

Sustaining the Bering Sea Ecosystem: A Community Driven Social Science Planning Process



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Contemporary Human Use of the Bering Sea

- Subsistence and Residence
- Commercial Fisheries
- Transportation
 - Subsistence
 - Social networks
 - Supply lines
 - Commerce
- Tourism

Subsistence





Carol Jolles



Carol Jolles



Carol Jolles



Carol Jolles





Ingaliq – Little Diomedede 1999

Carol Jolles

Commercial Fisheries



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Transportation

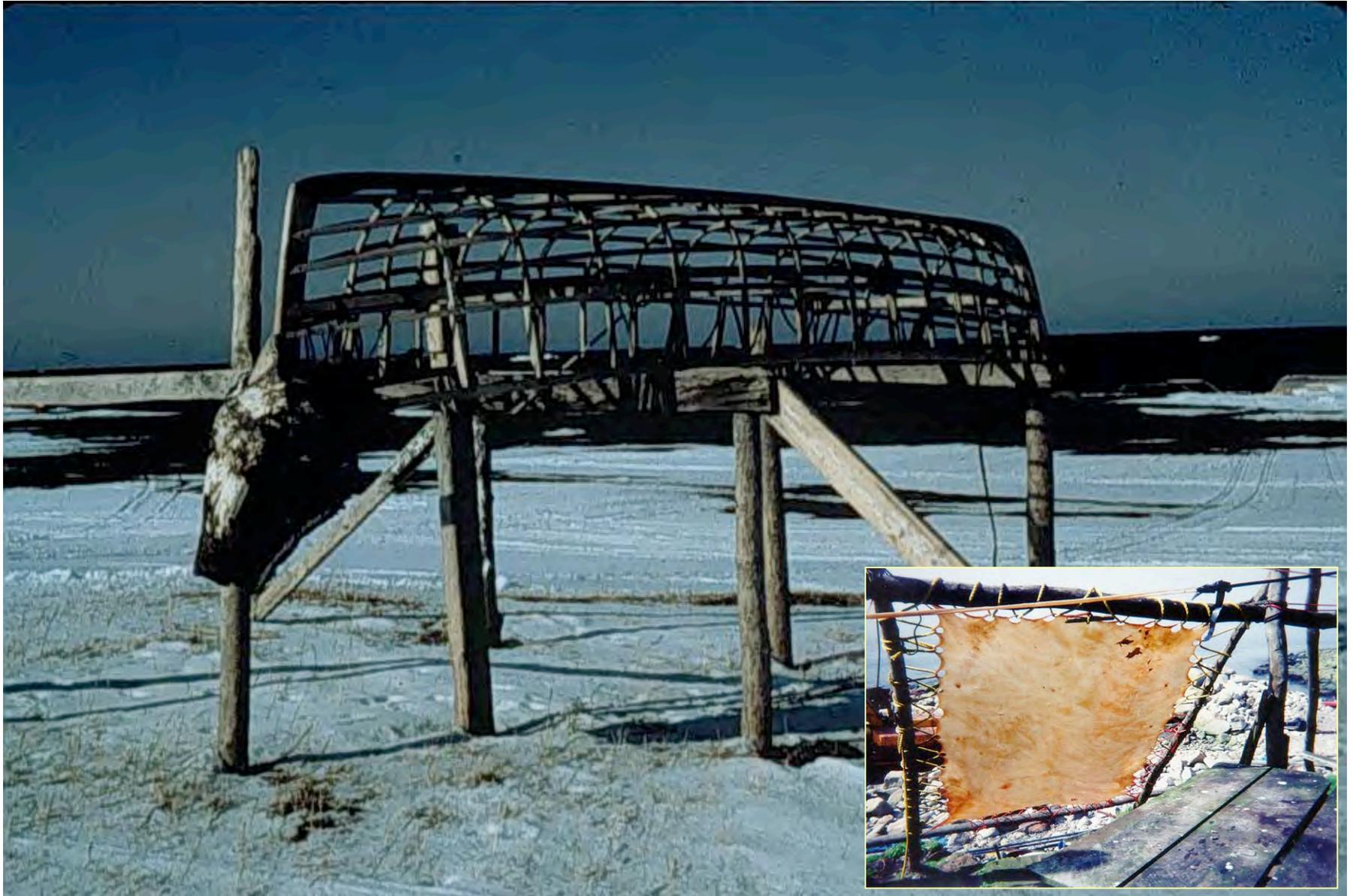


Gambell – St. Lawrence Island. Spring 1988

Carol Jolles



Carol Jolles



Gambell 1987

Carol Jolles

Tragedy strikes St. Lawrence Island

Village whaling boat capsizes in fierce storm Wednesday morning, leaving one dead, three missing, including two children

The missing:



Yolanda
Nowpakahok, 11



Leonard
Nowpakahok, 11



Jason
Nowpakahok, 38

Not shown

James
Uglwook, 20,
was rescued
but later died



BOB HALLINEN / Daily News archive 1997

Typical walrus skin boat, used by whalers, rests on supports in the village of Gambell on St. Lawrence Island



Selendang Ayu accident

USFWS

Inspiration: *Bering Ecosystem Study:
Science Plan*

- “The goal of BEST is to develop an ability to predict the effects of climate change on the ecosystems and resources of the eastern Bering Sea, and their ability to support sustainable commercial and subsistence harvests.”

p.59

Inspiration: *Bering Ecosystem Study (BEST): Draft Science Plan*

– Primary focus of effort:

- Eastern Bering Sea continental shelf.
- Climate, sea ice, physical oceanography, marine biology, trophic dynamics of marine food webs.
- Ship and instrument based.
- Seasonal to multi-annual time scales.
- Modeling

The Missing Human Dimension

- For largely practical reasons, the BEST natural science plan scope did not significantly address:
 - Human-environmental dynamics
 - Social dynamics and capacities for adaptation to projected ecosystem changes. (vulnerability and resilience)
 - Bering Sea residents as primary partners in the definition of scientific or policy goals or in research.
 - Benefits to communities are assumed



Developing a Social Science Plan: A Community Centered Approach

- Putting resident communities first in the planning
 - What do people living and depending on the Bering Sea for their livelihoods and cultural survival see as the most important unanswered questions?
- Partnership between resident communities and social/natural scientists... from the start!

Process

- March 2004:
HBEST Community Workshop in Anchorage.
 - Small group of Bering Sea residents.
 - Non-resident social and natural scientists.
 - Post-meeting – feedback solicited from broader range of communities.

Process

- Engaging the social science community
 - Introduce the project
 - Seek feedback on
 - emerging priorities
 - existing research
 - Facilitation
 - ICASS Town Hall meeting: April 2004
 - AAAS-Anchorage: Sept 2004

Process

- Summer 2004 – Spring 2005
 - Gather feedback
 - Background research
 - Draft the plan
 - Circulate drafts for feedback (resident communities and broader social/natural science communities)

Process

- Summer – Fall 2005: Merge social science plan with BEST's natural science plan
- IPY implementation in Spring 2005 has changed dynamic somewhat.
 - Social science plan is developing in parallel with combined natural/social science implementation plan.

Outcomes of the March 2004 Meeting

- Guiding Philosophy:
 1. The culture and self-determination of the Bering Sea is of supreme importance.

Outcomes of the March 2004 Meeting

- Guiding Philosophy:
 2. Communities of users will provide the best guidance on research questions related to the health and sustainability of the Bering Sea ecosystem.

Outcomes of the March 2004 Meeting

- Guiding Philosophy:
 3. The goal of this plan is to provide information for communities to meet planning needs

Outcomes of the March 2004 Meeting

- Guiding Questions:
 - What does the connection to the Bering Sea mean to residents?
 - Are communities going to survive?
 - How can we save ourselves and the Bering Sea?
 - How did we get to where we are today?
 - What factors will influence the future?
 - What future do we want?
 - How can we get there?

Outcomes of the March 2004 Meeting

- Scope
 - Comparative
 - Interdisciplinary
 - Range of spatial scales
 - Household, Village, Region
 - Range of temporal scales
 - Prehistory, history, contemporary

Outcomes of the March 2004 Meeting

- Needs for education and communication
 - how to communicate across cultures on research issues and how to address them. --
CULTURAL TRANSLATION
 - Cooperative Agreements
 - Cultural and beliefs
 - Values in multiple ways of knowing

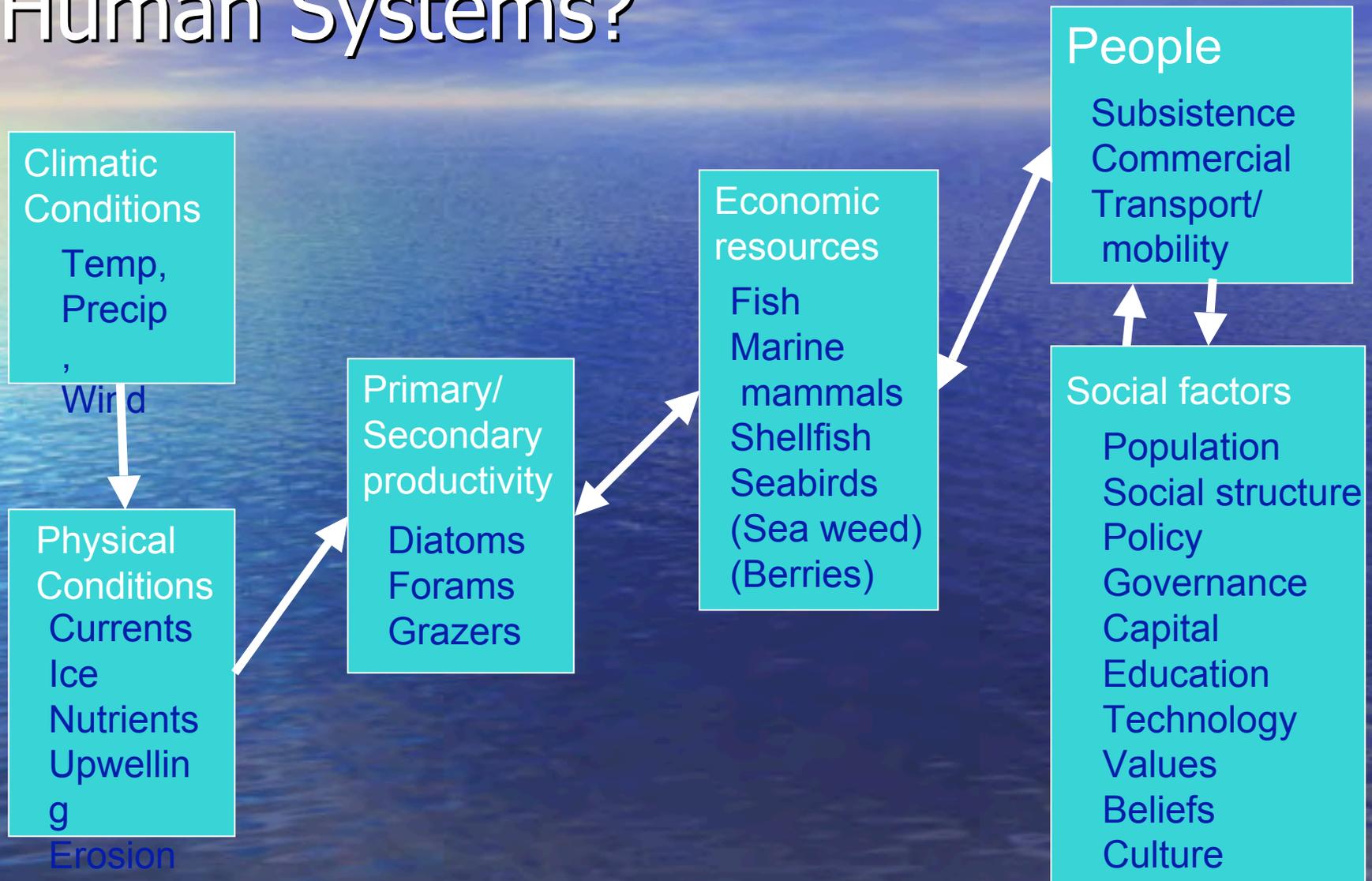
Outcomes of the March 2004 Meeting

- Research Themes
 - Resilience and adaptability
 - Ecosystem research
 - Human factors in environment (humans as dynamic participants in ecosystems... implications for human adaptation)
 - Social changes

Outcomes of the March 2004 Meeting

- Research Themes
 - Socioeconomic Studies
 - Development- mining, fisheries, infrastructure
 - Health- contaminants
 - Resource Management
 - Preservation of language/knowledge
 - Information Flow
 - Connections across and beyond Bering Sea

How do we integrate Natural and Human Systems?



The Importance of the Past

- Data from the past can tell us about processes of environmental change at a variety of scales of time and space
- These data can also help us to see how people have been affected by past environmental changes.
- And these data can show us how the scale of human impacts have changed.

Kinds of Retrospective Data

- Archaeological Middens
 - ice adapted species in Aleutians 4000 yrs ago.
- Archaeological sites more generally
 - tools, houses, apparel, settlement distributions and densities, food remains



Amaknak Bridge [UNL-50] (2003) – ca. 3300-2700 rcybp

Photo courtesy of R. Knecht

Kinds of Retrospective Data

- Ethnohistoric and Ethnographic data
 - Back 200 yrs or more can provide information about adaptations, changing weather and environmental conditions.
 - Information about how social structures and community organization contributed to resilience and/or vulnerability in times of environmental or social change.
 - How societies have rebounded or not from shocks to their social systems.

Kinds of Retrospective Data

- Traditional Knowledge (TK)
 - Life-times of intimate and contextual observations of changing patterns of weather, ice, animal distribution, productivity, and health.
 - Culturally integrated knowledge passed down from generations, encoded in language, skills, beliefs.

Social Science Research Needs

- Anthropology
- Archaeology
- Economics
- Sociology
- Health
- Management policy
- Ethnohistory
- Political Ecology



Photo credits:
Carol Jolles, Rick Knecht, USFWS web server, Ben Fitzhugh

The Local Community Perspective In the Social Science Plan



Mary Pete
Alaska Department of Fish and Game



Oscar Ahkinga

Herb Anungazuk

- Our place was already a very special place, long before the newcomers began showing intense interest upon our land. It is a place that has provided for the spiritual and physical well-being of the people who learned to rely on its renewable resources.

Anungazuk (2003) "Whaling: Indigenous Ways to the Present."

IMARPIK (Big Container)

- The Central Yup'ik word for Ocean—Bering Sea—focuses on its being “a big bowl,” a source of resources.
- It is its own universe; its inhabitants are, like humans, sentient beings who can consciously decide to reward appropriate human behavior with self-sacrifice, and to punish carelessness with scarcity and death.

Bering Sea Subsistence Production

- Over 70,000 people in communities along both sides of the Bering Sea coast
- In Alaska, nearly 55,000 directly or indirectly use resources from or transported by the Bering Sea (marine mammals, salmon, other finfish, shellfish, wood, plants)
- An estimated 25 millions pounds of dressed weight of subsistence foods produced annually from the Bering Sea with a replacement value between \$75 to \$125 million

- The sea itself is a being, and our people, over millennia, placed their names upon her. If there were not life in the sea, the people would not live near the migratory path of animals that provide for their well-being. The coastal plain would not carry a theme of abandoned villages seen today in the form of earthen pits... We are a part of the universe because we have lived within our realm, unchanged, and without damaging the delicate land, since dawn immemorial.

Anungazuk (2003) "Whaling: Indigenous Ways to the Present."

- There is constant life in the oceans and the seas, and the sea is also the life's blood of the sea mammals, birds, and fish, and they will readily disappear into its vastness ... as they too must move in search of their prey. When the animals begin their movement is when we wait for them, and the land is enforced with place names which tells us what you may find there.

Anungazuk (2003) "Whaling: Indigenous Ways to the Present."

March 2004 Meeting

- Guiding Philosophy:

There can be no more important group in the Bering Sea ecosystem than the Native Alaskan communities whose livelihood and cultures depend on the health and sustainability of this ecological system. We believe that science framed around resident Native interests and concerns and that recognizes Native sources of knowledge will generate better more useful science.

Vulnerability



Shishmaref – on narrow island eroding into Bering Strait

Proposed Research Themes

- Develop predictability, both short term and long-term to address sustainability of resources and communities
- Short-term: kind and degree of perturbations that affect seasonal activities
- Long-term: more permanent adaptive responses, such as choice of community relocation sites

Spirit of Research

- Collaborative
- Mutually informative
- Relevant
- Regionally comparative
- Acknowledge local contributions and perspectives
- Both past and future-oriented