

“NOAA’s Arctic Vision and Strategy”

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Thank you, David, for your kind introduction. It is a pleasure to be here today.

As many of you may know, I had the opportunity to participate in the Aspen Institute Commission on Arctic Climate Change for approximately one year. Although I had to step down from the Commission when I became NOAA Administrator, I am delighted to have the opportunity today to celebrate the launch of two complementary reports, (1) the Aspen Institute Commission on Arctic Climate Change Report and (2) NOAA’s Arctic Vision and Strategy.

The time I’ve spent in the Arctic in Alaska, Greenland, and Svalbard, both on the land and on the water, and the interactions I’ve had with diverse peoples of the region, have greatly enriched my appreciation of the Arctic’s abundant natural resources, unique wildlife, proud local and native peoples—and a most uncertain collective future.

The Arctic is changing in dramatic ways. When I was in Barrow in 2009, I stood on the shores of the Arctic Ocean with the local children and village elders who, mouths agape, watched the surf come crashing onto shore. The elders told me that this was unprecedented because, until recently, sea ice offshore would prevent the buildup of large waves travelling across the open water. The surf we witnessed was novel and noteworthy.

We also visited nearby grave sites that were being re-located because the spit of land on which they were originally buried is quickly disappearing due to the pounding of waves and surf.

On the west coast of Alaska, entire villages such as Shishmaref are facing evacuation and relocation as the combination of melting sea ice, thawing permafrost, and higher storm surges undermine the towns’ infrastructure. And today, NOAA is briefing the Department of Defense on preparations for relocating another Native village, Newtok, which is being forced to move due to severe erosion and flooding.

Across the Arctic, Inuit in Greenland described to me increasing numbers of tragic disasters, often involving loss of family and friends who went out hunting and never returned. They explained that sea ice and weather conditions are changing so rapidly that the familiar signs of danger no longer apply.

The Native peoples of the Arctic have amassed a wealth of knowledge that has served them in good stead over the generations, allowing their cultures and communities to flourish. They have attuned themselves to the environment, and have adapted to many changes over the centuries. Now, however, their environment is transforming so rapidly that it is difficult to keep up with the signs of change.

Their experiences are borne out by data. In four of the last five years, we have witnessed the lowest sea ice extents on record, as well as a 35 percent decrease in thicker multi-year sea ice. Recent Arctic temperature increases are more than double those found at lower latitudes. In fact, the Arctic’s 2008

annual mean air temperature over land was the fourth warmest on record, and is part of a long-term upward trend.

We are seeing shifts in ocean ecosystems from the Aleutian Islands to Barrow, and across the Arctic Ocean, due to a combination of Arctic warming, natural variability, and sensitivity to changing sea ice conditions.

When children in Barrow are captivated by waves crashing on a shore once sheltered by sheets of sea ice, we need to pay attention. When polar bears and ice seals are increasingly threatened with extinction, we need to pay attention. When the abundance and location of fish and other marine life changes, we need to pay attention.

As we gather here today, we cannot turn back the clock on the changes that have already occurred. Nor can we flip a switch to prevent anything else from happening. But there are things we can do to confront, learn from, mitigate, and adapt to climate change in the Arctic.

We can:

- Reduce greenhouse gas emissions;
- Engage Native peoples in the Arctic dialogue and respect their values and knowledge;
- Establish a framework for responsible decision-making;
- Conduct the scientific research and monitoring necessary to support these decisions;
- Consider the Arctic holistically, using an ecosystem-based management framework; and
- Employ a precautionary approach with the goal of maintaining resilience in this coupled human-natural system.

The Aspen Institute Commission on Arctic Climate Change has heard the call for action. I applaud its report, "The Shared Future," because it focuses squarely on issues of enormous national and global importance.

NOAA, too, has responded to the changes underway, and we have developed our own response: the NOAA Arctic Vision and Strategy.

These parallel reports are no coincidence: we are both responding to the same, unmistakable cues from a changing environment, the needs of the people who live and work there, and the interests of the entire world who are affected by what happens in the Arctic.

The debate over climate change in the Arctic is over. Climate change is happening. The Arctic Ocean is warming. Permafrost is thawing. Sea ice is melting at an alarming rate, and shorelines are eroding. People's lives and livelihoods as a result are being impacted.

And it's not just people in the Arctic whose lives are being impacted. What happens in the Arctic does not stay there. The impacts witnessed by locals across the Arctic have global implications.

The Arctic, for example, acts as a thermostat that helps stabilize the Earth's climate and regulate global temperature. The Arctic also acts as a barometer of change, and the climate changes already apparent in the Arctic portend our global future.

As sea ice retreats and the Arctic becomes more accessible, we are seeing a corresponding growth in

international and domestic Arctic interests. Pressure is increasing on our defense and security assets to maintain a “response-ready” presence in the region. Private interests are anticipating an open Arctic trade route in the future, and further investments in oil and gas exploration in both the Chukchi and Beaufort Seas are planned for 2012 and beyond.

But while the loss of sea ice creates opportunities for commercial enterprise, these same economic growth opportunities have the potential to threaten Arctic ecosystems, communities, and cultures already impacted by the rapidly changing climate.

Understanding and effectively managing the changing ecosystems, expectations, and opportunities in the Arctic requires a solid foundation of ecological and socioeconomic information. Yet despite the wealth of traditional ecological knowledge, exploration, and research to date, even the most basic data are lacking.

We need to mobilize our efforts in the Arctic and commit fully to strengthening the science that underpins the decision-making processes and support services required for sound Arctic stewardship and enhanced national security—the pillars that support regional prosperity and national economy.

NOAA envisions an Arctic where decisions and actions related to conservation, management, and resource use are based on sound science and support healthy, productive, and resilient communities and ecosystems. NOAA envisions an Arctic where the global implications of Arctic change are better understood and predicted.

NOAA’s Arctic Vision and Strategy is a dynamic, living document that seeks to realize this vision by building upon its past work in the Region as well as other governmental initiatives, including the U.S. Arctic Region Policy, the Interagency Ocean Policy Task Force, and the Arctic Council.

The Aspen Institute Report and NOAA’s Arctic Vision and Strategy, while different in scope and breadth, have synergies that will help achieve Arctic stewardship and national security objectives.

The Aspen Institute Commission’s Report provides a set of dialogue principles and recommendations for the governance and sustainable management of Arctic marine resources. Many of these principles and recommendations, such as the call for ecosystem- and science-based management, support the Ocean Policy Task Force’s call for better conservation, protection, and sustainable management of Arctic coastal and ocean resources.

The Aspen Institute Report also calls for cooperation among Arctic states, and national and international policy dialogue. This call echoes that of the Ocean Policy Task Force as well, which encourages new collaborations and partnerships to monitor and assess environmental conditions in the Arctic. NOAA is involved in many such collaborations and intends to continue on that path.

The Aspen Institute Report provides a broad, comprehensive overarching framework for approaching the challenges we face in the Arctic. NOAA’s Arctic Vision and Strategy is complementary to the Aspen report, focusing on execution and prioritizing agency goals based on needs and the recognition of a limited resource base. NOAA’s approach is strategic and leverages the strengths of both the agency and its international, federal, state, local, and Native partners and stakeholders.

Specifically, NOAA seeks to realize its vision by focusing on six priority goals, including:

- Forecasting sea ice;
- Strengthening foundational science to understand and detect Arctic climate and ecosystem changes;
- Improving weather and water forecasts and warnings;
- Enhancing international and national partnerships;
- Improving stewardship and management of ocean and coastal resources in the Arctic; and
- Advancing resilient and healthy Arctic communities and Economies.

These six priority goals were chosen because they meet two key criteria: First, they provide the information, knowledge, and policies necessary to meet NOAA mandates and stewardship responsibilities. Second, they provide the information, knowledge, and services that will enable others to live and operate safely in the Arctic.

Embracing these six priority goals provides NOAA with a holistic approach to addressing climate change in the Arctic. We need such an approach to ensure the continued health of this remote and fragile region—but embracing all six goals fully will take time.

So that we do not lose any precious time, and in parallel with other U.S. government actions, NOAA is hitting the ground running by focusing on its three highest priority areas for execution in 2011:

- First, marine weather and sea ice forecasting,
- Second, a Distributed Biological Observatory, and
- Third, geospatial infrastructure in support of marine transportation, oil spill response, and community resilience.

The first priority goal is marine weather and sea ice forecasting. Continued, rapid loss of sea ice will be a major driver of large changes across the Arctic, and is the organizing principle of NOAA's Arctic Vision and Strategy. The loss of sea ice affects marine transportation and safety, regional weather, ecosystem changes, and coastal communities.

Accurate forecasting depends on the ability of NOAA and its partners to deploy a variety of sensing devices—from buoys and satellites, to airborne reconnaissance. Through enhanced scientific research and modeling, NOAA will provide accurate, quantitative, daily-to-decadal sea ice projections and improved weather forecasts in support of safe Arctic operations and ecosystem stewardship.

NOAA's second high priority goal is a Distributed Biological Observatory that includes shipboard sampling, and long-term, community-based research on plankton, fisheries, seabirds, and marine mammals. Such sustained observation will enable researchers to observe how the loss of sea ice, ocean acidification, and sea surface temperature warming affect Arctic ecosystems over time.

This information will inform NOAA's ecosystem stewardship, and ensure the sustainability of fish stocks and protected resources in a changing Arctic. Ideally, this Distributed Biological Observatory will be part of a broader, international open-source network that facilitates the exchange of information needed for Arctic management and effective long-term governance.

The final priority goal for 2011 is improved geospatial infrastructure. Currently, Alaska has limited geospatial infrastructure; sparse tide, current, and water-level prediction coverage; obsolete shoreline and hydrographic data; poor nautical charts; and inadequate oil-spill response capability.

Modernizing the Arctic geospatial framework will provide the foundation for many of our activities in the region, including safe marine transportation, effective climate adaptation, and community and economic resilience.

Research about the behavior of oil in ice will help guide energy development in the region and protect Arctic marine ecosystems in the event of a spill.

Overall, the establishment of adequate geospatial and informational infrastructure will help inform management and policy decisions that seek to balance economic development with ecosystem protection and cultural heritage.

Throughout all of these efforts, NOAA intends to engage domestic and international partners to promote cooperation and data sharing, and we will fully engage all Arctic residents, including Native Alaskan communities, in planning for the Region's future.

The Arctic's harsh exterior belies an inherent fragility. The Arctic is changing, and it is changing rapidly.

All of us gathered in the room here recognize the critical need to assess and address directly drivers of change in the Arctic and to increase our understanding of Arctic climate change and its impacts. Again, what happens in the Arctic does not stay in the Arctic.

The Arctic is our oceanic last frontier. Every other ocean on the planet has been inadvertently overfished, polluted, or otherwise degraded. As we strive to recover those oceans, to restore them to some semblance of their former splendor, the Arctic Ocean provides us with one last chance, one final opportunity to get it right the first time around. This is our challenge and our hope.
