



**Executive Summary on the
U.S. Fish & Wildlife Service
&
U.S. Geological Survey**

Climate Change Forum for Alaska

*February 21-23, 2007
Anchorage, Alaska*

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EXECUTIVE SUMMARY

This report summarizes the proceedings of the February 2007 Climate Change Forum for Alaska coordinated by the U.S. Fish & Wildlife Service (FWS) and U.S. Geological Survey (USGS). It is intended to be used as a tool for identifying next steps in addressing the pressing threats of climate change in the region.

Scientific evidence confirms that the earth is undergoing a change in climate. The Intergovernmental Panel on Climate Change (IPCC), an international consortium of researchers and scientists, asserted that “warming of the climate system is unequivocal” in its recently released first chapter of its Fourth Assessment Report.¹ Numerous other reports support this finding, and many underscore that the impacts of climate change are expected to be particularly dramatic in high-latitude areas such as Alaska and the Arctic.^{2,3,4} Global impacts already documented include higher average annual temperatures, changes in precipitation and run-off, rising rivers, species shifts, and thawing permafrost. Predictions include even more dramatic changes in the future.

Climatic changes and the effects on Alaskan flora and fauna challenge the Fish & Wildlife Service’s mission to conserve trust species. The Future Challenges Workshops in August 2004 and June 2005 identified climate change as a priority at national and regional levels, while this Climate Change Forum

for Alaska addressed the topic at an ecoregional scale within Region 7. The Forum was jointly planned by the FWS and USGS and held in Anchorage on February 21-23, 2007. Prior to the Forum, a steering committee met weekly for nearly a year to plan the agenda, identify topics for discussion, organize logistics, and secure presenters. Topics for both the technical presentations and breakout sessions were selected from responses to a questionnaire sent to Alaska Region employees to determine their greatest concerns about climate change, information needs, and the most pressing issues facing them with respect to climate change. Throughout the planning process, the steering committee briefed the Regional Director on the Forum's progress, and held briefings with the Regional Directorate. The committee maintained contact with partners to discuss plans, network, and receive feedback. An information clearinghouse was set up on the [FWS website](#), with links to recommended reading, the forum agenda, and statewide maps.

During the 3-day Forum, FWS and USGS employees attended a 1-day conference where current scientific findings were presented, and then spent 2 days participating in internal meetings to brainstorm opportunities for addressing climate change in the region. Because Alaska is predicted to be significantly affected by climate change, the FWS and USGS must begin planning proactive strategies in anticipation of those changes, rather than adopting reactive approaches of lesser effectiveness.

The **goals** for the Forum were to:

1. Inform resource professionals about natural resources in Alaska that may be affected by climate change;
2. Strengthen communication and collaboration among FWS and USGS scientists and project leaders in Alaska;
3. Initiate a process to address the effects of climate change in Alaska in light of agency missions and statutory mandates;
4. Provide the opportunity for FWS cross-programmatic collaboration to address climate change concerns.

During the first day of internal meetings at the Forum, participants focused on the effects of climate change using statewide Ecological Planning Units (EPU) as a framework. During EPU group discussions, effects of climate change on wetlands and vegetation communities were most frequently cited as priority concerns. The following day, participants broke into different groups, addressing climate change effects through broad themes such as species of conservation concern, planning, and inventory and monitoring.

Several **clear recommendations** emerged from the conference, including both short-term, immediate actions, and long-term proposals. While participants made a consistent call for more research and analysis of the specific effects of climate change, there was general consensus that some scientific questions may never be answered. Managers can make decisions using existing information to the best of their ability, while also incorporating and adapting to new information as it becomes available. Participants recommended immediate efforts to anticipate the effects of climate change, and to integrate predicted changes into resource planning.

Forum recommendations are grouped into **immediate actions** and **long-term planning**. Long-term, comprehensive recommendations fell into three categories: **partnerships, science, and internal agency policies**.

Immediate Actions

- The FWS and USGS should each hire a **Regional Climate Change Coordinator in Alaska** to facilitate communication and research projects within the agencies, and between the agencies and partners. Specifically, the FWS position would:

- Coordinate closely with partners in the USGS and other agencies;
- Facilitate and encourage climate change communication among employees and within divisions;
- Promote integration, coordination, and data exchange on climate change between Service programs;
- Coordinate EPU working groups, initially establishing a prototype group.
- The combined FWS/USGS Regional Directorate should **continue the round table discussion**, initiated at the Climate Change Forum, with other federal and state agency leaders.
- Develop a **FY 2009 budget proposal** for climate change focused work. The proposal would include funding for inventory and monitoring, compilation of the state of knowledge, coordination with partners, and other priorities as they arise. Ideally this budget would be closely coordinated between the FWS and USGS.
- **Designate an EPU prototype** to continue work begun at the Forum. Many participants felt the EPU format worked well and recommended using it as a platform for continuing discussion, research, and action on climate change. As the Arctic is experiencing some of the greatest impacts from climate change, it is strongly recommended as the prototype.
- **Revise the FWS website** to incorporate climate change research. The site would include presentations from the Forum and links to ongoing efforts outside of the FWS, and could serve as a central information clearinghouse for regional employees. An example of the type of information is in **Appendix 1**.
- **FWS Region 7** and **USGS** representatives should **present findings/recommendations** and further progress on climate change work in Alaska at the **July FWS/USGS Directorate meeting** in Alaska.
- FWS should **partner** with the USGS on the **Yukon River Basin** Climate Effects Assessment and Benchmark Monitoring Plan.

Long-term Strategies

Partnerships

- Continue joint research planning and **expand partnerships** between the USGS and the FWS in Alaska:
 - Establish coordination mechanisms that foster information delivery via meetings, seminars, joint trainings, and more focused workshops (for EPUs or thematic areas).
 - Improve communication among USGS and FWS about ongoing and future climate change work in Alaska (for example: USGS Yukon River Basin Climate Effects Assessment and Benchmark Monitoring Plan).
- The management response to climate change must be addressed on an ecosystem scale. Therefore, the FWS will need to **partner with other groups** (both governmental, academic, and NGOs) on:
 - Compiling existing information into integrated datasets;
 - Developing predictive models;
 - Establishing inventorying and monitoring strategies;
 - Public outreach;
 - Strategic land conservation to ensure habitat connectivity for populations (i.e., Yellowstone to Yukon Initiative).
- Identify and contribute to **current, ongoing climate change research projects** outside of FWS. Suggested projects include the Global Observation Research Initiative in Alpine Environments (GLORIA).

Science

- **Examine existing internal data** in relation to climate change. There was a consistent call for understanding and integrating information that FWS already has.
- After compiling existing data, **identify data gaps** to inform future research.
- Establish **physical-parameter monitoring stations**, particularly for stream gauging, weather, and air quality. There are currently too few of these stations in Alaska to adequately monitor these parameters at regional scales, and to provide a basis for predictive modeling.
- Develop **predictive models** to identify vulnerability of ecosystems, refuges, and species to climate change and its associated risk.
- Use **paleoecology** studies to examine the potential range of possible future changes.

Management Strategies and Policies (FWS)

- Develop an Alaska Region **policy statement**, consistent with DOI policy, for conserving natural diversity in the context of climate change.
- Begin discussing and determining **FWS direction and policy** with respect to climate change. Types of questions the Service must address include:
 - How will the FWS **adapt** to climate change?
 - What is the **timeframe** for action?
 - Do **regulations**, such as the Marine Mammal Protection Act and Endangered Species Act, need to be revised or interpreted in a manner to provide more flexibility in managing species impacted by climate change?
 - How will the FWS **prioritize** ecosystems and species on which to focus conservation efforts? Can and will the FWS allow species that face severe threats from climate change **go extinct**, and how will this decision be affected by public and partner response?
- Incorporate knowledge of climate change-related impacts into **position descriptions**.
- Establish climate change as an **umbrella issue**, and incorporate into management strategies.
- Create a process or **decision model** that incorporates climate change issues for prioritizing and implementing management decisions.

While climate change is a serious threat to the species, ecosystems, and resources managed by the FWS, the agency has effectively responded to major challenges in the past and has the capability to do so again. The USGS has the expertise to provide scientific support that will assist FWS managers in anticipating change and developing appropriate adaptive management strategies for the Service's trust resources in Alaska. Through aggressive, immediate planning to address climate change, including the use of science, partnerships, and internal policy changes, the Service can create an effective plan for conserving the natural resources under its stewardship. The global scale and perhaps overwhelming nature of the problem should not deter action. Excellent resources and partners provide opportunities to begin effecting positive responses and implementing successful management.

¹ IPCC, 2007. *Climate Change 2007: The Physical Science Basis. Summary for Policymakers*.

² Hinzman, L.D., N.D. Bettez, W.R. Bolton, F.S. Chapin, M.B. Dyurgerov, C.L. Fastie, B. Griffith, R.D. Hollister, A. Hope, H.P. Huntington, A.M. Jensen, G.J. Jia, T. Jorgenson, D.L. Kane, D.R. Klein, G. Kofinas, A.H. Lynch, A.H. Lloyd, A.D. McGurie, F.E. Nelson, W.C. Oechel, T.E. Osterkamp, C.H. Racine, V.E. Romanovsky, R.S. Stone, D.A. Stow, M. Sturm, C.E. Tweedie, G.L. Vourlitis, M.D. Walter, D.A. Walker, P.J. Webber, J.M. Welker, K.S. Winker, and K. Yoshikawa. 2005. *Evidence and implications of recent climate change in northern Alaska and other arctic regions*. *Climate Change* 72:251-298.

³ Inkley, D. B., M. G. Anderson, A. R. Blaustein, V. R. Burkett, B. Felzer, B. Griffith, J. Price, and T. L. Root. 2004. *Global climate change and wildlife in North America*. Wildlife Society Technical Review 04-2. The Wildlife Society, Bethesda, Maryland, USA. 26 pp.

⁴ ACIA. 2005. *Arctic Climate Impact Assessment – Scientific Report*. Cambridge University Press, 1042 pp.