

# North Slope Science Initiative



## North Slope Facts:

- The North Slope is bordered by the foothills of the Brooks Range to the south and the Arctic Ocean to the north.
- The region encompasses roughly 89,000 square miles.
- The North Slope is thought to have the greatest remaining oil potential of any onshore area in the United States.
- The Trans-Alaska Pipeline System is about 800 miles long and runs all the way from Prudhoe Bay, on the North Slope, to Valdez, in Southcentral Alaska.

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Alaska's North Slope is bordered by the foothills of the Brooks Range to the south and the Arctic Ocean to the north. The North Slope Science Initiative (NSSI) was established to develop a collaborative science based program that integrates inventory, monitoring, and research activities to enhance the quality and quantity of the scientific information available for aquatic, terrestrial, and marine environments on the North Slope of Alaska, and make this information available to decision-makers, government agencies, industry, and the public.



Inupiaqs call it "omingmak" or "the bearded one." Muskoxen were reintroduced on the North Slope in 1969. Muskoxen can now be found across the Arctic coastal plain (info and photo courtesy of USFWS).

## Arctic Observing Networks Kicks Off with NSSI

The North Slope Science Initiative (NSSI) was invited to participate in the kick-off meeting of Arctic Observing Network (AON) principle investigators in March. AON builds on and enhances existing national and international efforts to deliver easily accessible, complete, reliable, timely, long-term, and pan-arctic observations. The goal is a system that can detect conditions and fundamental variations in the Arctic system, provide data that are easily compared and analyzed, and help improve understanding of how the Arctic systems function and change. The network would serve both scientific and operational needs. A comprehensive AON would transcend national boundaries and time-frames of individual scientific investigation. Information collected through NSSI, and the Geographic Information Network of Alaska (GINA), on Alaska's North Slope, would feed into AON as the overarching network to provide continuity across national boundaries into the foreseeable future. This meeting provided an opportunity to expand the network of contacts critical to the success of NSSI, and provide a strong basis for support.

## NSSI Action in 2007

NSSI has not been idle in 2007. While it took a little time, our budgets have been funded so now we're up and ready for action. NSSI is now moving forward with the implementation of about 12 projects, which are further explained in this Newsletter. At the direction of the Oversight Group we already moved ahead with plans and hosted two workshops to address monitoring and information needs. A remote-sensing/GIS workshop was conducted on February 6th and 7th in Fairbanks. Following this workshop was an introductory course in remote-sensing and GIS that was made available for agency staff, and was available in both Fairbanks and Anchorage. NSSI then hosted a North Slope Caribou Research/Monitoring Workshop in Fairbanks on February 21 and 22. (cont'd on next page)

**...continued, NSSI Action in 2007**



**A black brant study is one of the projects being funded by the NSSI this year. This study is using GPS devices to track movement patterns and habitat use by the brant (photo courtesy of USGS).**

The caribou workshop was very successful and more information is available in this Newsletter.

Other big news at the NSSI is that our Executive Director, Ken Taylor, had moved over to the Alaska Department of Fish and Game, as the new Deputy Commissioner. The new Acting Executive Director of the NSSI is John Payne from the BLM. John has been involved with NSSI for many years since its inception. This change isn't slowing us down as we move forward with our NSSI projects both new and old. The rest of 2007 will be busy especially given the NSSI involvement in the International Polar Year and the Arctic Observation Network. More information is available below.

**NSSI is an inter-agency effort designed to provide a consistent approach to high-caliber science across the North Slope.**

**North Slope Caribou Research and Monitoring Workshop**

In November 2006 the NSSI was tasked to convene a North Slope Caribou Research/Monitoring Workshop sometime in early 2007. The last workshop of this type was held in January 2002 and was sponsored by the Alaska Oil and Gas Association. Unfortunately the proceedings were never published and there was a definite need to conduct a follow-up conference to examine the progress of the herds over the last 5 years.



**Caribou in the Arctic National Wildlife Refuge (photo courtesy of USFWS).**

The focus of the 2007 workshop was to look at current monitoring and research efforts related to mitigating effects of oil and gas developments, to identify data gaps and priority information needs on the four caribou herds located on the North Slope (the Western Arctic Herd, the Teshekpuk Herd, the Central Arctic Herd, and the Porcupine Herd). Additionally, this workshop examined the effective-

ness of Federal and State stipulations, required operating procedures, and coordination efforts relating to the herds.

As a result of this workshop we are working to build upon the topics covered to reach the point of making solid recommendations for consistent wording across the required operating procedures and stipulations attached to State and Federal leases. Furthermore, we hope to prioritize future monitoring and research needs including more satellite or GPS collar data to fill data gaps, subsistence (cont'd on next page)



**Tundra and wildflowers in the Arctic (photo courtesy of USFWS).**



**Pair of caribou on the Tundra (photo courtesy of USFWS).**

### **...continued, Caribou Workshop**

harvest monitoring and mapping of harvest areas, collecting further baseline data for the herds, improved understanding of herd winter ranges, body condition information, calving displacement research, better information on calf survival/predation, and more. At the end of the workshop we determined the need to establish some sort of ongoing caribou working group to continue these efforts. The working group is in development.

More information about the Caribou Workshop, including the full audio presentations, is available on the NSSI website, [www.northslope.org](http://www.northslope.org).

### **NSSI Project Implementations in 2007 and Beyond**

The NSSI Oversight Group meeting in March led to the NSSI assignment to determine the potential of coordinating projects on the North Slope. NSSI has received funding for 12 projects in 2007 and will likely have funding for 2008 and beyond. All 12 projects address needs across the North Slope but they are unlikely to be tackled by any single agency. NSSI is now developing a process for project acceptance and to develop, evaluate and prioritize inventory, monitoring or research recommendations identified by NSSI entities that are related to NSSI goals and objectives.

The 12 projects that are being implemented in 2007 include some ongoing projects such as the implementation of the web-based project browser that is North Slope-wide, current, and searchable; maintaining the NSSI Website that includes public and agency interface and a North Slope Internet Map Server (IMS); and implementation of a "one-stop" shop for critical North Slope resource information operating under the Geographic Information Network of Alaska (GINA) program through the University of Alaska-Fairbanks. A couple of projects have already been completed, as noted earlier; these include the GIS/Remote Sensing Workshop and the Caribou Workshop.

There are a number of other projects that are going to be implemented beginning in 2007, including a black brant study at Teshekpuk Lake which is an on-going study now being funded by NSSI to determine movement patterns and habitat use by black brant. A Fisheries Workshop and a Cultural and Subsistence Workshop are being planned, which are similar in format to the Caribou workshop in that they will report on the status of knowledge that development on the North Slope has on fisheries inventory and monitoring or on the potential impacts to subsistence resources and cultural lifestyles.

There will also be new hydrologic gauging stations staged across the North Slope to better understand North Slope hydrology; these stations would be compliant with USGS requirements. A North Slope hydrography digital hydrology database will be completed in partnership with USGS. NSSI is also funding the development of a digital landcover database to update current individual agency landcover databases and create both a consistent landcover classification across agencies and complete a change detection program for regional scale landcover changes in relation to climate models. Finally we will deploy a second generation of remotely controlled water quality buoys that are both efficient and cost effective and measure baseline water quality parameters for North Slope lakes, rivers, and near-shore waters.



**Aerial photo of Beluga Whales. Adult belugas may reach a length of 16 feet. Beluga whales are covered with a thick layer of blubber that accounts for as much as 40 percent of its body (info and photo courtesy of NOAA).**

***The three fastest warming regions on the planet in the last two decades have been Alaska, Siberia and parts of the Antarctic Peninsula.***



**The arctic fox is well adapted to winter conditions. They often follow bears on the ice and feed on the remains of polar bear prey (Information and photos by Marten Loonen, [www.ipy.org](http://www.ipy.org)).**

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## North Slope Science Initiative

### Useful Web sites for North Slope Information

- International Polar Year: [www.ipy.org](http://www.ipy.org)
- Arctic Observing Network: <http://dels.nas.edu/prb/aon/>
- NSF Arctic Research Journal: <http://www.nsf.gov/pubs/2007/nsf07137/index.jsp>
- Barrow Arctic Science Consortium (BASC): [www.arcticscience.org](http://www.arcticscience.org)
- Arctic Research Consortium of the United States: [www.arcus.org](http://www.arcus.org)
- Arctic Slope Regional Corporation: [www.asrc.com](http://www.asrc.com)
- North Slope Borough: [www.north-slope.org](http://www.north-slope.org)
- University of Alaska-Fairbanks: [www.uaf.edu](http://www.uaf.edu)
- North Pacific Research Board: [www.nprb.org](http://www.nprb.org)
- Alaska Oil and Gas Conservation Commission: [www.aogcc.alaska.gov](http://www.aogcc.alaska.gov)
- BP in Alaska: [alaska.bp.com](http://alaska.bp.com)
- ConocoPhillips Alaska: [www.conocophillipsalaska.com](http://www.conocophillipsalaska.com)
- Conservation of Arctic Flora and Fauna: [www.caff.is](http://www.caff.is)
- CircumArctic Rangifer Monitoring & Assessment: [www.rangifer.net](http://www.rangifer.net)



### Launching the International Polar Year



Sea ice in the Beaufort Sea off the coast of Alaska's North Slope (photo courtesy of USFWS).

The Polar Regions are remote areas of the Earth that have profound significance for the Earth's climate and ultimately environments, ecosystems, and human society. The three fastest warming regions on the planet in the last two decades have been Alaska, Siberia, and parts of the Antarctic Peninsula. The Polar Regions are highly sensitive to climate change, which raises real concern for the future of polar ecosystems and Arctic society.

There have been a number of major international science initiatives in Polar Regions since the first International

Polar Year (IPY) in 1882-83 and all have had a major influence in overhauling our understanding of global processes in these important areas. An IPY in 2007-2008 affords an opportunity to engage the upcoming generation of young Earth System scientists and to get the public to realize just how much the cold ends of the sphere we all live on really do influence us. To ensure that researchers get the opportunity to work in both Polar Regions or work summer and winter if they wish, the Polar Year will actually run from March 2007-March 2009. *All of this information is from the IPY Website, for more information on the International Polar Year visit [www.ipy.org](http://www.ipy.org).*