Alaska Sea Grant

2014–2015 Annual Report










Sea Grant
Alaska

Letter from THE DIRECTOR

Dear Friends,

Alaska Sea Grant was reviewed by National Sea Grant in spring 2015 with a site visit by a team of five. The visit gave us a chance to reflect on our work during the last four years and to highlight many partners. Thank you to the staff and faculty and our partners for their help. Alaska Sea Grant met the " Standards of Excellence" required by National Sea Grant. Two best management practices were identified—the Marine Advisory process of coaching new faculty and the Alaska Sea Grant statewide Advisory Committee.

In fall 2014, with the help of our Advisory Committee, Alaska Sea Grant launched the Alaska Sea Grant State Fellowship Program. Modeled after National Sea Grant's Knauss Fellowship, the program builds capacity by encouraging talented young people to stay and work on issues in Alaska. Matt Robinson, serving this year at the North Pacific Fishery Management Council, and Marysia Szymkowiak, based at the National Marine Fisheries Service regional office, are our first two Sea Grant State Fellows. We will start recruiting for our second year of the fellowship this fall.

Growing environmental literacy in Alaska is the purpose behind the new Alaska Seas and Watersheds coastal school grant program. Dillingham, Anchorage, and Yakutat incorporated the Alaska Seas and Watersheds curriculum into their schools last year, using local field trips as the centerpiece. Petersburg, Cordova, Juneau, and Unalaska will work with ASW this year and Alaska Sea Grant will bring in other coastal schools with an online ASW event that will provide teachers with resources and a place to share their school's activities.

Last fall, Alaska Sea Grant funded five research projects focusing on coastal resilience in the face of glacial effluent, eroding shorelines, fisheries changes, and marine invasives. In the coming year, through a partnership with NOAA, AOOS, and ACCAP, a new coastal resilience and adaptation specialist will join the Marine Advisory faculty.

This year, we welcomed Melissa Good, Marine Advisory agent in Unalaska, and Chris Sannito, seafood technology specialist, and Astrid Rose, program assistant, both based in Kodiak. And we said goodbye to retiring faculty members Kate Wynne and Ray RaLonde, two longtime Marine Advisory specialists who have been powerhouses in our program. Kate served as our marine mammal specialist based in Kodiak and is known nationally for her work on marine mammals and fisheries. She is the author of Alaska Sea Grant's best-selling national marine mammal identification guide books. Ray, as aquaculture specialist, worked tirelessly to support shellfish farming as a source of economic diversity in Alaska. He also monitored and educated hundreds of Alaskans about PSP risks and other harmful algal blooms. Ray built bridges from industry to the state and legislature that couldn't have happened without him.

In this report, we share examples of our work from fall 2014 through summer 2015, possible through the long-standing support of NOAA National Sea Grant, the University of Alaska Fairbanks, and almost 200 partnerships across the state and nation.

Sincerely,

Paula Cullenberg, Director
Alaska Sea Grant
University of Alaska Fairbanks

Mission

Alaska Sea Grant's mission is to enhance the wise use and conservation of Alaska's marine, coastal, and watershed resources through research, education, and extension.

Vision

Alaska will sustain its vibrant marine, coastal, and watershed ecosystems, with strong coastal communities and people who make decisions using science-based and traditional knowledge for the social and economic benefit of all Alaskans.

Deborah Mercy

Alaska Sea Grant Advisory Committee

James Balsiger Alaska Regional Administrator
NOAA National Marine Fisheries Service

Steve Borell Consultant
Borell Consulting Services LLC

Peggy Cowan Retired Superintendent
North Slope Borough School District

Steve Davis (alternate) Regional NEPA Coordinator
NOAA National Marine Fisheries Service

Pete Esquiro Retired
Northern Southeast Regional Aquaculture Association

John Garner Chief Operating Officer
North Pacific Seafoods

Kelly Harrell Executive Director
Alaska Marine Conservation Council

Geoff Haskett Alaska Regional Director
US Fish and Wildlife Service

Lea Klingert President
Commercial Fishing and Agriculture Bank

Jennifer Lincoln Director
Alaska Pacific Office
NIOSH Division of Safety Research

Molly McCammon Executive Director
Alaska Ocean Observing System

Vera Metcalf Director
Eskimo Walrus Commission

Henry Mitchell Fisheries Consultant

Daniel O'Hara, Former Mayor
Bristol Bay Borough

Mary Pete Director
Kuskokwim Campus
University of Alaska Fairbanks

Fred Schlutt Director
Cooperative Extension Service
University of Alaska Fairbanks

John Shively Executive Committee Member
Resource Development Council

Christopher Siddon Marine Fisheries Specialist
Alaska Department of Fish and Game

Jeffrey Stephan Manager
United Fishermen's Marketing Association

Bill Streever Environmental Studies Leader
BP Exploration

Arliss Sturgulewski Former State Senator

Eric Volk (alternate) Salmon Fisheries Scientist
Alaska Department of Fish and Game

David Wigglesworth (alternate)
Coastal Program Manager
US Fish and Wildlife Service

Bob Winfree Retired
National Park Service

Dave Witherell Deputy Director
North Pacific Fishery Management Council

Healthy Coastal Ecosystems

Healthy ecosystems are the foundation of Alaska's way of life. For millennia, humans have been part of Alaska's coastal ecosystems, using seasonally abundant natural resources to meet subsistence, cultural, and economic needs. The livelihoods and lifestyles of Alaskans are rooted in the long-term health of coastal and marine resources for recreational, commercial, and subsistence activities.

Pinto Abalone and Kelp Study

Researchers in Sitka Sound are simultaneously answering basic questions about kelp and abalone and developing a long-term monitoring system to track how the species are changing.

Pinto abalone. Photo: Lauren Bell

Kelp help buffer the shorelines from intense storm events, act as nurseries for many species, and support biodiversity in the sound. Abalone live in and feed on kelp beds, and are an important subsistence resource for people in Sitka. Although it is widely agreed that kelp and abalone serve an important function in the local ecosystem, little is known about how the species are changing.

During the 2015 field season, abalone numbers were measured at eight 30 meter scuba transects. Two transects were chosen because they have known populations of abalone, and the other six were randomly selected. In addition, kelp bed size was mapped at three sites. Ocean conditions including temperature, pH, and salinity were measured at the three sites and at two control sites without kelp beds.

Taylor White finishing up a dive with transect poles. Photo: Roger Vallion

Lauren Bell and Taylor White completing a dive. Photo: Chantal Cough-Schulze

The research team hopes this was the first of many years of successful monitoring in the region. Learning the basic information about kelp and abalone populations will aid sustainable management of the species in the future. Once this project is established, the researchers suggest that the methods and fieldwork could be used in other regions to learn about similar habitats.

This project relies on collaboration of researchers and students from the Sitka Sound Science Center, the Alaska Department of Fish and Game, the US Coast Guard Academy, and University of Alaska Southeast.

Marine Invasives Study Employs Southeast Alaska Students

University of Alaska Southeast undergraduate and Ketchikan High School students count invertebrates on experiemental panels. Photo: Gary Freitag

Non-native tunicate, Botryllus schlosseri. Photo: Deborah Mercy

Deborah Mercy

A University of Alaska Southeast Ketchikan student and Ketchikan High School students are doing internships with leading researchers from Temple University and the Smithsonian Environmental Research Center in a two-year marine ecology project. Ketchikan Marine Advisory agent Gary Freitag is supervising the local students in collecting samples, identifying larval marine invertebrates, and teaching scientific protocols.

The international research project BioVision is funded by the National Science Foundation. The project goal is to expand ecological understanding of marine species interactions across latitudes. Scientists have set up sample sites along the Pacific coast from Panama to the northern latitudes of Ketchikan, Alaska.

Temple University researchers Mariana Bonfim, Laura Jurgens, Diana Lopez, and Michele Repetto work in lab constructed at the University of Alaska Southeast Robertson Building in Ketchikan, Alaska. Photo: Deborah Mercy

Scientists are studying the influence of recruitment, predation, and competition on marine species. They are examining the effect of latitude in predation pressure and interactions of predation and colonizing species found on settling plates placed at various locations. Researchers are recording data on how these changes influence the success of invasions of nonindigenous species.

The Ketchikan High School interns are an integral part of the international research team. They participate in regular meetings with US, Mexico, and Panama project personnel. The scientists are mentoring the interns in a framework that includes scientific, professional, and cross-cultural training to prepare them for scientific careers in an international setting.

Temple University researcher Laura Jurgens prepares a settling plate and camera to place under a Ketchikan dock. Photo: Deborah Mercy

Corella and calcareous polychaete worms on sampling plate, both native species. Photo: Deborah Mercy

Resilient Communities and Economies

More than 70 percent of Alaska's 700,000 residents live along the coast. Less than 10 percent of coastal communities are connected by road; this "lack of connection," a defining feature often relished by residents, also creates challenges. High energy costs, climate change, economic resiliency, extractive resource development, water safety, and food security and safety are of concern. A diverse economic base is critical to the well being of our Alaska communities.

Marine Advisory Agents Protect Human Health through PSP Efforts

April 2015 marked the last collection of clams near Kodiak to test for paralytic shellfish poisoning toxin under the Alaska Department of Environmental Conservation Recreational Shellfish Pilot Program. Marine Advisory agent Julie Matweyou has been working with the Kodiak Island Borough School District and the communities of Ouzinkie and Old Harbor on the study. She presented results of the three-year study at community potluck gatherings in the villages and discussed findings with high school students who were involved in the project.

PSP is a serious health risk for Alaska residents practicing subsistence and personal shellfish harvest. While there is an effective testing program in place for commercially harvested shellfish in Alaska, there is currently no testing for personal harvest, leaving residents vulnerable to illness.

On Kodiak Island Matweyou trained teachers, students, and volunteers to collect, prepare, and ship clam samples to ADEC for testing. Over two and a half years many PSP toxin levels continued to read above the safe-for-consumption FDA regulatory level. The testing confirmed that dangerous PSP levels come and go unpredictably. Community members have benefited by becoming more aware of PSP risk and having access to information and experts.

In Unalaska Marine Advisory agent Melissa Good also is helping to develop a safe shellfish harvest program. She collects blue mussels for a PSP testing project led by the Aleutian Pribilof Islands Association. Good publishes State of Alaska PSP test results on the Aleutian-Pribilof Islands Marine Advisory Program Facebook page for the Gulf of Alaska and Bering Sea.

These University of Alaska Anchorage Kodiak College students took their shellfish collections back to the lab, where they learned how to test for paralytic shellfish poisoning toxins. Assistant professor Cindy Trussell and Marine Advisory agent Julie Matweyou led the project. Photo: Art Schultz

Kodiak fishermen.
Photo: Danielle Ringer

Graying of the Fleet

Alaska fisheries are marked by an aging workforce today. This is especially true in the harvesting sector and among those who hold the rights to fish. Since 1980, the average age of permit holders has increased roughly from 40 to age 50. The steady uptick in the age of commercial fishermen poses serious problems for the long-term sustainability of Alaska fishing communities, cultures, and economies.

This "graying of the fleet" is fueled by a lack of young people entering the industry. Between 1980 and 2013, the number of Alaska residents under the age of 40 holding fishing permits fell from 39 percent to 17 percent.

The scarcity of the next generation of commercial fishermen in Alaska's coastal communities is driving a study to better identify and address social, cultural, and economic factors contributing to the graying of the fleet.

In 2014, a team of researchers launched the study, spanning the Kodiak archipelago and Bristol Bay region. Funded by Alaska Sea Grant and the North Pacific Research Board, the project focuses on three issues: the perceived and experienced barriers to entry into, and upward mobility within, fisheries among local youth and young fishery participants; geographic, economic, social, and cultural factors influencing young people's attitudes toward and level of participation in fisheries; and policy responses to address the graying of the fleet.

Courtney Carothers, University of Alaska Fairbanks professor, Rachel Donkersloot of the Alaska Marine Conservation Council, and Paula Cullenberg, Alaska Sea Grant director, are leading the project. Donkersloot, Carothers, and graduate students Danielle Ringer and Jesse Coleman have carried out more than 100 interviews with young, new, and local fishermen, and they have surveyed over 800 middle and high school students.

The researchers have identified important changes in the ways young people gain experience and entry into ownership-level fishing careers. They found that the necessity to purchase expensive fishing access rights such as quota and permits has made it much more difficult than decades ago. One young interview respondent from Kodiak summarized the issue straightforwardly. "Who is going to loan a twenty-one year old without any assets half a million dollars to get into fishing? No one."

The researchers have also identified a concerning trend in Kodiak where only 11 percent of high school students have had any involvement in commercial fisheries. Long-time fishermen noted that fewer sons and daughters grow up fishing with their families, giving them less experience and exposure to fishing at an early age. This can limit development of fishing skills as they grow up, and may also mute the interest and inner drive to keep fishing that many current fishermen talk about.

In the Bristol Bay region, 52 percent of high school students have been engaged in commercial fishing. While this is a larger number, interview respondents said that the loss of local fishing opportunities for young people are changing their identities and cultures.

The team is working to ensure that project results help to inform policy solutions to address the graying of the fleet. To date, the project has been flexible and based on the needs of the communities involved. It will continue to evolve as results are analyzed and better understood.

Alaska's Next Generation of Fishermen Facebook page: https://www.facebook.com/nextgenerationofalaksafishermen

Sustainable Fisheries and Aquaculture

Alaska's coastal communities are intricately tied to fisheries and other marine resources. Alaska Sea Grant plays a leadership role in developing innovative technologies for the seafood industry, including fishing, aquaculture, seafood processing, and consumer safety, to ensure a safe and sustainable supply of seafood products.

Fishing Vessel Energy Audits

Alaska Sea Grant and partners have developed an energy analysis tool for fishing vessel owners, to calculate how to save energy and money in vessel operations. While the tool is still in the beta-testing phase, fishermen can already benefit from engineer recommendations based on energy audits: slowing down, "right sizing" generators, turning off electrical devices when not needed, declutching hydraulics when not in use, and purchasing premium efficiency compressors.

Marine engineer Mike Gaffney prepares to collect operational data aboard a fishing vessel to conduct an energy audit. Photo: Tomi Marsh

The energy-saving project has its roots in the 2008 fuel price spikes, when some Alaska fishermen worried about the viability of their businesses. In 2009 Marine Advisory agent Terry Johnson launched the project to help vessel owners control fuel costs. An advisory group representing the Alaska Marine Conservation Council, Alaska Fisheries Development Foundation, United Fishermen of Alaska, and individual vessel owners recommended energy audits.

At Pacific Marine Expo in 2011 Johnson presented a template for vessel owners to conduct energy audits, created by Elliott Bay Design Group. After using the template, owners said it helped them organize vessel data but didn't adequately support recommendations on energy conservation methods.

In 2012 AFDF secured funds from the state legislature and contracted the engineering firm Alaris to collect data from vessels. Engineer Mike Gaffney placed instrumentation on trollers, gillnetters, longliners, a tender, and a trawler, collecting data on engine, propulsion, electrical, hydraulic, and refrigeration energy use. He presented pilot project results at Pacific Marine Expo in 2014, and introduced the energy analysis tool developed by the Alaska Longline Fishermen's Association. Fishing vessel owners can get the tool from ALFA to use and help refine it.

International Symposium Attracts Fisheries Researchers and Managers

Scientists often feel they don't have enough data to make good fisheries management decisions. Responding to this need, Alaska Sea Grant organized the 30th Wakefield Fisheries Symposium, "Tools and Strategies for Assessment and Management of Data-Limited Fish Stocks."

Held in May 2015 in Anchorage, the symposium earned high praise from speakers and attendees. "It wildly exceeded our expectations," said symposium chair Terry Quinn, professor at the University of Alaska Fairbanks. "Many thanks to the speakers for exceptionally high quality talks."

The symposium topic seemed right for the times. "The dialog has changed in the last two years from a large number of models to a more simplified situation where fewer models are used," said Anne Cooper of the International Council for the Exploration of the Sea (ICES).

Nearly 50 presenters mentioned diverse approaches to assessing fisheries that target data-poor species, including about 5–10 maturing software products. While there is still a lot of work to do, it appears that a rapid evolution in tools and strategies for assessing species is taking place worldwide. Participants represented 11 nations, offering research results on small and large fisheries in their regions.

Symposium sponsors are Alaska Department of Fish and Game, NOAA Alaska Fisheries Science Center, Alaska Sea Grant, North Pacific Fishery Management Council, North Pacific Research Board, and School of Fisheries and Ocean Sciences, University of Alaska Fairbanks.

Humpback Whales Feeding On Hatchery Release Salmon

Four humpback whales in Southeast Alaska have been eating juvenile chum salmon at hatchery release sites in the Chatham Strait. This could have a substantial effect on revenue for the region's fisheries. Juvenile salmon are within the normal realm of what whales feed on but there are also plenty of whales that do not feed on the hatchery fish, or on juvenile salmon in general. Researchers Jan Straley and Ellen Chenoweth are studying which whales are feeding on the juvenile salmon, and why they are not feeding elsewhere.

A whale surface-lunging with hatchery net pens visible in the background. Photo: Monique Anderson

The researchers work closely with four state-supported Baranof Island hatcheries—Hidden Falls, Mist Cove, Little Port Walter, and Port Armstrong. The research started as a volunteer monitoring program. The hatcheries have also been sharing data on their releases and returns since 2010, including location, time of day, length of release, and number of returns.

Straley and Chenoweth are tagging whales and tracking where they feed. They also use echo-sounders, which use sound waves to measure underwater distances, to learn about the type and distribution of prey hungry humpbacks feed on first. The echo-sounders collect information on where fish are bunching up, how dense prey patches are, how deep the patches are, and how the hatchery patches compare to prey patches in the wild.

The researchers will use these results to help the hatcheries develop strategies for releasing juveniles that may be more successful in deterring humpback feeding.

Seafood Processing Quality Control School

Class of 2014. Photo: Quentin Fong

The Alaska Maritime Workforce Development Plan identified quality control managers as one of nine priority occupations currently needed in the seafood processing industry.

In response Chris Sannito, Marine Advisory seafood technology specialist, developed a seafood processor quality training program.

Alaska seafood processors supplied input for the new curriculum which included a variety of topics such as HACCP and pest control. The eight-day course also covers catch handling, seafood audits, sanitation, environmental compliance, workplace safety, freezing, chilling, and seafood packaging.

The training includes hands-on activities in the seafood processing pilot plant at the University of Alaska Fairbanks Kodiak Seafood and Marine Science Center.

Local seafood processors Trident Seafoods, Westward Seafoods, and the Kodiak Fishmeal Plant offer plant tours. The Seafood Processing Quality Control School is the only one of its kind in Alaska. It is offered every other year to seafood processors.

Environmental Literacy and Workforce Development

Alaska Sea Grant serves as an important conduit for transmitting information about our marine and coastal environment to Alaska residents, visitors, businesses, scientists, children, and managers. An engaged and educated public increases the appreciation and conservation of our unique coastal resources.

Communities Celebrate Alaska Seas and Watersheds

In spring 2015 the Alaska Seas and Watersheds program expanded to several schools as Alaska Sea Grant and partners revived the "Sea Week" tradition. Schools and communities engaged students to learn about the environment through hands-on discovery in the classroom and on field trips. Marilyn Sigman, marine education specialist, laid the groundwork for the revival by providing professional development workshops and support for integrating activities from Alaska Sea Grant's Alaska Seas and Watersheds curriculum into the schools.

In Anchorage 200 fourth and fifth graders tested Chester Creek water. Dillingham elementary students went on a beach field trip to learn the importance of salmon migration to the community. In Yakutat, elementary students learned about siting an oyster farm, visited a fish weir, and counted marine invertebrates on a beach.

A teacher explains how salmon move through Westchester Lagoon in Anchorage. Photo: Deborah Mercy

During events in Unalaska led by Marine Advisory agent Melissa Good, scientists taught about the effects of marine debris on seabirds. All elementary students learned about marine invertebrates and they toured a seafood processing facility.

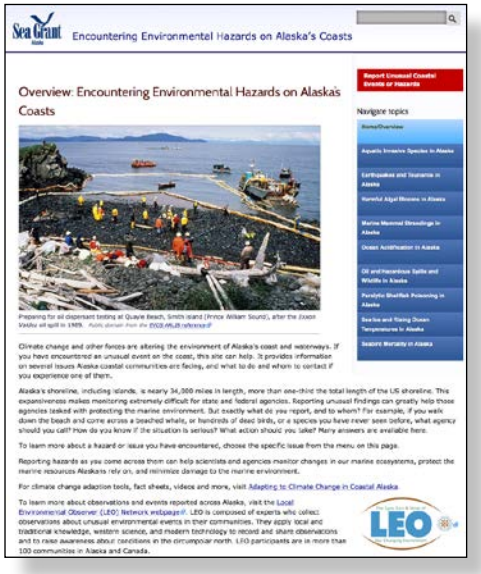
Alaska Sea Grant provided $10,000 grants to schools for field trip transportation and teaching kits. The funds also bolstered partnerships between schools, community collaborators, and local experts. In Dillingham, financial support came from Icicle Seafoods and the Alaska Natural Resource and Outdoor Education Association. In Anchorage, Alaska Sea Grant became a business partner to the district's STEM Department and teamed up with Alaska Geographic and the Anchorage Waterways Council to provide field trips.

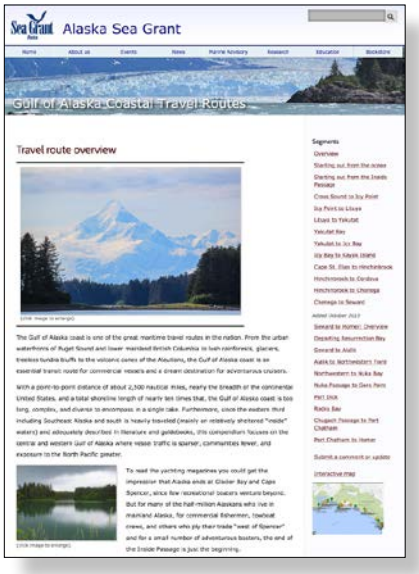
Student investigates sample from Westchester Lagoon during Alaska Seas and Watersheds field trip in Anchorage. Photo: Deborah Mercy

Marilyn Sigman points out locations on map of Chester Creek watershed. Photo: Deborah Mercy

Melissa Good teaches Unalaska students about scuba diving during Alaska Seas and Watersheds field trip. Photo: Josh Good

New Books and Websites





Community-Based Monitoring of Alaska's Coastal and Ocean Environment: Best Practices for Linking Alaska Citizens with Science, a handbook for initiating and working with CBM programs.

We also launched two major websites. *Gulf of Alaska Coastal Travel Routes*, an online boater's travel guide, focuses on the Gulf of Alaska from west of Glacier Bay to Seward. A forthcoming addition will cover Seward to Homer. The guide was written and photographed by Terry Johnson, marine recreation and tourism specialist with the Marine Advisory Program.

Alaska Sea Grant's communications efforts led to a productive year. In March 2015 we published the long-awaited *Guide to Marine Mammals and Turtles of the U.S. Pacific* by Kate Wynne. This field guide, envisioned in the 1990s, completes Wynne's trilogy of guides to marine mammals on US coasts from the Atlantic to Alaska. In addition, we reprinted Wynne's *Guide to Marine Mammals and Turtles of the U.S. Atlantic and Gulf of Mexico*.

This fall we published the stunning *Field Guide to Sea Stars of the Aleutian Islands* by Stephen C. Jewett, Roger N. Clark, Héloïse Chenelot, Shawn Harper, and Max K. Hoberg. The guide features 63 species of sea stars in the nearshore subtidal community of the Aleutian Islands, including 19 new species.

As a result of a workshop on identifying and responding to common issues for community-based monitoring in Alaska, we produced

Encountering Environmental Hazards on Alaska's Coasts helps Alaska residents identify and report on unusual events such as stranded marine mammals, algal blooms, and invasive species. Each topic includes an overview, facts and discussion, and how to report a hazard. The text was written by Emily Hutchinson, Alaska Sea Grant intern and recent graduate of the School of Fisheries and Ocean Sciences.

Other products from fall 2014 to summer 2015 include *Fisheries Bycatch: Global Issues and Creative Solutions* (electronically distributed proceedings of 29th Wakefield symposium), *Coping with an Accident at Sea* (brochure), *Saving Money with Fishing Vessel Energy Audits* (bulletin), *Fishing Vessel Energy Audit Project* (website), *Imarpim Ungungsiit (Marine Mammal) Project* (website), *2015 Briefing Book for Site Review* (submitted to National Sea Grant), *2013–2014 Alaska Sea Grant Annual Report, 2015–2016 Alaska Sea Grant catalog,* and *Fishlines* and *News Flash* (newsletters).

New State Fellowship Program Recruits Partners and Places Two Fellows

Marysia Szymkowiak

Alaska Sea Grant has launched a new state fellowship program providing a yearlong professional experience in marine policy for young Alaskans.

In fall 2014 five marine resource agencies were recruited to offer full-time positions for an Alaska Sea Grant Fellow. In early 2015 eleven students applied, and in March selected fellows and agencies interviewed each other to find the best fit. The result? Two fellows have been successfully placed in the inaugural program.

Marysia Szymkowiak, of Gustavus, just completed her PhD in marine policy and fisheries management at the University of Delaware. She began work at the end of August 2015 with the NOAA Sustainable Fisheries Division in Juneau, where she will participate in a review of the halibut and sablefish IFQ programs.

Matt Robinson recently earned his MA in northern history and global environmental policy at the University of Alaska Fairbanks. His host agency is the North Pacific Fishery Management Council in Anchorage. "What is most interesting to me is they're on the cutting edge of fishery management in the world," said Robinson.

Alaska Sea Grant splits the cost of the fellows' stipend with the hosts.

The Alaska Sea Grant State Fellowship idea grew from the National Sea Grant Knauss Fellowship. "We wanted to use this model to build a program that would encourage talented young people to stay in Alaska and contribute to marine policy here," said Paula Cullenberg, Alaska Sea Grant director.

Matt Robinson

Students Compete for Marine Policy Experience at National Level

Thomas Farrugia

Erin Shew

Two Alaska Sea Grant–nominated students received national Knauss Fellowships in 2014 and 2015. This prestigious fellowship was established in 1979 to provide insight and training to graduate-level university students interested in how the nation's marine resources are managed and how marine policies are made. Knauss Fellows are placed in a congressional staff office or federal agency in Washington, DC.

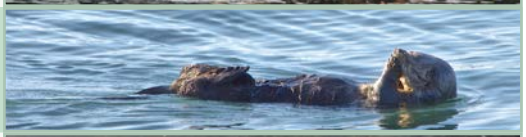
Thomas Farrugia, a PhD student at the UAF School of Fisheries and Ocean Sciences, is currently serving as a 2015 Knauss Fellow with the US House Committee on Natural Resources in the Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs. Erin Shew, a master's student in arctic and northern studies at UAF, was recently selected as a 2016 Knauss Fellow. She will be placed in November for a fellowship that begins in February 2016.

Farrugia and Shew competed with students nominated from the 33 other Sea Grant programs across the United States for 30 to 50 Knauss Fellowship spots.

The fellowship gives students a year to work in the policy world, engaging with experts and stakeholders on important marine issues and learning the ins and outs of making policy decisions affecting ocean, coastal, and Great Lakes resources.

The Knauss fellowship was named in honor of one of the founders of the National Sea Grant College Program, former NOAA Administrator John A. Knauss.

Students Working on Alaska Sea Grant Projects

Sarah Traiger *PhD Marine Biology*	Habitat Degradation Due to Melting Glaciers: Effects of Glacial Discharge on Kelp Bed Community Recruitment and Succession in Kachemak Bay	
JoMarie Alba *BS Marine Biology*	Coastal Resilience Research: Resilience of Estuarine Groundfish Communities to Future Changes in Glacial Effluent	
Melissa Rhodes-Reece *BS Fisheries*	Coastal Resilience Research: Resilience of Estuarine Groundfish Communities to Future Changes in Glacial Effluent	
Zachary Hoyt *PhD Fisheries* *graduating fall 2015*	Impacts of Sea Otter Recolonization on Marine Resources and Coastal Communities in Southern Southeast Alaska	
Sonia Ibarra *PhD Fisheries*	Sustainability of Coastal Communities and Sea Otters: Harvest and Future Management of Sea Otters	
Wendel Raymond *PhD Fisheries*	Sustainability of Coastal Communities and Sea Otters: Harvest and Future Management of Sea Otters	
Ellen Chenoweth *PhD Fisheries*	Recovering Humpback Whales and the Future of Alaska's Hatcheries, Fisheries and Coastal Communities	 NOAA permit #14122
Ilona Kemp *PhD Anthropology*	Collaborative Research: Building Capacity for Community-based Marine Mammal Conservation in Bristol Bay	
Jordan Watson *PhD Fisheries*	Coastal Resilience Research: Capturing Spatial Behaviors of Observed and Unobserved Fishing Over Time Using Vessel Monitoring System Data	
Thomas Farrugia *PhD Fisheries*	Economic Viability of a Directed Skate Fishery in the Gulf of Alaska	
Jesse Coleman *PhD Fisheries*	Graying of the Fleet in Alaska's Fisheries: Defining the Problem and Assessing Alternatives	
Danielle Ringer *MA Interdisciplinary Studies*	Graying of the Fleet in Alaska's Fisheries: Defining the Problem and Assessing Alternatives	
Asia Beder *MS Fisheries* *graduating fall 2015*	Nutrition and Condition of Red King Crab Larvae: Enhancement of King Crabs to Improve Sustainability of Alaskan Coastal Communities	
Emily Whitney *MS Fisheries*	Tracking Energy Flow to Fishes in Glacially Influenced Estuaries of Southeast Alaska	
Dana Wright *MS Marine Biology* *graduated winter 2014*	GAP 2013: Disseminating Results	

Coastal Resilience Research Projects

Alaska is witnessing the rapid effects of climate change up and down our coastline. Alaska Sea Grant is supporting five coastal resilience research projects with supplemental funding from National Sea Grant to increase knowledge and document the changes. The projects include a wide range of topics of interest to Alaskans.

An Expert and Community Supported Decision Tool for Managing Marine Invasive Species
Jungho Baek, Department of Economics, School of Management, UAF
Tobias Schworer, Institute of Social and Economic Research, UAA
$60,450

This research will improve basic understanding by Alaskans of the economic and ecological impacts invasive species can have on Alaska's healthy marine, coastal, and watershed ecosystems. The project helps decision-making by accounting for the values and preferences of affected communities. It provides a mechanism for eliciting and incorporating expert knowledge where data gaps exist and timely action precludes further data being collected.

Developing Long-Term Records of Sea Level Fluctuations and Barrier Beach Evolution to Enhance Understanding of Ongoing and Future Coastal Change
Christopher Maio, Geoscience Department, UAF
$73,425

This research will produce a 700–1000 year sea level record and a digital elevation model to help identify coastal hazard zones, allowing for a better understanding of barrier system response to sea-level rise. It will also clarify past sea-level fluctuations at local and regional scales. This information will benefit coastal communities by providing the necessary perspective to understand future coastal change.

Capturing Spatial Behaviors of Observed and Unobserved Fishing Over Time Using Vessel Monitoring System Data
Franz Mueter, School of Fisheries and Ocean Sciences, UAF
$26,272

Many Alaska communities rely on income from fish deliveries, processing plants, and fishing crews. Current fishery ecosystem management has developed around historic spatial distributions of fishing effort but as ecosystems change, different habitats and species may become exploited and patterns of vessel deliveries and contributions to port communities may change. This work will describe the changes occurring and provide management strategies to support community and economic resilience.

Resilience of Estuarine Groundfish Communities to Future Changes in Glacial Effluent
Carolyn Bergstrom, Natural Sciences Department, UAS
$65,687

Estuaries serve as nursery grounds for many ecologically and commercially important fish and invertebrate species. Science-based management decisions are needed to sustain the long-term resilience of estuarine habitats that coastal Alaska communities depend on. Data generated from this project will explain how climate change challenges fish populations inhabiting one of our most economically and ecologically valuable marine habitats.

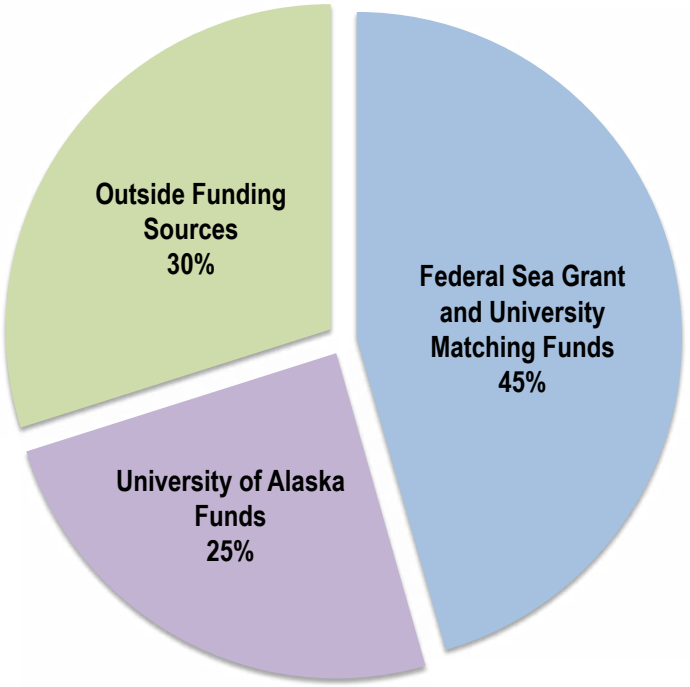
Coastal Resilience in Sitka Sound: Monitoring Pinto Abalone and Kelp Forests in a Changing Climate
Victoria O'Connell, Sitka Sound Science Center
$60,419

Kelp beds and pinto abalone are important species in the coastal ecosystem of Sitka Sound. Monitoring these populations and correlating trends with factors related to climate change will help inform management decisions and help the community respond to a changing environment. Further, this study will be a conduit for training and mentoring a new generation of scientists and managers through internship programs at the Sitka Sound Science Center.

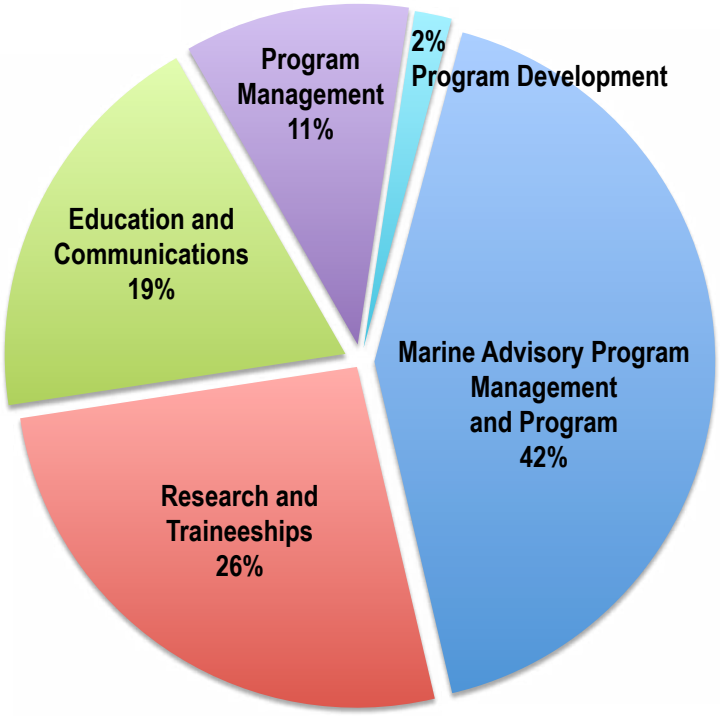
Alaska Sea Grant by the Numbers

September 2014 – August 2015
Total budget — $5,359,823

Funding Sources



Overall Expenditures



Statistics Reported to National Sea Grant for 2014

Outreach Attendees

Meetings/workshops/conferences	1152
Public/professional presentations	4096
K–12 students reached	596
Total attendees/students	**5844**

Publications

Books/conference proceedings	1
Brochures/fact sheets	5
Newsletter issues	25
Peer-reviewed journal articles	19
Websites launched	1
Total publications	**51**

Individual item distribution	16,381

Partners*

Local, state, and tribal	114
Federal	30
International	7
NGO	43
Industry	20
Academic institution	31
Government	57

**some partners fall into more than 1 category*

Alaska Sea Grant in the News

News releases	17
Media placements	200

Alaska Sea Grant Directory

Program Management

Paula Cullenberg, Director
Beverly Bradley, Marine Advisory Program Coordinator
Adie Callahan, Program Coordinator
Jared Dillbeck, Fiscal Coordinator
Terri Schimmack, Administrative Assistant

Research

Ginny Eckert, Associate Director for Research
Michele Frandsen, Research Coordinator

Education and Communications

Carol Kaynor, Communications Coordinator/Website Manager
Sue Keller, Publications Manager/Symposium Coordinator
Deborah Mercy, Communications Coordinator/Media Specialist
Dawn Montano, Publications Specialist
Dave Partee, Communications and Web/Database Developer
Marilyn Sigman, Marine Education Specialist

Marine Advisory Program

Torie Baker, Associate Leader/Marine Advisory Agent, Cordova
Gabe Dunham, Marine Advisory Agent, Dillingham
Quentin Fong, Seafood Marketing Specialist, Kodiak
Gary Freitag, Marine Advisory Agent, Ketchikan
Melissa Good, Marine Advisory Agent, Unalaska
Brian Himelbloom, Seafood Specialist, Kodiak
Terry Johnson, Marine Recreation and Tourism Specialist, Anchorage
Julie Matweyou, Marine Advisory Agent, Kodiak
Sunny Rice, Marine Advisory Agent, Petersburg
Chris Sannito, Seafood Technology Specialist, Kodiak
Gay Sheffield, Marine Advisory Agent, Nome
Bree Witteveen, Marine Mammal Specialist, Kodiak
Kate Wynne, Marine Mammal Specialist, Kodiak

MAP Affilitate and Emeritus Faculty

Jerry Dzugan, Affiliate
Alexandra Oliveira, Affiliate
Susan Sugai, Affiliate
Chuck Crapo, Emeritus
Ray RaLonde, Emeritus

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