

Outline of the U.S. Arctic Research Commission's 2007 Report on Goals and Objectives for the U.S. Arctic Research Program Plan

Draft working outline: December 1, 2006

U.S. Arctic Research Commission

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1 Finish the Intl' Polar Year with a Sustainable Arctic Research Program

The International Polar Year (IPY) is a significant opportunity to increase our knowledge about polar regions and to leave a legacy for future generations that includes new and sustainable infrastructure and research programs in the Arctic.

1.1 Activate Interagency Arctic Research Policy Committee (IARPC)

This committee, created by Congress in 1984, should meet regularly, involve the public, and improve its strategic planning and integration of Arctic research across federal agencies. The U.S. Arctic Research Commission (USARC) thinks that IARPC should work closely with the National Science and Technology Council that plans and oversees other interagency research initiatives throughout the government.

1.2 Revise U.S. Arctic Research Program Plan

Under statute and executive order, IARPC is charged with responding to the USARC's goals report and, accordingly, revising the five-year U.S. Arctic Research Program Plan (hereafter "Plan"). The USARC recommends a wholesale revision of this Plan. The programs within the Plan, newly created and ongoing, should address the broad science questions presented therein. Importantly, these programs should have clearly specified benchmarks for research, multiple year funding goals, assignment of responsibility to specific agencies, description and justification for research infrastructure, and coordination links to other government initiatives. The budget for the current Plan is difficult to discern; agency resources are not identified in crosscutting budget analyses, as was the intention of the Arctic Research and Policy Act of 1984. USARC recommends that IARPC, and in some cases the Congress, in response to the USARC goals report, make the Plan more transparent and effective by working to establish clear organization and core funding for Arctic research programs.

1.3 People

A vibrant research and educational enterprise attracts a new generation of scientists to Arctic research and sustains them by ensuring an environment in which they can contribute in significant and lasting ways. The current "pipeline of people" is not being sufficiently replenished at the source and maintained in the middle. The fragile condition of the United States' scientific and technology enterprise has been reported in "Rising Above The Gathering Storm" (Nat. Academy of Science, 2006, ISBN:0309100453). Support for Arctic research will help the U.S. reach its national competitiveness goals.

1.4 Research infrastructure

The USARC recommends that IARPC work with the various public and private institutions engaged in

Arctic research to identify critical infrastructure to support the nation's Arctic research program. Most Arctic research objectives depend on platforms to observe natural phenomena and to collect data. Coordination should reduce costs and increase effectiveness of use. Additional projects may be added to the list below in the final report.

1.4.1 Arctic Observing Network (AON)

USARC thinks that development of the Arctic Observing Network is critical to achieving our nation's long-term research objectives. We support development of the AON and its integration with international global observing and data management systems. Key government decisions are necessary now to implement the AON vision laid out in the 2006 National Academies of Science report.

1.4.2 Icebreakers

USARC recommends that the U.S. replace the two aging polar class icebreakers, the Polar Sea and the Polar Star, as recommended by the recent National Academy of Sciences report. The Executive Branch and Congress should make enabling decisions during the next two years.

1.4.3 Barrow Global Climate Change Research Facility

USARC recommends that Congress complete the Facility and that IARPC develop a plan to ensure that each federal agency identify and commit to use of the facility consistent with agency objectives.

1.4.4 Barrow Cabled Observatory

USARC recommends IARPC agencies move forward in support of the proposed Barrow Cabled Observatory. The next step would be a feasibility study. The observatory would become a component of AON, and would provide valuable, long-term observations of the Arctic Ocean environment.

1.4.5 Alaskan Permafrost Observatory

1.4.6 Unmanned autonomous vehicles

USARC encourages the research community to join those in resource management, search and rescue, national security, and others to foster greater use of unmanned autonomous vehicles (UAV's) in Arctic atmospheric and oceanographic research programs.

1.4.7 International review of Arctic Infrastructure

USARC recommends U.S. leadership in an international assessment of Arctic research infrastructure needs. Much U.S. Arctic research depends on joint telecommunications and logistics infrastructure, and access to Arctic research systems in other nations. A review will document benefits to the international research community and to Arctic residents in general, and will outline how future, joint investments may improve research opportunities.

1.5 Agency organization and core funding

USARC strongly recommends sustaining, and where possible, increasing funding for peer-reviewed, extramural research administered by federal agencies. Government-sponsored Arctic research is most sustainable when agencies organize their Arctic programs with clear goals and objectives, strong leaders, and extramural support for research conducted by academic scientists. With regard to agency organization, the USARC notes that the enabling legislation requires agencies to consult with the Commission before taking a significant action related to Arctic research. Such actions include reorganization and redistribution of resources associated with Arctic research. USARC commits to working with IARPC to ensure that this aspect of the law is followed.

1.6 Engaging Arctic residents and the general public

A sustainable Arctic research program requires public understanding and support. USARC is concerned by the termination of support by the National Science Foundation for the Alaska Native Science Commission, and recommends that all IARPC agencies work together to develop a mechanism that creates a stronger interface with Arctic residents and the public at large.

1.7 U.S. Arctic Policy and international commitments

USARC recommends that the United States conduct its first review of Arctic Policy since 1994. Over the past 12 years, the effects of Arctic climate change have become much more apparent. The impacts on research, civil infrastructure, energy supply, indigenous cultures, fisheries, national security, and global transportation – to name a few– require an integrated U.S. response. This review will allow the U.S. to better define its goals in seeking or modifying international Arctic commitments which promote a host of research and resource cooperation goals, safety, search and rescue, environmental protection and economic development.

1.8 Legislation pertinent to Arctic Research

The largest driver for the specific activities of the U.S. Arctic Research Program is a set of laws that mandate certain monitoring and research activities. Congress is contemplating changes to some of these laws and possibly new legislation. USARC is monitoring the following list of Arctic-affiliated legislation.

1.8.1 Nat'l Oceanographic & Atmospheric Administration (NOAA) Organic Act

1.8.2 Marine Mammal Protection Act (MMPA)

1.8.3 Magnuson-Stevens Fisheries Conservation Act

1.8.4 Senate Ratification of the UN Convention on the Law of the Sea (UNCLOS)

USARC has urged ratification of the UNCLOS by the U.S. so that our nation may participate directly in discussions on delimitations of the extended continental shelf, including that in the Arctic Ocean. Whether or not the Senate ratifies UNCLOS, the U.S. should increase the pace of collecting marine geology and geophysical data which will ultimately constitute the basis of a claim to extend U.S. sovereignty over the extended continental shelf in the Arctic Ocean, the Bering Sea, the Gulf of Alaska, not to mention other areas offshore of the United States.

1.8.5 Oil Pollution Act of 1990

USARC recommends that the Congress restore funding to the oil pollution research and development programs associated with the Oil Pollution Act of 1990. Furthermore, the Commission recommends that the Congress take note that the interagency committee established in the law to foster oil pollution research, with regional programs, has yet to meet Congress' basic objectives.

1.8.6 Arctic Research & Policy Act amendments

1.8.7 Conceptual legislation and international regimes for Arctic shipping

1.8.8 Persistent Organic Pollutants treaty

1.8.9 Senate Ratification of the Polar Bear Treaty

1.8.10 Arctic Engineering Research Center

1.8.11 Arctic Energy Office

2 Strengthen or Initiate New Federal Research Programs

2.1 Environmental Change of the Arctic and Bering Sea

U.S. research on environmental change in the Arctic and in the Bering Sea region is undertaken through a series of regional, national, and international programs including the Study of Environmental Arctic Change (SEARCH), and the emerging International Study of Arctic Change (ISAC). Specific recommendations will be included in the USARC's final report.

2.2 Arctic Human Health

The National Institutes of Health has taken the lead in a number of programmatic initiatives to assess and improve human health in the Arctic. The USARC report will discuss the goals of, and make programmatic recommendations for, the Arctic Human Health Initiative and the Arctic Synthesis Center, among others.

2.3 Civil infrastructure research

USARC supports development of an interagency initiative to provide research on civil infrastructure in the Arctic. Potential leaders and participants in this work include the U.S. Army Corps of Engineers Cold Regions Research Laboratory, the Denali Commission, and the U.S. Geological Survey among others. Targets for investigations include improved mapping of the U.S. Arctic, changing building codes in the face of climate change, new transport options in the face of an increasingly accessible Arctic, and cost reductions and technical improvement to civil infrastructure including roads, telecommunications, aviation, shipping, sanitation, and energy.

2.4 Natural resource assessment and earth science

USARC supports development of an interagency initiative to further assess the natural resources of the Arctic and to continue earth science investigations. This program should include fundamental geophysical research (especially in the Arctic Ocean), the U.S. Geological Survey mandated "Resource Assessment Program" Arctic and sub-Arctic oil spill prevention and response research, studies of contaminant fluxes and impacts, the North Slope Science Initiative, and the Extended Continental Shelf Mapping Initiative described above, under UNCLOS.

2.4 Indigenous language, identity, and culture

USARC recommends that IARPC develop a research plan to address the issue of Arctic language preservation. We think this plan should have at least three elements: a regular, permanent census process to understand the diversity of languages spoken by Arctic people, and the viability of those languages for future generations; a documentation procedure to ensure that languages and place names spoken and given by Arctic people are recorded and preserved, and policy options and processes for language preservation that have succeeded in the Arctic and elsewhere are made available to Arctic policy makers and residents.

3 Specific Recommendations for Agencies and Congress

The report will address recommendations to: Congress, IARPC, NSF, NSSI, NPRB, AOOS, EPA, NASA, DOS, DHHS, DOC, DOD, DOT, DHS, DOI, DOE, NAS/NRC, State of Alaska, CEQ, OSRI, and MMC.