to HACCP training, Kodiak-based MAP seafood specialist Chuck Crapo teaches Better Process Control School, which provides federally required training for salmon canners. Prior to each salmon season, Crapo teaches Just in Time, a short course for processing plant workers on how to handle salmon to ensure that the best



KURT BYERS, ASG

A seafood processing plant worker in Juneau shows off a freshly caught coho (silver) salmon. MAP gives workshops that educate processing plant workers on how to best handle salmon and other fish and shellfish, to maintain highest quality.

quality product leaves their plants. Plant managers say that employees receiving this training require less supervision.

NEW SEAFOOD PRODUCTS, TECHNOLOGY, AND HIGHER PROFITS

MAP helps processors to effectively interact with regulators, understand and comply with regulations, and develop and market new products. MAP seafood quality specialist Chuck Crapo, based at the UAF/SFOS Fishery Industrial Technology Center in Kodiak, assists processors in product development. Recent examples include salmon jerky manufacturing in Homer and Soldotna, Iditarod dog food production in Juneau, pasteurization of salmon products in Anchorage, and drying of pollock and cod in Kodiak and Dutch Harbor.

Crapo's assistance enabled the dried pollock processor to produce a product for the Korean market and to develop other new dried seafood products. Applying techniques used in seafood processing, Crapo worked with a Kodiak rancher to develop a retort pouch for use in processing beef cattle on a remote island and to secure a \$500,000 grant to build a portable facility to package beef in pouches. The equipment will go into operation in 2009. Due to its portability, the equipment has great potential for processing fish in remote locations.

Crapo also helped eight processors develop a salmon jerky that meets market and regulatory requirements. Six of the processors now make and market salmon jerky.

Alaska geoduck fishermen lose money when their clams, for various reasons, must be sold frozen instead of alive. Frozen geoduck meat is much tougher than fresh, unfrozen meat and sells for only 20 percent of the price of fresh meat.



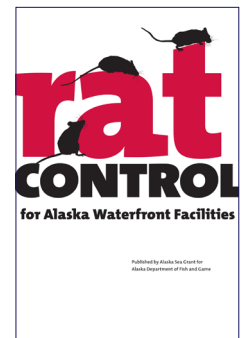
MAP seafood quality specialist Chuck Crapo, and UAF/SFOS associate professor, Alexandria Oliviera, study Alaska farmed oysters at the Fishery Industrial Technology Center in Kodiak.

ASG aquaculture specialist Ray RaLonde developed a project with the Southeast Alaska Regional Dive Fisheries Association and the UAF Fishery Industrial Technology Center in Kodiak to determine the cause of tissue toughening and pursue a solution. They discovered that rigor mortis prior to freezing is the problem. RaLonde and his fellow researchers are now working to develop processing techniques that reduce or eliminate rigor mortis leaving the edible tissue flexible and more marketable.

Alaska Sea Grant goal: *Healthy, safe Alaskans and resilient coastal communities in face of marine and coastal hazards*

ALASKA STOP RATS

Rats seem to live everywhere—except in Alaska, and the goal is to keep it that way. In 2007 MAP signed on as a member of the Alaska Rodent Action Team, later renamed the Alaska Stop Rats Coalition, spearheaded by the U.S. Fish and Wildlife Service and the Alaska Department of Fish and Game.



MAP agents Terry Johnson and Reid Brewer are members of the coalition. Johnson wrote a user's manual for rat control in Alaska, *Rat Control for Alaska Waterfront Facilities*, published by ASG in 2008. More than 500 copies were distributed to Alaska harbor masters, to managers of seafood processing plants, and to other users in Alaska and other states. The largest pest control company in Alaska has adopted the book as its primary training manual. Johnson has conducted rat control training courses in Ketchikan, Juneau, Kodiak, and Unalaska, provided consultations in Homer and Cordova, and given presentations at the Pacific Coast Conference of Harbormasters and Port Administrators, the Alaska Forum on the Environment, and the annual conference of the Alaska chapter of the Wildlife Society.

BEATING THE ODDS AT SEA

Commercial fishing fatalities in Alaska have steadily declined in the last 10 years due to more U.S. Coast Guard inspections of boats, better safety equipment, and increased safety awareness and training. MAP has a long history of training in marine safety, dating back to its organization of the Alaska Marine Safety Education Association (AMSEA), now one the nation's best-known



Cordova MAP agent, Torie Baker, helps Mississippi-Alabama Sea Grant director, LaDon Swann, don a survival suit in an onboard safety training demonstration as National Sea Grant director, Ronald Baird, and fellow National Sea Grant Program Assessment Team member, Frank Kudrna, look on.

marine safety training programs. AMSEA director Jerry Dzugan is an affiliate faculty member with UAF.

Cordova MAP agent Torie Baker, a commercial fisherman and certified AMSEA instructor, is the reason that Cordova has the highest number of trained commercial fishermen in the state. Annually she teaches the Coast Guard–approved Drills Conductor course. This year 28 commercial fishermen participated, ranging in age from 14 to 73. Also this year, Baker partnered with Cordova District Fishermen United in developing, printing, and mailing a safety packet to 235 Prince William Sound skippers on deck winch safety and improving wheel watch communication between skippers and crew. Included was a deck safety video produced by the National Institute of Occupational Safety and Health. One skipper reported, “I’m sending this DVD to my newest crew member right away. This and the wheel watch tips are the things I’ve been looking for to help me reinforce safety in my operation. This is great stuff. Thanks.”

In 2008, Baker teamed with a fellow AMSEA instructor to teach an 18-hour AMSEA drills course, conducted a survival suit refresher course, taught three classes on risk perception for more than 50 U.S. Forest Service supervisors, linked an Alaska Department of Natural Resources

water safety video to the Alaska Sea Grant Web site, arranged for MAP to cosponsor the third annual U.S. Coast Guard Community Boating Safety Day in Cordova, and donated use of an AMSEA training life raft for demonstration. More than 300 residents, including commercial fishermen, attended the boating safety day event.

Baker also helped the USCG and five examiners conduct a massive preseason fishing vessel safety inspection of the Copper River Delta gillnet fleet. The team inspected 146 vessels over two weeks, more than tripling the number inspected from the year before. Baker made inspection appointments, distributed safety materials, and did publicity. Of the 534 vessels in the Copper River Delta gillnet fleet, well over 70 percent now meet or exceed USCG Fishing Vessel Safety Exam standards.

Not stopping there, Baker arranged for two USCG helicopter rescue pilots, a flight mechanic, and a rescue swimmer to give a presentation on helicopter rescue procedures. Twenty-five people attended the talk.

TRAFFIC MANAGEMENT IN PRINCE WILLIAM SOUND

Recreational boat traffic has increased in Prince William Sound in recent years, resulting in more incidents of recreational and charter boats tangling with salmon fishing nets. Cordova MAP agent Torie Baker has worked with Cordova District Fishermen United (CDFU) and local fishermen to alert recreational boaters to areas with high concentrations of salmon fishing nets in the summer. Baker and CDFU created and distributed two laminated posters on how to recognize and avoid salmon nets, and distributed them at Valdez and Whittier harbors.



Salmon seine vessels and recreation boats in Whittier Harbor. Recreational boating is on the rise in Prince William Sound, and so is the frequency of recreational boats running into deployed commercial fishing nets. MAP works with the commercial fishing industry and recreational boaters to help reduce the likelihood of these costly encounters.

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

COSEE ALASKA: THE CENTER FOR OCEAN SCIENCE EDUCATION EXCELLENCE IS LAUNCHED

This year, Alaska Sea Grant Marine Advisory Program welcomed a new marine education specialist into its faculty group. Marilyn Sigman, the longtime director of the Center for Alaskan Coastal Studies in Homer, was hired as the first marine education faculty member in the University of Alaska system. COSEE Alaska is designed to link researchers and statewide educators and informal audiences around the issue of ocean climate change. This year, rural ocean science fairs were organized, as well as a daylong Communicating Ocean Science workshop in partnership with the Alaska Marine Science Symposium. COSEE Alaska is a partnership between Alaska Sea Grant, the Alaska Ocean Observing System, the Alaska SeaLife Center, the UAF School of Fisheries and Oceans Sciences, the Alaska Native Knowledge Network, and the Anchorage School District. It is funded for five years by the National Science Foundation.

COSEE Alaska and Alaska Sea Grant will work together in the coming years to support the Alaska Seas and Rivers curriculum through training of teachers around the state. Workshops this year have trained eight curriculum leaders who can conduct teacher workshops throughout the state.



Nome MAP agent Heidi Herter teaches field biology (for university credit) to high school students from Bering Strait villages.



MAP carries out many informal marine education activities with kids. Here, Unalaska MAP agent Reid Brewer works with children during an annual summer marine science camp he founded and leads.

LINKING COASTAL STUDENTS TO THE UNIVERSITY AND CAREERS IN SCIENCE

Rural Alaskans and Alaska Natives are significantly underrepresented in the marine resource and fisheries science and management professions. MAP agents work with K-12 students to inspire them and expose them to marine science opportunities starting at a young age.

In Unalaska, MAP agent Reid Brewer worked with 13 pre-kindergarten through third grade children in summer tide-pool camps and local culture camps. As a result of this success, MAP received a \$54,750 grant from the Qawalangin Native Tribe to continue its educational activities. The money, designated for education of Unalaska's youth, came from damages awarded to the tribe from the 2001 grounding and oil spill from the cargo ship *Kuroshima*.

Brewer and Sunny Rice from Petersburg coached their local high school teams in the Alaska regional competition of the National Ocean Sciences Bowl (NOSB). Four former members of the Unalaska High School NOSB team have gone on to pursue science degrees in college, and in 2008 four alumni of other Alaska NOSB teams enrolled in the University of Alaska Fairbanks undergraduate fisheries program.

Both Heidi Herter and Gary Freitag taught university courses via distance technology. Heidi Herter offered MSL 111, The Oceans, to 10 high school students from five villages outside of Nome. Other than a two-week lab held in Nome, the class was taught entirely via distance delivery. Freitag teaches Fishes of Southeast Alaska, and Introduction to Oceanography via distance delivery to students in the University of Alaska Southeast fisheries

technology program. Ray RaLonde co-taught Introduction to Aquaculture, a UAF undergraduate fisheries class.

INVOLVING RESIDENTS WITH REGIONAL RESEARCH

Coastal residents often have little access to the scientists who base out of their communities, and may learn little about the goals or results of their research. MAP has worked to bridge this gap.

Heidi Herter, Nome MAP agent, coordinated the Western Alaska Integrated Science Conference, held in Nome in April 2009. The conference is sponsored by the local rural University of Alaska campus and brings researchers and community members together. Herter also convened the first regional fisheries research planning conference the day before WAISC with participation from the Alaska Department of Fish and Game, the Norton Sound Economic Development Corporation, and others.

In Unalaska, MAP agent Reid Brewer organized a lecture series, the Forum of Alaska Marine Issues (FOAMI), which features talks by scientists who transit through Unalaska. The events, held at the Museum of the Aleutians, allow community members to meet and speak with scientists who conduct research that impacts the residents' lives. Herter organized a similar lecture series in the Bering Strait region in partnership with International Polar Year participants. The lecture series reached more than 1,350 people over two years.

Torie Baker and the Alaska Marine Conservation Council organized a community meeting in Cordova to educate residents on ocean acidification.

PUBLICATIONS AND VIDEOS RAISE PUBLIC AWARENESS AND FUNDING

Alaska Sea Grant Education Services and MAP produce and distribute books, posters, brochures, fact sheets, videos, and other educational items, many authored by MAP, to serve a wide array of constituents in Alaska and around the nation and world. In 2008, Alaska Sea Grant filled 1,350 book and video orders from 47 states and 25 foreign countries. The orders covered 250 titles (including 20 videos). An additional 31,600 hard copy and 32,470 electronic educational products were distributed worldwide. These totals place Alaska Sea Grant third in the national Sea Grant network—behind Florida, which serves a state population of 18.3 million, and Virginia, which serves a state population of 7.8 million.

Growth in staff, growth in public service

The past year has brought extraordinary changes to Alaska Sea Grant. After more than a year of strong and forward-looking leadership with interim director/MAP leader Paula Cullenberg, and acting associate director David Christie, we selected Christie as Alaska Sea Grant director. He assumed the directorship in August 2009, succeeding Brian Allee who retired in May 2008.

Another exciting advance was the hiring in spring 2009 of Marilyn Sigman, our first-ever marine education specialist. Sigman is well known in Alaska marine education circles as the longtime executive director of the Center for Alaskan Coastal Studies in Homer. Now relocated to MAP headquarters in Anchorage, Sigman's primary job is to direct the National Science Foundation-funded COSEE Alaska. COSEE connects university marine scientists with K-12 educators and students; see <http://www.cosee-alaska.net/>.

Also in 2009, we hired Izetta Chambers to fill our MAP agent position in Dillingham. Chambers grew up in the Bristol Bay region and her family owns a salmon processing business there. She holds a bachelor's degree in business management and a law degree, both from the University of Arizona.



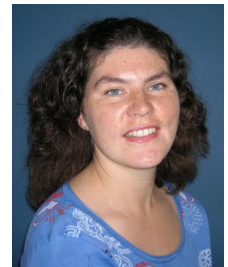
David Christie

KURT BYERS, ASG



Marilyn Sigman

KURT BYERS, ASG



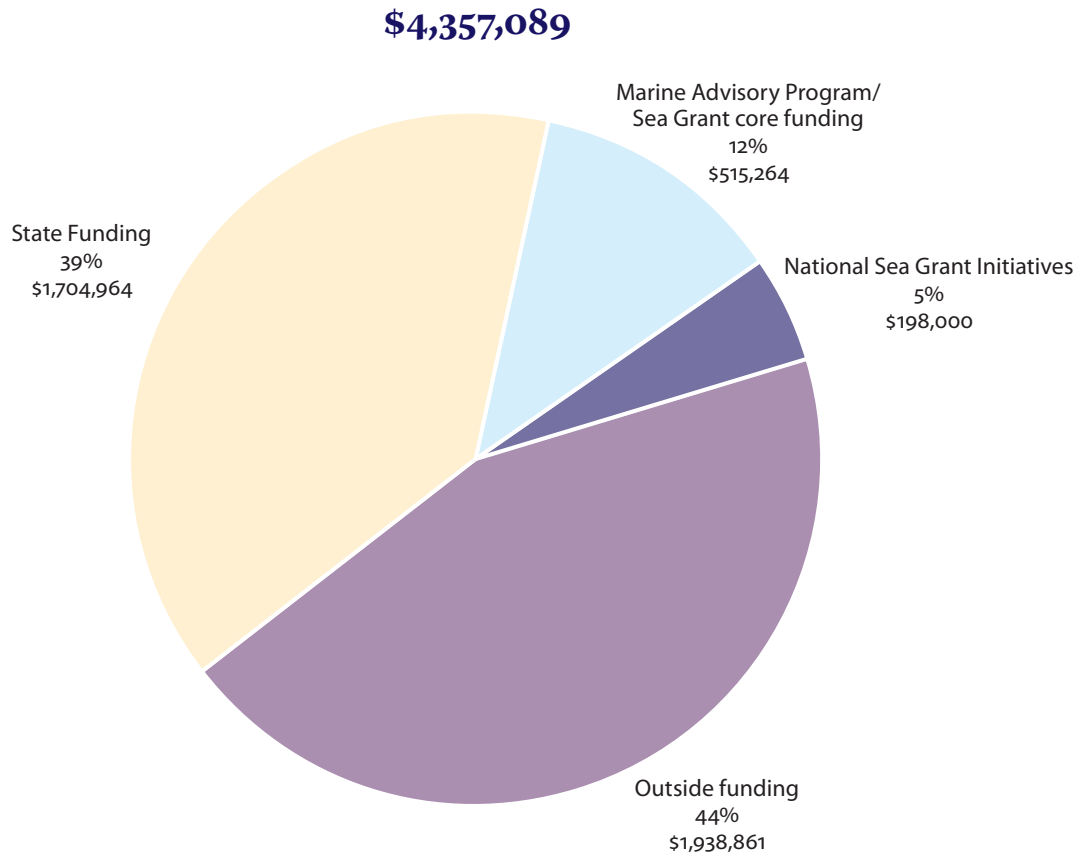
Izetta Chambers

BEVERLY BRADLEY, ASG MAP

Marine Advisory Program Funding Sources 2008-2009

Base program funding		
NOAA/NSGO	Marine Advisory Program/Sea Grant core funding	515,264
School of Fisheries and Ocean Sciences/UAF	State operating and match funds	1,704,964
National Sea Grant		
NOAA/NSGO	Fisheries Extension Enhancement	198,000
Federal agencies		
Alaska Ocean Observing System	AOOS Regional Stakeholder—Outreach Partnership with Alaska Sea Grant	29,308
Alaska Ocean Observing System	AOOS—Climate Change in Alaska's Seas	11,999
NOAA	Prey Use and Foraging Patterns of Kodiak's Sympatric Marine Mammals: GAP 2008	296,825
NOAA/CMDL*	Seasonal Prey Use and Partitioning by Sympatric Marine Mammals in a Kodiak Embayment: GAP 2007	52,469
NOAA	Social Vulnerability to Climate Change in the Alaskan Coastal Zone	49,618
National Science Foundation	COSEE Alaska: People in a Changing Climate	500,000
State and local governments		
Alaska Department of Fish and Game	Rat Prevention and Eradication Outreach for Waterfront Operators in Coastal Alaska	82,967
Qawalangin Tribe of Unalaska	Support for Unalaska Marine Advisory agent	54,000
Academic organizations		
Washington State University	USDA Trade Adjustment Assistance Intensive Technical Assistance (TAA-ITA) Program for Alaska Resident Salmon Permit Holders and Crewmembers	250,000
Washington State University	Financial Planning for Alaskan Shellfish Farmers	35,832
Nongovernment agencies		
Alaska Marine Safety Education Association	AMSEA Production of Two Training Videos for Alaska Marine Safety Education Association	40,500
Norton Sound Economic Development Corporation	Support for Nome Marine Advisory Agent, to Serve the Bering Strait Region	118,772
National Park Foundation	Best Practices in Marine Wildlife Viewing	9,999
Alaska Marine Conservation Council	Promoting Ocean Stewardship for Coastal Marine Operators	29,999
Industry and business		
Princess Cruises	MAP agent support	100,000
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	Field Studies in Support of Stock Assessment for the Pacific Giant Octopus <i>Enteroctopus dofleini</i>	63,823
Total funding		4,357,089

Marine Advisory Program Annual Budget 2008-2009



Marine Advisory Program Collaborative Partners

FEDERAL PARTNERS

AmeriCorps
Centers for Disease Control, National Institute for Occupational Safety and Health, Commercial Fishing Safety Program
Department of Agriculture, Cooperative State Research, Education and Extension Service
Department of Agriculture, United States Forest Service
Department of Commerce, Pacific States Marine Fisheries Commission
Department of the Interior, Fish and Wildlife Service
Department of the Interior, National Park Service
Environmental Protection Agency
Food and Drug Administration
National Museum of Natural History, Smithsonian Institution
National Oceanographic Partnership Program, Alaska Ocean Observing System
National Science Foundation, Centers for Ocean Science Education Excellence (COSEE)
NOAA Alaska Marine Mammal Stranding Network
NOAA Fisheries
NOAA Kachemak Bay National Estuarine Research Reserve
NOAA National Ocean Service
North Pacific Fishery Management Council
North Pacific Research Board
U.S. Coast Guard

LOCAL, STATE, AND TRIBAL PARTNERS

Alaska Board of Fisheries
Alaska Commercial Fisheries Entry Commission
Alaska Commercial Fishing and Agriculture Bank
Alaska Department of Commerce, Community and Economic Development, Div. of Investments
Alaska Department of Environmental Conservation
Alaska Department of Fish and Game
Alaska Department of Transportation
Alaska Office of Boating Safety
Alaska Seafood Marketing Institute
Anchorage School District
Bering Straits School District
Chenega Corporation
City of Dillingham
City of Kodiak
City of Petersburg
City of Unalaska
Clausen Memorial Museum
Cordova Chamber of Commerce
Cordova High School
Ketchikan School District
Kodiak Chamber of Commerce
Kodiak Filipino Women's Council
Lower Kuskokwim School District
Museum of the Aleutians
Native Village of Eyak
Petersburg Chamber of Commerce
Petersburg High School
Petersburg Indian Association
Prince William Sound Science Center
Qawalangin Tribe of Unalaska

Quinhagak Village Corporation
Ray Stedman Elementary School, Petersburg
Sitka Tribe
Unalaska City School District
Unalaska Parks, Culture and Recreation Center
Western Regional Aquaculture Center

NGO PARTNERS

Alaska Association of Harbormasters and Port Administrators
Alaska Federation of Natives
Alaska Library Association
Alaska Marine Conservation Council
Alaska Marine Safety Education Association
Alaska Small Business Development Center
Bristol Bay Native Association
Coastal Observation and Seabird Survey Team (COASST)
Cook Inletkeeper
Ecotrust
Gulf of Alaska Coastal Communities Coalition
Kawarek
Kodiak Whalefest 2009
Marian Center (Kodiak)
Marine Conservation Alliance Foundation
OceansAlaska
Northern Southeast Regional Aquaculture Association
Petersburg Economic Development Council
Petersburg Marine Mammal Center
Prince William Sound Regional Citizens Advisory Council
Southeast Alaska Regional Dive Fisheries Association
Southwest Alaska Municipal Conference
The Alaska Sea Otter and Steller Sea Lion Commission
Wild Food Development Center (Cordova)
World Wildlife Fund (U.S. and Costa Rica)

INDUSTRY/BUSINESS PARTNERS

Alaska Charter Association
Alaska Shellfish Growers Association
Aleutian Pribilof Island Association
Aleutian Pribilof Island Community Development Association
Alutiiq Pride Shellfish Hatchery
Bering Sea Fishermen's Association
Blue Starr Oyster Co
Boat U.S.
Bristol Bay Economic Development Corporation
Bristol Bay Regional Seafood Development Association
Coastal Cold Storage, Inc.
Coastal Villages Region Fund (Western Alaska CDQ)
Copper River Seafoods
Cordova District Fishermen United
Fleet Refrigeration
Gastineau Guiding Service
Icicle Seafoods Inc.
Indian Valley Meats
Integrated Marine Systems
Kachemak Shellfish Mariculture Association
Kanektok River Adventures
ComFish Alaska (Kodiak Chamber of Commerce)

Lofoten Fish Company
McDowell Group
National Fishermen Magazine
National Shellfisheries Association
Norton Sound Economic Development Corporation
Ocean Beauty Seafoods Inc.
Pacific Seafood Processors Association
Petersburg Vessel Owners Association
Prince of Wales Island Community Holding Corporation
Prince William Sound Aquaculture Corporation
Prince William Sound Regional Seafood Development Association
Prince William Sound Science Center
Princess Tours
SeaFisk Consulting
Seafood HACCP Alliance
Sloth Boatworks
SnoPac
Southeast Alaska Fishermen's Alliance (SEAFSA)
Stellar Financial Services, Juneau
Trident Seafoods
Unalaska Native Fisherman Association
United Fishermen of Alaska
United Fishermen's Marketing Association
United Southeast Alaska Gillnetters Association
Yukon River Drainage Fisheries Association

ACADEMIC AND RESEARCH INSTITUTION PARTNERS

Alaska Cooperative Extension Service
Alaska Vocational Technical Education Center
Colegio de Biologos de Costa Rica
Hiram College, Ohio
Prince William Sound Community College
University of Alaska Anchorage
University of Alaska Fairbanks (Multiple partners)
University of Alaska Southeast
Washington State University Extension

SEA GRANT PROGRAM PARTNERS

Oregon Sea Grant
National Sea Grant Law Center
South Carolina Sea Grant
Washington Sea Grant
Michigan Sea Grant

INTERNATIONAL PARTNERS

Dr. Abdoulaye dJiba, Dakar, Senegal
Senegal Minister of Fisheries

Alaska Sea Grant Advisory Committee Members 2009



James Balsiger
Alternate: Steven K. Davis
Director
NOAA Fisheries
Juneau, AK



Pete Esquiro
Executive Director
Northern Southeast Regional Aquaculture
Association
Sitka, AK



Steve Borell
Executive Director
Alaska Miners Association
Anchorage, AK



Mark Fina
Senior Economist
North Pacific Fishery Management Council
Anchorage, AK



Bruce Bustamante
VP Community and Public Affairs
Princess Tours
Anchorage, AK



Terry Gardiner
Fisheries Consultant
Solutions That Endure
Washington, DC



Dorothy Childers
Program Director
Alaska Marine Conservation Council
Anchorage, AK



John Goering
Professor Emeritus
University of Alaska Fairbanks
Fairbanks, AK



Peggy Cowan
Superintendent
North Slope Borough School District
Barrow, AK



Rick Harris
Executive Vice President
Sealaska Corporation
Juneau, AK



Steve Davis
Alternate for: James Balsiger
Regional NEPA Coordinator
NOAA Fisheries
Anchorage, AK

Geoff Haskett
Alternate: Gary Edwards
Alaska Regional Director
US Fish and Wildlife Service
Anchorage, AK

Gary Edwards
Alternate for: Geoff Haskett
Alaska Region Deputy Director
US Fish and Wildlife Service
Anchorage, AK



Dan Hull
Leader
Cordova Fishermen United
Anchorage, AK



Denby Lloyd
Commissioner
Alaska Department of Fish and Game
Juneau, AK



Orson Smith
Professor
UAA School of Engineering
Anchorage, AK



Molly McCammon
Executive Director
Alaska Ocean Observing System
Anchorage, AK



Jeffrey Stephan
Manager
United Fishermen's Marketing Assoc.
Kodiak, AK



Henry Mitchell
Fisheries Consultant
Anchorage, AK



Stan Stephens
President
Stan Stephens Glacier and Wildlife Cruises
Valdez, AK



Daniel O'Hara
Mayor
Bristol Bay Borough
Naknek, AK



Bill Streever
Environmental Studies Leader
BP Exploration
Anchorage, AK



Mary Pete
Director
UAF Kuskokwim Campus
Bethel, AK



Arliss Sturgulewski
Former State Senator
Anchorage, AK



Pete Pinney
Associate Vice Chancellor
UAF College of Rural and Community
Development
Fairbanks, AK



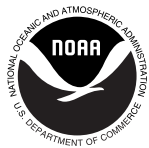
Joe Thomas
State Senator
Fairbanks, AK



John Shively
Resource Development Council
Anchorage, AK



Bob Winfree
Alaska Regional Science Advisor
National Park Service
Anchorage, AK



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