

**TESTIMONY OF
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NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE
OVERSIGHT HEARING ON
IMPACTS OF ENVIRONMENTAL CHANGES ON TREATY RIGHTS,
TRADITIONAL LIFESTYLES, AND TRIBAL HOMELANDS
BEFORE THE
SENATE COMMITTEE ON INDIAN AFFAIRS
JULY 19, 2012**

Introduction

Mr. Chairman and members of the Committee, thank you for this opportunity to testify on the efforts of the National Oceanic and Atmospheric Administration (NOAA) to better understand climate change impacts on the people, lands, and resources of Indigenous communities in the United States, including Alaska and the Pacific Rim. My name is Margaret Davidson, and I am the Acting Director of the Office of Ocean and Coastal Resource Management at the Department of Commerce's NOAA.

NOAA is concerned about the risks and vulnerabilities of Indigenous communities from a number of impacts resulting from our changing climate. Impacts of climate change such as higher temperatures, altered rainfall patterns, rising sea levels, increasing ocean acidification, and the loss of sea ice are causing widespread changes in the nation's terrestrial, coastal, and marine habitats, ecosystems, and communities that depend on them. These changes are driving increased frequency and intensity of wildfires; threatening tribal access to traditional habitats and species such as salmon, shellfish, crops, and marine mammals; and impacting cultural, economic, medicinal, and community health for countless generations.

NOAA is a leader in efforts to identify these risks and vulnerabilities. NOAA is working with federal, state, tribal, and local partners to collect data, assess the vulnerability of a variety of resources, and help communities to plan and take action to reduce possible impacts. I would like to take this opportunity to identify some impacts that tribal communities are currently experiencing as well as highlight the ways that NOAA is working with indigenous peoples to adapt to climate change.

Assessing Impacts on Tribal, Indigenous, and Native Lands and Peoples

NOAA conducts a variety of activities to measure, track, and assess the state of the climate and climate impacts on the nation. One of the most significant has been our work with the other agencies of the U.S. Global Change Research Program (USGCRP) to complete the next National Climate Assessment (NCA). For the first time ever, the 2013 Assessment will include a chapter specifically on impacts of climate change on tribal, indigenous, and native lands and peoples. To receive information from as broad a range of interested parties as possible, the USGCRP released

a Request for Inputs in July of 2011. This request resulted in more than 150 technical inputs identified as pertinent to the Tribal, Indigenous, and Native Lands and Peoples chapter. These technical inputs focused on a number of key areas, including a significant decrease in water availability; ecological changes affecting traditional foods such as salmon, shellfish, crops, and marine mammals; declining sea ice in Alaska and its impacts on native communities; changes in community health and livelihood due to permafrost thawing; and forced relocation of indigenous communities in Alaska, Louisiana, and the Pacific Islands due to sea level rise, loss of sea ice, or permafrost thawing.

Another significant effort is the development of the pending National Fish, Wildlife, and Plants Climate Adaptation Strategy. NOAA co-lead the development of the Strategy with the U.S. Department of Interior, Association of Fish and Wildlife Agencies, and tribal representatives. Development of this Strategy is a key step toward addressing climate impacts on the nation's natural resources and the communities, cultures, and economies that depend on them, including tribal, indigenous, and native peoples. The Strategy will be the first nation-wide climate adaptation Strategy developed by federal, state, and Tribal governments to help safeguard the nation's living natural resources and communities that depend on them. Over 90 natural resource professionals, including tribal representatives, have contributed to the Strategy. In addition, and representatives of a number of tribal groups are active participants on the Steering Committee for the Strategy.

NOAA Efforts to Assist Tribal, Indigenous, and Native Communities

Vulnerability assessment, monitoring, and warning

NOAA's National Integrated Drought Information System (NIDIS, created under Public Law 109-430) is developing a number of tools to examine drought and its impacts in various regions of the country. Tribal groups have been key players in helping to identify the impacts of drought as well as to make the tools useful to end users and are part of the NIDIS implementation team. Prototypes of the national early warning system have been undertaken in several parts of the country most affected by drought, including the Colorado River Basin and the Apalachicola – Chattahoochee – Flint Basin of the Southeast. Two workshops and reports have been developed to specifically solicit the participation of native communities in the design of the system: Climate Change Drought and Early Warning on Western Native Lands in Wyoming in 2009, and Drought Preparedness for Tribes in the Four Corners Region in 2010. These have led to collaboration on drought impacts and monitoring in the Four Corners region. More recently, as a result of the agreement between the Western Governors' Association and NOAA, NOAA is working with the Columbia River InterTribal Fisheries Commission and other Federal and state partners on climate information needs for salmon management.

NOAA's Regional Integrated Sciences and Assessments (RISA) Program research has been directly involved in assisting tribes, and has carried out projects and research with tribal applications. One recent example involves the Climate Assessment for the Southwest (CLIMAS), which continually addresses tribal-related research, providing impact assessments, water management and policy recommendations, and data collection and drought monitoring support, working directly with NIDIS. In May 2009, CLIMAS, in affiliation with Arizona Cooperative Extension representatives, visited the Hopi Department of Natural Resources (DNR)

to provide advisory and technical support to better understand, monitor, and record the extent and severity of drought conditions on Hopi lands. CLIMAS involvement with tribal members provides a framework for cross-agency and Tribal support. In Hawaii, the Pacific RISA program continues to play an advisory role in coastal issues affecting Tribes, while the RISA program in the Pacific Northwest, Climate Impacts Group (CIG), is involved with water quality and salmon fisheries tied to regional Tribes.

NOAA's Office of National Marine Sanctuaries has for the past several years been working with the four coastal treaty tribes on the Olympic Peninsula of Washington State in addition to mainland U.S. Indian Tribes, Alaska Natives, and Pacific Islanders to identify risks and vulnerabilities related to climate change. Results of these efforts show that climate change impacts are widespread. In the Pacific and the Gulf of Mexico, increased sea levels have caused salt water intrusion into drinking water aquifers of native peoples. In the Pacific Northwest, two tribes have asked to be moved to higher ground due to sea level rise and their increased vulnerability to tsunamis. Spring flooding caused by earlier snow melts have caused damage to fish and aquatic habitat, leading to loss of fertilized eggs and young salmon.

With National Sea Grant support, Washington Sea Grant led a collaboration among the West Coast Sea Grant programs, NOAA West, the Moore Foundation, and the University of Washington's Climate Impacts Group to develop an innovative framework for assessing vulnerability of fisheries to climate change. The effort culminated in a workshop attended by federal, state, and tribal fisheries management agencies and members of the fishing, non-profit, and academic communities. The project laid the groundwork for West Coast fisheries managers and industry leaders to develop a more complete understanding and plan for management of the fisheries' vulnerability to climate change. NOAA's National Marine Fisheries Service (NMFS) is discussing its application to other U.S. and international fisheries, and the Olympic Coast National Marine Sanctuary is building on this approach to develop its Climate-Smart Sanctuary Action Plan.

Climate Change Adaptation Planning

NOAA's NIDIS will be holding a workshop in October 2012 to engage with tribal communities on how to develop a tribal climate adaptation plan and develop contacts between tribal leaders and resource managers who have successfully developed and implemented adaptation plans or are interested in doing so in the future. In addition, the workshop aims to convey information about tribal climate adaptation needs to federal agencies, highlight climate, energy, and drought policies that are relevant to tribal adaptation needs, and clarify support available for tribal adaptation planning.

With a grant from NOAA's National Sea Grant Office, Alaska Sea Grant will help the community of Shaktoolik, AK decide whether or not to relocate farther from the coast in the face of increasing shoreline loss. Alaska Sea Grant is leading a community-driven project that will build on efforts by Shaktoolik and other at-risk communities, mainly Alaska Native villages on the Bering Sea coast, to adapt to potentially devastating effects of climate change. The project will result in a well-defined process that may be replicated by other at-risk communities in the region. A final report will document lessons learned, adaptation methods for Shaktoolik, potential funding sources, and a step-by-step action plan to implement the community's decision.

The primary objective is that Shaktoolik and its partners develop a final adaptation plan that identifies risks and responses to climate change. This adaptation plan will allow Shaktoolik to participate in the Alaska Climate Change Impact Mitigation Program and will be used by the State of Alaska in allocating financial and technical resources to implement the plan.

Through a 2010 Climate Engagement Mini-Grant from NOAA's National Sea Grant Office, Sea Grant supported a regional project to sponsor the Native Peoples and Native Homelands II Workshop to give NOAA and Sea Grant the opportunity to engage Native American, Alaskan and Hawaiian people on climate variability and impacts on tribal communities.

On a broader note, NOAA was actively involved in preparing the UN Report "Weathering Uncertainty: Traditional Knowledge for Climate Change" which was released earlier this year.

Coordination and Collaboration

NOAA has many management and statutory authorities that allows for the agency to interact with tribes in a number of ways, including addressing the impacts of climate change on fisheries, estuarine resources, and coastal communities throughout the country. These interactions range from formal consultation under treaty processes, executive order, and other interactions that support research, education, training, and resource protection through the National Estuarine Research Reserve System. A few examples of how NOAA is using its authorities to assist Tribes with climate change vulnerabilities are described below.

On July 3, 2012, the U.S. Department of Commerce (DOC) announced it is accepting public comments on a proposed policy, "Tribal Consultation and Coordination Policy for the U.S. Department of Commerce," establishing how DOC consults with federally-recognized Indian tribes on policies that have tribal implications. These consultations promote DOC's mission in part by supporting strong and stable tribal economies able to participate in today's national and global marketplace. The proposed policy responds to President Obama's 2009 White House Memorandum and the 2000 Executive Order 13175 by reaffirming the unique government-to-government relationship between the Federal Government and Indian tribal governments.

The Olympic Coast National Marine Sanctuary and the Hoh, Makah, and Quileute tribes, the Quinault Indian Nation, the State of Washington, and NOAA's Office of National Marine Sanctuaries created the Olympic Coast Intergovernmental Policy Council (IPC) in 2007. The first of its kind in the nation, the IPC provides a regional forum for resource managers to exchange information, coordinate policies, and develop recommendations for resource management for Washington State's Olympic Coast. One of the key successes of this collaboration has been the development of a national symposium focusing on climate change and impacts on indigenous people being held July 16 - 19, 2012 at the National Museum of the American Indian. NOAA also played a role in the National Museum's meeting on "Conversations with the Earth: Indigenous Voices of Change" at the National Museum last year.

Rhode Island Sea Grant worked with the state's Coastal Resources Management Council and partners, including the Narragansett Indian Tribe, to develop and implement a coastal planning tool known as Special Area Management Plans (SAMPs). SAMPs are scientific ecosystem-based management plans that comprehensively review ecosystems, regulatory environments, and social

structures, and propose guidance on regulations to be adopted by the state. After adoption and approval by NOAA, the SAMP becomes a part of the state's coastal management program. On July 22, 2011, Rhode Island's 7th SAMP became the largest ever, covering nearly 1,500 square miles. The SAMP incorporates extensive research and input from state, federal, tribal and local agencies that address healthy habitats, commercial and recreational fishing, cultural heritage, recreation and tourism, renewable offshore wind energy, and global climate change.

Reducing Impacts Related to Coastal Development

NOAA OCRM is currently coordinating with Pacific Northwest Tribes (primarily through the Northwest Indian Fisheries Commission (NWIFC)) to address tribal concerns with state and local decision making related to coastal development and the ensuing environmental impacts that may affect water quality and salmon habitat. By addressing these activities through the local land use plans, environmental impacts may be avoided. Local government plans become part of Washington's NOAA-approved CZMA program and Washington's Coastal Nonpoint Source Pollution Program, and thus enforceable policies.

NOAA, in cooperation with the Alaska Native Tribal Health Consortium, is working with tribal environmental professionals in the Bristol Bay region of Alaska to understand ongoing and future impacts of climate change to community infrastructure. In early 2011, the cooperation resulted in a climate change short course, offered as a continuing education module through University of Alaska - Fairbanks Bristol Bay Campus. This training was a three-day intensive class, providing both background material on the biophysical and socioeconomic dimensions of climate change, and concluding with examples of adaptation planning approaches as well as exposure to how tribal environmental professionals can contribute through citizen-science to our understanding of climate change impacts in Alaska's coastal zone.

Managing Resources

The largest dam removal in the Northeast began on July 2, 2012 in Maine. The removal of the Great Works dam will kick-off a larger effort that will improve access to 1,000 miles of river habitat on the Penobscot River, which is the traditional homeland of the Penobscot Indian Nation. This will open up the river to eleven species of migratory fish, such as endangered Atlantic salmon, sturgeon, and river herring. Estimates show that river herring, which once numbered roughly 14-20 million—but are now reduced to just a few thousand—could rebound to 4-6 million once the removals are complete. The removal of the Great Works Dam, which was partially funded by NOAA through the American Recovery and Reinvestment Act, will yield nearly \$5 million in jobs for the region including engineering, hydrology, construction, science, and local contracting services. The project is part of collaboration between the Penobscot River Restoration Trust, NOAA and other federal and state agencies, the Penobscot Indian Nation, and seven conservation groups.

The National Marine Protected Area Federal Advisory Committee (supported by NOAA's National Marine Protected Area Center) has recommended a Cultural Landscape Approach to management in the National MPA System. This approach is analogous and complementary to ecosystem-based management, and will help MPA managers nationwide to identify and adopt policies and practices that manage cultural and natural resources in an integrated manner at the ecosystem and landscape level. The ecosystem-based management called for in the National

Ocean Policy recognizes that the connections between living things and the physical environment are multifaceted and often inseparable. Managing places using an ecosystem-based approach requires the simultaneous understanding of cultural and natural factors and resources. This approach can bring together all available knowledge of cultural heritage resources, including the incorporation of tribal and indigenous sources. A Cultural Landscape Approach can also integrate traditional knowledge of landscape-level changes with Western science to assess climate change impacts on natural, cultural and heritage resources, and contribute to developing appropriate adaptation strategies.

Oregon's South Slough National Estuarine Research Reserve (NERR) and the Coquille Indian Tribe hosted members of eight sovereign tribal nations from Oregon, Washington, and California at the South Coast Lamprey Summit held May 22-24, 2012 in Charleston, Oregon. The objectives of the summit were threefold: 1) to share scientific information about the species through presentations and discussions; 2) to consider ways to share scientific information among a consortium of tribes, without raising privacy concerns for the data; and 3) to cement working relationships between tribes in the Coos Bay region and South Slough NERR. South Slough hosted scientific presentations with the aim of sharing information among tribal scientific programs and interested state and federal agencies about the status of efforts to conserve native species that are of particular importance to sovereign tribal nations in the Pacific Northwest, including Pacific Lamprey, California Condors, and marine and freshwater native shellfish species that live in Oregon waters.

Education, Outreach, and Capacity Building

Hawaii Sea Grant, the NOAA Integrated Data Environmental Applications (IDEA) Center, and the Joint Institute of Marine and Atmospheric Research provided funding to the Hawaiiinuiakea School of Hawaiian Knowledge and Awaiaulu, a 501(c)3 nonprofit organization that is dedicated to the publication of scholarly texts in Hawaiian, to hire 6 graduate students with backgrounds in Hawaiian language training to translate selected articles on weather and climate from the Hawaiian Language Newspaper archive. Over 4,000 articles were identified and ranked on their relevance for containing weather and climate related information in the previous reporting period.

NOAA, through the RISA Program, contributed curriculum regarding climate change scenarios and basic concepts regarding vulnerability assessment and adaptation planning to a day-long Climate Change Adaptation Planning training workshop organized by the Institute for Tribal Environmental Professionals (ITEP) and delivered concurrently with the 2011 meeting of the Alaska Council of Tribal Environmental Professionals.

Conclusion

Climate change impacts on the Federally-recognized tribes and other indigenous people within the United States and our Territories are already occurring. NOAA is working hard to help these indigenous communities understand the risks and vulnerabilities related to sea level rise, drought, and other factors. NOAA is also looking for different ways of knowing and practices to help the nation respond to a varying and changing environment. We have created numerous partnerships specifically with indigenous groups and are always looking for ways to establish meaningful discussions with additional communities.

Thank you, Mr. Chairman, for the opportunity to appear before you today. I look forward to answering any questions that you or the Committee may have.