



## Briefing for the Alaska Marine Ecosystem Forum

July 26, 2007

### Aleutian Islands Marine Ecosystem Area

#### *Ongoing and Upcoming Actions*

##### Aleutian Islands Fishery Ecosystem Plan

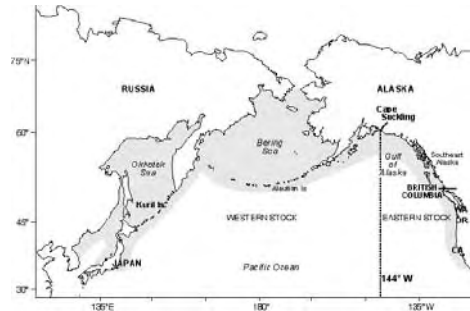
The Council has approved a Fishery Ecosystem Plan (FEP) for the western Aleutian Islands ecosystem area (west of 170° W. longitude). The FEP is an educational tool and resource for the Council, which looks holistically at the AI ecosystem, at the relationships between the different fisheries, physical and biological characteristics of the ecosystem, human communities, and other socio-economic activities ongoing in the area.

The FEP:

- describes and synthesizes the Aleutian Islands ecosystem processes and interactions,
- delineates the regulatory and bio-physical boundaries of the Aleutian Islands,
- conducts a qualitative risk assessment of AI interactions,
- uses management objectives of Aleutian Islands fisheries to identify Council priorities for the FEP,
- identifies ecological indicators appropriate to monitor key ecosystem interactions,
- identifies knowledge gaps and research needs,
- provides a framework by which ecosystem considerations identified herein could be implemented within the current Council structure and management practice.

##### Steller sea lion populations

The overall population of the western distinct population segment of Steller sea lions (listed as endangered under ESA in 1997) has stabilized, and shows signs of increase. However, there are specific subareas in which Steller sea lion populations appear to remain in decline. Recent (2000-2004) trends in non-pup counts show declining populations in the western Aleutians, and recent (2001-2005) pup count trends show declines in both the central and western Aleutians.



The Council and NMFS have requested a re-consultation on groundfish fishery interactions with Steller sea lions, under Section 7 of the ESA. The consultation will culminate in a new Biological Opinion, and depending on its findings, the Council will request adjustments to the economically restrictive Steller sea lion protection measures. NMFS anticipates publishing a draft Biological Opinion in April 2008.

##### Changes to fishery patterns in the Aleutian Islands

Recent changes to fishery patterns in the Aleutian Islands include the authorization or prosecution of the following new fisheries:

- State water fishery for Pacific cod
- State water fishery for pollock between 174-178° long., authorized for 2007-8



- Federal Exempted Fishing Permit for 2006-7, to fish for pollock within the area closed by the Steller sea lion protection measures

The state water fisheries have the potential to increase vessel traffic in the central Aleutians, to affect commerce through fish processing, and to increase activity in Adak.

The experimental fishery for pollock has produced two years of comprehensive winter hydroacoustic, oceanographic, and catch sampling data for the central Aleutians. Preliminary results indicate that a food web shift may have occurred in the area since the commercial pollock fishery was last prosecuted there, in the 1990s. The experimental fishery found fewer pollock, and an increase in rockfish, including Pacific ocean perch. A report will be available later in 2007.

The Council has also made minor adjustments to the Aleutian Islands Habitat Conservation Area, an area closed to non-pelagic trawl fishing gear intended to reduce the effects of fishing on corals, sponges, and hard bottom habitats.

### ***Other Council Actions of Note Outside of the Aleutian Islands***

#### Arctic Fishery Management Plan

The Council is developing a Fishery Management Plan for commercial fishing in the Beaufort and Chukchi Seas. For the time being, the intent is to prohibit commercial fishing in these areas, until such time as sufficient information is available to assess the environmental impacts of such fishing. Under the proposed timeline, the plan will be ready for the Council's final decision in June 2008. The Council is inviting all interested stakeholders and other agencies to provide input into the development of the plan. Options to be analyzed are: 1) status quo, 2) prohibit commercial fishing in the Arctic, and 3) prohibit commercial fishing in the Arctic but allow fishing for red king crab to continue in the southern Chukchi Sea.



**ALASKAN MILITARY  
SUMMARY  
For  
ALASKA MARINE  
ECOSYSTEM FORUM**

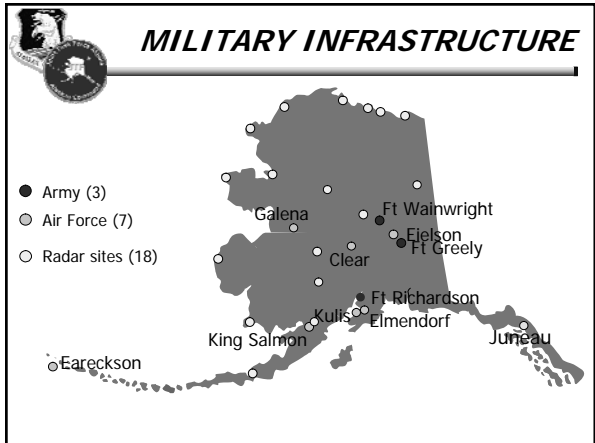
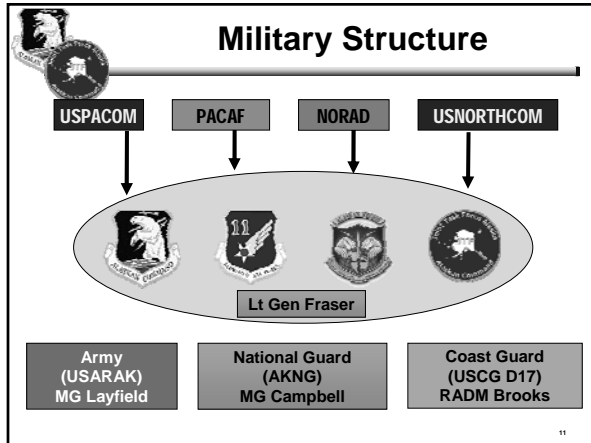
**26 JULY 2007**

*Dr. Jerome Montague  
Native Affairs and Natural Resources Advisor  
Alaskan Command & Joint Task Force Alaska*





**AGENDA**

- Military Structure & Changes
- Military Activities: Marine Environments
  - Air Force
  - Missile Defense
  - Army
  - Navy



**KEY CHANGES**

- C-17 Bed down 8 
- F-22 Bed down 36 
- Deployments (Army)

8,150 Alaska military deployed supporting: War on Terror, Counter Drug Ops and Exercises

- Alaska Land Mobile Radio

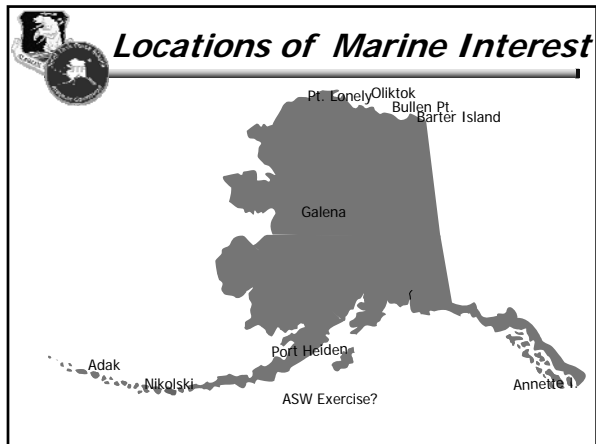
**Alaska Land Mobile Radio**



Interoperable, shared, secure radio communications system between federal, state and local agencies in Alaska.

- Joint Project Team
- Shared spectrum
- Shared costs
- Shared governance

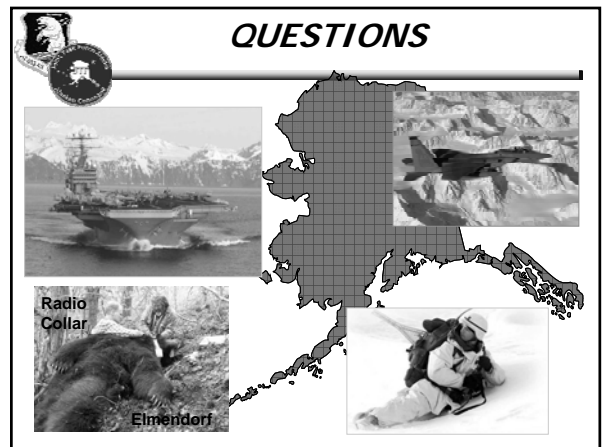
“First Statewide, multi-agency, multi-jurisdictional public safety VHF Trunking system in the United States”



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- AIR FORCE ACTIVITIES**
- Environmental Clean Up
    - Barter Island
    - Bullen Point
    - Nikolski
    - Oliktok
    - Point Lonely
    - Port Heiden
  - BRAC: Galena



- 
- ARMY & NAVY ACTIVITIES**
- Operation Alaskan Road (Guard/Reserve)
  - Northern Edge 2008 Anti-Submarine Exercise  
Component Possible





July 27, 2007

## INFORMATION PAPER

SUBJECT: Status of Protection/Intervention Actions at High Risk Communities

1. Purpose: To provide information on Corps of Engineers Stream-bank and Shore Protection Activities

2. General Authorities: The Corps of Engineers (Corps) is authorized to provide stream-bank and shore protection and coastal storm damage reduction under several authorities. Under the Continuing Authorities Program the Corps can provide emergency stream-bank and shore protection through Section 14 of the 1946 Flood Control Act, and coastal storm damage reduction under Section 103 of the 1962 Rivers and Harbors Act. Congressional authorization of coastal storm damage reduction projects is provided by the 1946 Shore Protection Act. In addition, the Corps can provide technical assistance to Native American Tribes under the Tribal Partnership Program authorized by Section 203 of the Water Resources Development Act of 2000.

3. Alaska Specific Authorities:

- Rivers and Harbors in Alaska study resolution adopted by the U.S. House of Representatives Committee on Public Works on December 2, 1970 provides authority for study of storm damage reduction measures for Barrow, Alaska. This is a study authority only.
- Section 116 of Public Law (PL) 99-190, enacted in 1986, directed the Corps to accomplish emergency bank stabilization work at Bethel, Dillingham, and Galena, Alaska, at full Federal cost.
- Alaska Villages Erosion Technical Assistance (AVETA). AVETA was authorized as a cost shared Tribal Partnership study in the Consolidated Appropriations Resolution of 2003. Section 112 of the Conference Report Energy and Water Development Appropriations Act of 2004 revised funding for this study as 100% Federal. The legislation directed the Corps to investigate and prepare a report for Congress on the impacts of coastal erosion due to continued climate change and other factors for the communities of Bethel, Dillingham, Shishmaref, Kaktovik, Kivalina, Unalakleet, and Newtok. This is a study authority only.
- Alaska Baseline Erosion Assessment. Authorized by the FY 2005 Consolidated Appropriations Conference Report, the Corps was directed to coordinate and plan the appropriate responses and assistance for Alaska villages in the most need and provide an overall assessment on the priority of which villages should receive assistance. This work is conducted under the technical studies provision of the Tribal Partnership Program but is 100% Federally funded. The authorization also included feasibility studies for Kivalina, Newtok, Shishmaref, and Unalakleet, and provided for general studies of the Long-Term Alaska Wind, Wave and Surge Climatology study, and the Kaktovik Cultural study. This is a study authority only.
- Section 117 of the FY 2005 Consolidated Appropriations Act authorized the Corps to carry out, at full Federal expense, structural and non-structural projects for storm damage

prevention and reduction, coastal erosion, and ice and glacial damage in Alaska, including relocation of affected communities and construction of replacement facilities. This is a construction authority.

- Alaska Coastal Erosion (ACE). The Energy and Water Appropriation Bill of 2006 authorized ACE projects for Kivalina, Newtok, Shishmaref, Koyukuk, Barrow, Kaktovik, Point Hope, Unalakleet, and Bethel, and specified that Section 117 would apply to these projects. HQUSACE implementation guidance for ACE projects included preparation of an expedited decision document modeled on the Section 14 report, preparation of construction documents, and project construction.

#### 4. Status of Current Erosion Related Actions:

- The draft Feasibility Study for storm damage reduction at Barrow is in-progress. An Alternate Formulation Briefing (AFB) is scheduled for September 2007.
- Emergency bank stabilization work at Bethel, Dillingham, and Galena directed under Section 116 of Public Law (PL) 99-190 is in-progress. The work has been completed at Galena, and construction has started at Bethel. The draft Feasibility Study for bank protection at Dillingham is scheduled to be transmitted to Pacific Ocean Division (POD) in September 2007.
- AVETA Report – submitted to Congress April 2006, no further action has been directed at this time.
- Alaska Baseline Erosion Assessment – This study will review the erosion condition at 162 villages and rank the erosion condition and urgency of corrective action. Funding was received in FY 2007 to continue the effort. Mapping is currently in-progress, and projected erosion will be developed for 20 communities. FY 2007 field investigations will be conducted at 12 communities to gather detailed erosion related information. An OPM sanctioned questionnaire will be sent to the remaining 150 villages to obtain initial erosion data. One product to be developed this FY are generic temporary erosion control designs that a community would be able to construct on their own. The study is a long term effort requiring 3 to 5 years to complete provided that funding becomes available. A list of communities identifying type of activity is attached as enclosure 1.
- There are several actions in-progress under the ACE/Section 117 authority.
  - Shishmaref – the report recommending construction of 3,000 linear feet of rock revetment was approved by POD on May 18, 2006. The design was completed and a contract has been awarded for construction of approximately 600 linear feet this summer. This revetment will abut structures constructed by others and provide for a continuous line of protection. Funding constraints will require that this project be constructed in phases. In addition to the 117 project, 175 linear feet of rock revetment to protect teacher housing was constructed in FY 2005 under the Section 14 bank stabilization authority.
  - Unalakleet - the report recommending construction of 1,500 linear feet of rock revetment to replace the existing gabion basket structure was approved by POD on July 28, 2006, and the PCA was executed on January 22, 2007. The

construction documents are nearing completion, and this project will be available for a FY 2008 construction if funds are available.

- Kivalina - the report recommending construction of 3,300 linear feet of rock revetment to replace the existing gabion basket structure was approved by POD on June 19, 2007, and the PCA is currently under review at HQUSACE. The final design is scheduled to begin in September 2007. The approved 117 report contained a provision for the Corps to provide sandbags and filter fabric, and some technical assistance during construction, subject to available funds. At this point all available funds are earmarked for the Shishmaref revetment construction. At the request of the community, the Corps has also provided a design for the 900 linear foot long emergency protection structure and a cost estimate for this work.
- Newtok – An analysis performed under the AVETA study determined that there was no cost effective way to provide erosion control at Newtok. On-going encroachment by the Ninglick River has already claimed the community landfill and barge landing site. Fuel deliveries by barge were suspended in the fall of 2006 because of infilling of the Newtok River. Building materials and other goods are no longer being delivered by barge due to loss of the barge landing site. Due to changes in the river configuration, wave action and storm surge can now directly impact the community. The solution to Newtok's problem is being addressed by the Newtok Traditional Council, and the Newtok Planning Group, a consortium of state (7) and Federal (8) agencies, local and regional governments, and non-profit organizations. The community has selected a new townsite on lands exchanged to Newtok Native Corporation from the U.S. Fish and Wildlife Service by Congress in 2003. Construction has already begun at the site. The Corps has been actively involved in the Newtok Planning Group under the Tribal Partnership program. A report is being prepared under the Section 117 authority and is scheduled to be transmitted to POD for approval this month. The report recommends construction of an emergency shelter at the new townsite to accommodate the local community in the event of a natural disaster. The Corps and the State of Alaska Department of Homeland Security and Emergency Services are assisting the Newtok Traditional Council in preparation of a Hazard Mitigation Grant Program application to elevate residences most at risk due to storm surge flooding, as an interim measure.
- Koyukuk – The 117 decision document is in-progress and submittal to POD is expected in October-November.
- Point Hope – project is not presently funded.
- Kaktovik - project is not presently funded.
- Barrow - project is not presently funded, however, erosion protection studies are being conducted under other authority as described above.
- Bethel - project is not presently funded, however, erosion protection is provided by project constructed under another authority as discussed above.

#### 5. Other Related Actions:

- McGrath – the ASA(CW) has approved preparation of the bank stabilization feasibility study for McGrath under the cost sharing provisions of the 117 authority. The feasibility study has recently been initiated. This is a study authorization only.
- Long-Term Alaska Wind, Wave and Surge Climatology study – This effort is a data collection and analysis which will reduce wave climate data for the western Alaska coastline including the Bering and Chukchi Seas. The Corps' hydraulic laboratory in Vicksburg Mississippi has been tasked with developing a continuous database of wave height, period and direction, surge and water levels based on a 20 year hindcast. The study will also develop the 50 and 100 year storm events. This is a general study funded entirely by the Federal government, and are being conducted as funds become available.
- Kaktovik Cultural Study – This general study is conducted under the Tribal Partnership Program, with 100% Federal funding, and investigates erosion impacts on cultural resources at Kaktovik.



Status of Protection/Intervention Actions at High Risk Communities

<b>Baseline Erosion Assessment Communities</b>	<b>Original Tribal Partnership Community</b>	<b>Alaska Coastal Erosion Community</b>	<b>Comprehensive Assessment Community</b>	<b>Erosion Interview Community</b>
Barrow		X		
Bethel	X	X		
Dillingham	X			
Kaktovik	X	X		
Kivalina	X	X		
Koyukuk		X		
Newtok	X	X		
Point Hope		X		
Shishmaref	X	X		
Unalakleet	X	X		
Akiak			X	
Alakanuk			X	
Aniak			X	
Kalskag (Upper and Lower)			X	
Kipnuk			X	
Kongiganak			X	
Kwethluk			X	
Kwigillingok			X	
Napakiak			X	
Napaskiak			X	
Tuntutuliak			X	
Akhiok				X
Akiachak				X
Alatna				X
Aleknagik				X
Allakaket				X
Ambler				X
Anchor Point				X
Atmautluak				X
Bettles				X
Big Delta				X
Birch Creek				X
Brevig Mission				X
Buckland				X
Butte				X
Cantwell				X
Central				X
Chalkyitsik				X
Chefornak				X
Chevak				X
Chignik				X
Chiniak				X
Chitina				X

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Chuathbaluk				X
Circle				X
Circle View Estates				X
Clark's Point				X
Coldfoot				X
Copper Center				X
Cordova				X
Council				X
Crooked Creek				X
Deering				X
Delta Junction				X
Diomedea				X
Douglas				X
Eagle				X
Eagle River-Chugiak				X
Eek				X
Egegik				X
Elim				X
Emmonak				X
Evansville				X
Fairbanks				X
False Pass				X
Fort Yukon				X
Fox				X
Gakona				X
Galena				X
Gambell				X
Girdwood				X
Golovin				X
Gustavus				X
Haines				X
Haines Borough (Klehini/Chiklat Rivers)				X
Homer				X
Hooper Bay				X
Hughes				X
Huslia				X
Hyder				X
Igiugig				X
Juneau				X
Kaltag				X
Karluk				X
Kenai				X
Kiana				X

Status of Protection/Intervention Actions at High Risk Communities

<b>Baseline Erosion Assessment Communities</b>	<b>Original Tribal Partnership Community</b>	<b>Alaska Coastal Erosion Community</b>	<b>Comprehensive Assessment Community</b>	<b>Erosion Interview Community</b>
King Cove				X
King Island				X
Kokhanok				X
Kotlik				X
Kotzebue				X
Koyuk				X
Larsen Bay				X
Levelock				X
Lime Village				X
Manley Hot Springs				X
Mary's Igloo				X
McCarthy				X
McGrath				X
Mekoryuk				X
Metlakatla				X
Nanwalek				X
Nelson Lagoon				X
Nenana				X
New Stuyahok				X
Nightmute				X
Ninilchik				X
Noatak				X
Noorvik				X
Northway				X
Northway Village				X
Nuiqsut				X
Nulato				X
Nunam Iqua a.k.a Sheldon Point				X
Nunapitchuk				X
Old Harbor				X
Ouzinkie				X
Palmer				X
Pedro Bay				X
Pile Bay/Williamsport Road				X
Pilot Point				X
Point Lay				X
Popof Island				X
Port Alsworth				X
Port Graham				X
Port Heiden (Meshaik)				X
Port Lion				X
Portage				X

Status of Protection/Intervention Actions at High Risk Communities

<b>Baseline Erosion Assesment Communities</b>	<b>Original Tribal Partnership Community</b>	<b>Alaska Coastal Erosion Community</b>	<b>Comprehensive Assement Community</b>	<b>Erosion Interview Community</b>
Prudhoe Bay				X
Russian Mission				X
Saint Michael				X
Saint Paul				X
Salcha				X
Savoonga				X
Selawik				X
Seward				X
Shageluk				X
Shaktoolik				X
Sitka				X
Skagway				X
Skwentna				X
Soldotna				X
South Naknek				X
Stebbins				X
Susitna				X
Sutton-Alpine				X
Talkeetna				X
Tazlina				X
Teller				X
Togiak				X
Toksook Bay				X
Tununak				X
Ugashik (Anchorage)				X
Upper Chena River				X
Valdez				X
Venetie				X
Wainwright				X
Wales				X
Wasilla				X
Willow				X
Wiseman				X
Yakutat				X

What the Corps Does, and What We Can Do Together  
Alaska District, US Army Corps of Engineers

Presentation to Denali Commission

July 19, 2007



**US ARMY CORPS  
OF ENGINEERS  
ALASKA DISTRICT**

**What the Corps Does, and What We Can Do Together**  
**Alaska District, US Army Corps of Engineers**  
**Presentation to Denali Commission**  
July 19, 2007

The Alaska District is an engineering and construction agency with a water related civil works mission, design and construction services for Army and Air Force facilities, and regulatory oversight for navigable waterways of the United States. We also undertake work for others under our Interagency and International Services program, and have a program to provide Planning Assistance to States. This presentation will discuss our civil works activities, but I mention our overall responsibilities to provide a complete picture.

The Corps' Civil Works mission grew out of maintaining navigation of the nation's rivers and harbors and remains centered on water related planning, design, construction, and maintenance and operation activities. Historically the Corps' missions have been Navigation, Flood Damage Reduction, Hydropower, Water Supply Storage, Emergency Stream bank Protection, Coastal Storm Damage Reduction, and Emergency Preparedness Response and Recovery. Recreation has been a Corps mission in the past, however has been deemphasized as Federal revenues have become scarcer. A relative new mission, instituted within the last 20 years or so, is Environmental Protection and Restoration. The Alaska District has constructed projects in all of these mission areas in Alaska.

The Corps navigation mission involves providing and maintaining navigational access for commercial cargos. This mission includes constructing access channels and protective works such as breakwaters. The Corps does not typically construct features such as piers, docks, or upland facilities. Navigation markers and beacons are provided and maintained by the Coast Guard. Navigation projects are probably the largest category of projects that the Alaska District conducts in Alaska.

The flood damage reduction mission is fairly self explanatory. The Corps provides structural and non-structural projects such as dikes and levees, raising structures, diverting flood flows, or in special cases, relocation of facilities, or even entire communities. Flooding is an issue in many Alaskan coastal communities and the Corps has many projects of this type.

Hydropower and water supply storage are related missions in that they both involve construction of a dam to create a water reservoir. The Alaska District has constructed a limited number of hydropower projects in Alaska but this is not a routine mission area. Water supply is a more common mission, and the Alaska District currently has two projects on-going, Kake Dam and Wrangle water supply.

Coastal Storm Damage is another threat to Alaskan coastal villages, and the Corps is active in this area, designing and constructing erosion protection structures at many communities. The Alaska District is currently involved with erosion protection at Shishmaref, and has designs underway for Unalakleet, Kivalina, Bethel, Newtok and others.

A related mission is emergency streambank protection. Typically the Corps can only provide this service under Section 14 of its continuing authorities, which is limited to protection of public facilities. However, the Alaska District has received congressional direction to provide more extensive streambank protection for some Alaskan communities such as Galena, Dillingham, Bethel, and currently under study, McGrath.

Last, but not least, is the environmental restoration and protection mission. The focus of this mission area is the restoration of degraded ecosystems to produce environmental benefits. These projects are varied including such things as removing debris and other obstructions, opening culverts, improving water quality, and restoration of rearing habitat spawning beds, riparian habitat and woody debris. The Alaska District has projects like this at Chester Creek, Mark Creek, Eklutna, and Black Lake.

One final capability that the Corps has to offer is in delineation, characterization, and clean-up of hazardous and toxic waste. The Corps typically provides this service in the clean-up of active and formally used defense sites in Alaska, but has done extensive work for the EPA and DOE in other states. The Alaska District recently used this technology to determine if contaminated sediments were likely to be associated with the Port of Anchorage expansion project.

## Alaska District Corps of Engineers Active Project POC List

PROJECT NAME - P2#	STATUS	PROJECT FINISH	PROJECT MANAGER	TELEPHONE	E-MAIL
<b>GENERAL INVESTIGATIONS</b>					
AKUTAN HARBOR AK 102438	PED	Oct-07	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
ALASKA REGIONAL PORTS, AK 102727	FEAS		JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
ANCHORAGE HARBOR DEEPENING AK 102725	FEAS	Oct-15	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
ATKA HARBOR			BOGUSLAW WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
BARROW COASTAL SDR 102411	FEAS	Oct-12	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
COFFMAN COVE, AK 102827	FEAS	Aug-12	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
CRAIG HARBOR IMPROVEMENT 102831	FEAS	Aug-14	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
DELONG MOUNTAIN TERMINAL AK 102734	FEAS	Nov-13	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
EKLUTNA WATERSHED, AK 102775	FEAS	Mar-12	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
HAINES HARBOR 102793	PED	Aug-09	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
HOMER HARBOR 103546	FEAS	Jan-14	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
KENAI RIVER BLUFF EROSION 102790	FEAS		DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
KLAWOCK HARBOR, AK 102799	FEAS	Jan-12	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
KNIK ARM BRIDGE 102803	FEAS	Apr-14	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
KOTZEBUE HARBOR 102737	FEAS	Jul-11	DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
LITTLE DIOMEDE HARBOR 102808	FEAS	May-13	DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
MATANUSKA WATERSHED 125495	FEAS	Oct-07	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
MCGRATH BANK STABLIZATION 102818	FEAS	Mar-16	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
MEKORYUK HARBOR 102924	FEAS	Sep-12	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
PORT LIONS HARBOR AK 102493	PED	Aug-12	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
UNALAKLEET HARBOR AK 102932	PED	Apr-10	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
VALDEZ HARBOR EXPANSION AK 102769	FEAS	Sep-06	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
YAKUTAT 105148	FEAS		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
KETCHIKAN NAVIGATION IMPROVEMENTS AK 103549	FEAS	Mar-12	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
WHITTIER BREAKWATER (GI) 102849	FEAS	Oct-13	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
<b>PLANNING ASSISTANCES TO STATES</b>					

RECON - Reconnaissance Study  
 FEAS - Feasibility Study  
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## Alaska District Corps of Engineers Active Project POC List

PROJECT NAME - P2#	STATUS	PROJECT FINISH	PROJECT MANAGER	TELEPHONE	E-MAIL
KIVALINA PAS 102419	RECON	Jul-07	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
WRANGELL WATERSUPPLY 125690	RECON		BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
<b>CONSTRUCTION GENERAL</b>					
AKUTAN HARBOR AK 102438	PED	Oct-10	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
BETHEL BANK STABILIZATION 102728	CONST	Oct-08	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
CHIGNIK HARBOR AK PHASE II 102452	CONST	Dec-08	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
DILLINGHAM EMERG BANK STABILIZATION AK 103550	PED	Sep-09	DAVID WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
FALSE PASS HARBOR AK 102464	CONST	Jan-09	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
GALENA EMERGENCY BANK STABILIZATION PHASE II 102450	CONST	Oct-07	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
HAINES HARBOR 102793	CONST	Aug-11	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
KAKE DAM 102458	CONST	Jan-07	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
NOME HARBOR IMPROVEMENTS AK 102473	CONST	Apr-07	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
SAND POINT HARBOR AK 102741	CONST	Sep-07	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
PHASE I SAINT PAUL HARBOR - IMPROVEMENTS 102492	CONST	Jan-02	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
PHASE II SAINT PAUL HARBOR - DREDGING 102492	CONST	Sep-05	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
PHASE III SAINT PAUL HARBOR - SMALL BOAT HARBOR 102492	CONST	Sep-08	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
SEWARD HARBOR AK 102743	CONST	Nov-03	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
SITKA HARBOR, AK 102986	FEAS	Nov-11	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
UNALASKA HARBOR 101512	CONST	Jul-09	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
WRANGELL HARBOR AK 102496	CONST	Mar-05	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
<b>SECTION 205 - TRIBAL PARTNERSHIP</b>					
SHISHMAREF 102430	PED		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
KAKTOVIK 102430	PED		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
BETHEL 102430	PED		ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
DILLINGHAM 102430	PED		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
UNALAKLEET 102430	PED		JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
KIVALINA 102430	PED		ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>

RECON - Reconnaissance Study

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PROJECT NAME - P2#	STATUS	PROJECT FINISH	PROJECT MANAGER	TELEPHONE	E-MAIL
NEWTOK 102430	PED		ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
ALASKA BASELINE EROSION STUDY 102430	PED		MELANIE A HARROP	907-753-5694	<a href="mailto:MELANIE.A.HARROP@POA.USACE.ARMY.MIL">MELANIE.A.HARROP@POA.USACE.ARMY.MIL</a>
<b>SECTION 117 - Alaska Coastal Erosion</b>					
SHISHMAREF	CONST		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
KAKTOVIK	AF		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
BETHEL	AF		DAVID P WILLIAMS	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
KOYUKUK	AF		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
UNALAKLEET	PED		JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
KIVALINA	PED		ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
NEWTOK	FEAS		ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
BARROW	FEAS		ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
POINT HOPE	AF		DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
<b>CAP SECTION 103 -STORM DAMAGE REDUCTION</b>					
UNALAKLEET STORM DAMAGE REDUCTION 102933	FEAS	Oct-11	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
<b>CAP SECTION 103 -STORM DAMAGE REDUCTION</b>					
FORT YUKON FLOOD CONTROL 102844	FEAS	Nov-11	JULIE L ANDERSON	907-753-5685	<a href="mailto:JULIE.L.ANDERSON@POA.USACE.ARMY.MIL">JULIE.L.ANDERSON@POA.USACE.ARMY.MIL</a>
SALCHA FLOOD DAMAGE REDUCTION 102881	FEAS	Sep-12	DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>

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**Alaska District Corps of Engineers  
Active Project POC List**

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<b>CAP SECTION 14 - STREAMBANK PROTECTION</b>					
DEERING 102913	CONST	Sep-07	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
SHISHMAREF 102877	CONST	Dec-05	DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
KWETHLUK 102912			MELANIE A. HARROP	907-753-5694	<a href="mailto:MELANIE.A.HARROP@POA.USACE.ARMY.MIL">MELANIE.A.HARROP@POA.USACE.ARMY.MIL</a>
<b>CAP SECTION 1135 - PROJ MOD FOR IMPROVE ENVIRN</b>					
<b>CAP SECTION 206 ECOSYSTEM RESTORATION</b>					
CHESTER CREEK RESTORATION AK 102882	CONST	Mar-07	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
NORTHWAY, MARK CREEK AK 102893	CONST	Jan-08	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
EKLUTNA, AK 125334	FEAS	Dec-09	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
BLACK LAKE, CHIGNIK 102889	FEAS	Dec-10	DAVID A MARTINSON	907-753-2668	<a href="mailto:DAVID.A.MARTINSON@POA.USACE.ARMY.MIL">DAVID.A.MARTINSON@POA.USACE.ARMY.MIL</a>
<b>IIS</b>					
USCG --CORDOVA HARBOR IMPROVEMENTS 123019	CONST	Dec-06	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
FAA -- JUNEAU AIRPORT LIGHTS, 120961	CONST	Sep-08	BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
FAA--Big Level Island, Petersburg	RECON		BOGUSLAW J WIERZBICKI	907-753-5778	<a href="mailto:BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL">BOGUSLAW.J.WIERZBICKI@POA.USACE.ARMY.MIL</a>
USFS -- YAKUTAT ( DRILLING)	CONST	Sep-06	DAVID P WILLIAMS	907-753-5621	<a href="mailto:DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL">DAVID.P.WILLIAMS@POA.USACE.ARMY.MIL</a>
MARAD -- SHIP CREEK MARSH DESIGN	CONST	Dec-05	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
MARAD -- ANCH HARBOR SED CHARACT	CONST	Oct-06	ANDREA B ELCONIN	907-753-5680	<a href="mailto:ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL">ANDREA.B.ELCONIN@POA.USACE.ARMY.MIL</a>
NOAA -- OPERATION BUILDING	CONST	Sep-09	ROBERT A JOHNSTON	907-753-5645	<a href="mailto:ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL">ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL</a>
NOAA -- MODULAR UNITS	CONST	Nov-05	ROBERT A JOHNSTON	907-753-5645	<a href="mailto:ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL">ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL</a>
ADOT - Safety Sound LIDAR	PED				
NOAA Work Stations for Modular Units	CONST	Mar-06	ROBERT A JOHNSTON	907-753-5645	<a href="mailto:ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL">ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL</a>
Guard House Renovation	CONST	Sep-06	ROBERT A JOHNSTON	907-753-5645	<a href="mailto:ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL">ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL</a>
NOAA -- ELECTRICAL DISTRIBUTION UPGRADE	CONST	Sep-05	ROBERT A JOHNSTON	907-753-5645	<a href="mailto:ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL">ROBERT.A.JOHNSTON@POA.USACE.ARMY.MIL</a>

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Draft - Notes for the meeting held 7/19/07

Mike Black, Division of Community Advocacy – State Co-Chair (presiding)  
Berney Richert, Economic Development Administration – Federal Co- Chair

In attendance: Shirley Kelly – EDA; Mike Black, Peter McKay (via teleconference), Ruth St. Amour, Elizabeth Manfred, Earl “Tank” Gibson, Indra Arriaga, Shannon Deike-Sims – Division of Community Advocacy; Janet Hall – RurAL CAP/Denali Commission; Mitzi Barker – RurAL CAP; Adrienne Fleek – First Alaskans Institute; Deborah Vo – Yukon Delta Fisheries Development Association; Midge Clouse, Betsy Hamm – Chenega Corporation; Trish Opheen – Corps of Engineers; Bristol Vaudrin Haggstrom – ASCG, Inc.; Dean Westlake – City of Kotzebue (via teleconference); Tiel Smith, John Moores, Francesca Yanez – Bristol Bay Native Corporation; Deb Alston – HUD; Sharon Lind, Paul McIntosh, Karen Johnson, Jodi Fondy, Jamilia George, Tessa Rinner – Denali Commission; Lenny Corin – U.S. Fish & Wildlife; Mike Catsi, Andy Varner – Southwest Alaska Municipal Conference; Jim Griffin – Division of Legislative Audit

Presentation – “Rural Utility Business Advisor (RUBA) Program” by Elizabeth Manfred, Division of Community Advocacy

- The RUBA program ([www.commerce.state.ak.us/dca/ruba/ruba.htm](http://www.commerce.state.ak.us/dca/ruba/ruba.htm)) assesses management capacity for operating a sanitation system.
- The assessment of essential indicators and sustainable indicators was developed from a multi-agency effort. Please refer to the document “RUBA Program Summary and Assessment” at [www.denali.gov/Program\\_Documents.cfm?Section=Planning](http://www.denali.gov/Program_Documents.cfm?Section=Planning)
- The assessment and on-site assistance are provided at the request of the community, at no cost to the community.
- The community must meet the essential capacity indicators in order for Village Safe Water construction funds to be released. The assessment is updated quarterly.

Presentation – “Kotzebue Breakfast Club” by Dean Westlake, City of Kotzebue

- The Breakfast Club is “nuts and bolts people” getting together to discuss projects.
- It operates with three rules: 1) Never meet on a Monday or Friday, 2) There is a two-hour time limit, and 3) You’re only there to help each other. Nothing is on the record.
- The purpose of the Breakfast Club, an idea Dean Westlake transplanted from Galena, is to work together to get things done in the best interests of the community.

Presentation – “Current Activities in Rural Areas” by Trish Opheen, Corps of Engineers

- The Corps is seeking to better coordinate with other agencies.
- Alaska is “data poor,” which makes the design of projects more expensive.

- The Corps has a program to provide Planning Assistance to States, which can be used for small projects. The studies conducted are not intended to recommend a Corps construction project and have greater flexibility than other programs.
- Currently underway is a Baseline Erosion Assessment of 165 communities, using existing aerial photography and telephone surveys. The Corps' surveys are approved by Office of Management and Budget. The assessment should be complete in 2008, and the project will also develop a brochure for communities on erosion protection measures.
- Projects require a state or local sponsor, and most projects require cost-sharing.
- Please refer to the document "What the Corps does and What we can do together" at [www.denali.gov/Program\\_Documents.cfm?Section=Planning](http://www.denali.gov/Program_Documents.cfm?Section=Planning)

Presentation – "Denali Commission FY 07 Work Plan" by Tessa Rinner, Denali Commission

- The work plan for the current fiscal year includes \$135 million for programs.
- The Commission is seeking Letters of Interest regarding alternative energy projects, which will help the new Energy Advisory Committee determine how to spend \$5 million for alternative/renewable energy projects.
- The solid waste program is undergoing changes. Gene Kane is the program manager.
- Applications for the transportation program will be available in August.
- Project funding decisions will now be made at the staff level, rather than the Commission level.
- The multi-use facility program, one of the Commission's most-requested projects, is not currently funded and will be undergoing a program evaluation.
- The business plans submitted for projects are public documents and could be made available through Division of Community Advocacy's Plans Library website.
- George Canelos is interested in the Planning Work Group serving as a forum for agencies to report on upcoming projects, for purposes of coordination.
- The Work Plan is available at [www.denali.gov](http://www.denali.gov)

Discussion - Preparations for 2008 APA Indigenous Planning Conference

- The conference has been scheduled for October 1-3, 2008 at the Anchorage Marriott.
- The Steering Committee will hold its third meeting on August 20, from 1:00 – 2:30 p.m., at the Denali Commission or by teleconference at 1-866-524-6520, pass code 2393460.
- The organizers are interested in arranging pre-conference site visits to rural communities, at the invitation of the community.
- The purpose of the conference is to train Alaska planners in best practices in melding traditional and western planning approaches, and to tell Alaska's story to those from other places.

**The next meeting is scheduled for Thursday, September 20 at 9 a.m., at the Denali Commission, and is to be chaired by Berney Richert.**



## Ocean Park Stewardship 2006–2008 Action Plan



*Since establishment of Acadia National Park in 1916, marine resources in the National Park System have grown to include more than three million acres of ocean and Great Lakes waters and 5,000 miles of coast. More than 76 million people visit 74 ocean parks to experience our nation's heritage where the land meets the water, including beaches, coral reefs, kelp forests, wetlands, glaciers, historic shipwrecks and other places recognized for their beauty and national significance. Congress charged the National Park Service with conserving both natural and cultural resources unimpaired for the enjoyment of current and future generations. Their benefits to the nation as places for recreation, havens for ocean wildlife, and sources of local economic activity are unsurpassed.*

**Red grouper at Dry Tortugas National Park, FL, where a new 46 square-mile Research Natural Area will provide full protection for fish, coral reefs and seagrass.  
Photo: J. Luo**



Left: Tlingit tribal dancers at Glacier Bay National Park, AK, marine education program.



Right: Ten national parks are working to conserve valuable coral reef resources. In 2006, NOAA listed both elkhorn (shown here) and staghorn coral as threatened under the Endangered Species Act.

Below: Pacific ocean meets Klamath River at Redwood National Park, CA. NPS scientists are restoring aquatic habitats for salmon in Redwood Creek impacted by erosion and sedimentation from logging. Photo: C. McCreedy

The 2001 National Park System Advisory Board Report, *Rethinking the National Parks for the 21<sup>st</sup> Century*, raised concerns about “dramatic declines in the health of marine ecosystems” and called on the National Park Service to focus more attention on stewardship and protection of ocean resources in the National Park System. “The Service should pay special attention to the protection of aquatic and marine systems. It should be an active partner in a national and international dialogue to develop a strategy for marine resource protection and restoration.”

Park Superintendents actively manage parks to avoid degrading resources, depleting fisheries, and losing recreational opportunities for the public. Nevertheless, parks have experienced unsustainable fishing practices, pollution, and watershed degradation, which threaten ecological integrity and beauty in the parks, and reduce nature’s capacity for self-renewal.

Responding to these concerns, the National Park Service developed a strategy to increase its emphasis on ocean resource management and conservation. The Ocean Park Stewardship Action Plan identifies critical issues and ways to address them cooperatively with federal, state, tribal and private partners. In 2004, the President and the Department of Interior committed to the development of an Ocean Park Stewardship Action Plan in the U.S. Ocean Action Plan.

The strategy seeks to:

1. Establish a seamless system of ocean parks, sanctuaries, refuges and reserves
2. Discover, map, and protect ocean parks
3. Engage visitors in ocean park stewardship
4. Increase National Park Service technical capacity for ocean exploration and stewardship



Accomplishing these goals requires that the National Park Service grapple with complex issues and shared authorities that extend across park boundaries. The National Park Service recognizes that conservation and science-based management best result from collaboration among federal agencies, states, tribes, citizens, local communities, and academia, when all work to protect a shared ocean heritage. The National Park Service has begun to strengthen its science-based foundation for managing ocean resources, working with the U.S. Geological Survey (USGS), National Oceanic and Atmospheric Administration (NOAA), universities and other partners.

In partnership with NOAA and USGS, the National Park Service is obtaining fine-scale maps of submerged habitats in ocean parks. The National Park Service has also initiated joint efforts with the states, such as the cooperative fisheries management plan between Biscayne National Park and the Florida State Fish and Wildlife Conservation Commission, and the collaborative monitoring of marine reserves with the California Department of Fish and Game and NOAA Sanctuaries in Channel Islands National Park. The National Park Service Coastal Watershed Condition Assessment Program documents coastal water resource conditions and reveals threats to watershed health in partnerships with university researchers.

However, the National Park Service must broaden and deepen these efforts to manage and conserve ocean resources in the National Park System. The Natural Resource Challenge provided the scientific capacity to coordinate ocean park programs. In addition, improving ocean park stewardship requires that park managers better understand ocean ecosystems and human roles in them. They need resource inventories, benthic habitat maps, marine monitoring programs, and more clearly defined ocean boundaries and jurisdictions. The National Park Service also needs to increase its capacity to explore and understand the ocean realms of parks and to revitalize its once robust and pioneering scientific and public safety diving program. The Action Plan also proposes an initiative to restore and protect ocean park resources that will address critical restoration issues and improve park conservation. Ocean parks need to assess performance of newly established marine recovery areas in parks, develop more joint science-based fishery management plans with states, prevent extirpation of native species, and establish

ocean damage-assessment teams.

The critical keys to improved ocean conservation in the National Park System are partnerships with other ocean-concerned agencies and communities to facilitate cooperation, collaboration, and communication. Connecting people to ocean parks may be one of the most important tasks ahead to build awareness and support with park stakeholders and the public.

The National Park Service will work with partners under existing funding levels to implement this Action Plan. In doing so, the National Park Service has prioritized the following action items in a multi-year implementation plan under these four major topics:

1. Create a seamless network of ocean national parks, national marine sanctuaries, national wildlife refuges, and national estuarine research reserves

- Implement a new Agreement among the National Park System, NOAA Sanctuaries, U. S. Fish and Wildlife Service Refuge System and the NOAA National Estuarine Research Reserves System
- Implement a cooperative law enforcement agreement with NOAA National Marine Sanctuaries Program
- Finalize Dry Tortugas National Park Research Natural Area regulations and implement management agreement with State of Florida
- Enter and maintain current park data in the national marine managed area inventory in cooperation with the joint Department of the Interior and NOAA Marine Protected Area Center

2. Discover, map and protect ocean parks

- Complete benthic habitat maps for ocean parks (equivalent to terrestrial vegetation maps) in cooperation with NOAA National Ocean Service, USGS, and university researchers
- Assess conditions of 55 coastal park watersheds and water resources
- Propose a joint fishery management plan for Biscayne National Park with the State of Florida
- Enhance compliance with new marine reserves by providing education and outreach programs at Buck Island Reef National Monument, Channel Islands National Park, Dry Tortugas National Park, and Virgin Islands Coral Reef



**Top:** All five sea turtle species are listed as threatened or endangered. Park biologists and volunteers monitor sea turtle nests and protect hatchlings.

**Bottom:** Recreational fishing is an important and valued tradition to national park visitors. Biscayne National Park is developing a joint fisheries management plan with the State of Florida to restore fish stocks in and around the park.

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*Improving ocean park stewardship requires that park managers better understand ocean ecosystems and human roles in them.*

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**Harbor seal at Point Reyes  
National Seashore, CA where  
NPS scientists monitor breeding  
populations of elephant seals  
and harbor seal haul-outs.**  
Photo: C. McCreedy

National Monument

- Ensure vital signs monitoring in parks includes marine, estuarine, and Great Lakes resources
- Work with NOAA and USGS to get digital boundaries of ocean parks on charts and maps

3. Engage visitors in ocean park stewardship

- Reduce recreational boating impacts by providing buoys, navigational aids, and cooperative educational programs
- Develop interpretive materials on ocean parks for educators and non-governmental organizations, including National Science Teachers Association, Professional Association of Dive Instructors, National Association of Underwater Instructors, and National Marine Educators Association
- Include general educational materials as outputs for all large National Park Service funded stewardship projects in ocean parks
- Create a communication strategy to better inform the public about ocean parks
- Involve more wildlife-dependent recreation users (scuba divers and snorklers) in ocean park stewardship at Biscayne National Park, Virgin Islands National Park, Dry Tortugas National Park, Channel Islands National Park, and Kaloko-Honokohau National Historic Park via the Great Annual Fish Count
- Launch a Green Marina Initiative to encourage marinas in national parks to adopt sustainable operations and maintenance practices
- Improve visitor awareness and resource protection by incorporating ocean park boundaries on NOAA navigational charts

4. Increase NPS technical capacity for ocean exploration and stewardship

- Develop an agreement with NOAA's National Ocean Service to help explore ocean parks
- Combine efforts of the National Park Service Natural Resources Stewardship and Science, Visitor and Resource Protection, and Cultural Resources Programs to

reinvigorate NPS Dive Program to ensure compliance with OSHA and AAUS standards for reciprocity

- Develop a "Restore and Protect Ocean Park Resources Initiative"
- Describe and analyze ocean park jurisdictions, boundaries, authorities, and remedies

The Ocean Park Stewardship Action Plan offers a call to action for National Park Service to fulfill its leadership role as an ocean conservation agency. Working with all the communities and partners who share our ocean heritage, the National Park Service can restore and conserve the grandeur of America's ocean resources in the National Park System for future generations.





## Federal Matching - \$14.7 Million

### NOAA - \$12.7 Million

- Colony-based fur seal studies of pup abundance, condition and adult diet on Pribilof Islands
- Surface and bottom trawl surveys
- Study persistence of foraging hotspots for top predators

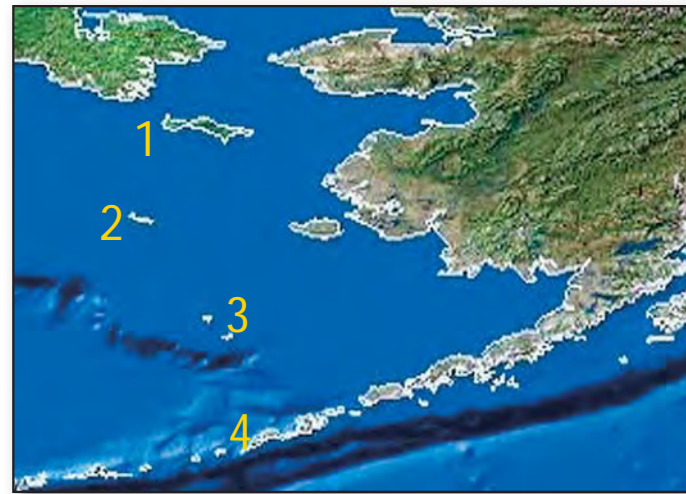
### USGS and USFWS - \$2.0 Million

- Seabird telemetry
- Seabird broad-scale distribution

## A \$50 Million Funding Partnership

NSF	\$21.0M in direct funding
NPRB	\$14.0M in direct funding
NOAA	\$12.7M in matching funds
USFWS/USGS	\$2.0M in matching funds

## Our Study Area



Study area for BSIERP-BEST partnership on the eastern Bering Sea shelf, showing (1) St. Lawrence Island, (2) St. Matthew Island, (3) Pribilof Islands, and (4) Bogoslof Island.

# Bering Sea

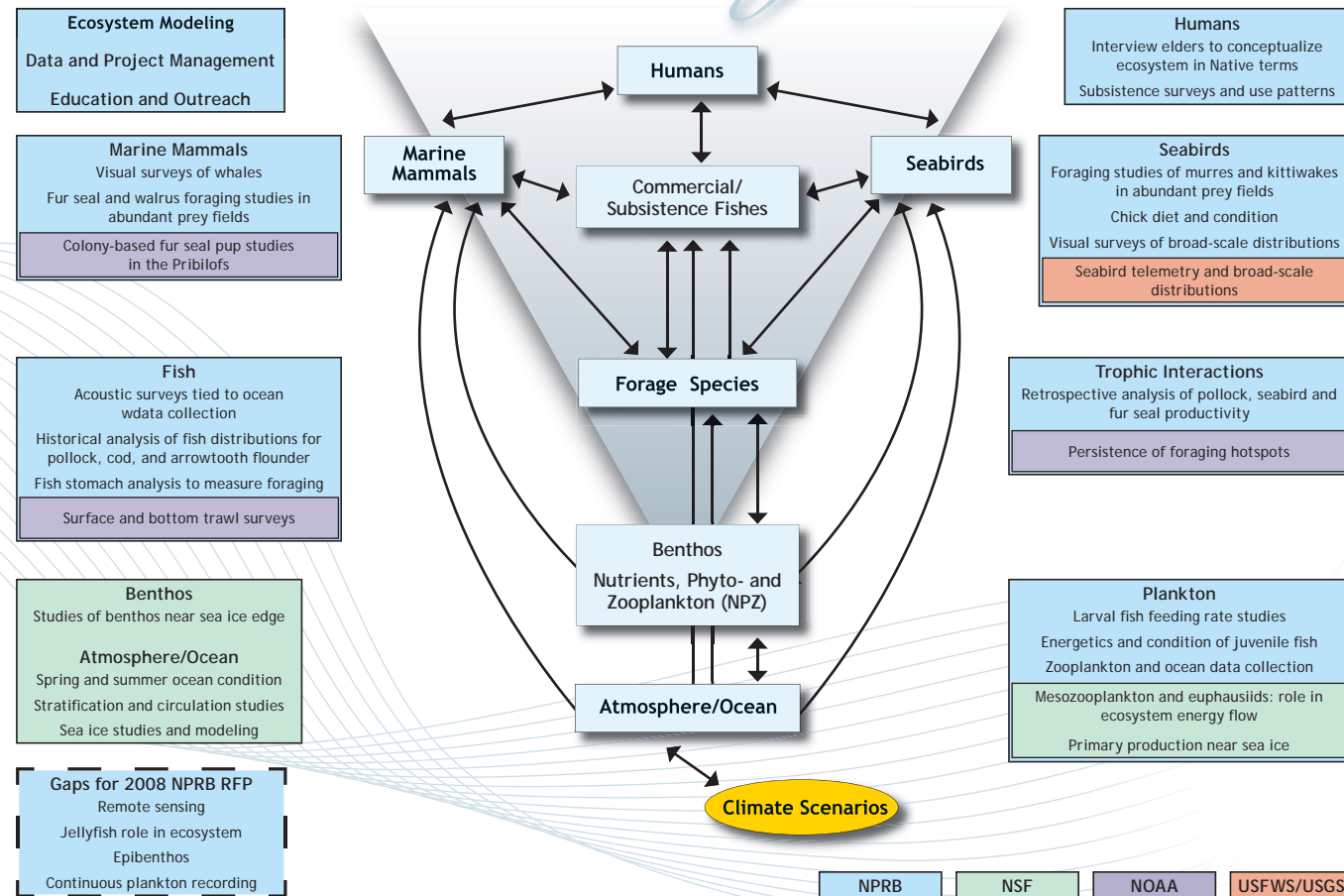
AN HISTORIC ECOSYSTEM  
RESEARCH PARTNERSHIP

2007-2012

- humans
- seabirds
- marine mammals
- commercially important fish
- forage species
- benthos & plankton
- atmosphere & ocean

# Understanding

## The Flow of Life in the Bering Sea



# Why

## WHY STUDY THE BERING SEA?

The Bering Sea, one of the most highly productive marine ecosystems on earth, supports the largest commercial fisheries in the world. It is a sea of superlatives that defies simple modeling or understanding. And it is ever-changing.

All told, Alaska's fisheries provide more than half of the seafood consumed in America. Pollock, cod, flatfish, halibut, crab, and salmon are all abundant in the Bering Sea and form a powerful economic engine for fishing communities. Whales, seals and seabirds flock here from afar to feed on these prolific fisheries — some staying year round, others migrating here to feed and mate. Fur seals breed on island rookeries, while walrus haul out on sea ice to bear young. Fin, minke, humpback, gray, and right whales, as well as belugas and porpoises, feast on huge schools of smaller fishes and tiny crustaceans, while orcas hunt other whales, seals, or salmon. Sea otters stay close to shore near kelp forests, plucking invertebrates from the seafloor. More than 30 different species of seabirds breed here, some 36 million individuals, from shearwaters, fulmars, kittiwakes, albatrosses, storm petrels, and puffins to murre. Nearly half of Alaska's seabirds live in 10 colonies in the Bering Sea.

Climate change and reduced ice cover could have significant impacts on each of these populations of the Bering Sea. We need to improve our understanding of the mechanisms in play now that combine to create and sustain this highly productive ecosystem and how they may change over time as a result of climate change.

# Scope

## AN HISTORIC PARTNERSHIP

The North Pacific Research Board (NPRB) and National Science Foundation (NSF) are partnering to support a new marine ecosystem study for the eastern Bering Sea. Meeting in Anchorage in June 2007, they reviewed major proposals and received advice from external scientific reviewers and a joint science panel. They then agreed to fund this comprehensive research program.

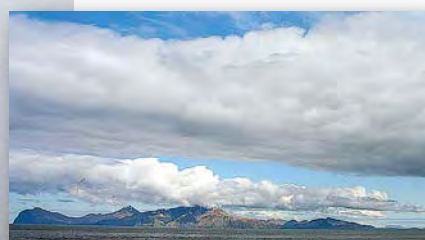
This unprecedented scientific endeavor will improve our understanding of the highly productive marine ecosystem of the eastern Bering Sea shelf, from the Aleutians north to St. Lawrence Island, and how it may respond to climate change, particularly as mediated through changes in seasonal sea ice cover.

The study will occur over six years from late 2007 to 2012, and will include three major field seasons in 2008-2010, and two years for analysis,

synthesis and reporting.

The scientific foundations for this partnership are the NSF 2005 Bering Ecosystem Study (BEST) Program implementation plan and the NPRB Bering Sea Integrated Ecosystem Research Program (BSIERP), which is based on NPRB's 2005 Science Plan.

BEST focuses on understanding the impacts of changing sea-ice conditions on the chemical, physical, and biological characteristics of the ecosystem and human resource use activities. BSIERP focuses on understanding key processes regulating the production, distribution and abundance of marine organisms in the Bering Sea, especially marine mammals, seabirds, and fish, and how they may respond to natural and human-induced influences, particularly those related to climate change and its economic and sociological impacts.



# Emphasis

## BERING SEA ECOSYSTEM

This expansive program will field a coordinated team of approximately 70 federal, state, and university scientists to provide end-to-end coverage of the Bering Sea ecosystem, from atmospheric forcing and physical oceanography through humans and communities, with the attendant economic and social impacts of a changing marine ecosystem. The scientists hail mainly from Alaska, Washington, Oregon, and British Columbia.

The program will involve NOAA, U.S. Fish and Wildlife Service, U.S. Geological Survey, Alaska Department of Fish and Game, University of Alaska, University of Washington, Oregon State University, and University of British Columbia, as well as other universities and several smaller consulting firms and organizations such as

Huntington Consulting, Sigma Plus, Ecotrust, and the Aleut Community of St. Paul Island.

NSF support will focus on physics and the lower trophic levels, as well as social science research on relationships between a changing marine environment and communities of the Bering Sea.

NPRB will support a range of studies, but will emphasize forage fish, commercially fished species such as pollock, Pacific cod, and arrowtooth flounder, as well as fur seals, walrus and whales, and several species of seabirds. NPRB also will support social and economic studies and local and traditional knowledge research. An innovative ecosystem modeling activity will tie the whole program together.

# Components

## AN END-TO-END STUDY

### NPRB Components - \$14 Million

#### Humans – \$1 million

- Interview elders to conceptualize ecosystem in Native terms
- Subsistence harvest surveys and usage over past 10–20 years
- Community interviews of subsistence use patterns

#### Marine Mammals – \$2.6 million

- Visual surveys of large whales on Bering Sea shelf
- Investigation of intense focal feeding areas for fur seals around Pribilof and Bogoslof Islands and walrus on St. Lawrence Island

#### Seabirds – \$1.5 million

- Foraging studies of murre and kittiwakes near Pribilofs
- Intense focal feeding studies coordinated with fur seal studies
- Visual surveys of broad-scale seabird distribution from fishery research vessels
- Chick diet and condition on Pribilofs and possibly St. Matthew and Bogoslof Islands

#### Fish – \$1.74 million

- Acoustic surveys of pollock and forage species of euphausiids, myctophids, and capelin along entire eastern Bering Sea shelf, and collect sea surface and oceanographic data
- Synthesize historical data on spatial distribution of pollock, cod, arrowtooth flounder, and euphausiids
- Fish stomach analysis to study foraging of fish predators
- Oceanographic data collection by commercial fishing vessels

#### Zooplankton – \$2.1 million

- Larval fish studies for pollock, cod and arrowtooth flounder using patch dynamics, process and feeding rates during first winter feeding
- Measure condition and energy dynamics of juvenile pollock, cod and arrowtooth flounder
- Zooplankton and environmental data collection during the spring bloom

#### Trophic Interactions – \$300,000

- Retrospective analysis of pollock, seabird and fur seal productivity

#### Ecosystem Modeling – \$2.5 million

#### Data and Project Management – \$1.4 million

#### Education and Outreach – \$100,000

- Potential exists for increased funds

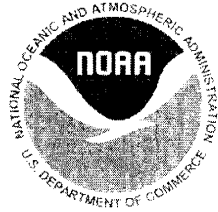
#### Research Gaps for NPRB 2008 Request for Proposals – approximately \$800,000

- Remote sensing of sea surface and oceanographic conditions
- Jellyfish and their role in the marine ecosystem
- Epibenthos and changing role in ecosystem
- Continuous plankton recording from available commercial ships of opportunity

### NSF Components – \$21 Million

NSF will announce the exact proposals it will fund later this summer after all contractual arrangements have been completed. Of the total NSF funding, \$11 million has been reserved for ship time. It is anticipated that the remaining \$10 million will be used to support the following general studies, which will dovetail nicely with NPRB projects:

- Physical and biological sampling around sea ice and benthos
- Primary production around sea ice, including carbon flux rates
- Spring and summer data collection on physics and nutrients
- Stratification and circulation studies and associated models
- Studies of mesozooplankton and euphausiids and their role in energy transfer through the ecosystem



**NOAA / National Marine Fisheries Service**  
**Overview of Issues Related to the Alaska Marine Ecosystem Forum**  
July 26, 2007

Background

NOAA Fisheries' mission is stewardship of living marine resources through science-based conservation and management and the promotion of healthy ecosystems.

NOAA Fisheries has three major programs:

- Sustainable Fisheries (groundfish, crabs, scallops, halibut)
- Protected Resources (marine mammals and endangered species)
- Habitat Conservation (protection and restoration)

Issues

- Finalizing regulations to adjust open and closed fishing areas within the Aleutian Islands Habitat Conservation Area (comment period on the proposed rule closed 7/19/07)
- Working with North Pacific Fishery Management Council staff to develop fishery management plan amendments for new Bering Sea habitat conservation measures: limit bottom trawling to historically trawled areas; close nearshore areas to bottom trawling around St. Matthew Island, St. Lawrence Island, Nunivak Island, Etolin Strait, and Kuskokwim Bay; and establish a Northern Bering Sea Research Area that would be closed to all fishing pending development of a research and management plan
- Assisting North Pacific Council staff with development of a new Arctic Fishery Management Plan for the Chukchi and Beaufort Seas pursuant to the Magnuson-Stevens Fishery Conservation and Management Act; Council is taking action partly in anticipation of potential commercial fishery development in the region if climate conditions continue to warm; Initial preferred alternative is to close the federal waters of the Arctic to all commercial fishing except for traditional fisheries
- Revising the recovery plan for threatened and endangered Steller sea lions; May consider subsequent revisions to protection measures in the Aleutian Islands to provide more flexibility for affected fisheries without increasing interactions
- Assisted the North Pacific Council with the recently completed (June 2007) Fishery Ecosystem Plan for the Aleutian Islands
- Preparing for a Bering Sea Integrated Research Program funded by the North Pacific Research Board and National Science Foundation to focus on the effects of climate change on the Bering Sea ecosystem and associated human uses; Field work will occur in 2008-10



## **Aleutian Island Spill Preparedness Activities Summary**

### **Aleutian Island Risk Assessment**

DEC is working with the U.S. Coast Guard and the Transportation Research Board of the National Academies to execute a memorandum of agreement with the goal of establishing a study framework for conducting a large-scale comprehensive maritime transportation risk assessment.

### **Vessel Traffic Study**

DEC (thru a contractor) produced the initial *Vessel Traffic in the Aleutians Subarea* report in April 2005. This vessel traffic study was subsequently updated in September 2006. The report is available on the DEC website at:  
[http://www.dec.state.ak.us/spar/perp/docs/060920vesselreport\\_s.pdf](http://www.dec.state.ak.us/spar/perp/docs/060920vesselreport_s.pdf)

### **Ports and Waterway Safety Assessment (PAWSA)**

The initial PAWSA meeting for the Aleutians was held in July 2006. The PAWSA work group will focus primarily on vessel traffic through the Unimak Pass area as this is an area of high concentrations of vessel traffic and hence the location of greatest concern for the Coast Guard and the State of Alaska. Further details on the PAWSA are also available on the DEC website at:  
[http://www.dec.state.ak.us/spar/perp/ai\\_risk/ai\\_risk.htm](http://www.dec.state.ak.us/spar/perp/ai_risk/ai_risk.htm)

### **Arctic Marine Shipping Assessment (AMSA)**

DEC staff is also assisting with the AMSA initiative which is led by the U.S. Arctic Research Council at the request of the eight Arctic member nations. This study will further research arctic vessel traffic including traffic through the Aleutian Islands.

### **Aleutian Potential Places of Refuge (PPOR) and Geographic Response Strategies (GRS) Development**

DEC is sponsoring both of these initiatives which commenced in January 2007. The PPOR project will identify approximately 70 different locations where a vessel in distress could seek shelter along the Aleutian chain. The GRS project provides detailed, pre-planned spill response tactics for protecting the extremely sensitive resources that you noted in your letter. Due to funding limitations, we are initially focusing our efforts on developing GRS for the Unalaska Island and vicinity. As funding becomes available, we will proceed with developing GRS for the remainder of the Aleutians. DEC website-  
<http://www.dec.state.ak.us/spar/perp/aippor/home.htm>

## **Unalaska/Dutch Harbor Disabled Vessel Workgroup**

Following the near grounding of the *Salica Frigo* on March 9, 2007, the Mayor of Unalaska convened an ad-hoc workgroup to discuss ways to enhance the ability of local tug assets to respond to a distressed vessel in need of assistance due to engine failure, rudder failure, or any other failure which compromises the safe navigation of a vessel. DEC is a participating agency and has committed to purchasing an emergency towing system (ETS) for vessels greater than 50,000 DWT and the City of Unalaska is purchasing an ETS for vessels less than 50,000 DWT. The goal of the system design is to make the system deployable from a rescue vessel or deployable from a disabled vessel. The towing systems will be located in Unalaska. DEC project website:

<http://www.dec.state.ak.us/spar/perp/aiets/home.htm>

## **Aleutians Subarea Contingency Plan for Oil and Hazardous Substance Spills and Releases**

The current plan is dated September 1999, and is undergoing revision. The plan pre-dates the *M/V Selendang Ayu* incident, and the update will include improvements to the entire plan based on the information and lessons learned from that incident. Additionally, the GRS and PPOR currently under development, along with the vessel traffic study will be incorporated into the plan. The target date for publishing the revision to the plan is Spring 2008.

### **Contact for the Alaska Department of Environmental Conservation:**

Leslie Pearson, Prevention & Emergency Response Program Manager (907) 269-7543



## **Alaska Department of Environmental Conservation**



### **Alaska Aleutian Island Coastal EMAP**

#### **Project Description**

The Environmental Monitoring and Assessment Program (EMAP) is a national research program led by EPA's Office of Research and Development (EPA-ORD). It is intended to develop the scientific tools and agency partnerships needed to broadly assess the status and trends of significant ecological systems.

During the 2006-2007 summer field sampling season, DEC, in partnership with the UAF School of Fisheries, is in the process of a regional survey of the Aleutian Islands coastal waters. The core set of parameters that are included in the EMAP protocol that ensures the consistency and comparability of data from all coastal states includes several oceanographic and water quality parameters, sediment toxicity analyses, sediment chemistry, tissue chemistry, fish pathology, benthic community analyses, and fish community analyses. This will provide a more complete evaluation and assessment of ecosystem "health" or condition than more traditional monitoring, which typically emphasizes single media and a stand-alone approach.

Critical to the EMAP assessment process is the sampling design utilizing a probabilistic, stratified-random approach. This approach enables interpretation of the general ecological health of large areas, such as the Aleutian Islands, to be assessed with a relatively small number of sampling sites. Approximately 50 sites will be sampled during the 2006-2007 survey.

#### **Overall Goals and Objectives**

Two goals of the 2006-2007 Aleutian EMAP are 1) to assess the spatial extent of ecological conditions based on several measured indicators of marine environmental quality and 2) establish baseline measurements to evaluate future changes in environmental quality or condition.

Alaska's Aleutian coastal environmental concerns include the following (not prioritized):

- Introduction of non-indigenous aquatic nuisance species.
- Effect of localized inputs from contaminated sites on the marine environment.
- A better understanding global contaminants inputs to the Aleutian Islands.
- Dredging and other sediment-related issues.
- Direct and indirect effects of harvesting fish, shellfish, plants or algae.
- Development of appropriate mixing zones for point source discharges,
- Short and long-term effects of oils spill on the Aleutian coastal ecosystems.
- Developing a better understanding of ecosystem shifts.
- Leakage of radionuclides from the former Amchitka Underground Nuclear Test Site.

EMAP coastal assessment data may help to evaluate several of these concerns by providing background or context data (e.g. toxic contaminants, benthic habitat), specific data (e.g. benthic invertebrates for possible non-indigenous species or to extend geographic ranges of species), or a sampling platform for other projects assessing the status of the ecosystems in this region.

**DEC website:** <http://www.dec.state.ak.us/water/wqamp/emap.htm>

**Contact for the Alaska Department of Environmental Conservation:**  
Doug Dasher, Water Quality Monitoring Section Manager (907) 451-2172

## Alaska Region Marine Research Planning

Keith Criddle, Ph.D.  
Fisheries Division  
University of Alaska Fairbanks  
School of Fisheries and Ocean Sciences

Brian Allee, Ph.D.  
Director, Alaska Sea Grant  
University of Alaska Fairbanks  
School of Fisheries and Ocean Sciences



## Mission Statement

Connect coastal stakeholders with state and federal resource agencies in a partnership to develop and prioritize management-critical research and information needs that contribute to sustainable management of Alaska's marine, coastal and estuarine resources.



## Goal

Assist Alaska resource agencies in their development of a statewide comprehensive marine research and information plan through stakeholder involvement.



## Background

34,000 miles of coastline, twice the rest of U.S.

- Bering Sea
- Gulf of Alaska
- Chukchi Sea
- Beaufort Sea
- Western Arctic Ocean



## Resource Rich Ecosystems

- Seafood, oil, gas, transportation routes, tourism, breathtaking scenery
- 50% of the nation's domestic seafood harvest, \$1.3B/Yr.
- Eight of nation's top 20 seafood ports in value. Port of Dutch Harbor in the Aleutians is number two, behind New Bedford, Mass. Dutch Harbor is number one in volume, with 911 million pounds delivered in 2006.
- 17 cetaceans including bowhead, humpback, gray whales, highly endangered northern right whale.
- Marine mammals including polar bears, Steller sea lions, fur seals, sea otters.
- 14 percent of daily U.S. oil production. Vast untapped reserves believed to exist offshore and in coastal margin.



## Vibrant Native Culture

15 percent of Alaska population (98,000)

- North/Northwest: Inupiaq/Yupik Eskimo
- Aleutian Islands/Alaska Peninsula: Aleut-Alutiiq-Unangan Eskimo
- Southwest: Yup'ik/Cup'ik Eskimo
- Southeast: Tlingit-Haida-Tsimshian Indian



## BUT...

Alaska is too big; its marine waters too vast and diverse; and resource use far too complex for one marine research plan. One size does not fit all.



## Strategy

Plan by region, beginning with the Aleutian Islands Archipelago.



## Beneficiaries

NPFMC  
Alaska Marine Ecosystem Forum  
ADF&G  
NOAA Fisheries  
USFWS  
EPA  
Coastal Communities  
CDQ groups  
DEC  
DNR  
NPS  
Alaska Coastal Zone Management Program  
Minerals Management Service  
AOOS



## Completed Work

- I.) Established Steering Group
- II.) Briefed key agency officials
- III.) Finalized approach basis
- IV.) Began assembling, reviewing current research plans
- V.) Established Web site construction/  
Initiated database management system



## I. Steering Group as of November 2006

- Douglas DeMaster, NOAA Fisheries
- Stephanie Madsen, Chair, North Pacific Fishery Management Council
- Kurt Frederickson, Commissioner, Alaska Department of Natural Resources
- Denis Wiesenburg, Dean, UAF School of Fisheries and Ocean Sciences
- Keith Criddle, Ted Stevens Distinguished Professor of Marine Policy, UAF
- Brian Allee, Director, Alaska Sea Grant
- Heather Brandon, Ocean Policy Coordinator, Governor's Office



## II. Agencies Briefed

- Aleutian Marine Ecosystem Forum
- NOAA Fisheries
- North Pacific Fishery Management Council
- Aleutian Marine Ecosystem Forum
- North Pacific Marine Research Board
- Alaska Department of Fish and Game
- Alaska Department of Environmental Conservation
- Alaska Department of Natural Resources
- Alaska Governor's Office
- University of Alaska





### III. Approach

Research serving management critical needs

- Allows for highly focused research on a broad range of topics.
- Enables the project to meet state and federal mandates of conducting research that leads to enhanced stewardship and sustainability of marine resources.
- Provides opportunities for meaningful stakeholder input.



### IV. Assemble/Review Current Marine Research Plans for the Aleutian Islands Archipelago

Gather, summarize and incorporate marine research plans into user-friendly internet accessible database accessible to public. Will include all state, federal, local government and NGO research plans covering marine issues. Database allows new plans and updated plans to be added as needed.



### V. Web Site Construction

- Critical link between project and public
- Contain public-access database of statewide marine research plans
- Platform for virtual town meetings
- Online forum for public comment, exchanging views on research issues
- Blog spot for investigators to communicate with public



### Work: Fall 2007

- Brief Governor Palin Administration officials, new NPFMC leadership
- Determine Governor Palin Administration research priorities
- Brief new members to Steering Group to replace
  - Stephanie Madsen, DEC
  - Kurt Fredrickson, DEC
  - Heather Brandon, Alaska Marine Policy Cabinet
- Conduct stakeholder meetings
- Review/amend Governor Murkowski Administration research priorities



### Deliverables

- Establish a Regional Coordination Group to oversee planning and implementation of the research and information strategy.
- Conduct a marine research and information needs assessment with broad user and stakeholder input for the Aleutian Islands region. The assessment will identify research and information gaps, and produce the top 10 research needs, prioritized according to management-critical needs. The final assessment, and associated products, will be offered as a downloadable publication.



### Deliverables

- Develop communication mechanisms to ensure the transfer of information to the appropriate end users, and feedback from users, to stay abreast of needs and concerns.
- Provide an ongoing platform for coordination, collaboration, and resource sharing among participants.
- Coordinate, facilitate, and produce a publication for agencies, researchers, user groups, and stakeholders that characterizes the research portfolio by Alaska region.



## Near-Term Work

- Gain support of new state officials, new NPFMC leadership
- Follow up meetings with Aleutian Ecosystem Forum, NPFMC
- Encourage state retention of ocean policy advisor
- Recruit new members to Steering Group to replace:
  - Stephanie Madsen, NPFMC
  - Kurt Frederickson, DNR
- Hold virtual and real meetings in Aleutian communities
- Finish web site construction
- Post research plan database online



## Hurdles

- State leadership changes
- NPFMC leadership changes
- Elimination of Ocean Policy Advisor



NOAA

*Arctic Change – A Near-Realtime Arctic Change Indicator Website*

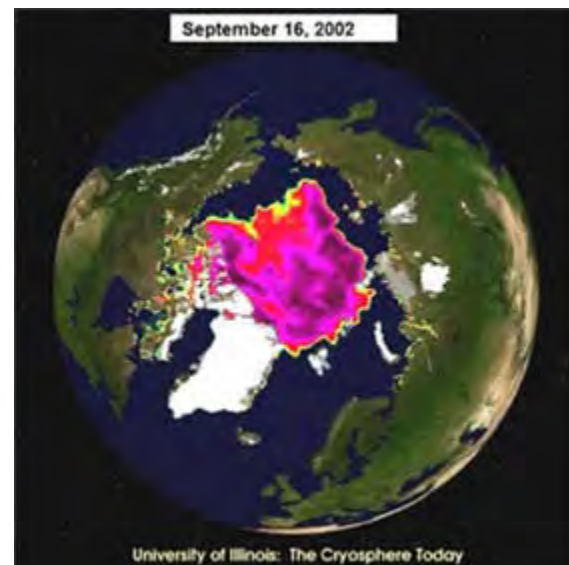
*<http://www.arctic.noaa.gov/detect/human-access-arctic.shtml>*

## **Changing Marine Access in the Arctic Ocean – A Strategic View for the 21st Century [ACIA](#) Symposium Extended Abstract**

Provided by  
Lawson W. Brigham  
U.S. Arctic Research Commission  
420 L Street, Suite 315  
Anchorage, Alaska 99501 USA

**Marine access in the Arctic Ocean changed in unprecedented ways during the second half of the 20th century.** The Arctic Climate Impact Assessment (ACIA) has documented substantial observational evidence that the sea ice cover is undergoing profound changes including: a steady decrease in extent with larger areas of open water during summer; decreasing coverage of multi-year sea ice in the Central Arctic Ocean; and, thinning of sea ice throughout the Arctic Ocean. These changes have implications for a host of marine uses such as shipping, offshore development, fishing, indigenous hunting, tourism, and scientific exploration.

**In addition to these well-documented environmental changes, icebreaker access to nearly all regions of the Arctic Ocean has been attained by the end of the 20th century.** During 1977-2004, 52 transits have been made to the Geographic North Pole by the icebreakers of Russia (42), Sweden (4), Germany (2), USA (2), Canada (1), and Norway (1) [remarkably, eight successful transits by surface ships to the North Pole were conducted during the summer of 2004]. Thirteen of the voyages were in support of scientific research and the remaining 39 were devoted to tourist voyages to the North Pole and across the Arctic Ocean. Only one voyage of the 52 was not conducted in summer and that was the nuclear icebreaker Sibir's (Russia) celebrated voyage which supported scientific operations 8 May to 10 June 1987 (reaching the North Pole 25 May 1987). During the decade of the 1990's, five historic trans-Arctic voyages were accomplished: a transit across the Central Arctic Ocean by the nuclear icebreaker Sovetskiy Soyuz (Russia) with tourists in August 1991; transits by the Louis S. St Laurent (Canada) and the Polar Sea (USA) during July and August 1994 from Bering Strait to the North Pole and to Svalbard - the first scientific transect of the Arctic Ocean conducted by surface ship; and, two crossings by the nuclear icebreaker Yamal (Russia) with



Arctic sea ice extent on September 16, 2002, a summer minimum for 1900-2002. Note the large areas of open water north of Alaska and Siberia which are already occurring in the Summer Arctic. From the [University of Illinois](#).

tourists in 1996. During the late summer of 2004, a small 'armada' consisting of the nuclear icebreaker Sovetskiy Soyuz, the icebreaker Oden (Sweden) and the icebreaking ship Vidar Viking (Norway), out-fitted for drilling, conducted a unique scientific drilling voyage in the remotest reaches of the Arctic Ocean. A review of these pioneering voyages provides substantial confirmation that marine access in summer throughout the Arctic Ocean has been achieved by highly capable icebreaking ships.

**Within ACIA, projected changes in Arctic sea ice coverage were evaluated in the context of potential improvements in marine access.** The evaluation is based on monthly fields of sea ice from simulations by five different global climate models (GCMs), each forced by the conservative, Intergovernmental Panel on Climate Change (IPCC) B2 scenario of increasing greenhouse gas concentrations. While continued greenhouse warming reduces sea ice coverage in the five model simulations, especially during summer and in all the coastal Arctic seas, there is a considerable range among the retreats projected. One model projects an ice-free Arctic Ocean in summer by mid-century. Overall, the seasonality of the retreats projected by the models (largest in summer) is consistent with trends in the observed sea ice coverage during the past five decades. The suite of plausible, alternative futures of Arctic sea ice during the ACIA time periods (2010-2030, 2040-2060, and 2070-2090) represents a first-order, strategic guide to future marine access in the Arctic Ocean.

**The work of ACIA also included first-order attempts at regional assessments for the Northwest Passage (NWP) in the Canadian Arctic and the Northern Sea Route (NSR)** along the northern Eurasian coast. Two serious constraints limited an adequate ACIA assessment of the NWP: the GCMs could not resolve the complex geography of the Canadian Archipelago; and, the observed sea ice trends analyzed by the Canadian Ice Service, although negative for sea ice extent since the late 1960's (in both the eastern and western regions of the NWP), indicated a very high inter-annual variability of coverage. Sea ice simulations conducted for the NSR (analyzing the region from Kara Gate in the west to Bering Strait) were more successful and these indicated decreasing sea ice coverage and plausible increases in the length of the NSR navigation season throughout the 21st century. Many of the simulations show retreating ice conditions along the NSR, but with ice consistently present at the northern tip of Severnaya Zemlya; such model results imply, for example, a potential reliance on a transit route through Vilkitskii Strait between the Kara and Laptev seas, rather than a more northerly route in the open Arctic Ocean.

**The sea ice analyses conducted during ACIA have provided the foundation for an initial attempt at construction of an 'Arctic sea ice atlas of the future.'** Climatological sea ice atlases of the Arctic Ocean and regional seas have been developed by several Arctic nations during the 20th century. Unlike these earlier atlases based on the observed record, this new atlas will be based primarily on GCM projections of Arctic sea ice conditions for the remainder of the 21st century. Illustrated will be the 5-model median Arctic sea ice simulations for the ACIA time slices, and simulations for single models over a complete annual cycle. Although some uncertainty remains in the projections, the intent of the atlas will be to provide a strategic, long-range view of plausible futures of sea ice and potential marine access throughout the Arctic Ocean. The atlas will be designed as a strategic planning tool and potentially can be a vehicle to provoke wide-ranging discussions about the future of the Arctic Ocean.

**Find more information (references and websites):**

- [ACIA](#) Symposium

## Alaska Marine Ecosystem Forum Anchorage, Alaska

Molly McCammon, Director  
Alaska Ocean Observing System  
(AOOS)  
A Regional Observing System  
within the Integrated Ocean Observing System  
www.aos.org

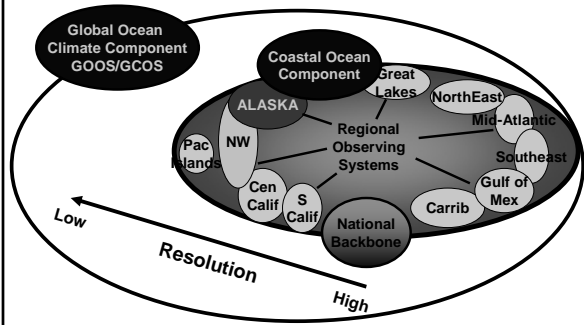
## IOOS (National) Vision & Goals

VISION: *To better detect, assess & predict effects of large-scale changes in oceans on coastal ecosystems, resources & human populations by seamlessly linking observations, models & data, in order to:*

- Improve prediction of climate change impacts
- Improve safety & efficiency of marine operations
- More effectively protect & restore healthy coastal ecosystems
- Sustain marine resources
- Mitigate effects of natural hazards
- Reduce public health risks
- Improve national security

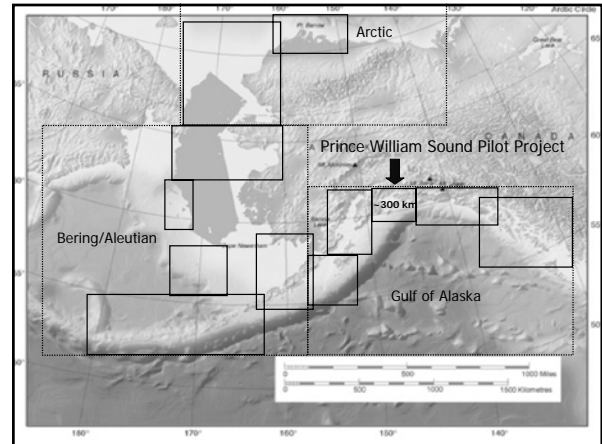
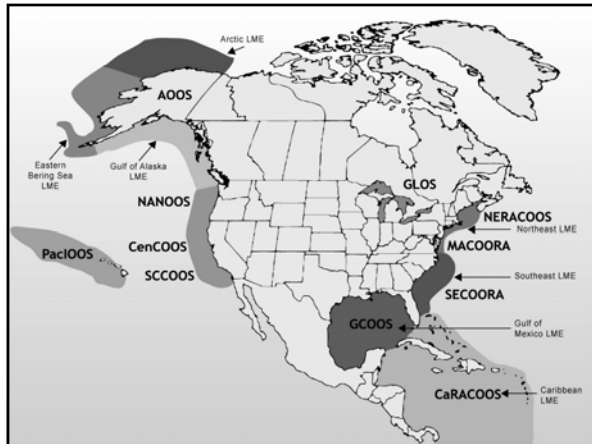
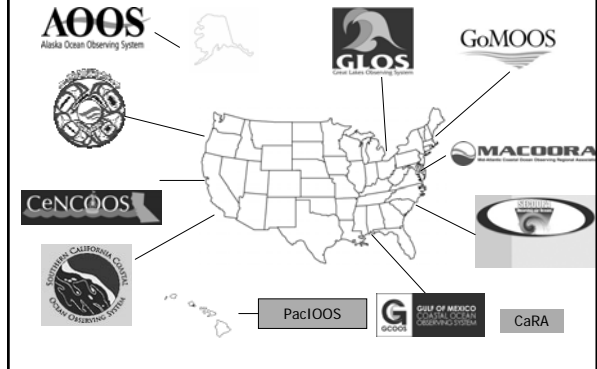
(adapted from: *An Integrated and Sustained Ocean Observing System, Ocean.US 2002*)

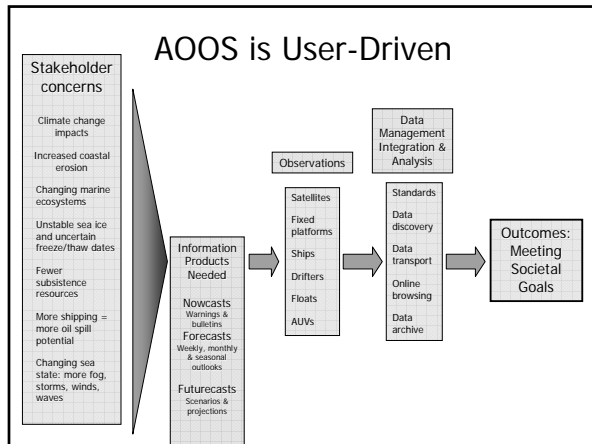
## U.S. IOOS Multi-Scale System



3

## 11 Regional Associations All at various stages of maturity



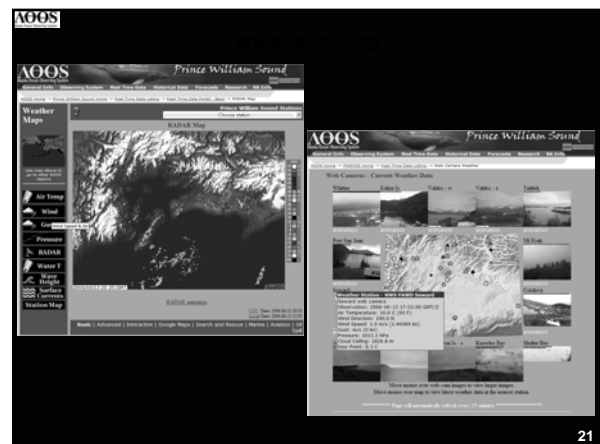


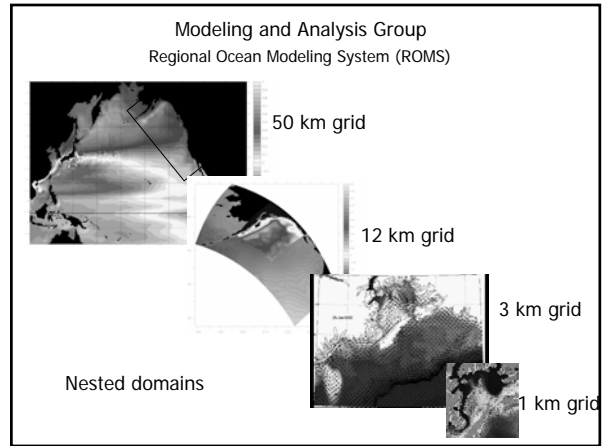
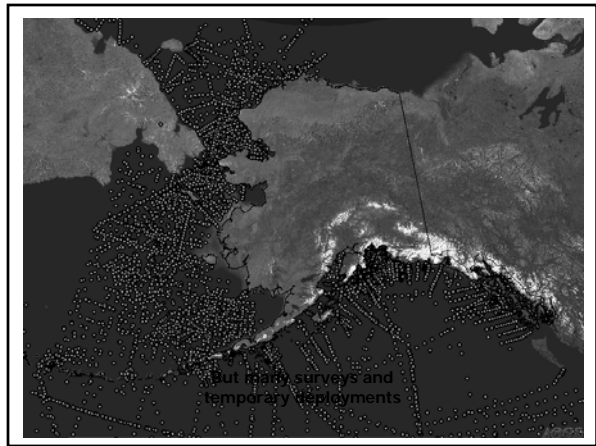
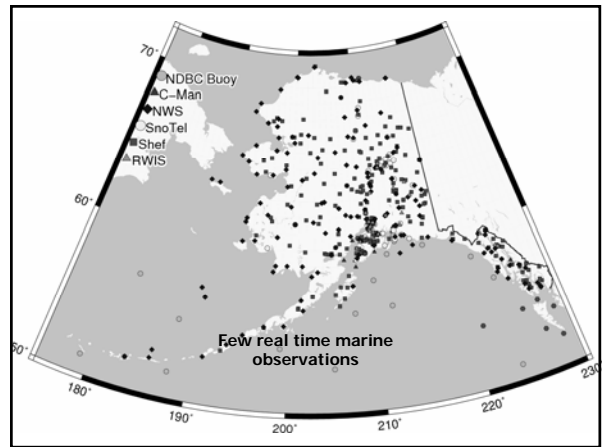
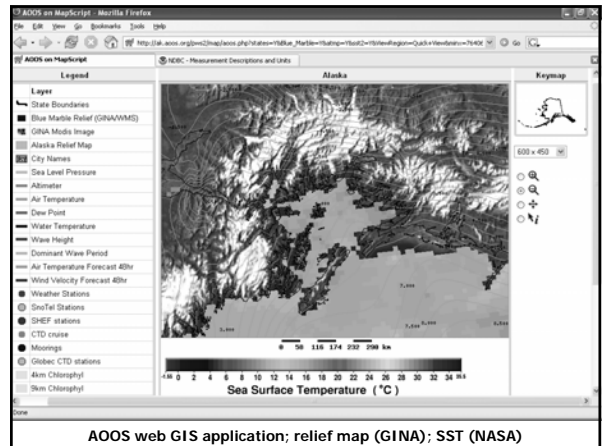
- ## AOOS: Partnership of Industry, Government, Non-Profits and Academia
- (not a complete listing)*
- Industry/Stakeholders**
    - Fishing companies
    - Fishermen
    - Shipping – marine navigation
    - Oil services
    - Subsistence users
    - Recreation
    - Aquaculture/mariculture
    - Tourism
    - Value-added research
  - Government**
    - State: fisheries, water quality, seafood, coastal managers
    - Federal: resource managers, researchers, search & rescue, oil spill response
    - Tribal: Alaska Native communities
    - Local: coastal cities, boroughs and ports
  - Non-Profits**
    - North Pacific Research Board
    - Prince William Sound Science Center/OSRI
    - Barrow Arctic Science Consortium
    - Alaska SeaLife Center
    - Alaska Native Science Commission
  - Academia**
    - University of Alaska
    - Others

- ## AOOS Stakeholder needs
- based upon 100+ meetings & interviews*
- Safe marine operations**
    - Improved, real-time ocean conditions and forecasts
    - Real-time sea ice conditions (thickness, extent, movement) and forecasts
    - Improved search and rescue
    - Oil spill response
  - Fisheries, changing marine ecosystems**
    - Climate change impacts
    - Ocean temperatures, acidity, salinity
    - Changes to food webs
    - Impacts to commercial & subsistence uses
  - Natural hazard mitigation**
    - Coastal erosion impacts
    - Wave height & direction and storm surge modeling
    - Landfast and sea ice conditions
  - Climate change impacts**
    - Changing ocean conditions – nowcasts and forecasts
    - Changing sea ice
    - Changes to freshwater input
    - Changes to sea ice thickness, extent, freeze-up and break-up

- ## AOOS VISION: Statewide Strategy
- Identify gaps in national backbone to meet larger, more statewide and national needs
  - Develop strategy to fill in gaps – influence federal agency budgets
  - Integrate obs that cross agency missions & disciplines
  - Develop large model domains
- 

- ## Data, Modeling & Analysis Group
- Data management & integration
  - Web design
  - Data mining & analysis
  - Model validation & assessment
  - Satellite imagery reconfiguration
  - Data & metadata discovery
  - GIS dataset discovery & development
  - Biological & physical oceanography modelers







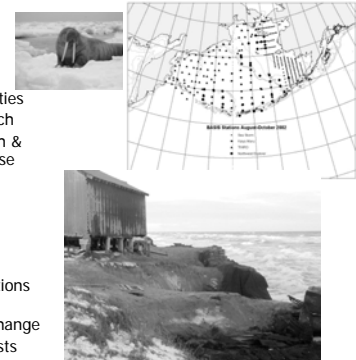
## AOOS VISION: Arctic

- Users
  - offshore oil & gas
  - shipping/navigation
  - subsistence hunting
  - resource managers
  - Native communities/planners
  - climate change researchers
- Information products
  - sea ice & fog forecasts
  - real time sea ice movement
  - ocean circulation patterns
  - climate change indicators
  - improved weather forecasts
  - coastal erosion prediction
  - marine mammal tracking



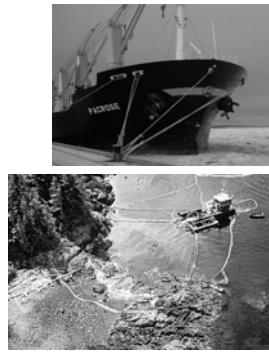
## AOOS VISION: Bering Sea/Aleutians

- Users
  - commercial fishing
  - subsistence; communities
  - climate change research
  - safe navigation: search & rescue & oil spill response
  - resource managers
- Information products
  - sea ice & vessel icing forecasts
  - coastal erosion predictions
  - fisheries/ecosystem productivity – climate change
  - wind and wave forecasts

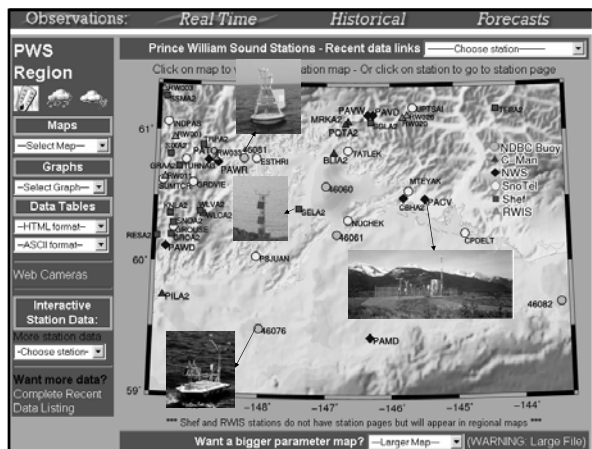
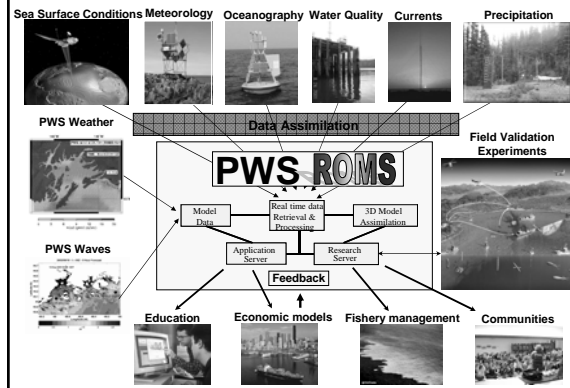


## AOOS VISION: Gulf of Alaska

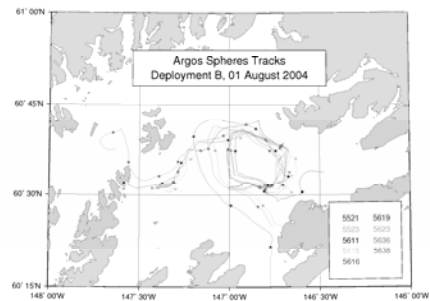
- Users
  - navigation services
  - commercial fishing
  - recreational boaters
  - oil & gas development
  - search & rescue
  - tourism
  - managers
  - aquaculture/mariculture
- Information products
  - marine sea state & icing conditions
  - ocean circulation patterns
  - coastal erosion predictions
  - nowcast/forecasts for search & rescue & oil spill response
  - fisheries/ecosystem productivity
  - HAB forecasts



## PWS Demonstration of an "End to End" System



## Field experiment Summer 2008



## Climate Change Impacts.....

- Navigation safety – more wind? Storms?
  - Coastal communities: increased inundation & erosion
  - Changing ecosystems – birds, fish, marine mammals
  - Changes to commercial, recreation & subsistence fisheries
  - What about sea ice?
  - Increased potential for HABs
- In other words, almost everything ocean & coastal in Alaska!*

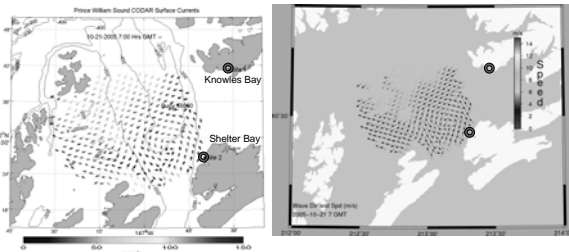
## Changing sea ice conditions: Coastal sea-ice radar off Barrow



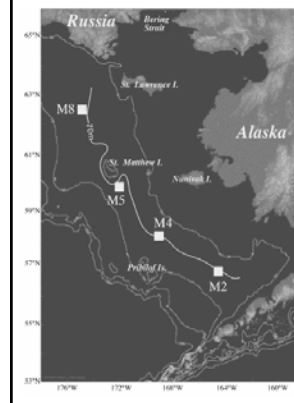
Hajo Eicken, Geophysical Institute  
University of Alaska

- real time data radar system
  - sea ice edge motion
  - “break out” events
- ice mass balance site
- next radar at Nome
- future radars:
  - Prudhoe Bay
  - Kaktovik

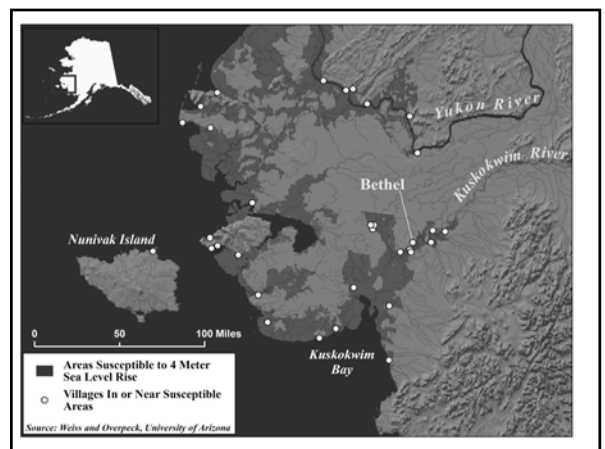
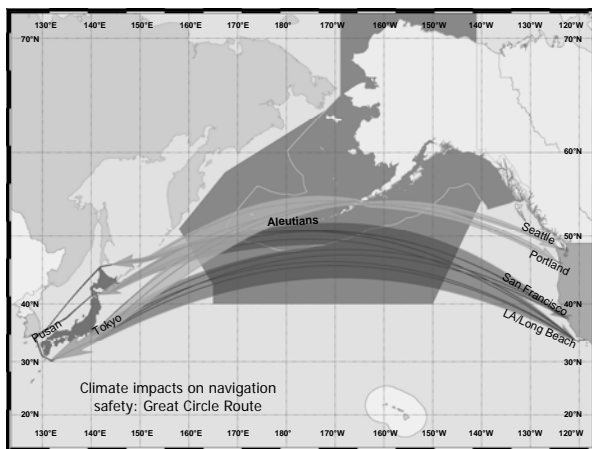
## Changing ocean currents: COastal raDAR (CODAR) real-time surface current mapper



## Changing ecosystems: Monitoring the Bering Sea



- 4 moorings along the 70-m isobath: temperature, salinity, fluorescence, nutrients, currents
  - Spring and fall hydrographic transects: temperature, salinity, O<sub>2</sub>, fluorescence, nutrients, chlorophyll, zooplankton
- Results**
- 5th consecutive year with reduced ice cover (80-100% reduced from 1972) and increased temperature (~3°C).
  - Sharp front divides the warmer, more saline southern shelf from the colder, fresher northern shelf.



### Questions to Federal & State Managers

- What are the main issues facing you?
- What decisions do you need to make?
- What information do you need to make those decisions?
- What information is missing?
- How do you want the information made available?

### US Commission on Ocean Policy Recommendations

- 4 essential regional information needs
  - Research
  - Data collection, monitoring & observations
  - Development of useful information products
  - Outreach, education, training, tech assistance
- Entity that includes information providers & end users needs to be tasked with this
- IOOS Regional Associations could be this entity

### Challenges for AMEF

- What should be relationship between AMEF & AOOS?
- Should AMEF be modified to allow for recommendations & priority-setting?
- How should stakeholders and user groups be involved?
- Are all the essential parties at the table?
- How should this forum coordinate efforts with others – e.g., NSSI, AOOS, etc.?

### **Alaska Ocean Observing System**

**1007 W. 3<sup>rd</sup> Avenue, Suite 100  
Anchorage, Alaska**

**[www.aos.org](http://www.aos.org)**

# Prince William Sound ...

- contains approximately 3,500 miles of coastline, including hundreds of islands;
- has two major entrances: Montague Strait (west) and Hinchinbrook Entrance (east);
- is used extensively by transoceanic shippers, oil tankers, state ferries, fishing boats, cruise ships, sailboats, and kayaks;
- is relatively protected from severe weather in the adjacent Gulf of Alaska; and
- takes in large, seasonal additions of fresh water from rivers and melting glaciers that result in rich marine habitat for plankton, fish, marine mammals, and people.

Since the mean tidal range in Prince William Sound is about three meters, all mariners need to consider the currents created by the ebb and flood of the tides. When winds and waves are also factors, the velocity of the currents can magnify waves to dangerous heights. Currents are also important in the set and drift of vessels in the tanker traffic corridor leading to the Port of Valdez, as well as the trajectory of drifting debris, icebergs and oil spills.

We have been working with state, federal and private groups to strategically establish and maintain moored weather buoys and ocean sensors, as well as land-based surface current radar and SnoTel stations all over the Sound. These measure phenomena such as the speed and direction of wind and ocean currents, water temperature, salinity, and precipitation. We use these data to create complex numerical simulations, or models, of the atmosphere and ocean. We are now refining the models to the point where they can more accurately mimic the phenomena indicated by the observed data—and then forecast what will happen if a variable changes.

This information will be used in products needed by fishers, boaters, recreationists, resource managers and others to make better decisions about how to use the ocean environment.

Our partners in Prince William Sound include Chugach Regional Corporation, the National Data Buoy Center, the National Resources Conservation Service, the Prince William Sound Aquaculture Corporation, the Prince William Sound Regional Citizens' Advisory Council, the University of Alaska Fairbanks, the US Coast Guard, the US Forest Service, and the Village of Tatitlek.



*The rocky shores and temperate rainforests of the Sound are home to many species of seabirds. Photo: Exxon Valdez Oil Spill Trustee Council*



*Glaciers provide huge seasonal inputs of fresh water to the Sound and influence coastal currents. Photo: Exxon Valdez Oil Spill Trustee Council*



*The intricate coastline of the Sound contains many small bays and islets, presenting a challenge to mappers and modelers. Photo: Exxon Valdez Oil Spill Trustee Council*



[www.pws-osri.org/](http://www.pws-osri.org/)



[www.pwssc.org](http://www.pwssc.org)



[www.ocean.us/](http://www.ocean.us/)

**AOOS**  
Alaska Ocean Observing System

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[www.aos.org](http://www.aos.org)



## Alaska Ocean Observing

### A Pilot Project in Prince William Sound

Improving our ability to observe and forecast changes in Alaska's oceans



The Alaska Ocean Observing System is building a network of observation platforms and forecast models that will provide information products and tools to improve our understanding of Alaska's ocean ecosystem and allow us to make better decisions about our use of the marine environment.

**AOOS**  
Alaska Ocean Observing System

[www.aos.org](http://www.aos.org)

# End-to-End Demonstrations of Ocean Observing: Observe ► Forecast ► Use

## Observe: Land- and sea-based platforms record data

### Buoys and Moorings

Telemetered weather buoys operated by NOAA's National Data Buoy Center provide real-time data for modeling ocean circulation. In winter, non-tidal circulation in the Sound results primarily from strong winds and small inputs of fresh water. Summertime non-tidal circulation in the region is driven by buoyancy (freshwater) related effects: winds are weak and freshwater inputs are large from melting glaciers and other runoff from streams.

Oceanographic moorings are located along the continental shelf and at entrances to key embayments to measure seasonal and interannual variation in exchange rates of coastal waters.

### High-Frequency Radar

Two High-Frequency (HF) radar stations have been established at Knowles and Shelter Bays to map surface currents. The remote locations of these stations require the installation and maintenance of independent power sources such as wind turbines, solar panels, and propane generators (Forest Service regulations forbid the use of diesel fuel as a power source). The stations are most useful when both are working; however, maintaining a consistent power source and protecting the instruments from severe weather is an ongoing challenge.

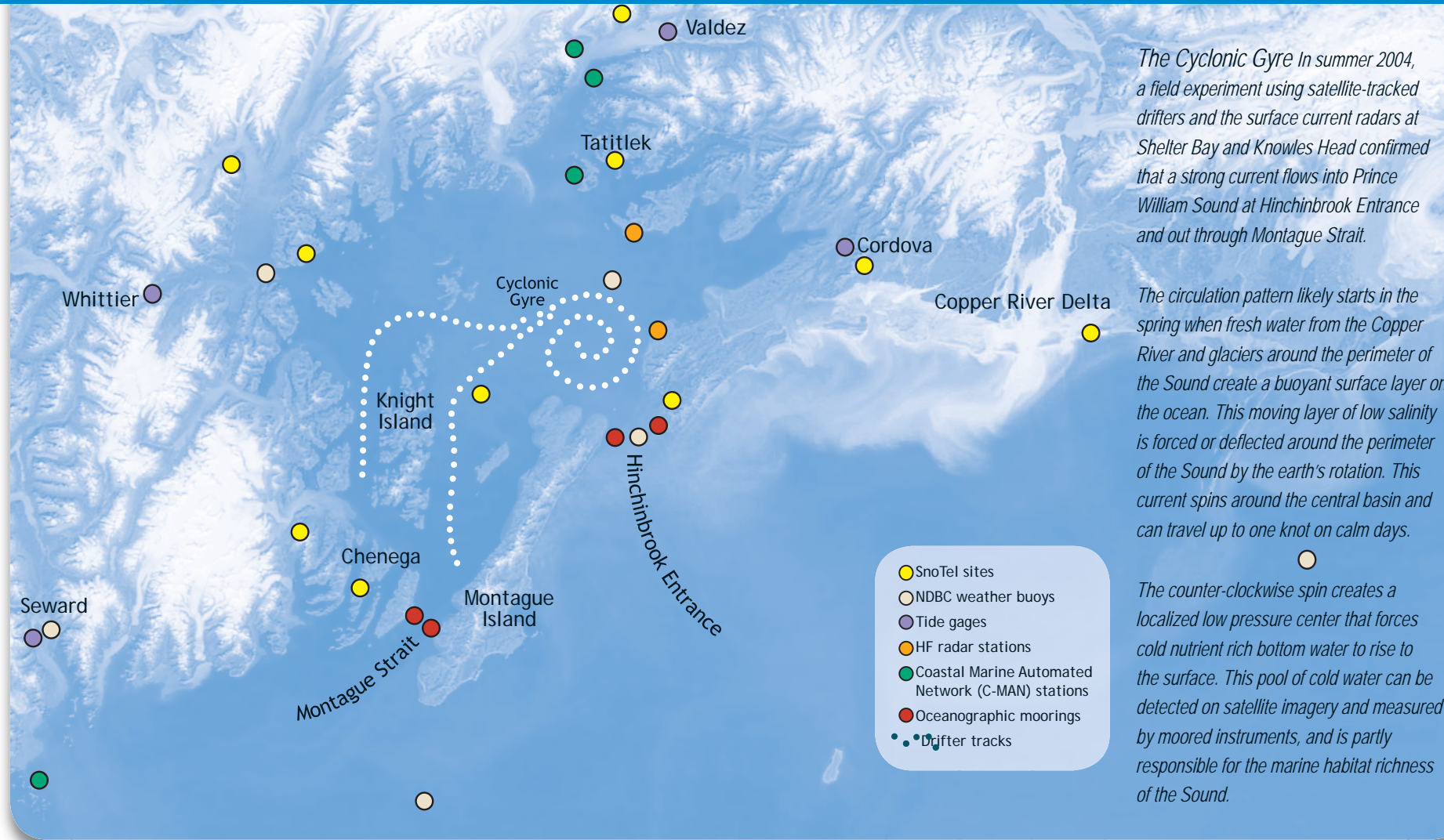
### SnoTel Weather Stations

SnoTel weather stations and monthly snow surveys measure accumulated water stored as snow during the winter. The spring melt and runoff is an important driver of coastal ocean circulation and the spring plankton bloom. The stations are designed to operate unattended for one year, using meteor burst technology to communicate precipitation and weather data in near real time.

### Drifting Data Collectors

The trajectories of argosphere, or "argos," drifters (deployed at the surface) and drogues (deployed ten meters underwater) are strongly influenced by wind speed and circulation. Should dispersants be used following an oil spill in the central Sound, results suggest that the trajectory and fate of subsurface oil would likely differ considerably from the trajectory and fate of untreated surface oil. Argos drifters and drogues helped reveal the presence of a summertime cyclonic gyre in the central basin of the Sound.

Cover photos: Prince William Sound, Exxon Valdez Oil Spill Trustee Council; NOAA buoy, Carl Schoch.



*The Cyclonic Gyre In summer 2004, a field experiment using satellite-tracked drifters and the surface current radars at Shelter Bay and Knowles Head confirmed that a strong current flows into Prince William Sound at Hinchinbrook Entrance and out through Montague Strait.*

*The circulation pattern likely starts in the spring when fresh water from the Copper River and glaciers around the perimeter of the Sound create a buoyant surface layer on the ocean. This moving layer of low salinity is forced or deflected around the perimeter of the Sound by the earth's rotation. This current spins around the central basin and can travel up to one knot on calm days.*

*The counter-clockwise spin creates a localized low pressure center that forces cold nutrient rich bottom water to rise to the surface. This pool of cold water can be detected on satellite imagery and measured by moored instruments, and is partly responsible for the marine habitat richness of the Sound.*

## Use: Information products are online

The AOOS website provides:

- **Data and information products** from remote observation platforms, such as weather buoys, that provide wind and current speed and direction, wave height, sea temperature and salinity, and more.
- **Weather buoy enhancements**, such as current velocity sensors, for specialized local needs.
- **Processed satellite data** that present Alaska-wide information on sea-surface temperature, ocean color (chlorophyll) and wind.
- **Surface current maps** from high frequency radar for the central basin.
- **Biological data** on fish, birds and marine mammals, the environmental effects of human activities, and any other information that can be used with the physical data to predict future changes to the ocean ecosystem.

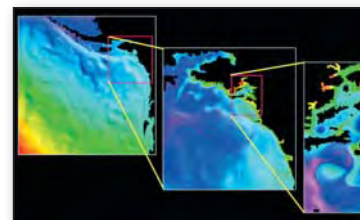
## Direct benefits to user groups

AOOS contributes to safety at sea by helping **commercial fishermen** and **transoceanic shippers** stay informed about ocean and weather conditions. AOOS also provides customized data products for the **oil spill response community** and US Coast Guard **search and rescue** teams.

We link **educators** from formal and informal settings by creating exemplary educational resources for use in and outside of Alaska. We work with **local communities**, including Alaska Native groups, that make their living from the sea by providing relevant environmental data for daily decision-making.



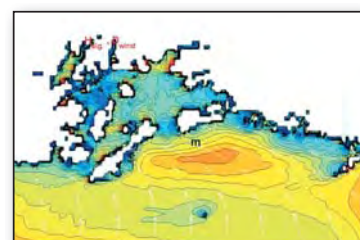
## Forecast: Computer models forecast the dynamics of the Sound



### Circulation: ROMS

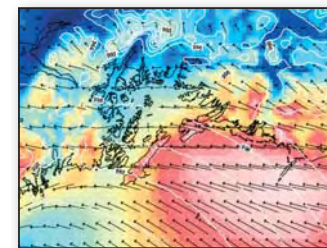
A data assimilation Regional Ocean Modeling System (ROMS) for the Gulf of Alaska is being developed by the University of California-Los Angeles (UCLA) and the NASA Jet Propulsion Laboratory (JPL) to simulate offshore, shelf and embayment circulation. These currents vary

with seasonal cycles of winds and freshwater runoff and represent an important pathway for organisms and climate perturbations to propagate around the Gulf of Alaska and potentially into the Bering Sea and Arctic Ocean. A coupled circulation-ecosystem model capable of producing real-time and forecasted nutrient concentrations and plankton abundances is now under development at the University of Maine.



### Waves: SWAN

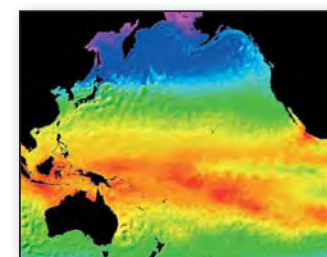
The grid-based Simulating Waves in the Nearshore (SWAN) model is being developed by Texas A&M University. Satellite and in situ wave observations are used to validate the model and artificial intelligence techniques are being explored to improve model results.



### Weather: RAMS, WRF

The Regional Atmospheric Modeling System (RAMS) and the Weather and Research Forecasting (WRF) model are numerical simulations of atmospheric circulation operated by the Alaska Experimental Forecast Facility (AEFF) at the University of Alaska Anchorage (UAA).

They provide accurate meteorological information for use in ocean circulation models and National Weather Service forecasts.



### El Niño Southern Oscillation: ENSO

A Pacific basin-scale numerical model was developed at JPL and will provide boundary conditions for higher resolution coastal models. These coastal models will therefore be linked by the JPL basin-scale model to track the propagation of El Niño Southern Oscillation (ENSO) signals

along the coast of North America to the Gulf of Alaska.

**Sea Ice and Ocean Observing** As part of its mission to develop an integrated ocean observing system for Alaska and the Arctic, the Alaska Ocean Observing System (AOOS) considers sea ice observations to be a key component of an Alaska observing system for the Arctic (Beaufort and Chukchi Seas), the Bering Sea, and Cook Inlet in order to meet stakeholder and resource management needs. In addition, the US Arctic Research Commission (USARC) needs enhanced coastal sea ice observations for Alaska as part of the US contribution to the Arctic Marine Shipping Assessment.

In 2006, AOOS and the USARC established a Sea Ice Working Group (SIWG) to develop strategies for furthering our knowledge of coastal sea ice in Alaska. The SIWG will assess the status of past and current sea ice data for Alaska (Arctic and Cook Inlet), identify gaps in the current observations and research, and provide recommendations to AOOS and to the USARC.

This brochure highlights several **existing, mainly operational** sea ice products for Alaska and will be used to help identify future product needs.

Polar bear photo courtesy National Ice Center



# SEA ICE

Tools for Measuring and Observing  
Sea Ice Along Alaska's Coasts

**AOOS**  
Alaska Ocean Observing System

[www.aos.org](http://www.aos.org)

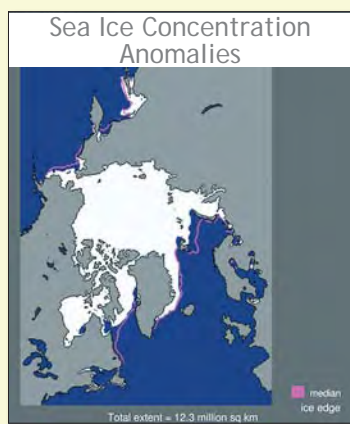
# NATIONAL SNOW AND ICE DATA CENTER

[www.nsidc.org](http://www.nsidc.org)

Established by NOAA to support polar and cryospheric research, NSIDC archives and distributes snow and ice data as well as information about snow cover, avalanches, glaciers, ice sheets, freshwater ice, sea ice, ground ice, permafrost, atmospheric ice, paleoglaciology, and ice cores.

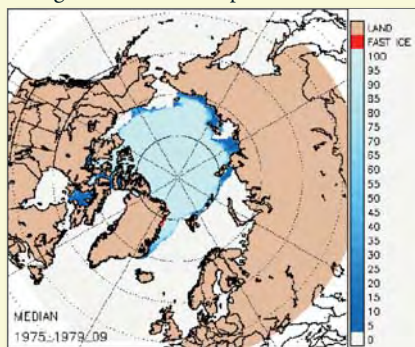


A daily browse image of a Sea Ice Concentration derived from passive microwave data. (Updated several times yearly)

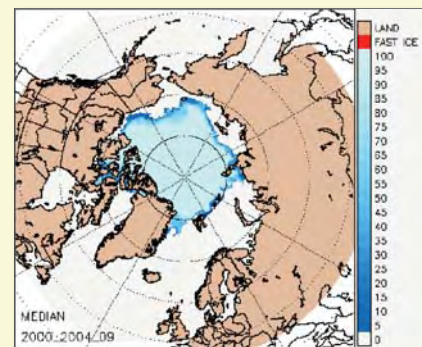


Anomalies in sea ice extent show the difference between where the ice edge is on average, and where it is in a particular month. (Updated monthly)

Passive microwave products have coarse resolutions of 25 km or greater, but are consistent over the entire time series and can therefore be used to derive trends in ice concentration. Arctic Sea Ice Charts and Climatologies are based on operational data that are not consistent over the entire series.



Median sea ice concentration climatology for September for 1975-1979.



Median sea ice concentration climatology for September for 2000-2004.

## Sea Ice Concentrations from Passive Microwave Data

NSIDC provides passive microwave data that show sea ice concentrations (percentage of ocean area covered by sea ice), including daily and monthly averages for polar regions. Images and data set documentation are available at <http://nsidc.org/data/nsidc-0051.html>.

## Sea Ice Index

Images in the Sea Ice Index data set depict average ice conditions, which are estimated using passive microwave data for the most recent month are available, as well as "snapshots" that compare recent conditions with monthly means. Images, animations and documentation are available at [http://nsidc.org/data/seaice\\_index/](http://nsidc.org/data/seaice_index/).

## Arctic Sea Ice Charts and Climatologies

Sea ice concentration climatologies (aggregations of historic climate trends) are derived from the National Ice Center's ice charts. Monthly climatologies include median, maximum, and minimum concentrations, as well as frequency of occurrence of ice for 33-year, 10-year, and 5-year periods. This data set is an important alternative to passive microwave-derived ice concentration, which underestimates summertime ice presence. Data files and documentation are available at <http://nsidc.org/data/g02172.html>.

## Most Frequent Users

Sea ice and climate scientists are the major users of these products. NSIDC distributes other research sea ice data, including many from relatively high-resolution sensors (e.g., NASA Earth Observing System satellites). However, the Data Center expects more non-research users since climatologies are now available in GIS and gridded formats. Summaries of all of NSIDC's sea ice products are available at <http://nsidc.org/data/seaice/>.

## Benefits and Limitations

Products from passive microwave data and data sets based on operational charts have complementary strengths and weaknesses.

# NATIONAL WEATHER SERVICE

<http://pafc.arh.noaa.gov/ice.php>

The Anchorage Weather Forecast Office (WFO) assists the NWS mission to protect life and property and enhance the nation's economy with 24-hour sea ice support. This includes advisories, analysis and short-term forecasts available in text and .gif image formats. Future dissemination includes GIS data (beginning March 2007) and inclusion in the National Digital Forecast Database.

Graphics and descriptions for each of these products are available at <http://pafc.arh.noaa.gov/ice.php>.

## Sea Ice Advisories

Sea Ice Advisories (text only) describe ice conditions in Alaska waters out to five days, and are issued every Monday, Wednesday, and Friday with updates as needed. Advisories also include monthly seasonal outlooks and climatological ice year comparisons. WFO Anchorage issues Marine Weather Statements to warn coastal and at-sea users of dangerous conditions including flash freezes and Ivus/ice shoves (multi-year sea ice run-ups on beaches).

## Sea Ice Analysis Charts

These charts are 1km-resolution graphics for Cook Inlet and the Bering/Beaufort/Chukchi Seas with emphasis on the ice edge and shorefast conditions; they are issued in conjunction with Sea Ice Advisories.

## Sea Ice Forecast Charts

Five-Day Sea Ice Forecasts display "snapshots" of ice conditions expected five days from the issuance date. Interim ice conditions are described in Sea Ice Advisories.

## Sea Surface Temperature (SST) Charts

SST charts are produced every Tuesday and Thursday for the north Pacific and Arctic Oceans from Russia's Kamchatka Peninsula to British Columbia.

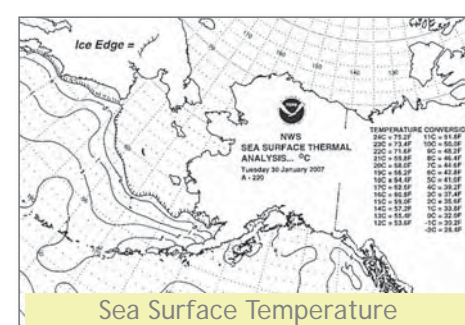
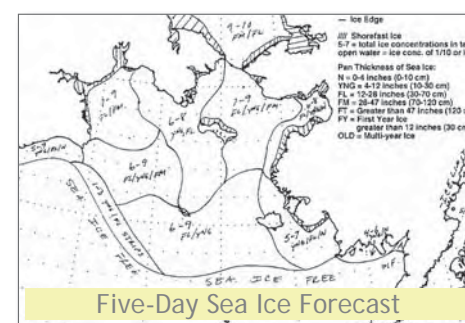
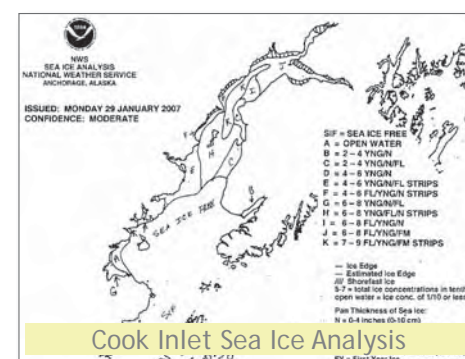
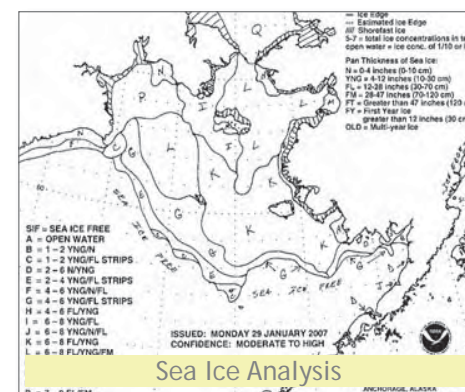
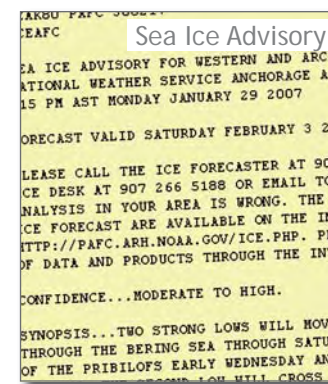
## Most Frequent Users

WFO Anchorage provides 24-hour support specifically for Alaska users: emergency managers concerned about ice formation/concentration and coastal erosion impacts, government agencies, subsistence hunters and fishermen, commercial fishing fleets, boat operators, energy and shipping industries, and navigation safety partners.

## Benefits and Limitations

Graphical products are rich in detail but designed for low-bandwidth dissemination so users can obtain these products in remote locations via satellite internet and HF Radiofax services. Beginning in March, the Sea Ice Analysis will be available in GIS format with the intention of expanding digital services to all graphical sea ice products. Five-Day Sea Ice Forecasts display end results of ice conditions and movement at day 5, but does not display fluctuations that may occur.

See the back panel for a summary of which products best suit different users.



# NATIONAL ICE CENTER (NIC)

[www.natice.noaa.gov/](http://www.natice.noaa.gov/)

NIC is operated by the US Navy, NOAA and the US Coast Guard. Since 1972, NIC has produced sea ice charts using in situ, remotely sensed, and model data for regions containing sea ice.

Digital products include sea ice-edge products consisting of latitude-longitude pairs; sea ice analysis charts in .gif format; and ArcInfo coverages.

## Northern Hemisphere Ice Charts

NIC produces ice analysis charts for regions in the Arctic, the North Atlantic, the Baltic Sea, the Yellow Sea, the Sea of Okhotsk, and the Sea of Japan that contain sea ice. Charts are available at [www.natice.noaa.gov/products/arctic/index.htm](http://www.natice.noaa.gov/products/arctic/index.htm).

## Alaska Ice Charts

NIC produces Alaska regional analysis charts of current ice conditions for regions in the Beaufort Sea, the Chukchi Sea and the Bering Sea that contain sea ice. Charts are available at [www.natice.noaa.gov/products/alaska/index.htm](http://www.natice.noaa.gov/products/alaska/index.htm).

## Arctic Hemispheric Ice Coverage

Northern Hemisphere ice charts are combined and provided as hemispheric analyses in ArcInfo and SIGRID formats. These are available at [www.natice.noaa.gov/pub/arcgis/arctic/arctic\\_hemi/](http://www.natice.noaa.gov/pub/arcgis/arctic/arctic_hemi/) (current year) and [www.natice.noaa.gov/pub/Archive/arctic/](http://www.natice.noaa.gov/pub/Archive/arctic/) (past years).

## Daily Ice Edge and Marginal Ice Zone (MIZ)

NIC analysts adjust daily ice edge contours using additional higher resolution imagery. The MIZ product is similarly generated, but includes the ice edge (ice/no ice boundary) as well as pack ice contour analyses. These are available at [www.natice.noaa.gov/products/edge/index.htm](http://www.natice.noaa.gov/products/edge/index.htm) and [www.natice.noaa.gov/pub/MIZ/](http://www.natice.noaa.gov/pub/MIZ/).

## Most Frequent Users

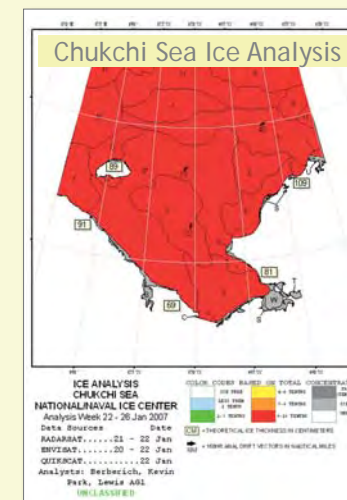
Users of NIC products include both operational users and researchers.

## Benefits and Limitations

NIC charts are used for trip planning and navigation safety. In general, they show more ice than do passive microwave-derived ice concentrations, especially in the summer when passive microwave algorithms can underestimate ice concentration.



Northern Hemisphere Ice Charts: Interactive map of sea ice regions





Seagoing vessels often report changing ice conditions to the NWS Ice Forecaster.  
Photo: Elizabeth Labunski, USFWS



Seals and other marine mammals, as well as seabirds, depend on the presence of sea ice for rest and protection.  
Photo: Kathy Kuletz

## WHICH PRODUCTS ARE BEST FOR MY USES?

### Operational/Applied Users

These users include field camp workers, shippers, US Coast Guard search and rescue teams, and US Navy personnel, as well as whalers and commercial and subsistence fishermen.

These users seek real-time sea ice condition analyses, most often in the form of a chart or picture. They are often on the water, either approaching or already in sea ice, and make navigation decisions based on the most updated information they receive.

#### Most Useful Operational Products

- **National Weather Service**
  - » Sea Ice Advisories
  - » Sea Ice Analysis Charts
- **National Ice Center**
  - » Northern Hemisphere Ice Charts
  - » Alaska regional ice charts
  - » Products are available in EASE-Grid (gridded binary) and GIS-compatible (selected products only) formats; browse images are GIF files.

### Researchers and Forecasters

These users include climate modelers, sea ice scientists, and climatologists.

Researchers are in a position to take best advantage of many of the products from the National Snow and Ice Data Center, which provides data that must be manipulated using Geographic Information System (GIS) software. Images shown on individual NSIDC web pages are large-scale and not likely to be of immediate use to those at sea. However, more “applied science” users may find these data useful now that National Ice Center chart climatologies are available in GIS as well as gridded formats.

#### Most Useful Research Products

- **National Ice Center**
  - » Sea Ice Charts
  - » Climatologies
- **National Snow and Ice Data Center**
  - » Sea Ice Concentrations from passive microwave data
  - » Sea Ice Indices
  - » Arctic Sea Ice Charts and Climatologies



Seabird observers and scientists aboard the US Coast Guard cutter *Healy* amid thick sea ice.  
Photo: Elizabeth Labunski, USFWS

**AOOS**  
Alaska Ocean Observing System

1007 West Third Avenue, Suite 100  
Anchorage, AK 99501  
tel 907 644 6703 • fax 907 644 6780

[www.aos.org](http://www.aos.org)



### Aleutian Islands Fishery Ecosystem Plan

Presentation to the Alaska Marine Ecosystem Forum  
July 26, 2007

### Fishery Ecosystem Plan for the Aleutian Islands

- Pilot case
  - Ecosystem approaches to management, including FEPs, ongoing nationally
  - Opportunity to help define standard, see whether FEPs are useful tool (pilot project)
- AI is unique environment
  - Opportunity to better integrate emerging knowledge of the functioning of the marine ecosystem
  - AI is the least predictable Alaska marine ecosystem, therefore may need to use other tool

### AI FEP Boundary

- Ecological boundary at Samulga Pass

### FEP concept for Alaska\*

- Policy and planning document
  - Intent: educational tool for the Council, to provide an ecosystem context for fishery management
- Attempts to look at all fisheries and activities in the Aleutian Islands ecosystem
  - implications are geared towards fishery managers
- Living document – will be revised and updated
  - this version produced in one year

\* (other regions may do things differently)

### FEP purposes

1. Integrate AI information across FMPs
2. Identify ecosystem indicators for the AI
3. Develop and refine tools, i.e. models
4. Identify uncertainty / research needs
5. Assist Council with management objectives and understanding cumulative effects

### Process for developing FEP

- FEP developed by scientific writing team
  - NPFMC
  - NMFS Science Center, Regional office
  - NOAA's Pacific Marine Environmental Lab
  - Alaska Dept of Fish and Game
  - USFWS
  - North Pacific Research Board
- Public input and review
  - Ecosystem Committee
  - Council process
  - community consultation in ecosystem area

### Contents of FEP

- AI **ecosystem processes** – what do we know about the AI ecosystem
- What are the **key interactions** that we should understand and monitor
- Non-quantitative **risk assessment**: what are the priority concerns
- Implications** of risk assessment: what might the Council do to reduce the risk associated with these interactions?

### Understanding AI ecosystem processes

- Focus on relationships between ecosystem components
- Not encyclopedic reiteration of what is known
- Biological, physical, socioeconomic, management relationships
- Historical context important

### AI ecosystem is distinct from its neighbors: AI has high oceanic influence

### Consumption by sablefish in all 3 ecosystems

Ecosystem	zooplankton	pelagic fish	invertebrates	squid & octopus	pollock	offal
AI	~85%	~10%	~5%	~0%	~0%	~0%
GOA	~35%	~15%	~10%	~25%	~15%	~5%
EBS	~15%	~45%	~10%	~0%	~25%	~5%

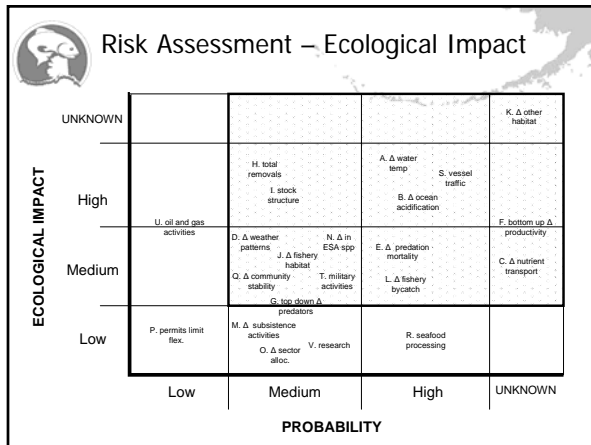
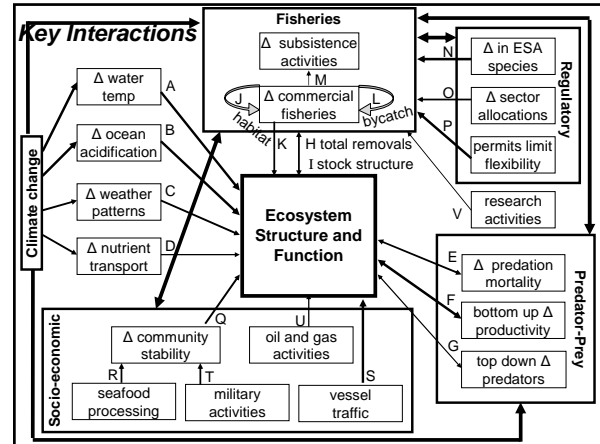
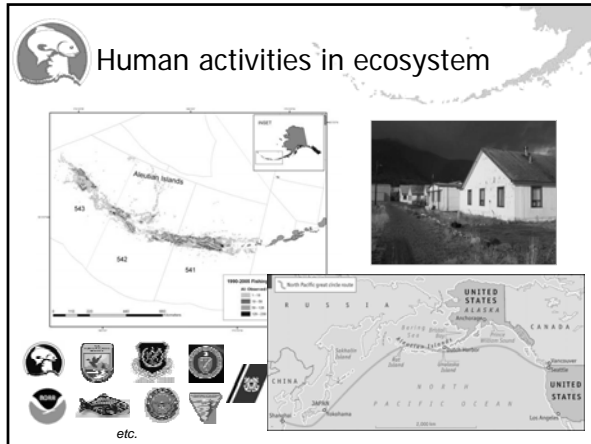
### Biological relationships change along the archipelago\*

\* Based on doctoral research of Dr Ivonne Ortiz, University of Washington

**BIOMASS OF PREY ITEMS**

**COMPOSITION OF DIET**

- Fishes: Plac. Seabirds, Atka, POP, Pollock, Cod
- Plank. Seabirds: SSL
- other groundfish: cod, pollock, atka, rockfish
- cephalopods: sculpins, psp, salmon
- myctophids: krill, fish, crab
- shrimps
- benitic amphipods
- benitic invertebrates
- polychaetes
- euphausiids
- copepods
- gel zooplankton
- other zooplankton
- offal



- ### Implications
- how are Council/NMFS currently addressing risk
  - what else could fishery managers do to mitigate risk
  - indicators for monitoring interactions
  - research plan: what information is needed to understand/better understand interactions

- ### Overarching considerations
- AI should be recognized as distinct ecosystem in fishery management
  - Continue to formalize ecosystem considerations process
    - first step: Council to articulate desirable/ undesirable states of ecosystem
  - Important for Council to be interacting with other agencies that manage activities within the ecosystem
    - Alaska Marine Ecosystem Forum

- ### Relevance to AMEF agencies
- FEP pulls together a lot of information on the AI ecosystem
    - NEPA cumulative effects analyses
  - Affirms importance of information sharing among agencies
  - NPFMC/NMFS request feedback on document (current version available in September)
  - NOAA plans for Integrated Ecosystem Assessments for all ecosystem areas

