



# Unique Role of Oceans & Ocean Observations to Health of Coastal Communities and Fisheries in Alaska

Ocean Research and Resources Advisory Panel (ORRAP)

Washington, DC

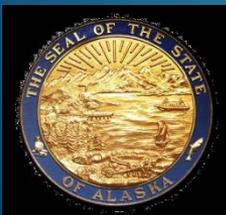
August 12, 2009

Jackie Poston

Alaska Department of Environmental Conservation

Governor's Sub-Cabinet on Climate Change

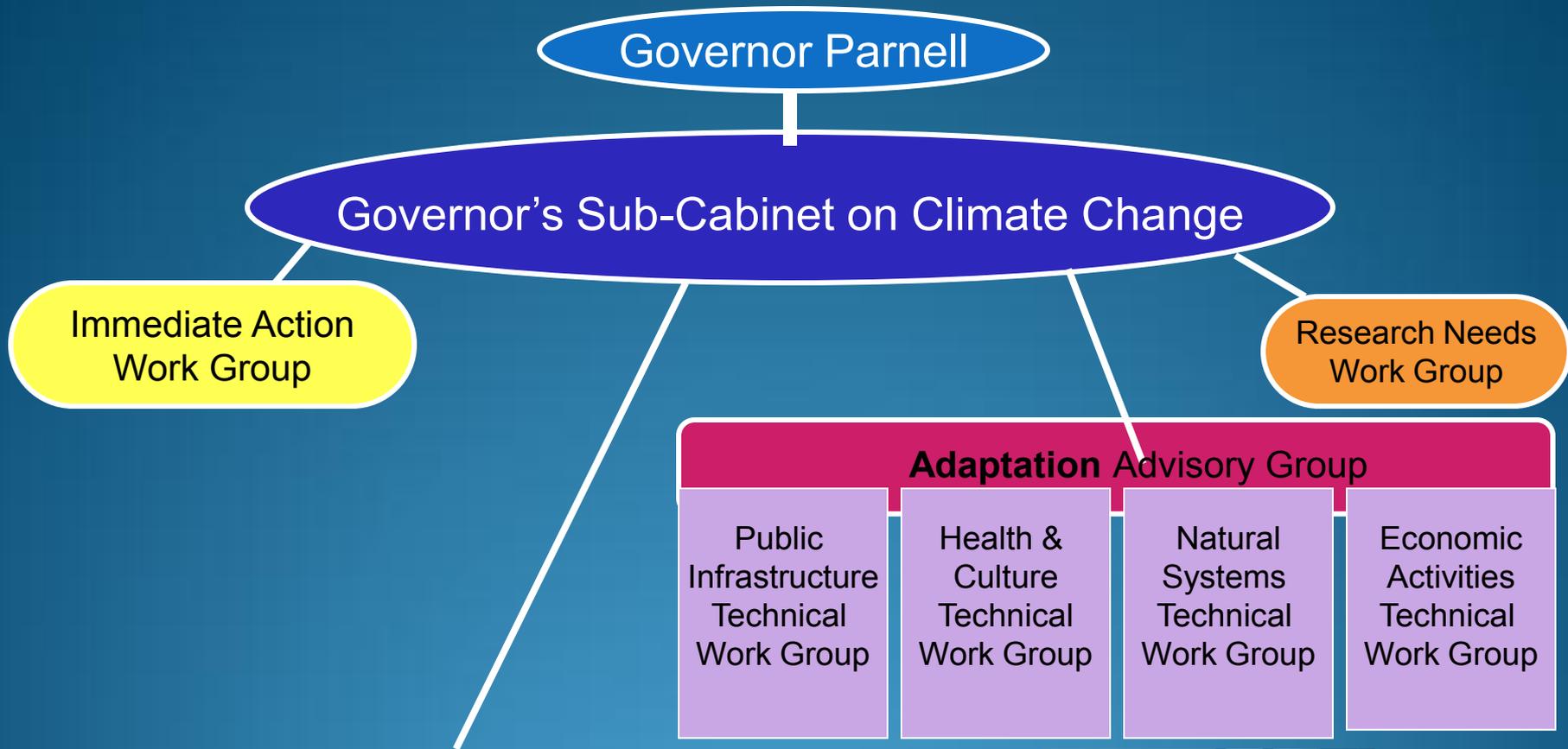
Stakeholder Process



# Governor's Climate Change Sub-Cabinet

- Established by Governor through Administrative Order 238 on September 14, 2007
  - **IMMEDIATE ACTION WORK GROUP** – Created to address threats to most vulnerable communities
  - **MITIGATION WORK GROUP** – Tasked with identifying options to reduce GHG emissions
  - **ADAPTATION WORK GROUP** – Tasked with identifying options to help adapt to and plan for a warming environment
  - **RESEARCH NEEDS WORK GROUP**

# Governor's Climate Change Stakeholder Process



## Mitigation Advisory Group

Oil & Gas  
Technical  
Work Group

Energy  
Supply &  
Demand  
Technical  
Work Group

Transportation,  
Land-Use  
Technical  
Work Group

Forestry,  
Agriculture,  
& Waste  
Technical  
Work Group

Cross-  
Cutting  
Technical  
Work Group



# Importance of Oceans in the Arctic

## THE OCEANS...

### INFORM

Hazard Warnings

Long-term Projections

### SHAPE WEATHER & CLIMATE

### PROVIDE SUPPORT

### FOR:

Resources

Commercial fisheries

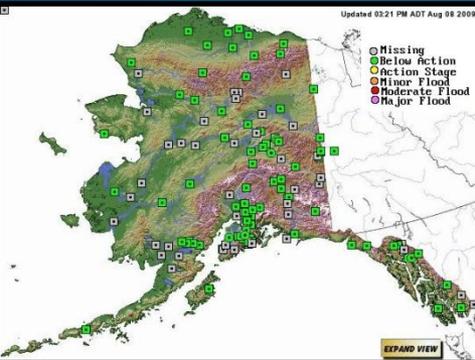
Subsistence foods

Minerals

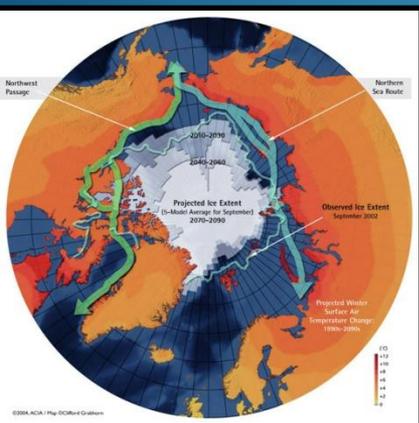
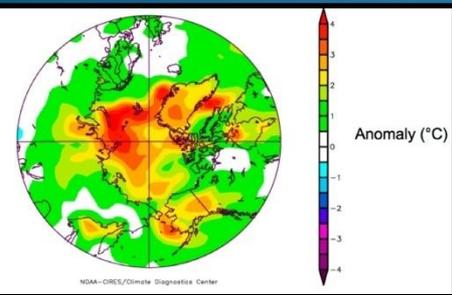
Marine Transport

Tourism

Other



| Map Legend                           |  |
|--------------------------------------|--|
| Hydrograph Available                 |  |
| Probability and Hydrograph Available |  |
| Major Flooding                       |  |
| Moderate Flooding                    |  |
| Minor Flooding                       |  |
| Near Flood Stage                     |  |
| No Flooding                          |  |
| Observation More Than 24 Hours Old   |  |
| Out of Service                       |  |



# Interactions with Ocean form Underpinning for Communities and Various Economies and Cultures in Alaska



Photo courtesy of Steve Ivanoff



Photo courtesy of Dr. John Reynolds



Hundreds of remote communities are accessible only by air or water, have few jobs, and depend heavily on subsistence hunting and fishing. (ISER 2008)

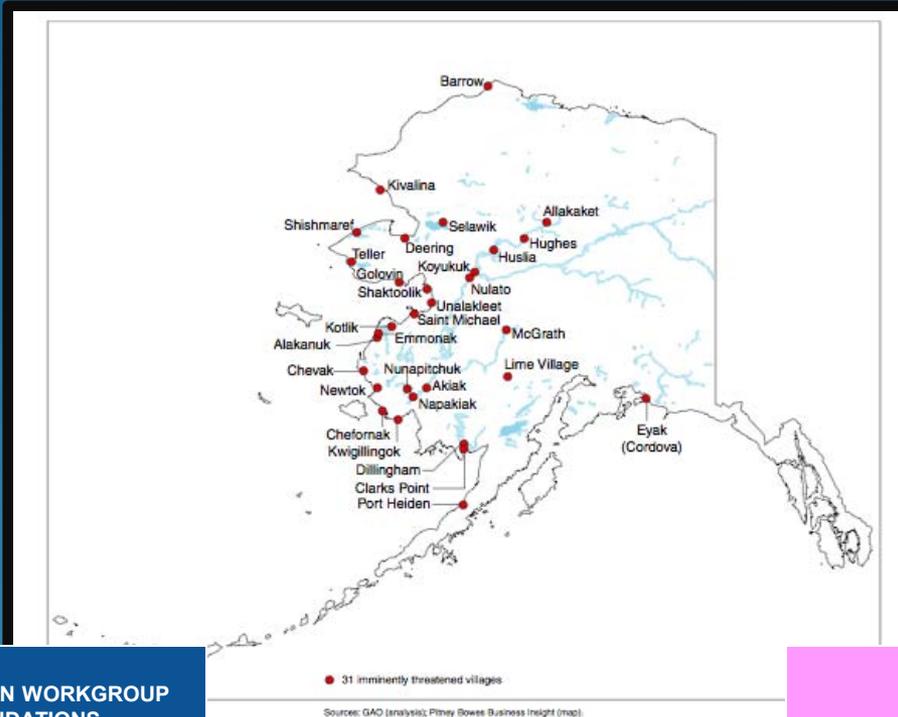
# 31 Villages Imminently Threatened [GAO 2009]

## Alaska Communities in Peril

RECOMMENDATIONS REPORT TO  
THE  
GOVERNOR'S SUBCABINET  
ON CHANGE CLIMATE



FINAL REPORT  
FROM THE  
IMMEDIATE ACTION WORKGROUP  
APRIL 17, 2008



Requesters  
United States Government  
Accountability Office

GAO

June 2009

ALASKA NATIVE VILLAGES  
Limited Progress Has Been Made  
on Relocating Villages Threatened  
by Flooding and Erosion

GAO-09-551

IMMEDIATE ACTION WORKGROUP  
RECOMMENDATIONS  
TO THE  
GOVERNOR'S SUBCABINET  
ON  
CLIMATE CHANGE  
MARCH 2009



GAO Reports ('03 '09)

IAWG Reports ('08 & '09)

Public Infrastructure TWG  
( '09)

USACE Assessment ('09)

Alaska Baseline Erosion  
Assessments

[http://www.poa.usace.army.mil/  
AKE/Home.html](http://www.poa.usace.army.mil/AKE/Home.html)

U.S. Army Corps of Engineers  
2009

# Coastal Communities in Peril from Flooding & Erosion - Newtok -



# Newtok Planning Group

## **Native Village of Newtok**

- Newtok Traditional Council (NTC)
- Newtok Native Corporation (NNC)

## **State**

- Alaska Department of Commerce, Community, and Economic Development (DCCED), Div of Community & Regional Affairs
- Alaska Department of Environmental Conservation/Village Safe Water Program (VSW)
- Alaska Department of Transportation and Public Facilities (DOT/PF)
- Alaska Department of Military and Veterans Affairs/Division of Homeland Security and Emergency Management (DHS&EM)
- Alaska Department of Education and Early Development (DEED)
- Alaska Department of Health and Social Services (DHSS)
- Alaska Industrial Development and Export Authority (AIDEA)/Alaska Energy Authority (AEA)
- Alaska Governor's Office
- Cold Climate Housing Research Center

## **Federal**

- U.S. Army Corps of Engineers (USACE), Alaska District
- U.S. Department of Commerce, Economic Development Administration (EDA)
- U.S. Department of Agriculture, Rural Development
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)
- U.S. Department of Defense (DOD)
- U.S. Fish & Wildlife Service (FWS)
- U.S. Department of Housing and Urban Development (HUD)
- U.S. Department of the Interior, Bureau of Indian Affairs (BIA)
- U.S. Department of Transportation, Federal Aviation Administration (FAA).
- U.S. Environmental Protection Agency (EPA)
- Denali Commission
- Senator Lisa Murkowski's Office

## **Regional Organizations**

- Association of Village Council Presidents (AVCP),
- Housing Improvement Program (HIP)
- Coastal Villages Region Fund (CVRF)
- Lower Kuskokwim School District (LKSD)
- Rural Alaska Community Action Program (RurAL CAP)
- Yukon-Kuskokwim Health Corporation





**Coastal  
Communities  
in Peril from  
Flooding & Erosion  
- Kivalina -**

# Coastal Communities in Peril from Flooding & Erosion - Shismaref-



# Decision-makers at all levels need information to address needs and answer questions

## SOME EXAMPLES:

### Short-Term (Emergency Preparedness):

- Heightened need for more accurate & timely inundation hazard warnings

### Long-Term (Planning for the Future):

- **How long will community survive in current location?** (SLC, permafrost degradation, isostatic rebound, storm characteristics, energy, jobs/economic outlook, etc.)
- **What factors should be considered in developing Community Plans for:**
  - **Relocation or Migration** – Is a move imperative?
  - **Protection in-place** – Can community increase resiliency and longevity at current location in-lieu of, or in conjunction with, relocation or migration?
- **If relocating or migrating, is new location suitable?**
  - Are geologic conditions favorable?
  - Are subsistence resources sufficient?
  - Is there an abundant supply of drinking water?
  - Is there adequate access to transportation, medical facilities, & other needs?

# Partial List of Recommended Needs & Approach Heavily Reliant on Ocean Data & Observations

## **1. DATA & OBSERVATION NEEDS** (RETRIEVAL, COLLECTION, INTEGRATION, INTERPRETATION, MANAGEMENT)

- a. **Climate & geophysical information** – Temp, Precip, Wind, Ice, Bathymetry...
- b. **Community-specific information** – Demographics, Infrastructure, Cultural, Economic, Energy, etc.

## **2. CRITICAL PRODUCTS AND APPLICATIONS**

- a. **Down-scaled modeling**
- b. **Update of Environmental Atlas for Alaska**
- c. **Revision of Construction & Design Standards for anticipated conditions**

## **3. DEVELOPMENT, ADOPTION OF POLICIES, & IMPLEMENTATION OF ADAPTATION MEASURES**

- a. **Interagency coordination imperative (IAWG model)** - Collaborate, Streamline, Plan & Leverage Knowledge and Resources
- b. **Effectively involve community & local knowledge in decisions & process**

# Fisheries are Important to Alaska...

**Domestic groundfish industry off Alaska (in Bering Sea & Aleutian Islands) is largest fishery by volume in U.S.**

*(Hiatt, NPFMC Economic SAFE 2008)*

- 49% of all domestic landings in U.S. in 2007 by weight
- 1.9 million metric tons retained catch

**The seafood industry supports ~38,000 jobs in AK**

*(ISER 2008)*



Photo by Jackie Poston



Setting the net during the Fall 2002 Atka mackerel tag recovery cruise.  
(Photo by Ruth Christiansen)

**Ocean Research is Important to Alaskan Fisheries**

# Ocean Research is critical to Reducing Threats to Marine Life From...

Temperature, Salinity, Circulation, & other physical & chemical changes such as **Ocean Acidification**

Expansion of Exploration & Development of Mineral Resources

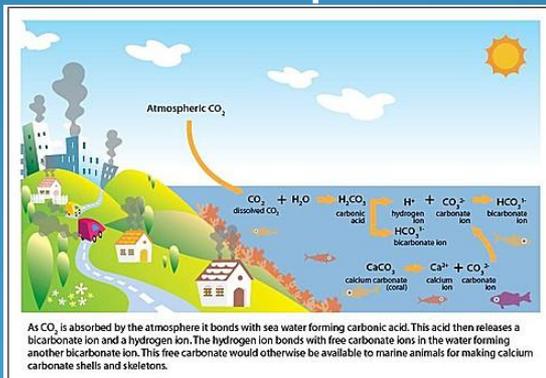
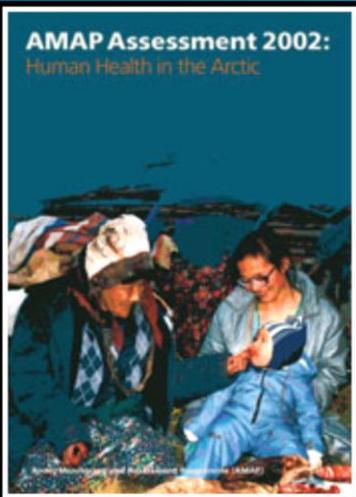
Transboundary Contaminants

Maritime Incidents, e.g. spills

Fisheries Impacts

Invasive Species

AMAP Assessment 2002:  
Human Health in the Arctic



**RESEARCH SHOULD PROVIDE TIMELY & QUALITY INFORMATION TO MANAGERS & USERS**



# PARTIAL List of Agencies, Partnerships, & Initiatives Operating in the Arctic

Entities operating in the Arctic with various missions including:

- *Planning*
- *Research*
- *Enforcement*
- *Management &/or Protection of resources & communities*
- *National Security*



USCG



CCGS Amundsen



A computer-generated rendering of the 242-foot Alaska Region Research Vessel by The Glosten Associates.

AK Research Vessel

*In no particular order:*

- AOS
- NOAA
- USGS
- USFWS
- EPA
- AON
- SEARCH
- NPFMC
- NPRB
- NSSI
- UAF
- IARPC
- USARC
- USGCRP
- Arctic Council
- State of AK Agencies
- Executive Climate Change Roundtable
- AK Walrus Commission
- AK SeaLife Center
- NGOs
- DOD
- Industry
- ArcticNet
- Other

# Overarching Needs in the Arctic

How? Who? What?

- NEED FOR A COORDINATING BODY FOR:
  - Identification & Prioritization of Data & Obs Needs
  - Comprehensive Research Planning & Coordination
  - Encourage Uniformity & Interoperability in Data Collection, Cataloging, & Management, where applicable
  - Leveraging Resources
- SUPPORT FOR EFFECTIVE STATE & LOCAL GOV'T PARTICIPATION
- PROCESS INCLUSIVE AND RESPECTFUL OF AK NATIVES
- INVOLVEMENT OF OTHER STAKEHOLDERS: Industry, Academia, NGOs, etc.
- SPECIFIC SECTOR NEEDS (TEMP, PRECIP, WIND, WILDLIFE POPS, BATHYMETRY, ETC.)
- DERIVATIVE PRODUCTS (ENV ATLAS, PERMAFROST MAPS, PROJECTED FIRE REGIMES, ETC.)
- COMMUNICATION & APPLICATION OF PRODUCTS TO END-USERS

# ***Thank you!***

<http://climatechange.alaska.gov/>

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*Photo by Jackie Poston*