

# Alaska Sea Grant Implementation Plan 2009–2013

Alaska Sea Grant’s Implementation Plan is the short-range plan for the administration of the program, as well as a tool for the evaluation of program performance. The plan is derived from the strategic plan (2009-2013), and it addresses goals for the forthcoming funding cycle. The implementation plan relates all projects that will be funded over the coming years to the long-range objectives of the program as outlined in the strategic plan.

## FOCUS AREA: HEALTHY COASTAL ECOSYSTEMS

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

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES			
1. Increase understanding of human-induced and natural impacts—particularly from climate change—on Alaska’s marine and coastal ecosystems through research, education, and extension	1. Each year, support research focused on understanding Alaska marine and coastal ecosystems, establishing baseline data sets, understanding impact to these ecosystems, and predicting responses to probable change	Foster and support research that will enable assessment and prediction of human and climate impacts to key coastal ecosystems	1. Understanding of Alaskan ecosystems, including human-induced and natural impacts, will increase and will be more available to the public			
		Participate in benthic mapping and surveying in the Norton Sound area, looking in particular at king crab habitat, identification of nursery habitats, analyze Pandalus video survey of crab				
		Develop and carry out applied research into harmful algal blooms (HAB’s) and their impacts on native and farmed shellfish, marine mammals, and humans				
		Foster community monitoring and research to investigate the relationships between oceanographic and climate conditions and HABs				
		Continue public education on marine biotoxins in the northeast Pacific with specific references to paralytic shellfish poison toxin and domoic acid		2. Understanding of HABs prevalence and the characteristics of their occurrences will increase		
		Collaborate with Center for Sponsored Coastal Oceans Research on HABs looking at potential FDA approval of ELISA test for domoic acid				
		GAP marine mammal prey studies to understand ecosystem implications important for ecosystem management		3. Understanding of marine mammal predator prey interactions in the Kodiak area will be increased		
		Expand Knowledge of Gulf of Alaska /North Pacific Oceanography interaction on inshore waters Research and Education (i.e., Gulf of Alaska Integrated Ecosystem Research Program)				
		Expand knowledge on key low trophic level species: pteropods, eulachon, herring (research)				
		Research of ice-based food webs in Norton Sound and climate change (NSF proposal is in)				
		Partner with Alaska Ocean Observing System to enhance understanding and use of tools from AOOS		2. Involve members of coastal communities in environmental observation and monitoring efforts, and through engagement with those who hold traditional knowledge. Coordinate community monitoring activities through the Marine Advisory Program network and collaboration with other NOAA, state and university partners. Monitoring in coastal sites may include monitoring for invasive species, phytoplankton, water temperatures, the COASST program, ocean acidification and others	Expand or establish coastal monitoring and observation programs in MAP-based and other interested communities to 6 sites by 2013. Ensure that data are transmitted to a web-accessible central reporting structure	4. Communities become active partners in the exploration, understanding and management of their environment
		Expand existing community-based coastal monitoring networks for Alaska: Mammals/invasive inverts/temperature/COASST/Ocean acidification/plankton productivity/Harmful Algal Blooms				
		Foster research leading to development and deployment of new biological and other environmental sensors				
		Coordinate Alaska Ocean Observing System stakeholder outreach in Prince William Sound, including oceanographic trajectory model validation experiment August 2009				
Sponsor regular community information and update programs to disseminate results of monitoring programs, to discuss implications and to recruit additional participants						
Establish a community-based Bering Strait Environmental Monitoring Team for mining-related impacts on the Snake River/Solomon River/Tubutulik River						
Complete a North Pacific Research Board Project titled: “Response and Intervention System for Climate Change Induced Paralytic Shellfish Poisoning (PSP) in Aleut Communities, PSP Monitoring and Outreach” with completion of the final report and presentation to the 2009 Marine Science Symposium						

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES
2. Support healthy marine and coastal ecosystems in Alaska by providing decision makers with science-based information that can be used to craft well-informed policies governing the use and conservation of Alaska's marine and coastal resources	3. Provide online and face-to-face forums each year for exchange of information among scientists, managers, resource users and community members to ensure that the best possible blend of science-based and traditional information is available to all. Contribute science-based information through ongoing participation of MAP agents in marine science planning and advisory committees, and through publications and presentations each year to enhance understanding and encourage participation in policy making related to potential offshore development, and potential impacts of mining and other development on rivers, estuaries and coastal areas	Participate in and support watershed planning efforts	5. Local concerns are fully represented to researchers and managers in a decision making role
		Participate on fish and game advisory committees, marine science committees, resource management committees, and granting agencies for policy advising (Pacific Salmon Commission, NPRB, Alaska Ocean Observing System)	6. Tangible progress is made towards blending of science-based knowledge with traditional/ local knowledge
		Facilitate interagency fisheries communication and establish research priorities for fisheries in the Bering Strait region	
		Sponsor and/or support community information workshops on issues of current concern such as ocean acidification, climate change, offshore development and others	7. Coastal communities have access to region-specific information and research results and have the opportunity to engage in these efforts of a variety of levels from public input to full engagement
		Offer climate change workshops in 6 Alaskan communities. Involves community lectures, school lectures, oceanographic instrument deployment, round-table discussions, and establishment of email list of engaged community members	

**PERFORMANCE MEASURES**

- Number of research grants funded and number successfully achieving milestones
- Numbers and types of information sharing forums developed, and numbers of individuals using those forums
- Number of publications produced and distributed about marine and coastal research
- Number of presentations to panels, agencies and communities by ASG personnel and partners
- Number of communities and/or entities involved in testing or adoption of HAB monitoring and testing
- Adoption or recognition of research products by resource managers
- Number of communities with programs to actively involve members in research, monitoring, and/or gathering of traditional knowledge
- Number of program participants active in these programs or presenting to boards, etc.
- Number of schools and school children involved in observation and/or monitoring activities
- Number of ASG personnel and partners active in these community programs
- Amount of data actively used by researchers or managers that is collected by public
- Number of forums or events held for blending science-based knowledge with traditional knowledge
- Numbers of community members engaged in the forums or events
- Numbers and types of advisory groups that ASG MAP agents participate in or arrange for local residents to participate in
- Evidence of adoption of local input into management, regulatory or research decisions

## FOCUS AREA: 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.**

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES
1. Foster diverse and sustainable local economic activity in coastal communities through technical assistance and training	1. Provide professional development training and technical assistance in coastal communities to assist residents to develop coastal businesses or gain employment in established industries or agencies	Teach training sessions in coastal communities on leadership, professional development and business development subjects	1. New, growing and stable businesses help to provide a sound economic base for coastal communities
		Work with businesses in coastal communities to expand their businesses by attracting new professionals into the community and/or by training local residents to become working professionals	2. An increased number of coastal residents find jobs in their home communities
		Support community-based tourism development through work with local nature/education groups and businesses	
2. Build the capacity of residents in Alaska's coastal communities to identify and take advantage of economic opportunities by providing leadership, vocational, and professional development opportunities	2. Support research and modeling efforts around understanding of ecosystems and fisheries populations		3. Resource managers will have enhanced information and tools for use in decision making
	3. Support research and mapping efforts focused on coastal and habitat distribution and dynamics		
	4. Provide access to academic programs and other support to enable residents of coastal communities to fill jobs locally and/or pursue careers in fisheries, marine science, or natural resource management	Provide and/or support university-level courses in communities where there are sufficient students	4. Youth in coastal communities are aware of and empowered to pursue opportunities in higher education
		Support National Ocean Sciences bowl participation by teams from coastal high schools by providing information, support and coaching	
		Establish an avenue for advanced coursework in local high schools that gives all students the opportunity to be better prepared for college	
		Recruit and support students from coastal communities interested in relevant B.S. and B.A. degree programs in Fisheries and marine-related disciplines sciences at Alaskan universities	5. Youth in coastal communities are successful in pursuit of college degrees in fisheries, marine science, or natural resource management
		Recruit highly qualified applicants for the Sea Grant Knauss Marine Policy Fellowship, and NOAA fellowships in Marine Fisheries Population Dynamics and Marine Resource Economics	
		Develop and implement a Sea Grant Alaska Marine Policy Fellowship to place marine science graduates in internships with Alaska state government or legislative offices	6. Trained Alaskans return to coastal communities to pursue careers in fisheries, marine science, or natural resource management
		Recruit qualified high school students for the undergraduate Fisheries program at the UAF School of Fisheries and Ocean Sciences	
5. Help coastal communities develop coastal enterprises by providing business, marketing and financial management training		Provide financial planning training at appropriate community events, such as the annual meeting of the Alaska Shellfish Growers Association	7. Residents of coastal Alaska diversify their economic base by developing new business ventures
		Provide accessible workshops on financial management subjects including income tax, investment evaluation, business planning, and financial management	
		Provide technical material on financial management subjects	8. Coastal enterprises operate their businesses more cost-effectively, leading to longevity and greater profits
		Conduct workshops tailored to the needs of minority or other communities	
		Provide consultations with individuals or businesses to assist in implementation of business strategies for long-term profitability	9. The number of coastal enterprises utilizing good business practices increases
		Conduct formal workshops and provide educational material on marketing, market awareness and "how-to" for seafood marketing and other coastal businesses	10. Increased local involvement in business activities beyond the point of harvesting, such as direct marketing, additional processing or the development of new marketing boards or consortia

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES	
2. Build the capacity of residents in Alaska’s coastal communities to identify and take advantage of economic opportunities by providing leadership, vocational, and professional development opportunities	6. Promote development, growth and longevity of the shellfish farming industry through research, technical assistance, training and educational materials to residents annually	Assist with design and planning of Oceans Alaska—a shellfish research and training facility in Ketchikan	11. Alaskan shellfish farmers have access to research results and training opportunities to expand and support their industry	
		Assist the Kachemak Bay Shellfish Mariculture Cooperative with design of a public information component for their shellfish processing and educational facility in Homer		
		Foster research into the potential for farming geoduck clams and littleneck clams in southeast Alaska		
		Support development of a littleneck clam farm economics model		
		Support an Alaska oyster broodstock growout project to develop high performance oyster broodlines, in partnership with the USDA		
		Assist with development of an undergraduate aquaculture course for the SFOS Fisheries program		
		Lead a cooperative research project to measure the halfshell quality of the top 6 family lines of the Alaska Molluscan Broodstock Program		12. Alaskan shellfish farming grows by expanding into new species, employing more coastal residents and opening new farms
		Conduct a purple hinge rock scallop ( <i>Crassodoma gigantea</i> ) growout project in cooperation with S.E. Alaska shellfish farmers to determine the economic feasibility of scallop culture		
		Develop an aquaculture development zone for Sea Otter Sound, Prince of Wales Island, Alaska, Provide technical assistance to the Annette Island Indian Reserve, the Native Village of Kasaan and the community of Naukati on Prince of Wales Island to obtain permits, design, and fund a processing facility for Pacific oysters		
		7. Provide research, technical assistance, training, academic courses, and educational materials to support, diversify and expand Alaskan community-based fisheries		
Develop in cooperation with the Alaska Department of Fish and Game, Best Management Practice guidelines for oyster and littleneck clams farming				
Provide fishing skills training for communities seeking to develop their economic base through fishing	14. Young fishermen are encouraged to enter and succeed in the industry through solid business training and support			
Become a source of information and technical assistance to communities seeking to develop community quota programs	15. CQE program grows in the Gulf of Alaska communities			
Offer Alaska Young Fishermen Summits and support the transition of the Summit to a new, industry-supported partnership	16. Fishermen increasingly succeed as business owners and industry advocates as a result of ASG training and support			
Support science-based responses to urgent fishing industry issues through research, education and extension. For example, programs to alleviate the impact of high fuel costs	17. Fishermen are well informed about offshore energy development and the implications for their industry			
Monitor offshore energy development in Alaska and its implications for Alaska fisheries	18. Direct market operations increase in number and size			
Support direct marketing activities for the fishing sector through workshops and information				
8. Create and support opportunities for marine science graduates to work as interns in government and resource mangement		As appropriate and as requested, work and network with RSDA to provide existing professional development material for fishermen, processors, direct marketers and marketers to RSDA boards and fishermen members	19. Interested people are trained for leadership positions in coastal enterprises	

**PERFORMANCE MEASURES**

Number of leadership and professional development training sessions  
Number of coastal residents attending leadership and professional development training sessions  
Number of new businesses developed in coastal communities with ASG training and technical assistance  
Number of coastal residents hired in new and existing businesses as a result of ASG training and technical assistance  
Number of upper division secondary and tertiary courses made accessible to students in coastal communities  
Number of coastal residents attending advanced courses relevant to careers in fisheries, marine science, or natural resource management  
Number of National Ocean Sciences bowl teams supported  
Number of coastal residents pursuing degrees in fisheries, marine science or natural resource management  
Number of coastal residents who graduate and gain employment in marine-related professional careers after participating in ASG supported courses or activities  
Number of business publications developed, distributed and used  
Number of business development training sessions developed and presented  
Number of coastal residents participating in business development training sessions  
Number of new business start-ups, reorganizations and expansions by people who have participated in ASG sponsored business training  
Number of new shellfish farms or related business ventures  
Number of new jobs in shellfish farming  
Growth in profitability and/or production of new and existing shellfish farming ventures  
Number of training sessions and courses offered on fisheries management and leadership  
Number of people attending training and courses on fisheries management and leadership  
Number of ASG fisheries management publications and products distributed  
Number of direct market operations and other enterprises opening or expanding  
Number of locations served by ASG sponsored professional and leadership development activities

**FOCUS AREA: SAFE AND SUSTAINABLE SEAFOOD SUPPLY**

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

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES
1. Develop innovative seafood processing methods and expand the variety of Alaska seafood products through research support	1. Assist in research targeting expanding geoduck production in the state	Provide information and assistance to shellfish farmers interested in establishing geoduck farms	1. Increased geoduck production in Alaska
	2. Assist processors in value-added product development and research into innovative seafood products	Test new products including freeze dried salmon, smoked and caviar products and gift packs for small processors	2. Increased number of geoduck farmers in Alaska
	3. Investigate and provide information about developing fisheries	Analysis of economic potential, regulatory implications or market opportunities of a developing shrimp fishery in Southeast Alaska	3. New products are developed and reach the marketplace providing increased value to harvesters or processors 4. Shrimp fishermen prepared to harvest returning stocks of shrimp
2. Maintain seafood quality and safety through research, training, and outreach	4. Provide training and research for processors and fishermen to improve seafood quality	HACCP, Just in Time, Better Process Control School training for seafood processors provided in Anchorage and other sites	5. Small processors are able to operate in compliance with HACCP
		Research into bruising reduction in seafood	6. Processing workers have an understanding of quality techniques and implications of their work
		Serve on the Technical Committee of the Alaska Seafood Marketing Institute	
	5. Work with the Alaska Seafood Marketing Institute to improve seafood quality	Publish book on Omega-3 content in Alaska salmon	7. Higher percentage of fishermen are chilling their fish effectively at harvest
		Publish SeaGram on crab handling	8. Shellfish farmers are able to effectively prevent closures due to <i>Vibrio</i> outbreaks
	6. Produce and distribute publications on maintaining quality for specific seafood species	Refrigeration for fishermen series of classes in coastal Alaska	
		Provide technical information, environmental monitoring protocols and outreach to shellfish farmers to prevent <i>Vibrio parahaemolyticus</i> ; Assist DEC in finalizing regs and water temperature monitoring requirements for shellfish farms to prevent <i>Vibrio parahaemolyticus</i>	
7. Work with shellfish farmers to implement quality standards and prevent disease outbreaks	Finalize 2nd edition of oyster quality manual Coordinate research into improving the quality of frozen geoducks with the intent of seeking higher market value		
3. Increase value of Alaska seafood to industry, communities, and consumers through information transfer and training that improves production efficiencies and marketing	8. Develop training and publications to improve value of Alaska seafood	Offer professional development training to Alaska-based up and coming seafood processing leaders—Alaska Seafood Processing Leadership Institute	10. Small businesses develop business plans and use good financial tools to manage their businesses
		One-on-one consultations with small businesses re: business plans and marketing strategies	
	9. Conduct research to improve the value of Pacific oysters	Facilitate an economic analysis of a commercial Pacific cod fishery in Norton Sound Marketing workshops statewide and on internet	11. Cod fishing begins in Norton Sound if economically viable
10. Contribute to the development of leadership in the seafood industry	10. Contribute to the development of leadership in the seafood industry	Analyze quality features of high value Pacific oysters; support studies on freezing oysters on the half shell	12. Seafood industry gains trained, new leaders through the Alaska Seafood Processing Leadership Institute
		Produce and distribute “Salmon Placard for Chefs” Develop online seafood marketing classes	13. Alaska seafood marketing efforts result in increased value and higher returns to communities
4. Increase utilization and economic value of seafood waste byproducts through research and outreach on new technologies, products, and processing efficiencies	11. Promote research on seafood processing byproducts	Assist in research to understand, and share cutting edge information on how to utilize seafood processing byproducts	14. A larger percentage of seafood processing byproducts are used and value is extracted from seafood processing byproducts
	12. Produce and distribute information on seafood processing byproducts	Produce and distribute book proceedings for 2009 Seafood Byproducts Symposium	

**PERFORMANCE MEASURES**

- Number of permitted intertidal geoduck farms
- Number of interactions with small processors
- Number of new value-added products entering the market
- Number of shrimp fishermen active in the harvest
- Number of HACCP classes in number of communities with number of participants
- Number of seafood quality workshops offered and taken in number of communities
- Number of publications on seafood quality distributed
- Refrigeration classes offered in coastal communities with new funding support
- Effectiveness of shellfish farmers in monitoring their farms for *Vibrio*
- Number of oyster farmers following best practices for quality standards
- Number of small business consultations and resulting use of information
- Analysis of cod fishery by individuals and NSEDC
- Number of leadership trainings offered and used to sustain workers
- Number of users of online training classes
- Documentation of seafood value and returns
- Number of byproduct books distributed
- Value of seafood processing byproducts utilized
- Number of new marketable products
- Number of communities or seafood processors who are using more of their seafood byproducts

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

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES
1. Improve understanding of fisheries research by engaging individual fishermen and other stakeholders in relevant research planning, design, and implementation	13. Produce publications to inform stakeholders about current fisheries research and management	Assist stakeholders through facilitation of meeting with researchers and managers around potential issues of conflict	16. Fishermen and other stakeholders are more knowledgeable about fisheries research and management
	14. Support community based lectures and presentations to increase understanding of ongoing fisheries research and management and to identify local issues	Host lecture series focusing on Bering Sea and Gulf of Alaska research and management and implications for fisheries and communities  Recruit local fisheries managers to give annual management updates to the community through established lecture series	17. Fishermen and other stakeholders are more willing to become engaged in research planning, design and implementation
	15. Engage in and support collaborative research	Carry out collaborative whale entanglement research  Coordinate the collaborative Alaska King Crab Research, Rehabilitation and Enhancement Program	18. Fishermen and managers will work together to reduce whale entanglements  19. Fishermen, communities and scientists understand king crab enhancement and life histories
2. Enhance understanding of sustainability of fish populations and fisheries in face of climate change and other potentially negative impacts through research and outreach activities	16. Support research into climate change impacts to fisheries and habitat	Conduct an assessment of the foraging ecology of whales in the Kodiak area in order to understand and help resolve potential conflicts with coastal fisheries	20. Managers are better able to make regulations or recommendations to minimize impacts of marine mammals on fishermen and vice versa
	17. Coordinate information related to climate impacts or development impacts on fisheries	Survey and develop whale avoidance and deterrent techniques	
	18. Support research to better understand ocean role in marine survival of salmon stocks and to improve forecasting	Produce and distribute online book chapters of "What Does Genetics Have to Do with It?" a guidebook for salmon managers	21. Managers are better able to forecast salmon runs
	19. Support research into enhancement of crab stocks in order to rebuild	Promote research into fisheries interactions with other species, including whales and other marine mammals  Support population research and modeling with the potential to help improve fisheries management	22. Fishermen and their communities have a better understanding of potential changes in habitat due to climate change and other impacts
	20. Conduct research on the interaction of marine mammals and other species with fisheries and fishermen	Serve as a neutral distributor of information on mining or offshore oil potential impacts on fisheries via websites, consultations, workshop, forum	23. Fishermen and their communities have a better understanding of and exchange information via community workshops about mining and offshore oil development on fisheries
3. Support equitable and sustainable fisheries through research on how access-related management decisions may affect fisheries and communities	21. Transfer information about access related management decisions to community groups and others. Transfer information about impacts on communities back to managers	Sponsor research on community impacts of management decisions.  Sponsor research and produce reference materials on the CQE program	24. CQE program is successful in providing more sustainable allocations for Gulf of Alaska coastal communities
	22. Support research into bycatch impacts, allocations and reduction	Sponsor a Lowell Wakefield Symposium in 2011 looking at access related management	25. Enhanced understanding of options that may ensure coastal community access to fisheries

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES
4. Strengthen the voice of local residents and industry stakeholders in the fisheries regulatory process through outreach activities	23. Strengthen the voice of local residents and industry stakeholders in the fisheries regulatory process through outreach activities	Encourage ASG staff and scientist participation on fisheries and resource management committees and granting agencies such as Pacific Salmon Commission Technical Committee, North Pacific Research Board, etc.	26. More fishermen and other stakeholders are able to participate meaningfully in state and federal regulatory processes
		Participate in fisheries advisory committees or attend fishermen's meetings to provide linkages with university resources	
		Offer the Alaska Young Fishermen's Summit	
		Offer a "Preparing for the Board of Fisheries" workshop at appropriate locations around the state annually	27. The Council is more effective in its ability to include a wider rural and Alaska Native population in its decisions
		Encourage participation in the North Pacific Fishery Management Council Stakeholder Outreach Committee	
		Develop an outreach program that educates coastal Alaskans about the Council Process	28. The Council process is better understood by coastal Alaskans and more coastal Alaskans participate in the process
Encourage participation in local Fish and Game Advisory Committee meetings			

**PERFORMANCE MEASURES**

- Number of publications produced and distributed on fisheries research and management
- Number of lectures given and number of people attending
- Entanglements that are dealt with by fishermen by following best practices
- Number of papers given related to AKCRRAB
- Funding continues for research
- Success in rearing king crab larvae and test release in wild
- Fishermen who are able to continue working without adverse impact to marine mammals in the area
- Measurable improvement in accuracy of salmon forecasts
- Evidence of enhanced understanding of climate change impacts on fisheries from ASG sponsored research through science publications, education and outreach products, and continued funds for research
- Numbers of presentations and information tools developed related to fisheries and climate change and/or mining or offshore oil impacts
- Number of fishermen accessing and using this information
- Number of CQE publications distributed
- Growth and success of CQE programs in Gulf of Alaska
- Alaskan, national and international attendance at Lowell Wakefield Symposium
- Number of fishermen attending AYFS from number of communities
- Number of AYFS offered
- Number of BOF workshops offered
- Number of attendees who use the information to participate in the process
- Number of workshops offered about the Council Process and number of attendees who use the information to participate in the process

## FOCUS AREA: HAZARD RESILIENCE IN COASTAL COMMUNITIES

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

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES
1. Improve public safety and community resiliency by providing information on coastal adaptation techniques that enhance communities' capabilities to plan for, mitigate, and respond to extreme events and adverse effects of climate change, including storm surges, tsunamis, sea ice changes, erosion, and others	1. Develop and deliver a climate adaptation outreach program for Alaska that will be adapted region by region	Develop a climate adaptation outreach workshop for rural coastal communities in template form which can be customized for different areas in Alaska; conduct a train the trainer session for several days bringing together the resources and people needed to enhance the knowledge base of MAP and CES agents; deliver the climate adaptation workshop in MAP office sites; build partnerships in this effort	1. People in coastal communities are aware of the risks and hazards in their areas and have tools and training to respond
		Produce a series of publications with a common format on the theme "adapting to climate change in Alaska's coastal communities". Examples of titles include: "reducing your fuel costs"; "understanding coastal erosion"; "how and when to build a seawall"; "protecting your home"; and "deciding if your community should relocate or rebuild"	
	2. Work with tribes, local governments and other groups to develop a template that can be adapted to their community outlining response to natural disasters	Publish an event response manual with procedures and contacts to use in the event of marine mammal strandings, unusual death of marine mammals or seabirds, oil spills and other natural or man made adverse events	2. Local public safety officials are aware of the risks and hazards and know how to respond
		Partner with AOS to investigate the potential for integrating community-based monitoring data with information from the Alaska Ocean Observing System, NOAA's climate service and others to enhance prediction and response capability	
	3. Partner with AOS to enhance the use of the ocean observation program tools in Alaska by coastal residents	Work with local public safety officials on a natural disaster checklist of what to do and who to call with disasters happen	3. Coastal communities adopt tools and techniques taught by ASG and partners to help adapt to climate change and other coastal hazards
		Develop a contact list of subject area experts for certain types emergencies and distribute to Public Safety and Ports offices	
2. Enhance the capability of coastal communities to plan for, prevent, and respond to hazardous substance spills, marine debris, and other marine pollution through education and outreach activities	4. Facilitate the ongoing Shipping Safety Partnership and participate in prevention activities and planning	Participate as member of the Advisory Panel for the Aleutians Shipping Risk Assessment	4. Community members along the Aleutian and Arctic shipping routes understand shipping risks and develop additional response capabilities
		Develop publications, presentations; one-on-one consultations; media outreach with private sector, government, NGOs; participation with governmental/industry/NGO's to improve oil spill prevention and response preparedness	
	5. Continue to monitor oil spill prevention and response preparedness in Alaska waters, specifically along Aleutian and emerging Arctic shipping routes, and continue facilitating risk identification and risk reduction	Host government and contract officials to develop oil spill remediation plans (proactive) around seafood processors	5. Coastal communities are better prepared to respond to oil spills
		Work with city officials to develop a response network for vessel emergencies and natural disaster	
3. Reduce drowning and injuries of boaters through training and educational materials on responding to weather and other hazards	6. Provide training courses in marine safety and survival skills	Work with NIOSH to test different types of PFD for working commercial fishermen	7. Marine accident rates decrease due to increased awareness of people operating in marine environments
		Conduct Surviving Cold Water workshops in coastal communities	
		Teach a 1-credit Hookah class for Savoonga commercial divers; Write a safety/procedures manual for commercial (hookah) divers in Alaska	
	Partner with AMSEA to survey recreational and subsistence boaters concerning safety practices. Develop a new boating safety education program	8. Boaters operating in marine environments have an increased awareness of how to prevent accidents	
7. Produce and distribute publications on marine safety and survival skills	Teach survival swimming classes in coastal community schools		
		Provide Ice Safety training to youth in communities where travel or recreation on ice is common	
		Teach AMSEA 18-hour drills courses for commercial fishermen	
		Organize "Boating without the Boys" boating safety classes for women	

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES
3. Reduce drowning and injuries of boaters through training and educational materials on responding to weather and other hazards	8. Partner with fishing associations to develop and distribute public education material for avoiding recreational boating and commercial fishing gear interaction	Provide safety and fishing skills training for the village of Chenega in February and April in anticipation of corporation IFQ/CQE purchase	9. People operating in marine environments acquire survival skills for dealing with accidents
		Conduct community safety events such as the Unalaska Winter Survival Suit/Raft competition	
		Write a wheel watch safety guide for crewmembers	10. Survival rates for marine accidents increase due to increased skill levels
		Reprint and distribute book Beating the Odds	
		Convert "It could have been prevented" to DVD	11. New educational program focusing on reducing small boat recreational and subsistence accidents is developed and delivered

**PERFORMANCE MEASURES**

- Number of adaptation workshops offered in number of communities
- Number of educational materials produce and distributed or accessed
- Number of individual community response manuals developed
- Number of communities or people who used the manual to develop a response to a natural event or disaster
- Completion and implementation of the Aleutians Shipping Risk Assessment
- Number of seafood processing plant oil spill response plans developed
- Number of dive team response events
- Number of training classes and number of people attending
- Number of publications produced
- Number of marine accidents—commercial fishermen and recreational and subsistence boaters
- Survival rate for marine accidents

## FOCUS AREA: MARINE LITERACY AND STEWARDSHIP

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

STRATEGIC PLAN OBJECTIVES	IMPLEMENTATION OBJECTIVES	ACTIONS (incl. MAP, pubs)	OUTCOMES		
1. Foster wise stewardship, understanding, and enjoyment of Alaska’s marine and coastal resources by sharing science-based and traditional knowledge of our marine and coastal resources with Alaskan residents and visitors	1. Annually produce and distribute books, newsletters, brochures, TV, radio, newspaper, Internet and other educational materials and programs to foster wise stewardship, understanding, and enjoyment of Alaska’s marine and coastal resources	Publish the following books: Our Changing Seas, a temporal examination of coastal ecosystem dynamics on the Cook Inlet shoreline along the Kenai Peninsula combining the historical knowledge of Alaska Natives and contemporary analyses of marine ecologists, a Field Guide to the Squids & Octopods of the Eastern North Pacific and Bering Sea, a photo book on Aleutians undersea marine life and habitats, a Field Guide to the Sea stars of the Aleutians, Guide to marine fish and invertebrates of Alaska, Guide to seaweeds of Alaska, and Guide to marine mammals and turtles of the Pacific including Hawaii	1. Visitors and residents gain knowledge of and appreciation for Alaska’s coastal and marine environments		
		Edit edition of Alaska Seas and Coasts, on new demands facing small harbors due to increased northern Seas marine shipping			
		Produce a monthly radio/TV public service program, “Coastwise Alaska,” covering marine/coastal subjects and give other presentations on marine and coastal topics for TV and radio			
		Produce and distribute the following publications: <i>Wheel Watch</i> one-pagers on ASG research and other projects, brochure on fisheries modeling by T. Quinn, <i>Alaska Coastal Calendar</i> which features educational information about Alaska’s seas and coasts and promotes ASG’s role in Alaska and ASG educational products, and modify existing marine mammal identification materials for French and Spanish users			
		Attend community events and festivals geared to informing local residents about Alaska’s marine and coastal resources. Events include, but may not be limited to, Alaska Oceans Festival, Kodiak Comfish, Sitka Whalefest, Tongass Rainforest Festival, and Unalaska career, health and wellness fairs			
		Collaborate with the Prince William Sound Regional Citizens Advisory Council to produce a broadcast quality video that documents the 20th anniversary of the Exxon Valdez oil spill panel discussion by the ASG Legal Research Team held in March 2009, and provide to libraries and on the Web			
		Write monthly newspaper column for Alaska community papers and other articles on marine and coastal topics, including marine research in the Bering Sea			
		Maintain a Website documenting past MAP efforts in education, outreach, service, and research			
		Selectively increase use of information sharing tools on the Internet, including, but not limited to, blogs, podcasts, YouTube, and Facebook			
		2. Annually host research conferences, give public lectures, attend trade shows and local educational events, host educational film festivals, and assist with development of public science centers to disseminate information to help people foster wise stewardship, understanding, and enjoyment of Alaska’s marine and coastal resources		Host a research conference in Unalaska addressing research in the Bering Sea communities, including 30 speakers from 8 communities, round-table discussions, and publication of proceedings	2. Scientists and resource managers gain access to state-of-the-art knowledge in fisheries science and management and expand and strengthen their professional networks and collaborations
					Conduct annual Lowell Wakefield fisheries symposia and publish and distribute Wakefield meeting proceedings and crab Wakefield Symposium
					Attend Comfish Alaska trade show each year with an exhibit booth, and cosponsor the Comfish Fisheries Policy Forum, with Alaska Sea Grant speakers
					Host Ocean Film Festival from the Alaska Center for the Environment and the Alaska Oceans Film Festival in MAP communities
					Complete Year 5 of a partnership on marine literacy, a weekly community science lecture series with Prince William Sound Science Center including videoconferencing with other regional communities, host marine and coastal science lecture series in Unalaska, and conduct IPY/other speaker series
Give presentations for Elderhostel groups on local ecosystem dynamics, climate change, crabs, and other marine and coastal topics					
Help create Beringia Museum displays in Nome					
Work closely with the Sitka Sound Science Center to establish a research and educational program by involving them in initial research and instructional opportunities					
Assist development of Oceans Alaska marine science center and mariculture research and education facility in Ketchikan	Participate on NOAA’s ARCTic Communications and Outreach Team to implement outreach and education activities germane to Alaska Sea Grant’s and NOAA’s missions in Alaska	4. The number of coastal monitoring stations and professionally trained citizen monitors increases, providing resource managers with greater depth and breadth of legitimate data about coastal processes			

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2. Enhance stewardship, science literacy, and decision-making capabilities among Alaska's youth through formal and nonformal educational activities	3. Develop curriculum for and teach K-12 students in various settings and support other youth educational activities designed to enhance students' ability to be effective stewards of marine and coastal resources, to improve their knowledge of science, to enhance their decision-making capabilities, to allow them to participate in science monitoring procedures, and to allow them to pursue higher education and careers in marine science fields	Write, test, put on Web, and publicize Alaska Seas and Rivers Curriculum for grades K-8	5. Alaska K-12 students learn about Alaska's coastal and marine ecosystems and marine science concepts and monitoring procedures from ASG faculty and staff
		Teach youth at marine science summer camps for kids, including Juneau and Nome, Unalaska and others as requested	
		Establish a program working with local schools and Web delivery for active participation of students in invasive species research (NASA Grant Submittal)	
		Support Marine Science Module of UAF's Alaska Summer Research Academy by paying for a student scholarship and travel to Kasitsna Bay summer field camp	6. Youth in coastal areas decide to pursue higher education in marine science fields
		Reorganize and enhance the marine education section on the ASG Website	
		Promote and distribute ASG educational materials at the biennial Alaska Math and Science Conference and to parents and guardians who home-school children, by attending the annual I.D.E.A. homeschool resource fair in Fairbanks	7. Enrollment increases in marine science and management programs in Alaska universities and colleges
		Strengthen the Cooperative Extension Service's "Salmon in the Classroom" educational outreach program to rural villages by providing free ASG educational materials, including Salmon Migration Board Game and Discovering Alaska Salmon	
		Produce video about Quinhagak students working on an oceanography project with UAF scientist	
Teach university credit classes in marine biology and teach university credit classes for kids about to go to college	8. Academic institutions, industries, and government agencies involved in management, conservation, and utilization of Alaska's coastal and marine resources hire Alaska college graduates with degrees in marine science and management		

**PERFORMANCE MEASURES**

- Annual number of educational products distributed
- Feedback from user surveys sent out with publications and from orders that indicate how publications are used
- Annual number of hits on ASG web sites
- Annual number of visitors to ASG exhibits at public events
- Annual number of scientists and resource managers who attend Wakefield symposia and other ASG-sponsored scientific meetings
- Feedback from scientists and managers regarding connections/collaborations resultant of their attendance at our meetings
- Annual number of participants at conferences, symposia, lectures and other events
- Annual number of visitors to science centers, once established
- Annual number of participants in outreach and education activities
- Annual increase in the number of viable coastal monitoring stations
- Annual increase in the number of ASG-trained citizen monitors
- Annual sum of credible data provided to resource managers
- Number of students lectured to/taught by ASG staff and MAP faculty
- Number of students who become involved in marine science monitoring projects
- Number of students who enroll in college in marine science fields
- Increase in the number of students from areas where ASG is active who enroll in marine science and management programs in Alaska universities and colleges
- Number of Alaska college graduates in marine science and management who are hired each year by Alaska institutions, industries, and government agencies involved in management, conservation, and utilization of Alaska's coastal and marine resources
- Feedback from alumni who report being hired and originally encouraged by Sea Grant efforts