



Tribe and First National Climate Summit

Lightning Presentations and Poster

Wednesday, December 13, 2017

4:15 – 5:30 pm

LIGHTNING PRESENTATIONS:

1. Maggie Sanders, **Nisqually Indian Tribe and University of Washington**, *“Creating a tribally-based toolkit to encourage community-driven resilience planning”*
2. Amelia Marchand, **Colville Confederated Tribes**, *“Planning for Holistic Health in Changing Climate”*
3. Joel Green, **Hoh Indian Tribe**, *“The Importance of Tributary Streams as Cold Water Refuge for Salmon in a Warming Climate: An Example from the Hoh River Watershed”*
4. Meade Krosby, **University of Washington**, *“Building Tribal Capacity for Climate Change Vulnerability Assessment”*
5. Meghan Dalton, **Oregon Climate Change Research Institute**, *“Seeking Input on a Tribally-Focused Climate Change Adaptation Guidebook”*
6. Michael Case, Case Research, LLC - **University of Washington**, *“Assessing climate change impacts to vegetation, fire, and ecosystem services for tribal lands in the Pacific Northwest”*
7. Chas Jones, **NW CSC / ATNI**, *“NW Climate Science Center Resources for Building Tribal Resilience”*
8. Holly Barton, **Southwest Climate Science Center**, *“Fourth National Climate Assessment”*
9. Dr. Cynthia West, **USDA Forest Service**, *“Climate, Drought and Citizen Science with Tribes”*
10. Linda Kruger, **USDA Forest Service**, *“PNWRS Juneau Forestry Lab, Impacts of submerging and emerging shorelines on biota and subsistence lifestyles”*
11. Holly Prendeville and Gabrielle Roesch-McNally, **Northwest Climate Hub**, *“The USDA Northwest Climate Hub Engaging Tribes”*
12. Janet Prev y, **USDA Forest Service**, *“How does climate influence ranges of berry- and nut-producing native northwestern shrubs?”*
13. Melanie Hess, **North Pacific Landscape Conservation Cooperative**, *“Tribal Engagement in the Pacific Northwest Coast Conservation Blueprint”*
14. Dave Johnson, **Bureau of Land Management**, *“Tribal Participation on Public Lands”*
15. Ralph Perona, **Neptune and Company**, *“Data to Decisions for Climate Resilience: Socio-ecological Challenges in the Yakima River Basin”*

POSTERS ONLY:

16. Chelsea Kovalcsik, **Chugach Regional Resources Commission**, *“Climate Change and Traditional Food Resources in the Chugach Region, Alaska”*
17. Michael Chang, **Makah Tribe**, *“Makah Tribe's Climate Adaptation Plan and Community Engagement Process”*
18. Scott Hauser, **Upper Snake River Tribes Foundation**, *“Upper Snake River Climate Change Vulnerability Assessment”*
19. Jen Syrowitz, **Audubon Society Washington**, *“Creating a Climate for Action”*

Poster Presentations and Abstracts

Maggie Sanders, Nisqually Indian Tribe and University of Washington

Poster Title: *“Creating a tribally-based toolkit to encourage community-driven resilience planning”*

Abstract: This project is a tribally-based collaboration between indigenous researchers from the University of Washington and several sovereign tribal nations to develop a climate science and native health toolkit and to better understand indigenous notions of resilience. The goals of this toolkit are to illustrate the most recent climate health research, highlight local human and environmental impacts, define resiliency from a local tribal perspective, and identify community-driven adaptation strategies. In a community-based adaptation gathering we discuss: What makes tribal communities more resilient to the impacts of climate change? There were four parts to these workshops. First, we began with an opening prayer led by local community leaders. This was followed by presentations about climate science, local adaptation strategies, and climate and native health. Next, participants discussed resiliency and their concerns in groups. Finally, participants gathered in a talking circle to discuss priorities and action plans toward building resiliency. In this tool, native pedagogies, native ways of knowing and western science were used together as equally valued knowledge systems. Tribal members, leaders and scholars partnered in the design, planning, and execution of this project. An outcome of this work is a scalable climate science communication and education toolkit that can be used by a number of tribes to promote knowledge about climate change and to build capacity. This toolkit includes a protocol detailing how to host a community gathering to discuss tribal-based climate adaptation and two presentation modules about climate science, health, tribal rights and sovereignty. This project will contribute to our understanding about resiliency among tribes and encourage community empowerment.

Amelia Marchand, Colville Confederated Tribes

Poster Title: *“Planning for Holistic Health in Changing Climate”*

Abstract: Holistic Health Climate Change

Joel Green, Hoh Indian Tribe

Poster Title: *“The Importance of Tributary Streams as Cold Water Refuge for Salmon in a Warming Climate: An Example from the Hoh River Watershed”*

Abstract: The members of the Hoh Tribe have been fishing for salmon in the Hoh River for thousands of years. But now, both the people and the salmon face the new challenge of climate change, which brings with it warmer water in the river. As salmon are adapted for life in cold water, this is a problem. In 2015-2017, we recorded water temperature in both the river and in tributary streams flowing into the Hoh River from June through mid-September, using temperature loggers that recorded temperature at 15-minute intervals throughout the summer. The river furthest downstream was the warmest of locations we monitored, with 6 weeks in 2016 when the daily maximum temperatures were mostly above 63.5°F, which is too warm for healthful rearing and migration of salmon and trout. However, in seven creeks flowing into the Lower Hoh River, the water temperature never exceeded 63.5°F, and in five of these, water temperature never exceeded 60.8°F, the upper limit for Core Summer Salmonid Habitat according to Washington Water Quality Standards. These tributary streams are

providing a place for the salmon to go when the river is too warm. We found the temperatures in the river were warmest in the mid to late afternoon, but cooler during the night and in the mornings. Upstream migrating salmon and steelhead may swim in the river during the night and early morning, and find cold-water refuge in the tributary streams during the hot afternoons. Our research points out the importance of keeping those creeks cool for the salmon, and the importance of trees growing along the creeks in providing shade to keep the streams cool.

Meade Krosby, University of Washington

Poster Title: “*Building Tribal Capacity for Climate Change Vulnerability Assessment*”

Abstract: The future well-being of tribal communities relies on effectively anticipating and responding to climate impacts on natural and cultural resources. And yet, many tribes face difficulties initiating and completing the critical first step of the climate adaptation planning process: an assessment of locally-specific climate risks that accounts for the unique priorities, values, and concerns of individual tribes. We describe a current project designed to support climate change vulnerability assessment activities by Northwest and Great Basin tribes. The primary objectives of the project are to: 1) make the vulnerability assessment process more accessible to tribal staff by providing online guidance materials targeted to tribal needs and capacities; 2) address the demand for decision-relevant climate data by providing downscaled climate data and climate change summaries for tribes; and 3) support tribal staff through the vulnerability assessment process via workshops and webinars to provide training on the use of project resources and datasets, and by staffing a Tribal Climate Technical Support Desk to provide rapid response to questions about the vulnerability assessment process. We are conducting this effort in close consultation with tribal partners, and working with existing tribal knowledge-sharing networks to connect project resources to a broad range of tribal communities.

Meghan Dalton, Oregon Climate Change Research Institute

Poster Title: “*Seeking Input on a Tribally-Focused Climate Change Adaptation Guidebook*”

Abstract: Changes in the climate and natural environment are uniquely and disproportionately affecting the culture, lifeways, sovereignty, community health, and economies of American Indian and Native Alaskan Tribes. Yet, since time immemorial tribes have maintained a cultural tradition on the landscape, demonstrating a high degree of resilience in the facing of changing environmental and social conditions. Many tribes are already building resilience to climate change through adaptation planning. There are many guidebooks designed to support work on climate change adaptation and to provide frameworks that all communities can use. However, most existing guidebooks do not consider the unique tribal context and culture. We are developing a tribally-focused climate change adaptation guidebook that aims to identify opportunities for combining multiple perspectives, including Traditional Knowledges, in the planning process, to build on the experience and lessons learned from previous tribal and non-tribal adaptation efforts, and to present climate adaptation planning in the context of tribal priorities. In order to create a better guidebook, we invite tribes and organizations working with tribes to review a pre-release version of the guidebook and contribute experiences and lessons learned.

Michael Case, Case Research, LLC - University of Washington

Poster Title: “*Assessing climate change impacts to vegetation, fire, and ecosystem services for tribal lands in the Pacific Northwest*”

Abstract: Climate change has already led to significant changes in species composition, phenology, biotic interactions, and disturbance regimes in western North America. Native Americans may be highly vulnerable to these changes because they rely heavily on ecosystem services, including traditional foods, hunting, timber production, non-timber forest resources, ranching quality, agricultural suitability, cultural resources, among others. Native Americans are also culturally tied to the historical landscape and recognize many places that are sacred and outside tribal reservation boundaries. In response to the potential impacts, we applied an integrated assessment and identified changes to vegetation, fire, and ecosystem services across tribal lands and sacred places throughout the Pacific Northwest. Specifically, we applied a dynamic general vegetation model (DGVM) across Washington and Oregon and summarized projected changes in climate, vegetation, and fire. Our results show substantial changes in some vegetation types (such as subalpine forests and shrub steppe) due to climate change and fire. We then created a crosswalk that links specific species and ecosystem services that are valued by tribes with DGVM simulated vegetation types. We demonstrate how these changes will impact economically and culturally important ecosystem services for tribes. Surprisingly some first foods and medicinal plants may increase in suitable habitat whereas arid-land species and grazing quality are projected to decline. We demonstrate how this information will be used in partnership with tribal organizations to help inform resource management and adaptation planning.

Chas Jones, NW CSC / ATNI

Poster Title: “NW Climate Science Center Resources for Building Tribal Resilience”

Abstract: The Northwest Climate Science Center (NW CSC) tribal liaison seeks to learn about the resources that are important to tribes, how those resource may be at risk, what projects would improve tribal resilience, and how the NW CSC can promote the success of tribal projects. In 2017, a grant from the B.I.A. allowed the Affiliated Tribes of Northwest Indians to hire a tribal liaison to work with the NW CSC to increase tribal capacity in the PNW to respond to climate impacts. The NW CSC provides tribal resource managers and other stakeholders with actionable science that helps to increase the resilience and adaptive capacity of tribes in the NW. With information about tribal priorities, the liaison can connect tribes to resources available through the CSC and other resources. In this presentation, the NW CSC tribal liaison will discuss the efforts of the CSC and the liaison, and the CSC resources available to help build tribal resilience. Grants from the B.I.A.’s Tribal Resilience Program has provided funding for tribal liaisons to be established in each of the eight regional CSC’s.

Holly Barton, Southwest Climate Science Center

Poster Title: “Fourth National Climate Assessment”

Abstract: Providing information on the Fourth National Climate Assessment (NCA4) chapter on Indigenous Peoples, Northwest and Southwest regions. We will discuss the NCA4 public review process and how to provide feedback.

Dr. Cynthia West, USDA Forest Service

Poster Title: “Climate, Drought and Citizen Science with Tribes”

Abstract: In 2017, the Forest Service developed an online Drought Gallery that includes maps, GIS layers, fact sheets, and other resources for tribes, natural resource specialists, managers, GIS specialists, and the public. The

gallery harnesses Esri's ArcGIS Online technology to deliver a collection of vibrant mapping content based on scientific climate and drought data. The drought gallery is both a data repository and communication toolkit to inform and educate stakeholders about drought and its impacts on natural resources. The gallery provides tools for analyzing current and projected changes in stream temperature, streamflow, and snowpack. Tribes, citizen scientists and others may use the drought gallery as a one-stop shop for drought-related information and includes maps and data, stories, photos, text and videos. One key outcome of the gallery is the provision of a singular resource for credible and citable drought-related data for partners involved in land management planning and is a living repository, and may be modified or supplemented, as new information becomes available. This tool may be helpful to Tribes in their planning and monitoring activities by providing a standard set of data to consistently address questions on climate and drought to better adapt on-the-ground actions to a changing environment.

Linda Kruger, USDA Forest Service - PNWRS Juneau Forestry Lab

Poster Title: “*Impacts of submerging and emerging shorelines on biota and subsistence lifestyles*”

Abstract: Collaborating with Tribal communities as research partners is important to achieve research that is responsive to Tribal needs and contributes to the growing body of scientific knowledge. This study presents findings from work with Tribes in Southeast and Prince William Sound Alaska.

Holly Prendeville and Gabrielle Roesch-McNally, Northwest Climate Hub

Poster Title: “*The USDA Northwest Climate Hub Engaging Tribes*”

Abstract: The Northwest Climate Hub is part of the Department of Agriculture’s Climate Hub network. In the Northwest, we serve natural resource managers and tribes in Oregon, Washington, Idaho and Alaska. The Climate Hubs link USDA research and program agencies in their regional delivery of timely and authoritative tools and information to agricultural producers, ranchers, forest landowners and other tribal natural resource professionals. The mission of the Climate Hubs is to develop and deliver science-based, region-specific information and technologies, with USDA agencies and partners, to agricultural and natural resource managers, including tribal partners, that enable climate-informed decision-making, and to provide access to assistance to implement those decisions. This is in alignment with the USDA mission to provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, the best available science, and efficient management. In the Northwest, we are supporting a number of projects in our region that are both directly and indirectly serving tribal interests. We highlight a number of Northwest Climate Hub efforts of interest to tribes, including a Climate Resource Guide that is being developed as a national resource. This guide provides detailed information on all USDA funding and technical resources currently available to tribes that may assist them with adapting to and mitigating for climate change. This resource will eventually be available online in a searchable format but attendees at the Tribal Climate Summit will get a first look at the product.

Janet Prev y, USDA Forest Service

Poster Title: “*How does climate influence ranges of berry- and nut-producing native northwestern shrubs?*”

Abstract: Berry- and nut-producing shrubs of the Pacific Northwest are important in many ways. They are an important food source for foraging wildlife and pollinators, are culturally important as components of traditional tribal diets, and are also harvested for recreational and commercial use. In this project, we are developing

information on how climate change will impact the ranges of ecologically and culturally important northwestern shrubs, including salal, hazelnut and several species of huckleberry. Accurate mapping of current ranges of shrubs is one way to understand the relationship between climate variables and shrub distributions. Current range maps, however, only indicate if a species is present in a county or state (such as in the USDA NRCS Plants Database) and plant guides only describe the environments where it may be found. More accurate maps of current ranges will act as the starting point to help managers understand how climate change is likely to affect the location (range) and timing of berry and nut production of widely distributed shrub species. The first step in this process is the collation of currently available data sources including herbarium specimens and vegetation assessments completed as part of forest inventories (such as Forest Inventory and Analysis plots) and research or monitoring plots (research natural areas and ecology plots). Using presence/absence data from all these data sources in conjunction with climate information will allow us to develop more detailed plant range maps than those currently available and can be used to develop future range maps based on projected changes in climate. This information could then be used to help managers determine priorities for competing projects, evaluate vulnerabilities of species of interest, or identify if new areas might need to be developed for traditional or commercial use.

Melanie Hess, North Pacific Landscape Conservation Cooperative

Poster Title: “*Tribal Engagement in the Pacific Northwest Coast Conservation Blueprint*”

Abstract: The Pacific Northwest Coast Conservation Blueprint project is working to develop a collaborative, landscape-scale blueprint in the Lower Columbia River and adjacent coastal regions of Oregon and Washington to align conservation efforts in the region to achieve landscape-scale goals in response to impacts such as climate change, and regional population growth. The Columbia Coast contains a rich diversity of natural and cultural resources managed by a complex array of tribal sovereign nations, federal/state/local agencies, non-government conservation organizations, landowners, stakeholders and others. Tribes, in particular, have demonstrated leadership and vision in addressing impacts to lands and resources in the region, and have important treaty rights, co-management authority, traditional knowledge, technical expertise, and operational capacity. Tribal insight into landscape processes, cultural values and management will be an important aspect of a holistic and effective conservation blueprint. We are continuing to seek tribal engagement during this iterative and collaborative process to ensure tribal visions and voices are included in the development of the conservation strategies, and so we respectfully ask for and welcome your feedback.

Dave Johnson, Bureau of Land Management

Poster Title: “*Tribal Participation on Public Lands*”

Abstract: The Bureau of Land Management (BLM) is the largest lands and resources management agency in the United States. Public lands and minerals under agency jurisdiction include 245 million acres of surface estate and 700 million acres of federal mineral estate. Natural and cultural resources abound on public lands as do issues and opportunities for stewardship. Given that all public lands are, ultimately, ceded tribal lands, tribes may be interested in working with the BLM to advance tribal interests. This poster presents a map of public lands in Oregon and Washington and highlights some of the resources and issues BLM is responsible for. In consideration of the recently-released guidance on tribal relations (BLM 1780 Manual & Handbook), this poster invites tribal leaders to consider potential projects of tribal interest in collaborative partnership with the agency.

Ralph Perona, Neptune and Company

Poster Title: *“Data to Decisions for Climate Resilience: Socio-ecological Challenges in the Yakima River Basin”*

Abstract: From 2015 - 2016, Northwest Indian College, the Tulalip Tribes, and the American Indian Higher Education Consortium collaborated in formulating the concepts for a prototype Tribal Lands Collaboratory (TLC). The TLC was used to explore how web-based collaboration technologies can be used to study the impacts of climate change on the tightly linked timings of salmonberry ripening, Swainson's thrush singing, and the return of salmon. In the fall of 2017, Neptune extended the TLC approach by initiating and leading a small experimental effort called "Data to Decisions for Climate Resilience" (D2D). D2D is co-sponsored by the US Global Change Research Program's National Climate Assessment network and the Federation of Earth Science Information Partners. The objectives of D2D included building a set of openly web-accessible concept maps to document climate adaptation planning methods, including a set of methodologies called "Structured Decision Making". To initiate D2D, we studied the challenges of the Yakama Nations' salmon harvests set against a complex landscape of socio-ecological actors in the Yakima River Basin. In this poster, we broadly describe the scope of D2D, which remains an experimental work-in-progress.

Chelsea Kovalcsik, Chugach Regional Resources Commission

Poster Title: *“Climate Change and Traditional Food Resources in the Chugach Region, Alaska”*

Abstract: Chugach Regional Resources Commission (CRRC) is currently conducting a traditional food assessment throughout the Chugach region. Part of the goal of this assessment is to gain a baseline of indigenous knowledge on current food-source patterns due to environmental implications (i.e. climate change and ocean acidification). Issues Tribal members face are a changing marine and terrestrial environment where traditional foods gathered in the forest and on the beaches near the villages are no longer available. Foods pivotal to diets have increased threats due to anthropogenic activities, thus causing increased stress on member Tribes and a heightened sense of food insecurity. Tribes are having to rely heavily on western diets from grocery stores at high prices as opposed to traditional ways. Subsistence means more than collecting food from the land, it is quite literally a way of life; it is a way for to connect with family, community members, elders, and culture. A loss of traditional foods prevents member Tribes from connecting with one another and creates a separation between member Tribes and their respective cultural practices. The disconnect in their communities is staggering, in particular, among youth. A local statement is “when the tide is out, the table is set”. This opportunity is currently lost and when this loss occurs so does the loss of culture which can have negative effects on psyche. While traditional foods may restore physical health, they are also central to cultural and spiritual traditions. Salmon, shellfish, berries, seals, sea lions and certain bird species are just a few food sources survey respondents are noticing a distinct difference in behavior, location or availability when compared to years of previous indigenous knowledge. Tribal members are seeing, firsthand, a decline in many aquatic and terrestrial animals and a change in their way of life.

Michael Chang, Makah Tribe

Poster Title: *“Makah Tribe's Climate Adaptation Plan and Community Engagement Process”*

Abstract: The Makah Tribe views climate change as one of the biggest threats to their natural resources, threatening their livelihoods, economy, and culture. As part of their work towards climate adaptation and

planning, the Makah Tribal Council and tribal natural resource managers prioritized early community outreach and engagement efforts in order to accomplish three goals: continually update and inform the tribal community about the Tribe's climate adaptation efforts; gather community input and priorities for the Makah Climate Adaptation Plan; and provide a series of educational events to inform the tribal community about projected climate change impacts to our resources. Our first community climate event, the Makah Climate Change Awareness Dinner, was held on February 8, 2017. At this event, we provided an overview of the Makah Tribe's Climate Vulnerability Assessment and administered an initial climate survey that gathered information regarding community members observed environmental changes, knowledge about climate change and impacts, and any concerns and priorities to include in the Tribe's adaptation plan. This presentation presents our framework for incorporating community engagement in climate adaptation planning, the preliminary results of our community survey, and lays out the next steps that the Makah Tribe is pursuing towards climate adaptation planning.

Scott Hauser, Upper Snake River Tribes Foundation

Poster Title: "*Upper Snake River Climate Change Vulnerability Assessment*"

Abstract: The climate around the Upper Snake River is changing. Climate change impacts to natural resources have the potential to affect tribal members' culture, spirituality, and lifeways. Upper Snake River Tribes (USRT) Foundation's member tribes have already noticed shifts in species and habitats driven by increasing temperatures and changing precipitation patterns. To better understand these changes, USRT and the Burns Paiute Tribe, Fort McDermitt Paiute-Shoshone Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation, and Shoshone-Paiute Tribes of the Duck Valley Reservation collaborated with Adaptation International, the Climate Impacts Group (University of Washington), and the Oregon Climate Change Research Institute (Oregon State University) to complete a climate change vulnerability assessment. This collaborative assessment expressly considered the species, habitats, and resources that are important and valuable to USRT member tribes.

Jen Syrowitz, Audubon Society Washington

Poster Title: "*Creating a Climate for Action*"

Abstract: According to a 2016 poll by the Yale Program on Climate Change Communication, 60% of people in Washington state are concerned about global warming and yet only 38% admit to discussing the issue at least occasionally (Howe, P., Mildenberger, M., Marlon, J.R., and Leiserowitz, A., "Geographic variation in opinions on climate change at state and local scales in the USA," Nature Climate Change. DOI: 10.1038/nclimate2583). One hypothesis for this discrepancy is the political polarization of a non-political issue that affects everyone; no one is excluded from the threat-multiplying impacts of climate change. Particularly during periods of distrust and suspicion in public discourse, there is a need to create safe space in communities, to unite non-partisan voices, to de-politicize the issue, and to discuss bi-partisan policy solutions that will remain durable through Republican and Democratic governments. Audubon is an authentically bipartisan conservation organization whose national membership identifies as 52% liberal and 48% conservative. Using birds as a non-partisan vessel by which to discuss the issue of climate change, we advocate for bi-partisan climate policies that are politically viable and long-lasting. Local polling suggests Washingtonians are hungry for climate action. But is the political climate available to effect change? In order to successfully pass effective climate change legislation, i.e. act on climate, we must create a climate for action. Audubon has the vision, the science, the messenger (birds), and the bipartisan grassroots network by which to engage communities, allies, and perceived adversaries on a path to climate action.