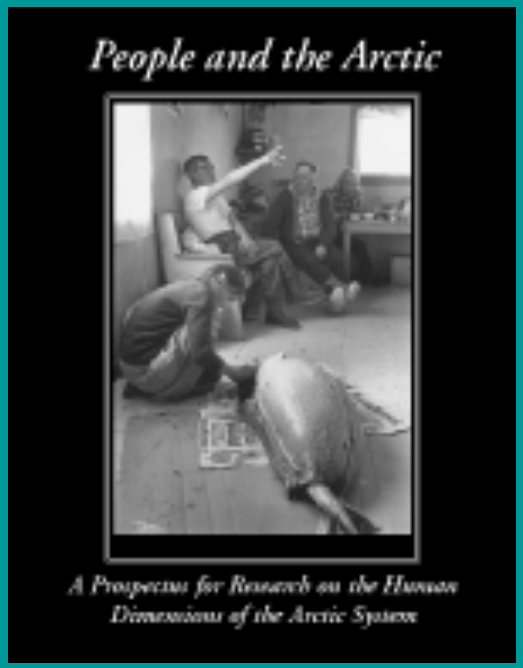
Human Dimensions of the Arctic System

Recent Activities and Plans for IPY

- Human Dimensions of the Arctic System (**HARC**)
- Arctic System Science Program (**ARCSS**)
- HARC prospectus

  www.arcus.org/harc



HARC Science Steering Committee

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Central Goals

- Capacity Building
- Improved Communications
- Synthesis
- Involvement in ARCSS program planning

Capacity Building

Organized Symposia - The Arctic as Bellweather of Global Change

Global Environmental Change, Globalization and International Security - New Challenges of the 21st Century" 6th Open Meeting of the Human Dimensions of Global Environmental Change Research Community. Bonn, Germany, October 2005

Participants from Finland, Norway, Scotland, Alaska, Colorado,

Petroleum Development in Russia
Human Security in the Arctic
Changes in the Forest Fire Regime
Humans and Freshwater
Socio-ecological Resilience in the Arctic
Indigenous Discourse on Extreme Weather in Arctic Canada
Climate and Contaminants in the Gulf of Alaska

Capacity Building

Organized Symposia - The Contribution of Human Dimensions Research to Observing and Understanding the Current State of the Arctic. Session at the American Association for the Advancement of Science, Arctic Division 2006 Annual Meeting "The State of the Arctic" Fairbanks, Alaska, USA

Participants from UAF, UAA, ADF&G, USFW, NCAR, and collaborators from SUNY Albany, USGS, UC Santa Cruz, U Minnesota, North Slope Borough Alaska, Canada

Survey of Living Conditions in the Arctic
Human Fire Interactions in Alaska
Trends in Subsistence Salmon Harvests
Climate Change and Variability in Interior Alaska
Use of Landfast Sea Ice as a Whaling Platform

Improved Communications

Meetings - Papers

- *Fifth International Congress of Arctic Social Sciences (ICASS V) Conference*, University of Alaska Fairbanks, 19-23 May 2004.
- *American Association for the Advancement of Science, 55th Annual Arctic Science Conference, Human Dimensions of the Arctic Environment*, 29 September - 1October 2004, Anchorage.
- *Marine Science in Alaska: 2005 Symposium,* 24-26 January 2005, Anchorage.
- *Alaska Forum on the Environment (AFE)*, 7-11 February 2005.
- *National Academies Open Meeting on Designing an Arctic Observation Network*, 9-11 February 2005.
- *National Ecological Observing Network/High Latitude Ecological Observatory (NEON/HLEO) Open Meeting and Workshop*, 28 February 28 2005, Fairbanks.
- *Human Security and Climate Change Workshop*, Center for International Climate and Environmental Research, Oslo, June 21-23, 2005.

Arctic Observing Network

HARC was created in 1997 as a component of the Arctic System Science Program (ARCSS) of the National Science Foundation. Within ARCSS the aim HARC is to better understand the role of humans in the functioning of and interactions among the various physical, biological, and social components of the arctic system and the significance of changes in the arctic system for people in the Arctic and across the globe.

HARC also provides a way to examine the policy implications of ARCSS research through stakeholder collaborations that examine decision-making in light of environmental change. HARC seeks to identify the needs of decision makers and to improve the ability of ARCSS researchers to communicate their findings effectively.

HARC

Produced by the HARC Science Steering Committee

For more information on HARC contact: Maribeth Murray, ffmsm@uaf.edu or see http://www.arcus.org/HARC/

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What is 'Human Dimensions' Research?

Arctic Environmental Change is the set of biophysical transformations of land, ice, oceans and atmosphere, driven by an interwoven system of human activities and natural processes. Research on the Human Dimensions of arctic change addresses the coupled human-natural system and investigates how individuals and societal groups

- contribute to,
- are influenced by, and
- mitigate and respond to

the changes that take place on a local, regional and global level. Human dimensions science therefore encompasses many topics, approaches, methods, and disciplines.

Understanding how social systems interact with natural systems (both physical and biological) involves qualitative analyses and quantitative studies that rely on forms of hypothesis testing and analysis familiar to fields such as atmospheric science, terrestrial ecology, glaciology or ocean biogeochemistry. When biophysical scientists study human-influenced phenomena such as ice roads, river flows, or fish catches, understanding such influences becomes critical. These are nontrivial challenges for biophysical-human dimensions research.

How Human Dimensions Research Matters

Changes that seem, at first glance, mainly physical often turn out to have human dimensions and human dimensions issues (such as livelihood vulnerabilities, institutional factors, and policy frameworks) must be studied as part of climate change research to assure that mistaken conclusions are not drawn from the data.

For example an observed trend towards increasing river flows into the Arctic basin might well reflect climate change. But to an unknown extent, flows vary also with trends in dam construction and reservoirs over the same period of time. Similarly, correlations between fisheries catches across widely separated regions such as the North Atlantic and North Pacific might reflect large-scale climatic events, connected through the atmosphere. But they certainly also reflect human developments, such as new fishing technologies and markets. In each case, a physical-science analysis remains incomplete until we analyze the human dimensions as well.

Improving the HARC Website

http://www.arcus.org/harc/index.html

ARCSS Program Planning

- http://www.arcus.org/ARCSS/arcss_meetings.html
- HARC Science Workshops, Seattle 2004
- ARCSS Community Workshop Fall 2005
- HARC Community Meeting, AGU, Fall 2006

Synthesis

- 1st ARCSS Synthesis Retreat, Big Sky Montana 2003
- 2nd ARCSS Synthesis Retreat, Lake Tahoe, California 2004

Big Sky, 2003

Lake Tahoe, 2004

Study of North Alaskan Coastal Systems (SNACS)

Environmental Variability, Bowhead Whale Distributions, and Iñupiat Subsistence Whaling

Whaling Linkages and Resilience of an Alaska Coastal System

Lead PI: Carin Ashjian,
Woods Hole Oceanographic Institution

http://www.arcus.org/arcss/snacs/whales/

Photo Credit: Misty Nikula Ohlsen

Synthesis of Arctic System Science (SASS I and II)

- **Humans and Hydrology at High Latitudes**
  Richard Lammers, Lawrence Hamilton, Charles Vorosmarty, Alexander Shiklomanov, UNH, Daniel White, UAF Lillian Alessa, UAA
- **Heterogeneity and Resilience of Human-Rangifer Systems: A Circumpolar Socio-ecological Synthesis**
  Gary Kofinas, UAF, Mathew Berman, UAA, Brad Griffith, USGS, Don Russel, Canadian Wildlife Service
- **Synthesis of Sea Ice: Climate and Human Systems in the Arctic and Subarctic**
  Astrid Ogilvie, UC Boulder, Peter Wadhams, Cambridge, Jeffrey Rogers, Ohio State

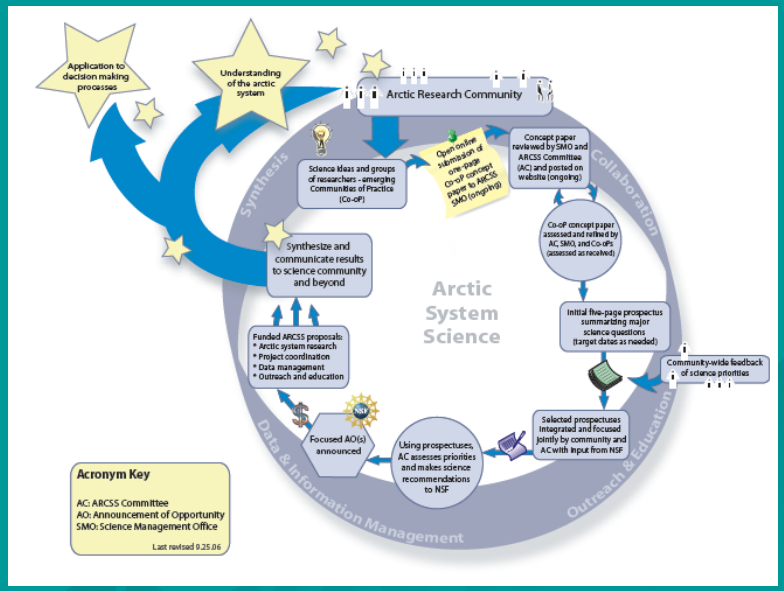
IPY – Observing

- **ELOKA: Exchange for Local Observations and Knowledge in the Arctic**
- PI: Shari Gearheard
  Affiliation: CIRES - University of Colorado at Boulder
  Web Site(s): http://nsidc.org/eloka/

- **Is the Arctic Human Environment Moving to a New State?**
- PI: Jack Kruse
  Affiliation: University of Alaska
  Web Site(s): http://www.iser.uaa.alaska.edu/projects/search-hd/index.htm

Surface Transformations in the Arctic Environment (STATE)

- Near Surfaces Community of Practice
- Integrated human dimension throughout
- Prospectus available at this meeting



Upcoming

- Ninth International Conference on Permafrost
  - Human response to permafrost changes
  - Feedbacks to permafrost from economic, industrial, subsistence and land use changes
  - Paleoecology and archaeology in permafrost regions
  - Concurrent meeting of the Polar Archaeological Network

Suggestions for Next Steps, Activities and IPY?