Columbia River Basin Tribes
Climate Change Capacity Assessment

"She Who Watches"

October 2015

Donald Sampson
Institute for Tribal Government
Hatfield School of Government, Portland State University
541-215-2753
don@seventhgenerationllc.com

TABLE OF CONTENTS

LIST OF ACRONYMS

ATNI	Affiliated Tribes of Northwest Indians
BIA	Bureau of Indian Affairs
CRITFC	Columbia River Inter-Tribal Fish Commission
CRT	Columbia River Treaty
CSC	Climate Science Center
ITEP	Institute for Tribal Environmental Professionals
ITG	Institute for Tribal Government
LCC	Landscape Conservation Cooperatives
NCAI	National Congress of American Indians
NOAA	National Oceanic and Atmospheric Administration
NPLCC	North Pacific Landscape Conservation Cooperative
NW CSC	Northwest Climate Science Center
NW CSC ESAC	Northwest Climate Science Center Executive Stakeholder Advisory Committee
SC	Steering Committee
SPP	Sovereign Participation Process
SRT	Sovereign Review Team
STT	Sovereign Technical Team
TEK	Traditional Ecological Knowledge
TLF	Tribal Leadership Forum
UCUT	Upper Columbia United Tribes
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USRT	Upper Snake River Tribes Foundation

LIST OF TABLES

LIST OF FIGURES

ACKNOWLEDGEMENTS

The project described in this publication was supported by Grant/Cooperative Agreement Number G14AP00191 from the United States Geological Survey (USGS). Its' contents are solely the responsibility of the authors and do not necessarily represent the official views of the USGS. The purpose of the project is to conduct an assessment of 15 Columbia River Basin Tribes' and 3 Intertribal organizations' technical, scientific, management and policy capacity related to climate change preparedness and adaptation. The results of the report are based on the research, surveys, telephone interviews, and meetings with the policy and staff representatives from the fifteen Columbia River Basin Tribes and 3 Intertribal organizations.

Principal Investigator and Author: Donald Sampson, Executive Director, Tribal Leadership Forum

We would like to give special thanks for input provided by the following Columbia River Basin Tribes and 3 Intertribal organization employees: Brandon Haslick, Jason Kesling, and Erica Maltz, Burns Paiute Tribe; Alfred Nomee and Tiffany Allgood, Coeur d'Alene Tribe; Rhonda Dasher, Tribes of the Colville Reservation; Taylor Aalvik, Cowlitz Indian Tribe; Kenneth Merrill, Kalispel Tribe of Indians; Kevin Greenleaf, Kootenai Tribe; Aaron Miles and James Holt, Nez Perce Tribe; Duane Masters Sr., Fort McDermitt Paiute-Shoshone Tribes; Mike Durglo, Confederated Salish and Kootenai Tribes of the Flathead Nation; Heather Lawrence and Jinwon Seo PhD, Shoshone Paiute Tribe of the Duck Valley Indian Reservation; Rod Skeen, Carl Scheeler, Carl Merkle, and Patrick Mills, Confederated Tribes of the Umatilla Indian Reservation; Robert Brunoe, Jonathan Treasure, and Pah-tu Pitt, Confederated Tribes of the Warm Springs Reservation; Phillip Rigdon, Confederated Tribes and Bands of the Yakama Nation; Paul Lumley and Laura Gephart, Columbia River Inter-Tribal Fish Commission; D.R. Michel and John Sirois, Upper Columbia United Tribes; and Heather Ray, Scott Hauser, and Robert Austin, Upper Snake River Tribes for their input throughout this project and finally, all the numerous Tribal Council and Tribal Committee representatives and participants for their time and valuable contributions. We are thankful for the support and contribution of Gustavo Bisbal PhD, Director of the NW Climate Science Center.

The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government.

1. EXECUTIVE SUMMARY

The Columbia River Basin is the largest river in the Pacific Northwest region of North America. The Columbia River Basin is 258,000 square miles in size encompassing large portions of the states of Washington, Oregon, Idaho, Nevada, and Montana as well as British Columbia.

Climate change is expected to significantly alter the ecology and economy of the Columbia River Basin and Tribal communities are among the most climate-sensitive. The Columbia and its tributaries have been central to the region's Tribal culture and economy for thousands of years. Models predict warmer temperatures, more precipitation as rainfall and decreased snowfall occur over the next 50 years, which will directly affect the abundance of culturally significant foods, such as salmon, deer, root plants, and berries. These foods are important for ceremonies and subsistence, and access to traditional hunting, fishing, and gathering sites is guaranteed by treaty, executive order, and agreements with the United States government.

The Tribal Leadership Forum (TLF)) was awarded a grant by the United States Geological Survey (USGS) to conduct a survey of 15 Columbia River Basin Tribes and 3 Intertribal Organizations to assess their policy and technical capacity and needs to address climate change. The Tribes and Intertribal organizations included in the assessment are the Burns Paiute Tribe, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, Confederated Tribes of the Colville Reservation, Confederated Tribes and Bands of the Yakama Nation, Cowlitz Indian Tribe, Kalispel Tribe of Indians, Spokane Tribe of Indians, Coeur d'Alene Tribe, Kootenai Tribe, Nez Perce Tribe, Shoshone-Bannock Tribes of the Fort Hall Reservation, Confederated Salish and Kootenai Tribes of the Flathead Nation, Fort McDermitt Paiute Shoshone Tribes, Shoshone Paiute Tribe of the Duck Valley Indian Reservation, Columbia River Inter-Tribal Fish Commission (CRITFC), Upper Columbia United Tribes, and the Upper Snake River Tribes Foundation (USRT).

The 15 Tribes of the Columbia River Basin have a total membership of over 56,000. These Tribal members depend on the 15 Tribal governments for employment, education, housing, healthcare, public transportation, natural resource management, and social services. Tribal communities are also faced with challenges of high unemployment and poverty – common rural problems, but much higher than the national rates. Increasing the climate resilience of tribal communities is critical to ensuring access to resources protected by rights and vitally important to the cultural existence and economic vitality of these communities.

The 3 Intertribal organizations are comprised of the following Columbia River Basin Tribes:

1. The Upper Snake River Tribes Foundation (USRT) is comprised of the Shoshone-Paiute, Burns Paiute, Paiute-Shoshone, and Shoshone-Bannock Tribes with headquarters located in Boise, Idaho;

2. The Upper Columbia United Tribes (UCUT) is comprised of the Spokane, Colville, Kalispel, Coeur d'Alene, and Kootenai Tribes with headquarters located in Spokane, Washington; and

3. The Columbia River Inter-Tribal Fish Commission (CRITFC) is comprised of the Yakama, Umatilla, Warm Springs, and Nez Perce Tribes with headquarters located in Portland, Oregon.

The purpose of the project is to conduct an assessment of 15 Columbia River Basin Tribes' and 3 Inter-Tribal organizations' technical, scientific, and policy capacity related to climate change preparedness and adaptation. The project's six objectives are:

1. Assess the level of Columbia River Basin Tribes' awareness of the federal, state, tribal, and local government agencies climate change plans, scientific analysis, policies, and initiatives;
2. Assess each Columbia River Basin Tribe's and Intertribal organization's internal and external technical and policy expertise related to capacity on climate change and identify the capacity of tribal management and policy leaders to effectively implement actions and policies related to climate change impacts;
3. Identify existing or planned tribal and Intertribal efforts and innovative methods to effectively mitigate and adapt to climate change;
4. Identify opportunities to foster and facilitate cross-tribal, state, and federal agency collaboration on and dissemination of effective and innovative climate change practices;
5. Determine the level of participation in strategic and programmatic operations to address national and regional climate adaptation and mitigation issues; and
6. Identify the policy, technical, scientific, legal, and programmatic needs of Columbia River Basin Tribes.

Summary of Findings and Recommendations

In summary, the 15 Tribes and 3 Intertribal organizations have disparate levels of technical, management, and policy capacity related to climate change planning. All of the Tribes and 3 Intertribal organizations have limited resources to adequately plan and adapt to climate change impacts affecting their communities and natural resources in the Columbia River Basin. The Columbia River Basin Tribes and 3 Intertribal organizations identified a variety of needs including increasing their technical, policy and management capacities, increasing tribal community awareness of climate change impacts, and increased funding and staffing to develop vulnerability assessments, adaptation plans, and effectively engage in regional climate planning forums.

The following is a summary of the findings and recommendations related to the six objectives of the project:

1. *Assess the level of Columbia River Basin Tribes' awareness of the federal, state, tribal, and local government agencies climate change plans, scientific analysis, policies, and initiatives.*

- Less than 50% of the 15 Columbia River Basin Tribes and 3 Intertribal organizations are aware of and engaged in federal, state, tribal, and local government agencies climate change planning efforts on a regional level and only CRITFC at the national level.

- The 15 Tribes and 3 Intertribal organizations formed the Columbia River Basin Tribes Coalition (Coalition) and actively use this Coalition to coordinate their participation in the U.S. – Canada Columbia River Treaty (CRT) review process. The Tribes are promoting Columbia River ecosystem function as a key requirement of the CRT. Historically, flood control and energy production have been the sole purposes of the CRT. The CRT planning process utilizes Columbia River hydroelectric dam regulation modeling to serve as the foundation for climate change modeling comparison in the Columbia River Basin. This collective effort of the Columbia River Basin Tribes represents their most cohesive and comprehensive approach to analyzing climate impacts on Columbia River Basin natural resources.

- Landscape Conservation Cooperatives (LCC's) represent the climate planning forums the Tribes engage in next most often, however of the 15 Columbia River Basin Tribes only five Tribes (Salish-Kootenai, Umatilla, Colville, Nez Perce, and Yakama) are actively involved in LCC's and only two (CRITFC and USRT) of the 3 Intertribal organizations are involved in LCC's on behalf of their respective Tribes. Participation is limited due to lack of Tribal awareness, funding, and staffing. There is very little involvement in other federal agency planning efforts such as the USDA HUBS or NOAA (National Oceanic and Atmospheric Administration) Regional Integrated Sciences and Assessment Programs.

- The Tribes and Intertribal organizations have recently become aware of and successfully secured funding from the US Department of Interior Bureau of Indian Affairs (BIA) Tribal Cooperative Landscape Conservation Program. This federal program is now the primary funding source of Tribal climate planning activities.

- Of all Tribes and 3 Intertribal organizations, CRITFC is the most actively engaged tribal entity participating in multiple federal, state, and Intertribal agency climate planning efforts at the regional and national level.

- Few of the Tribes or Intertribal organizations are involved in state or local agency climate change initiatives except through existing federal forums like LCC's.

- Lack of dedicated funding and staffing has been the primary limiting factor for tribal awareness and engagement in federal, state, tribal, and local government agencies climate change planning efforts. However, in FY2015 over 50% of the Tribes and Intertribal organizations have received small BIA grants for travel support, and seven tribes and one intertribal organizations received BIA grants for climate change planning activities to develop vulnerability assessments or adaptation plans.

2. *Assess each Columbia River Basin Tribe's and 3 Intertribal Organization's internal and external technical and policy expertise related to capacity on climate change and identify the capacity of tribal management and policy leaders to effectively implement actions and policies related to climate change impacts.*

- About half of the 15 Columbia River Basin Tribes have some level of technical and policy capacity dedicated to climate change planning while the other half of the Tribes rely on their respective Intertribal organizations or external organizations to provide technical support and coordination. Some tribes have internal staff with excellent natural resource management, scientific, and even climate change expertise, however they are funded by non-climate change related grants and therefore are limited in their ability to provide climate change expertise for the Tribe.

- Only eight Tribes and two Intertribal organization (CRITFC and USRT) have a staff person dedicated to climate change planning. With the exception of CRITFC, this climate change capacity has developed only in the past one to three years. A few other Tribes have technical expertise, however they are not funded to address climate change planning activities. Nearly all Tribes support some level of climate planning training, technical assistance, and increased funding to build internal capacity.

- The Pacific NW Tribal Climate Project, Institute for Tribal Environmental Professionals (ITEP), Affiliated Tribes of Northwest Indians (ATNI), Northwest Climate Science Center (CSC), and the North Pacific, Great Northern, and Great Basin LCC's provide the greatest external technical, policy, and scientific support to the Columbia River Basin Tribes outside of the 3 Intertribal organizations. Tribes and Intertribal organizations utilize these seven agencies and forums to varying degrees for climate change planning, data analysis, climate modeling, technical support, and training.

- The capacity of Tribal policy leaders and executive management to effectively implement actions and policies related to climate change impacts is currently limited due to the fact that:

    a. Tribal management and policy leaders have a moderate level of awareness of climate impacts or planning methods;

b. Tribal citizens have a low to moderate level of awareness of climate change impacts; this influences the importance of addressing climate change impacts and its priority with Tribal elected leaders;

c. Only two Tribes have completed a climate change vulnerability assessment and seven Tribes and one Intertribal organization are just initiating the process to develop vulnerability assessments from which to base adaptation plans upon;

d. There are few tribal models regionally or nationally which describe "how to" implement a climate adaptation plan; and

e. There is limited funding for the implementation of climate adaptation plans.

3. Identify existing or planned tribal and Intertribal efforts and innovative methods to effectively mitigate and adapt to climate change.

- The most geographically expansive and cohesive Intertribal effort to mitigate and adapt to climate change is the U.S. – Canada Columbia River Treaty (CRT) review process, which utilizes base case Columbia River hydroelectric dam regulation modeling cases that are the foundation for climate change modeling comparison. All 15 Tribes and 3 Intertribal organizations are actively engaged in this effort.

- The second largest Intertribal effort is the USRT Foundation Collaborative Climate Change Vulnerability Assessment which will evaluate how climate change has and is expected to affect resources (water, ecotypes/habitats, aquatic/terrestrial species, and tribal enterprises) both on USRT member tribes' four reservations and within the entire Upper Snake River Basin. This effort is just beginning and will involve all four USRT Tribes.

- Two Tribes have completed vulnerability assessments and seven Tribes and one Intertribal organization are just now initiating vulnerability assessments or adaptation plans:

  a. Salish-Kootenai Tribe – "Salish-Kootenai Climate Change Strategic Plan" (*completed 2013*), "Tribal Collaboration to Address Climate Change in the Crown of the Continent" (*in development*)

  b. Nez Perce Tribe – "Clearwater River Sub-basin Climate Change Adaptation" (*completed 2011*)

  c. Coeur d' Alene Tribe – "Climate Change Impact Assessment Project"

  d. Colville Tribe – "Develop Climate Adaptation Plans, Vulnerability Assessments, and Data Analysis"

  e. Yakama Nation – "Climate Adaptation Plan: Technical Analysis and Planning for the Future"

f. Umatilla Tribe – "CTUIR Climate Change Adaptation Action Plan and Implementation Strategy"

g. Warm Springs Tribe – "Vulnerability Assessment for the Warm Springs Reservation"

h. Shoshone-Bannock Tribe – "Climate Change Vulnerability Assessment and Adaptation Plan for the Fort Hall Reservation"

i. Upper Snake River Tribes – "Collaborative Climate Change Vulnerability Assessment"

4. *Identify opportunities to foster and facilitate cross-tribal, state, and federal agency collaboration on and dissemination of effective and innovative Climate Change practices;*

- There are a number of existing forums to facilitate cross-tribal, state, and federal agency collaboration on climate change practices, however we identify the five forums and entities which are most frequently utilized by the 15 Tribes and 3 Intertribal organizations. Improving outreach to Tribes, funding participation (travel), and increasing the level of Tribal and Intertribal organization engagement in each of these forums will help improve Tribal and interagency collaboration.

- The Columbia River Basin Tribes' CRT Coalition could serve as a forum for cross-tribal collaboration to address Columbia River Basin-wide policy and technical issues related to climate change impacts. The 15 Tribes and 3 Intertribal organizations have organized the Coalition as part of the U.S. – Canada Columbia River Treaty (CRT) review process. This group meets regularly (quarterly) and could serve as a forum to facilitate intertribal collaboration and dissemination of effective and innovative climate change practices beyond those issues related specifically to the CRT. Participation in this group is funded by each individual Tribe/organization, therefore funding would need to be secured for this entity to take on this additional work.

- The Affiliated Tribes of Northwest Indians (ATNI) Climate Change Project was established in 2014 to foster cross-tribal, state, and federal agency collaboration to serve the 57 Tribes of ATNI. ATNI provides important region-wide Tribal policy level events including the Tribal Leaders Climate Change Summit and three ATNI conventions each year. The goals of the ATNI Climate Change Project is to:

  a. Ensure ATNI member Tribes are engaged and aware of the federal/state/tribal climate change programs;
  b. Serve as a clearing house for and coordinator of tribal and intertribal efforts;
  c. Support ATNI's participation in regional, national, and international climate policy, adaptation, and mitigation efforts

d. Support ATNI member Tribes in identifying and securing Climate Change funding to build tribal capacity

ATNI could serve to provide a regional forum to coordinate and promote climate change policy issues with the 15 Columbia River Basin Tribes and 3 Intertribal organizations as well as address national and international climate policy.

- The Northwest Climate Science Center (CSC) has a specific Tribal Engagement Strategy which identifies opportunities to support tribal, state, and federal agency collaboration. Currently there is limited to moderate engagement by Tribes. However, the CSC, in cooperation with the Bureau of Indian Affairs, will soon recruit a tribal Climate Extension Support Liaison who will work with Northwest tribes to identify priority climate information and knowledge needs of tribes and develop relationships with partners to address those needs. The liaison will also help enhance and implement the NW CSC Tribal Engagement Strategy and bolster the NW CSC tribal research and knowledge-management portfolio. The Intertribal representatives to the Executive Stakeholder Advisory Committee (ESAC) of the NW CSC will also need to increase outreach to the Columbia River Basin Tribes and 3 Intertribal organizations as well as other Tribes to increase the level of engagement and use of the NW CSC services and expertise.

- The North Pacific, Great Northern, and Great Basin LCC's each have different Tribes involved from the Columbia River Basin, however less than half the Tribes and Intertribal organization actively engage in these LCC's. There is an opportunity to more effectively utilize these LCCs in coordinating Columbia River Basin Tribes climate issues by semi-annually convening the LCC Tribal representatives and the 15 Columbia River Basin Tribes and 3 Intertribal organizations. This forum could be used to share best practices, adaptation plans, traditional ecological knowledge projects, LCC Tribal engagement and governance improvements, tribal citizen outreach, and education and training.

- The Pacific Northwest Tribal Climate Change Project (Project) works to support and understand the impacts of climate change on tribal culture and sovereignty, foster meaningful opportunities for tribes to engage in regional and national climate change initiatives, and coordinates the PNW Tribal Climate Change Network (Network) which includes some Columbia River Basin Tribes. Tribes regularly participate in the Network and utilize the training of ITEP. In addition the Project provides effective dissemination of climate change resources including:

  a. Tribal Climate Change Profiles
  b. Research and Policy Publications
  c. Tribal Climate Change Funding Guide
  d. Institute for Tribal Environmental Professionals (ITEP) - Tribes and Climate Change Program

Some of the Columbia River Basin Tribes refer to the profiles, publications, funding guide, training workshop and conference notices, and reports the Project provides useful examples of climate planning strategies. Targeted outreach to the Tribes who are unaware of the resources the Project provides will improve Tribal participation and engagement.

- In addition to identifying the forums for collaboration, it is important to identify the climate change issues most critical to Columbia River Basin Tribes which includes sharing best practices and innovative methods to:

  a. Develop Tribal vulnerability assessments which engage and address multiple sectors (health, natural resources, infrastructure, housing, etc.) within Tribal governments and communities;
  b. Create effective adaptation plans and identify innovative approaches to secure tribal, federal, state, and local resources to implement those plans as well as sharing model Tribal climate change programs and projects between Tribes.
  c. Conduct effective outreach and education to Tribal citizens and communities to increase the awareness of climate impacts and develop strategies to adopt;
  d. Engage Tribal leadership and management in climate adaptation planning and practical methods to implement those plans as well as actively engage in regional, national, and international climate change forums;
  e. Identify, preserve, document, and utilize traditional ecological knowledge as part of climate change planning efforts; and
  f. Provide analysis, downscaling, and modeling of climate data and research to the specific geographic areas and resources of interest for each of the Tribes or Intertribal organization.

5. *Determine the level of participation in strategic and programmatic operations to address national and regional climate adaptation and mitigation issues; and*

- On the national level, only the Columba River Inter-Tribal Fish Commission (CRITFC) is actively engaged in federal, state, and intertribal agency climate planning efforts. As an example, CRITFC provided comments on the White House Climate Change Task Force of Climate Preparedness 2013 and has worked with the National Congress of American Indians (NCAI) to promote national resolutions and policy. CRITFC plays an important role promoting tribal climate policy and funding at the national level.

- On the regional level, only five Tribes are actively involved in Landscape Conservation Cooperatives (LCC's) and only two of the three Intertribal organizations are involved in LCC's on behalf of their respective Tribes. In order to improve tribal participation, these LCC's

should improve outreach to Tribes, funding participation (travel), and increase the level of Tribal and Intertribal organization's governance role in each of these forums will help improve Tribal and interagency collaboration. Currently the NPLCC provides travel support to tribes for participation.

- In 2015, seven of the Tribes and one Intertribal organization secured climate change planning funding from the Bureau of Indian Affairs Tribal Cooperative Landscape Conservation Program. This national competitive grant program is a primary source of funding for tribal climate change planning. Prior to BIA funding, Tribes received a limited amount of funding from NW CSC and the North Pacific, Great Northern, and Great Basin LCCs.

6. *Identify the policy, technical, scientific, legal, and programmatic needs of Columbia River Basin Tribes.*

- There are a number of needs identified by the 15 Columbia River Basin Tribes and 3 Intertribal organizations. Below is a summary of the overall needs and recommendations in priority order:

1. **Protect natural resources and first foods**: Key impacts include water quality and quantity, fish and habitats/passage (including above blocked areas), forests and wildfire preparedness, Columbia River hydropower operations, range, wildlife and habitats.

   Tribes need the capacity and resources to develop comprehensive vulnerability and risk assessments, adaptation plans, and effective strategies to implement climate action plans to protect these important resources.

   Federal and state resource agencies must work with Tribes to develop collaborative and strategic approaches to address legal, institutional, research, and management actions and policies to restore natural and cultural resource protected by treaty rights, executive order, and trust obligations that will be impacted by climate change.

2. **Increase funding and staffing** for climate planning and climate forum participation, analysis and research, infrastructure and building tribal staff capacity.

   a. **Federal Funding**: Securing stable funding for each the Tribes or Intertribal organizations to have a dedicated staff person to lead climate change planning will be an important strategy to improve Tribal planning capacity as well as engagement in regional and national climate planning forums. The BIA, EPA, LCC's, and NW CSC should increase programmatic funding to each of the 15 Tribes and 3 Intertribal organization beginning in FY2016 (see Appendix B – Section on Tribal and Intertribal Programmatic Funding Needs 2016-2020).

      Eleven of the 18 Tribes and Intertribal organizations estimated their funding needs

for the period 2016 through 2020, we used the information provided and project a minimum funding need for those 11 Basin Tribes and 3 Intertribal organizations of over $30.5 million.

b. **Specific Needs**: Seven Tribes (Burns-Paiute, Shoshone-Paiute, Paiute-Shoshone, Spokane, Kootenai, Kalispel, and Cowlitz) and UCUT have not completed any vulnerability or risk assessments to date, primarily due to a lack of funding. It is critically important these Tribes and Intertribal organizations secure grant funding from the BIA Tribal Cooperative Landscape Conservation Program, EPA GAP grants, or other funding to develop climate impact assessments and adaptation plans. The other Tribes and Intertribal organizations that are developing or have completed vulnerability and risk assessments will need additional funding to develop adaptation and action plans and resources to begin implementing those plans.

c. Tribes should secure BIA or LCC funding to support travel to participate in the LCC's as well as for Intertribal coordination efforts.

d. In the case of the USRT Tribes, it is important they engage in USRT's broad scale "Collaborative Climate Change Vulnerability Assessment" and secure resources to conduct more localized analysis for their respective reservations and ceded lands.

e. **BIA:** CRITFC recommends that within the Bureau of Indian Affairs (BIA) an Office of Climate Change Adaptation be established that will facilitate information sharing and support for the tribes in the following areas, and as needed:

- Establishment of a consistent funding stream to sustain tribal capacity building for climate-related activities;
- Climate change vulnerability assessment; and
- Climate Change Adaptation Plans

3. **Education and outreach** to the Tribal community and within Tribal government on the causes and impacts of climate change, vulnerability and risk assessments, utilization of TEK in climate planning, and climate adaptation strategies.

4. **Improve partnerships, training and technical support, and effective regional coordination with federal, tribal, state agencies, and other organizations** to improve cooperating agencies/organizations ability and willingness to work with the Tribes and develop comprehensive plans, climate change data, research, and analysis.

a. The capacity to address climate change varies by tribe. It is important Tribes learn from each other, especially from Tribes who have developed climate impact assessments or adaptation plans;

b. The 15 Tribes and 3 Intertribal organizations identified the Pacific NW Tribal Climate Project, Institute for Tribal Environmental Professional (ITEP), Northwest Climate Science Center (CSC), and the North Pacific, Great Northern, and Great Basin LCC's, and ATNI as external organizations with the expertise, training resources, data, and analytical capacity to support them in climate resiliency planning and capacity building. These partner organizations can help increase Tribal climate change capacity and resiliency by:

- Providing training on climate vulnerability and risk assessments and adaptation planning, including innovative strategies to fund implementation of those plans;
- Tribal models for documenting, preserve, protecting, and incorporating TEK;
- How to effectively conduct outreach and engagement of tribal communities;
- Downscaling of climate models to analyze their local resource impacts;
- Provide access to data and tools, and develop or disseminate guidance to support Tribal decision-making; and
- Basic climate change impacts and planning education for Tribal leaders, community members, and non-natural resource department managers including workshops, community conferences, informational videos and brochures, etc.

c. There are a number of existing forums to facilitate cross-tribal, state, and federal agency collaboration on climate change practices, however we identify the five forums and entities which are most frequently utilized by the 15 Tribes and 3 Intertribal organizations. Improving outreach to Tribes, funding participation (travel), and increasing the level of Tribal and Intertribal organization engagement in each of these forums will help improve Tribal and interagency collaboration.

5. **Effectively engage Tribal leadership and executive management** in Tribal climate change planning efforts in order to improve coordination and get support for climate planning, adaptation, and management actions. Tribal elected leaders and executive managers should receive training on climate impact assessments, climate change policy development, effective communication strategies with Tribal communities, and creative approaches to fund and implement climate adaptation plans. Tribes that have experience developing impact assessments and adaptation plans should share their experience and ideas with Tribes with little or no experience.

6. **Tribal, community, and individual health** must be address as it relates to climate change impacts by identifying and demonstrating the potential impacts to individual and

community health and incorporating this information into climate adaptation strategies.

7. **Utilizing Traditional Ecological Knowledge -**The Tribes and Intertribal organizations should clearly identify a strategy and process on how to best incorporate TEK in their climate change assessment and adaptation efforts including, but not limited to:
    a. Local-scale expertise
    b. A source of climate history and baseline data
    c. Formulating research questions and hypotheses
    d. Insight into impacts and adaptation in communities
    e. Long-term community-based monitoring

2. INTRODUCTION

The Columbia River is the largest river in the Pacific Northwest region of North America. The river rises in the Rocky Mountains of British Columbia, Canada. The Columbia River Basin is 258,000 square miles in size and encompassing large portions of the states of Washington, Oregon, Idaho, Nevada, and Montana as well as British Columbia.

It flows northwest and then south into the US State of Washington, then turns west to form most of the border between Washington and the state of Oregon before emptying into the Pacific Ocean. The river is 1,243 miles (2,000 km) long and its largest tributary is the Snake River. Its drainage basin is roughly the size of France and extends into seven U.S. states and a Canadian province.

By volume, the Columbia is the fourth-largest river in the United States; it has the greatest flow of any North American river draining into the Pacific. The river's heavy flow and its relatively steep gradient gives it tremendous potential for the generation of electricity. The 14 hydroelectric dams on the Columbia's main stem and many more on its tributaries produce more hydroelectric power than those of any other North American river.

The Columbia and its tributaries have been central to the region's Tribal culture and economy for thousands of years. The rivers have been used for transportation since ancient times, linking the many Native American cultural groups of the region. The river system hosts many species of anadromous fish which migrate between freshwater habitats and the Pacific Ocean. These fish—especially the salmon species—the Columbia River Basin historically provided the core subsistence for Columbia River Basin Tribes; in past centuries, traders from across western North America traveled to the Columbia to trade for fish.

Indigenous peoples throughout the Columbia River Basin have historically depended on a wide variety of species for food. These traditional foods are widely referred to as “first foods” in native communities. First foods have provided sustenance and promoted health in native communities for thousands of years. First foods formed the backbone of many indigenous societies by virtue of their religious, cultural, economic, and medicinal importance, in addition to their role in feeding native peoples.

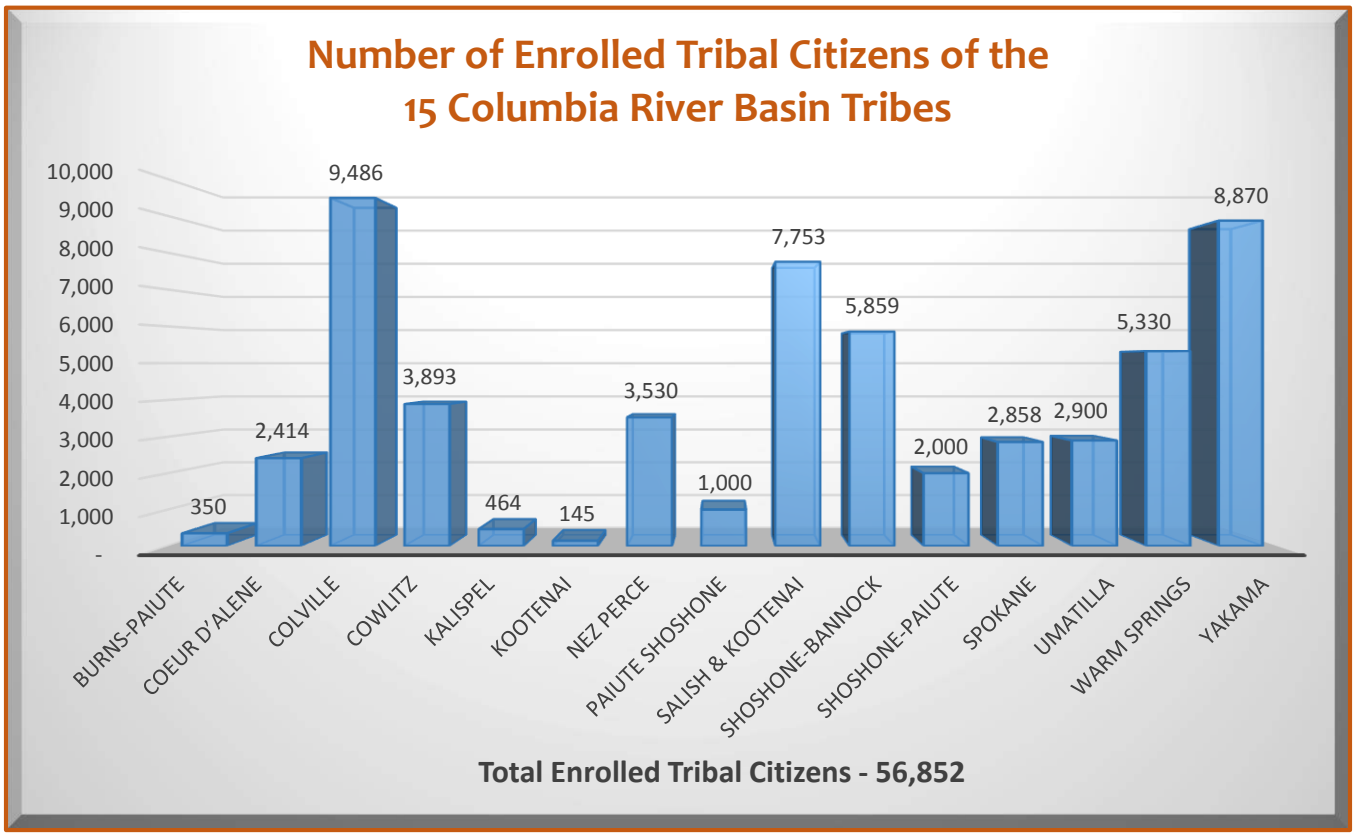
The relationship between indigenous peoples and first foods is reciprocal. First foods serve the people by providing cultural and physical health, and the indigenous communities reciprocate by maintaining the health of the first foods. In this way, both people and food provide and are provided for. Climate change presents a new challenge in this relationship, potentially compromising the ability of first foods to nourish the people, and the ability of native people to protect their foods.

Climate change is expected to significantly alter the ecology and economy of the Columbia River Basin and tribal communities are among the most climate-sensitive. Models predict warmer temperatures, more precipitation as rainfall, and decreased snowfall over the next 50 years, will directly affect the abundance of culturally significant foods, such as salmon, deer, root plants, and berries. These first foods are important for Tribal ceremonies, subsistence, and in some instances commercial activities. Access to

traditional hunting, fishing, and gathering resources and sites are guaranteed by treaty, executive order, and agreements with the United States government.

This Tribal climate change capacity assessment will help inform federal agencies to better support climate resilience planning of Tribal governments and communities to address climate impacts into the future. The 15 Tribes of the Columbia River Basin have a total membership of over 56,000 and the Tribes populations range from 145 members to as many as 9,486 members (Figure 1). These Tribal citizens depend on the 15 Tribal governments for employment, education, housing, healthcare, public transportation, social services, natural resource management, and other various services. Tribal communities are also faced with challenges of high unemployment and poverty – common rural problems, but much higher than the national rates. Increasing the climate resilience of tribal communities is critical to ensuring access to resources protected by right and vitally important to the cultural existence and economic vitality of these communities.

Figure 1. Number of enrolled Tribal citizens of the 15 Columbia River Basin Tribes, 2015.



The Tribal Leadership Forum, the non-profit arm of the Institute for Tribal Government (ITG) - Hatfield School of Government at Portland State University in Portland, Oregon, was awarded a grant by the United States Geological Survey to conduct a survey of 15 Columbia River Basin Tribes and 3 Intertribal Organizations (Table 1) to assess their policy and technical capacity and needs to address climate change.

The project's six objectives are:

1. Assess the level of Columbia River Basin Tribes awareness of the federal, state, tribal, and local government agencies climate change plans, scientific analysis, policies, and initiatives;
2. Assess each Columbia River Basin Tribe's and Intertribal organization's internal and external technical and policy expertise related to capacity on climate change and identify the capacity of tribal management and policy leaders to effectively implement actions and policies related to climate change impacts;
3. Identify existing or planned tribal and Intertribal efforts and innovative methods to effectively mitigate and adapt to climate change;
4. Identify opportunities to foster and facilitate cross-tribal, state, and federal agency collaboration on and dissemination of effective and innovative climate change practices;
5. Determine the level of participation in strategic and programmatic operations to address national and regional climate adaptation and mitigation issues; and
6. Identify the policy, technical, scientific, legal, and programmatic needs of Columbia River Basin Tribes.

The 15 Columbia River Basin Tribes' reservations and Intertribal organization headquarters are located throughout the Columbia River Basin in the state of Oregon, Washington, Idaho, Nevada, and Montana (Table 1).

Table 1: 15 Columbia River Basin Tribes and 3 Intertribal organizations part of the Climate Change Capacity Assessment

3 Oregon Tribes	1. Burns Paiute Tribe 2. Confederated Tribes of the Umatilla Indian Reservation 3. Confederated Tribes of the Warm Springs Reservation
5 Washington Tribes	4. Confederated Tribes of the Colville Reservation 5. Confederated Tribes and Bands of the Yakama Nation 6. Cowlitz Indian Tribe 7. Kalispel Tribe of Indians 8. Spokane Tribe of Indians
4 Idaho Tribes	9. Coeur d'Alene Tribe 10. Kootenai Tribe 11. Nez Perce Tribe 12. Shoshone-Bannock Tribes of the Fort Hall Reservation

1 Montana Tribe	13. Confederated Salish and Kootenai Tribes of the Flathead Nation
2 Nevada Tribes	14. Fort McDermitt Paiute Shoshone Tribes 15. Shoshone Paiute Tribe of the Duck Valley Indian Reservation
3 Intertribal organizations	1. Columbia River Inter-Tribal Fish Commission (CRITFC), Portland, Oregon; 2. Upper Columbia United Tribes (UCUT), Spokane, Washington 3. Upper Snake River Tribes Foundation (USRT), Boise, Idaho

The 3 Intertribal Organizations are comprised of the following Columbia River Basin Tribes:

1. The Upper Snake River Tribes Foundation (USRT) which is comprised of the Shoshone-Paiute, Burns Paiute, Paiute-Shoshone, and Shoshone-Bannock Tribes with headquarters located in Boise, Idaho;
2. The Upper Columbia United Tribes (UCUT) which is comprised of the Spokane, Colville, Kalispel, Coeur d'Alene, and Kootenai Tribes with headquarters located in Spokane, Washington; and
3. The Columbia River Inter-Tribal Fish Commission (CRITFC) which is comprised of the Yakama, Umatilla, Warm Springs, and Nez Perce Tribes with headquarters located in Portland, Oregon.

Figure 2. Map of the 15 U.S. Columbia River Basin Tribes and 3 Intertribal organizations (USRT, UCUT, and CRITFC) included as part of the Columbia River Basin Tribal Climate Change Capacity Assessment.

3. METHODOLOGY

The 15 Tribal governments and 3 Intertribal organizations participating in this survey are located throughout the five states of Oregon, Washington, Idaho, Montana, and Nevada. They have varying sizes and complexity of governmental organizations. Some have multiple departments with specialized functions and large staffs (>800 employees), while most Tribes have smaller staffs and more generalized departmental functions (<100 employees). Although climate change impacts affect a number of sectors (natural resources, health, housing, infrastructure, etc.) of the Tribal governments, the focus of our survey and capacity assessment was Tribal natural resources.

In determining the most effective methods to gather information as part of this project, the investigator had to factor in the short duration for completing this project, the remote rural geographic locations of these Tribes, the complexity of each Tribe's governmental structure, and capacity to respond. The Tribal Leadership Forum conducted three levels of inquiry. The first and most effective inquiry was an electronic survey questionnaire, followed by a phone interview as necessary, and last on-site meetings and interviews with Tribal policy representatives or management staff when possible.

The first level of inquiry was a standardized survey (Appendix 1). The survey was prepared to gather as much information from each of the Tribes and Intertribal organizations on their capacity and needs. The survey was emailed to the key contact persons within the Tribal or Intertribal organization which included Tribal Natural Resource Directors, Environmental Managers, Fish and Wildlife Managers, or Climate Change leads. In the event there was limited or incomplete responses to the survey, the second level of inquiry was telephone interviews. The phone interview focused on completing the survey questionnaire and, as needed, scheduling on-site interviews with Tribal natural resource management staff, or where possible Tribal policy representatives.

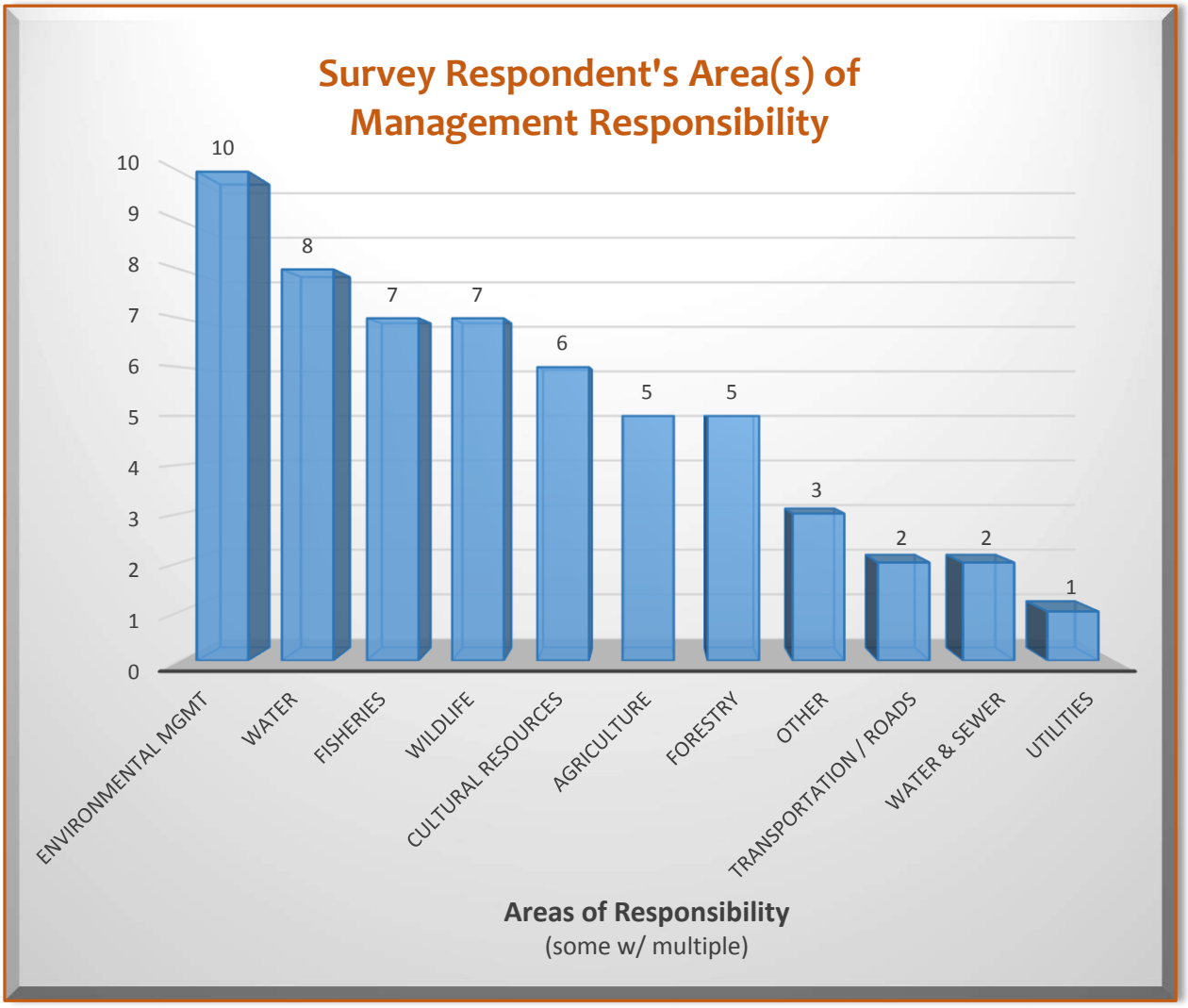
The third level of inquiry was on-site interviews and meetings. Some of the Tribes lack the staff capacity and time to complete the preliminary questionnaires and phone interviews, therefore on-site interviews and meetings were also conducted. The focus of the on-site interviews and meetings was to further expand on the survey and document the policy, technical, scientific, and programmatic needs of each Tribe and Intertribal organization.

The surveys, phone interviews, and on-site meetings occurred over an 11 month period from November, 2014 through September, 2015. Of the 15 Tribes and 3 Intertribal organizations, we received survey responses from 12 Tribes (80%) and all three (100%) Intertribal organizations. Overall our response rate to the survey questionnaire was 83%. Three Tribes were unable to respond to our survey and in one instance we utilized the information gathered in phone interviews, in-person meetings, or information provided by their respective Intertribal organization.

We conducted phone interviews or in-person meetings with 12 of the Tribes and two of the Intertribal organizations. These meetings often included Tribal Council representatives and/or Natural Resources managers.

Survey respondents were primarily Natural Resource Directors, Environmental Managers, Fish and Wildlife Managers, or Climate Change Coordinators, and respondents had a variety of management responsibilities within their respective organization (Figure 3).

Figure 3. Survey respondent's area(s) of management responsibility for the Columbia River Basin Tribes and Intertribal organizations.



4. Key Findings and Recommendations

4.1 Columbia River Basin Tribes Climate Change Impacts

Tribal populations dependent on natural resources are among the most climate-sensitive communities. Climate change impacts threaten tribal first foods resources, culture and ways of life, tribal treaty rights, and resources protected by executive order and federal trust responsibilities. Climate change is expected to significantly alter the ecology and economy of the Pacific Northwest during the 21st century. Rising air temperatures are expected to decrease snowfall and increase rainfall during the winter months, leading to shifts in the timing and quantity of runoff, including increased flooding during the winter when water is already in ample supply, and decreased flows during the summer when water demands are high.

Water quality will also be impacted, including increased sediment delivery from winter storms and higher summer water temperatures. Salmon and Pacific lamprey will be particularly susceptible to these changes to water quantity and quality because they rely on freshwater rivers and streams as spawning and rearing habitat and as migration corridors. Their survival is already imperiled by an accumulation of other detrimental synergistic factors such as an increase in aquatic contaminants.

Increased insect outbreaks, wildfires, and changing species composition in forest and upland areas are other expected effects posing challenges for adequate ecosystem health. These changes will have significant impacts on freshwater fisheries, hydropower production, and the water supply for agriculture and municipal uses.

Understanding the current situation and impacts as experienced by the different Tribes and Intertribal organizations helps in identifying their needs, available resources, and capacity to address those issues, as well as designing and adjusting adaptation measures. The 15 Columbia River Basin Tribes and 3 Intertribal organizations identified the impacts to water resources (quantity, temperature, quality) as their greatest area of concern, followed by fishery impacts, first foods, wildlife, wildfires, and traditional plants, etc. (Figure 4).

The Yakama Nation views these affects comprehensively, "*climate change is having a major impact, drought this summer has exacerbated problems on the reservation including catastrophic fire, warm water, water quality, low flows, timing of traditional foods, habitat for wildlife, water rights, air quality, and agriculture within the reservation*". Each Tribe and Intertribal organization also identified climate impacts most relevant and important to their respective communities and natural or built resources (Table 2). This will help inform the Tribes, Intertribal organizations, as well as federal and state partners as they work to address these climate impacts, build tribal capacity, and develop adaption plans - on a tribe by tribe basis.

Figure 4. Overall major impacts from climate change as identified by Columbia River Basin Tribes and Intertribal organizations

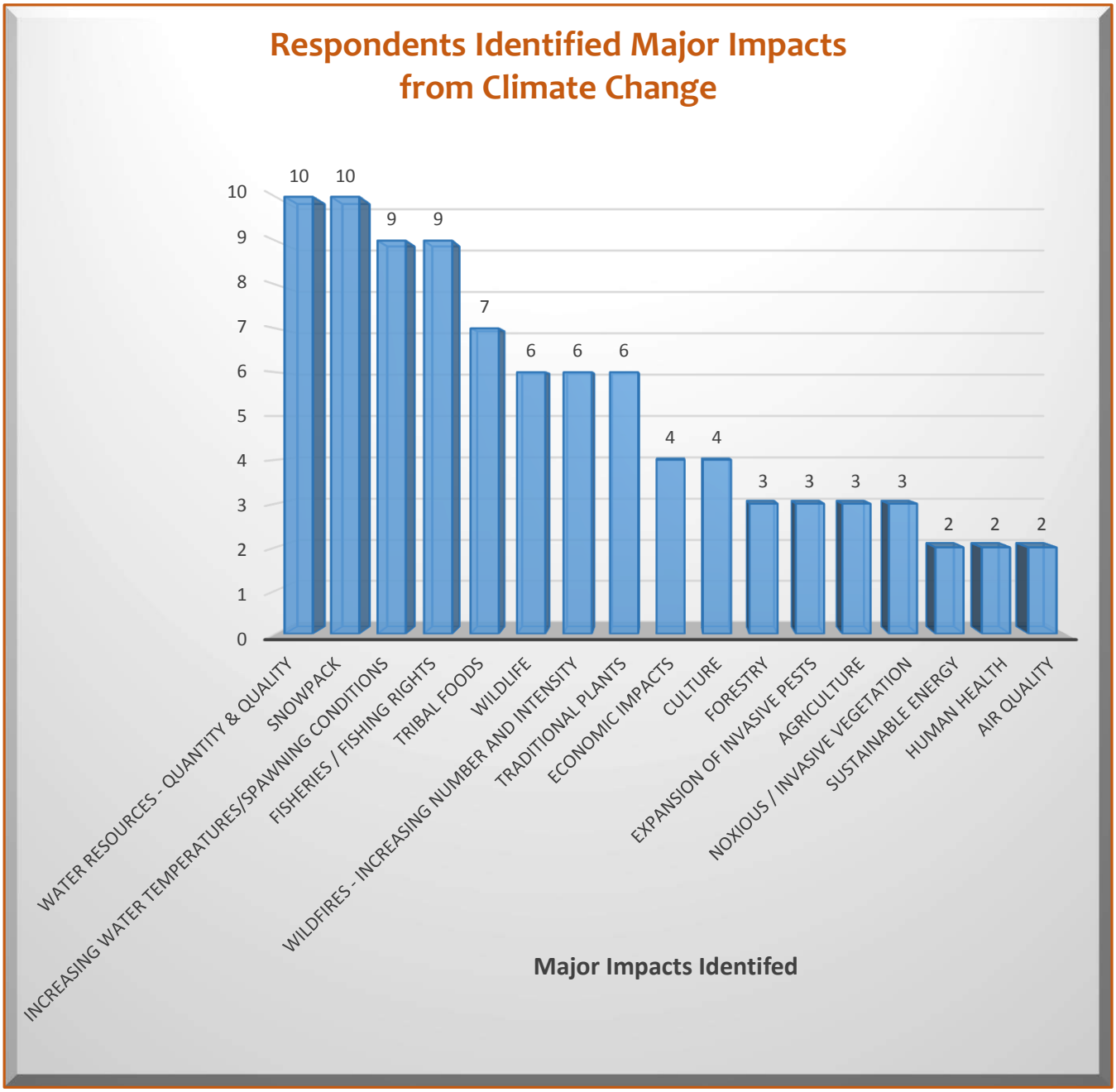


Table 2. Major climate change impacts as identified by each of the 15 Columbia River Basin Tribes or 3 Intertribal organization.

Burns-Paiute	Declining water availability, increasing number and intensity of wildfires, spread of noxious/invasive vegetation, increasing water temperatures.
Coeur d'Alene	Water Resources, Fisheries, Wildlife, Agriculture, Forestry, Human Health, Culture
Colville	1) We are in the early stage of planning but on the surface, we have just experienced huge wildfires for the second year in a row, these fires have burned a substantial part of the Reservation, including homes and large tracts of fish and wildlife habitat. Tribal equipment has also suffered. 2) The topic of water quantity and quality is of concern, Tribal foods like deer, elk, and huckleberries are already showing signs of climate impact. Fisheries for Chinook and sockeye were greatly impacted by high water temperatures and low water this year. 3) Blueberry bushes are dying and getting stressed by people using rakes to collect the berries because the rakes take off leaves. 4) The need for a sustainable energy source is important as the price for energy from the dams becomes more expensive. 5) Air quality has changed and during the fires was hazardous. 6) Lack of snowpack created a short freshet and low water at critical periods for summer steelhead eggs developing in the gravel. Summer steelhead are a listed stock and we have been working to recover them but climate change is definitely causing issues in the freshwater and saltwater habitat. 7) The economic impact will be huge as the fires have burned stands of trees that were going to be sold to the Mill and now the timber inventories will have to be analyzed to see how much timber is gone and how many years production has been affected. 8) Culturally significant plants are also being impacted by changing weather. 9) We are still sending people for training so we can get an educated membership before we discuss total impacts.
Cowlitz	Dramatic changes in seasonal cycle of when traditional resource gathering takes place (i.e. timing of huckleberry ripening). For the last few years, a very noticeable change in winter weather patterns.
CRITFC	1) Higher summer water temperatures in the tributary watersheds will stress both juvenile and adult fish (all fish life stages have optimum

	temperature ranges. Warmer temperatures increase juvenile metabolic rates and can impede or kill adults during their upstream migration). 2) Lower summer stream flows will change channel structure, impede upstream migration of adult fish, and contribute to water temperature increases. 3) Higher peak winter flows will likely cause erosion of sediment that can damage salmon/steelhead spawning areas, scour eggs, and "wash out" the emerging fry of fall-spawning populations. 4) Earlier spring runoff will alter the migration timing of smolts in snowmelt-dominated systems. Migration patterns have naturally evolved to move juveniles to the ocean at the same time that ocean upwelling delivers important food sources. 5) Fish populations at the greatest risk of extinction will likely be those already in habitats that are near the limits of their thermal tolerance, and for those with less resilience and diversity. 6) Climate impacts to all the First Foods and the tribal way of life.
Kalispel	Rising stream/river temperatures, low stream flow, possible increase in forest fires, expansion of invasive pests.
Kootenai	Changing seasonal temperature and seasonal precipitation volume shift.
Nez Perce	Major impacts are direct and negative to tribal fishing rights. Anadromous fisheries is a key species to the Nez Perce Tribe, but more than the survival of the fish is the habitat and water conditions for spawning and the return of adult salmon. In recent years and in particular this winter 2014-15, snow pack was minimal. The snow melted in the high mountains relatively fast which normally snow pack can sometimes be enough to last through part of the summer and sometimes the entire summer. The combination of low snow pack and no precipitation led to a major drought year and also what might be considered a stochastic fire event rival to the 1910 Fire or 100 year fire event. The less cold water from the mountains means warmer water in the tributaries for salmon. This decreases the survival of next year's broodstock and also adult fisheries dying quicker in the life cycle.
Paiute Shoshone	No response See USRT response as example.
Salish & Kootenai	The CSKT Climate Change Strategic Plan is available at www.cskt.org/CSKTclimateplan.pdf This document outlines the major impacts identified in each of 9 sectors.
Shoshone-Bannock	No response See USRT response as example.
Shoshone-Paiute	No response See USRT response as example.
Spokane	No response See UCUT response as example.

UCUT	The major Climate Change impacts revolve around the extreme disruption at the hydropower projects on the Columbia River. UCUT members report drastic changes in timing of seasons for first foods (amount, heartiness, and length of season), reduction in water regimes, low snow pack outside of norms, change in salmon runs, extreme wildfire damage, stressed upon wildlife due to heat. The blocked areas of the Upper Columbia River within the US borders have been disrupted for the last 80+ years since the Grand Coulee Dam artificially floods our cultural resources, our wildlife habitats, economic ventures. Hydropower facilities need to be considered for what they are; human created climate change and disruption. This climate change happens every year with the raising and dropping of the reservoir pool behind Grand Coulee Dam.
Umatilla	1) Water resources 2) First Foods 3) Forest resources 4) Economy
USRT	1) Increased fire frequency and intensity 2) Increased water temperatures 3) Decreased water availability 4) Water issues noted above cause declining fish numbers 5) Declining snow packs 6) Increase in invasive plant species affecting habitat for wildlife and decline or loss of culturally important animal/plant species 7) Change in temperature/precipitation regimes that affect the availability and timing of culturally important plant species
Warm Springs	1) Water scarcity (no snow); 2) Increased flooding; changes in water quality DO, temperature, presence of algae, and suspended solids. 3) Increased wildfire severity, intensity and size; Wildfire regime change 4) Changing phenology (chronological shifts in plant and animal life stages and movements); periodic decreased access to traditional foods, medicines, and materials; Changes in passing on knowledge 5) Decrease in Ecosystem Function and complexity 6) Increased invasive species 7) Increased food costs; Increased cost to treat drinking water; 8) Less hydropower and timber production 9) Increased livestock losses and/or increased cost for livestock production

	10) Increased allergies and respiratory issues.
Yakama	Climate changes are having a major impact, drought this summer has exacerbated problems on the reservation including, catastrophic fire, warm water, water quality, low flows, timing of traditional foods, habitat for wildlife, water rights, air quality, and agriculture within the reservation.

In addition to identifying impacts to natural and/or built resources, the Tribes and Intertribal organizations were also asked to identify the existing or potential impacts climate change will have on the economies of the Tribe, Tribal community, and natural or built resources (Table 3). As an example, it is clear some Tribes are experiencing extreme economic impacts from wildfires. The Nez Perce Tribe respondent states, "*In our response to the Clearwater Complex Fire (2015) on the Nez Perce Reservation, the tribe spent over one hundred thousand to provide humanitarian aid to its own membership. It found itself providing fire suppression to support the efforts of the main fire suppression efforts for lack of resources because the whole Northwest was burning down."* UCUT describes the impact to traditional first foods in non-economic terms, "*It is almost impossible to put a number on what value is lost to the coming generations and their ability to fish for salmon or access their First Foods*". It is important that Tribes assess these economic impacts as part of their vulnerability assessment and identify measure to prevent or mitigate these major economic impacts into the future.

Table 3. Examples of most commonly identified existing or potential economic impacts of climate change on the 15 Columbia River Basin Tribes.

Impact to forest/timber sales from wildfire, disease, insects, and/or reduced growth
➢ Loss of timber sales due to increase in fires ➢ Fires have destroyed many stands of timber that the Tribe was selling to a contractor running a mill on the Reservation. ➢ The impacts of increasingly dangerous and extensive wildfires manifest themselves economically in damage to property, to furnish the salaries of wildland firefighters, and potentially in decreased tourism dollars. ➢ Forestry insect, disease, and fire susceptibility ➢ Decreased timber growth ➢ Large fires impact our forest economy and two fires in the last three summers will have a major impact on timber available in the long-term.

- Timber production and jobs will likely be impacted due to loss of timber stands from fire and with trees sold by maximum yield.
- Temperature extremes also may require fortifications of home

Impact to Traditional Foods

- Fewer resources would be available for harvest with much more effort for our people to collect resources; there would be a noticeable impact associated with the economies of tribal members.
- Decreased availability of fish harvest
- It is almost impossible to put a number on what value is lost to the coming generations and their ability to fish for salmon or access their First Foods.
- Endangered species (steelhead and salmon) has an impact on the ability for our members to catch and support themselves, climate change will add to this.
- Loss of revenue from salmon sales if fish continue to decline.
- The social, cultural, and economic impacts if climate change on the trajectory and path that it is taking will have far reaching negative impacts as time goes by. The loss of native species to extinction or at the very least extirpation means loss of a culture that impacts the social and economic status of the tribe.
- Impacts limit the amount of food tribal members can utilize from the natural environment and will likely cause increased food expenses for tribal members and increase the carbon foot print.
- Traditional harvesting and gathering make up a considerable portion of some people's annual earnings

Impact to Agricultural production

- Agricultural production can be reduced by climate change and an increase in insect pests can require larger sums of money invested in controlling them.
- Agriculture (lower yields)
- Loss of crop revenue

Other Impacts

- Exacerbates the spread of noxious weeds which in turn requires the Tribe to spend more money/effort controlling them.
- Tourism (Coeur d'Alene Lake, hunting, fishing, etc.).

4.2 Awareness and Engagement in Regional and National Climate Planning Effort

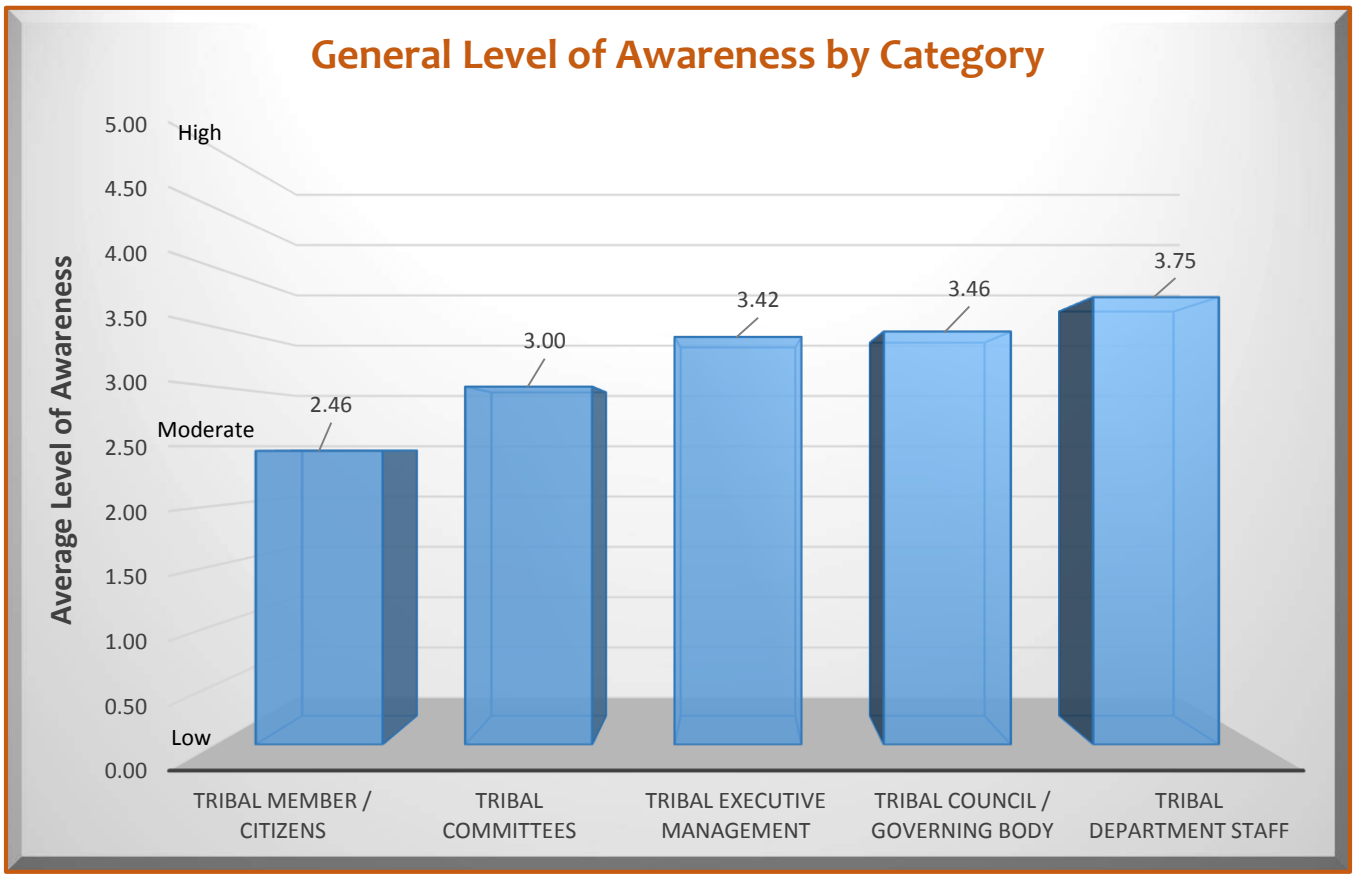
Considerable efforts have been made in the Columbia River Basin to develop strategies to protect and restore populations of salmon, and other imperiled cold water fish, however most of these efforts not specifically addressed climate change. Tribes are attempting to address the effects of climate change on fisheries and water resources, as well as other natural and cultural resources, by developing mitigation and adaptation tools for the tribes to implement on a local, regional, and national level.

Some tribes are actively participating on regional and national policy and scientific forums and working on implementing policies and strategies to address climate change impacts. Other Tribes have very limited or not involvement in regional or national climate forums. In light of this, it is important to examine the general level of awareness of climate change impacts by Tribal citizens and different management levels within the organization of the Tribal governments and Intertribal organizations. Tribal citizens elect and influence Tribal elected and appointed leaders, who in turn oversee and direct Tribal executive management and department staff. Tribal citizens will also serve an important role in identifying community issues and concerns, traditional ecological knowledge, and adaptation strategies.

The Tribal elected leaders and management staff we met with also expressed that it is equally important that Tribal citizens are well informed about climate impacts, as well as Tribal elected and appointed leaders. Based upon the overall survey results of general awareness (rated from [1] low to [5] high), Tribal citizens awareness is the lowest among all groups, followed by appointed Tribal committees, Tribal executive management, etc. (Figure 5). It is important that the Tribes and Intertribal organization develop strategies to educate Tribal citizens, Tribal committees, and engage Tribal elected leaders in climate change impacts and adaptation strategies.

As an example, the Shoshone-Paiute Tribe respondent states, "*We are in severe drought conditions and I think most people don't think in terms of climate change. They just think a drought is just a drought and at some point things will go back to normal.*" The Nez Perce Tribe respondent recognizes the importance of raising the awareness of the Tribal citizens and all sectors and levels within Tribal government, "*The tribe needs to collectively understand the climate change impacts and not leave it up to one employee or several employees to guess at what changes are coming. Information and education is key for the tribe to begin tackling this issue*."

Figure 5. General level of awareness of climate change impacts in the 15 Columbia River Basin Tribal communities, Tribal governments, and Intertribal organizations.



In addition to awareness of climate change impacts within the Tribes, it is important to assess the level of the Tribes and Intertribal organizations awareness and engagement with federal, state, tribal, and local government agencies' climate change planning efforts, scientific analysis, policies, and initiatives. This will help in determining how and where Tribes are most engaged and effective in influencing external resource agencies responsible for climate change planning, research, management, and policy on a regional and national level.

Based upon our survey results, interviews, and research on the participation of Tribes in various forums such as LCC's, we found limited engagement. Overall, less than 50% of the 15 Columbia River Basin Tribes and 3 Intertribal organizations are aware of and engaged in federal, state, tribal, and local government agencies climate change planning efforts on a regional level and only CRITFC at the national level. Lack of dedicated funding and staffing has been the primary limiting factor for tribal awareness and engagement in federal, state, tribal, and local government agencies climate change planning efforts. Below we identify those regional climate change forums Tribes and Intertribal organizations identify the most in terms of their level of awareness and engagement.

U.S. – Canada Columbia River Treaty (CRT) review process

All of the 15 Tribes and 3 Intertribal organizations are aware of and actively engaged in the U.S. – Canada Columbia River Treaty (CRT) review process which utilizes base case Columbia River hydroelectric dam regulation modeling which serve as the foundation for climate change modeling comparison. This collective effort of the Columbia River Basin Tribes represents their most cohesive and comprehensive approach to analyzing climate impacts on Columbia River Basin natural resources.

In 1964, the U.S. and Canada negotiated the Columbia River Treaty (CRT) which only addresses two primary purposes – hydropower and flood risk management. Ecosystem-based Function has been proposed by the Columbia River Basin Tribes as a third primary purpose for the Treaty. This proposal has been widely accepted by regional sovereigns and stakeholders in the U.S. as integral to modernizing the Treaty. It is vital to Columbia River Basin Tribes, as well as the First Nations of Canada, that a modernized Treaty addresses the Columbia River Basin using a watershed approach that fully and equitably integrates Ecosystem-based Function, hydropower, and flood risk management on both sides of the border.

The Columbia River Basin Tribes Coalition is composed of 15 tribes with management authorities and responsibilities within the Columbia River Basin affected by the Columbia River Treaty with support from 3 Intertribal organizations. Although the Columbia River Basin Tribes Coalition is not a formally recognized organization, it serves as a caucus for information sharing, coordination, and collaboration. Tribal leaders, tribal organization staff, and policy advisors closely guide projects and initiatives. CRITFC prepares and provides technical input for the 15 Columbia River Basin tribes' small work group and Sovereign Technical Team (STT) and Sovereign Review Team (SRT) meetings for the Columbia Treaty Review (CRT). The Columbia River Basin Tribes Coalition meets on a regular basis (quarterly).

Columbia River Basin tribes also have an established partnership of working with agencies, government, and regional stakeholders. The 15 Columbia River Basin tribes developed the Sovereign Technical Team (STT) and Sovereign Review Team (SRT) with the U.S. Entity – the U.S. Army Corps of Engineers and Bonneville Power Administration – to facilitate the development of a consensus-regional recommendation to inform the U.S. Department of State on the future of the Columbia River Treaty. The SRT consisted of representatives of the 15 Columbia River Basin tribes, federal agencies including the Bonneville Power Administration, U.S. Army Corps of Engineers, Bureau of Reclamation, NOAA Fisheries, U.S. Geological Survey, U.S. Fish and Wildlife Service, U.S. Forest Service, National Park Service, and Environmental Protection Agency, and the states of Montana, Idaho, Oregon, and Washington. Through regularly scheduled listening sessions and requests for input, regional stakeholders such as public utility districts, navigation, conservation, and irrigation interests were also involved in forming the regional consensus recommendation.

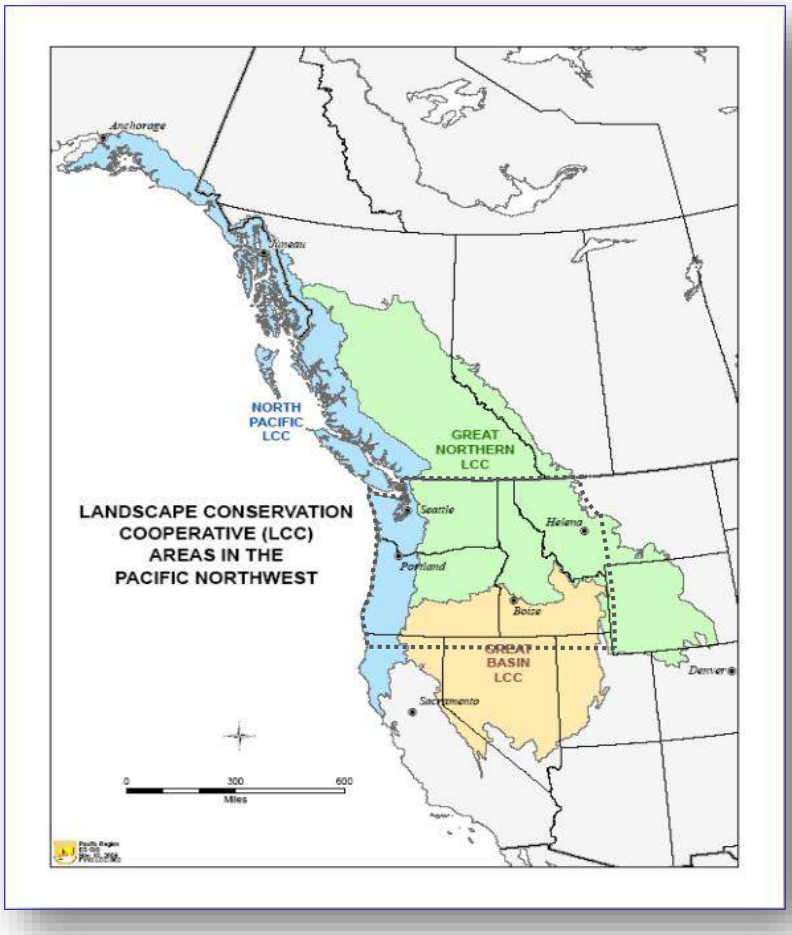
Landscape Conservation Cooperatives and Northwest Climate Science Center

The US Department of Interior, under the Secretarial Order 3289, created Climate Science Centers (CSCs) and Landscape Conservation Cooperatives (LCCs). In the northwest, there are three LCCs (the North Pacific, Great Northern, and Great Basin LCCs) that overlap the Columbia River Basin, and therefore the 15 Columbia River Basin Tribes and Intertribal organizations' area of management responsibility (Figure 6).

The LCCs are landscape-scale partnerships that support natural and cultural resource management by the producing and disseminating applied science, tools, resources and information for resource decision makers. The secretarial order established a national network of eight regional climate science centers (CSCs) with the mission to provide objective scientific information and tools that tribal and other natural resource managers can use to anticipate, monitor, and adapt to climate change.

Figure 6. Geographic Region of the North Pacific, Great Northern, and Great Basin LCCs

Landscape Conservation Cooperatives (LCC's) represent the climate planning forums the Tribes engage in most often outside of the CRT. Of the 15 Columbia River Basin Tribes only five Tribes (Salish-Kootenai, Umatilla, Colville, Nez Perce, and Yakama) are actively involved in Landscape Conservation Cooperatives (LCC's) and only two (CRITFC and USRT) of the three Inter-tribal organizations are involved in LCC's on behalf of their respective Tribes.



Great Northern LCC

The Salish-Kootenai, Umatilla, Colville, Nez Perce, and Yakama are the tribal representatives participate at varying levels on the Steering Committee (Table 4) or actively engage in meetings of the Great Norther LCC. In addition, CRITFC regularly participates in the Great Northern LCC. The Great Northern LCC has funded important Tribal climate planning efforts such as the Umatilla Tribe's *"Collaborative Efforts to Inform the Science, Management and Policies of First Foods of the Cayuse, Walla Walla and Umatilla"* and the Confederated Salish and Kootenai Tribes' climate change planning efforts which produced the *"Salish-Kootenai Climate Change Strategic Plan, 2013"*.

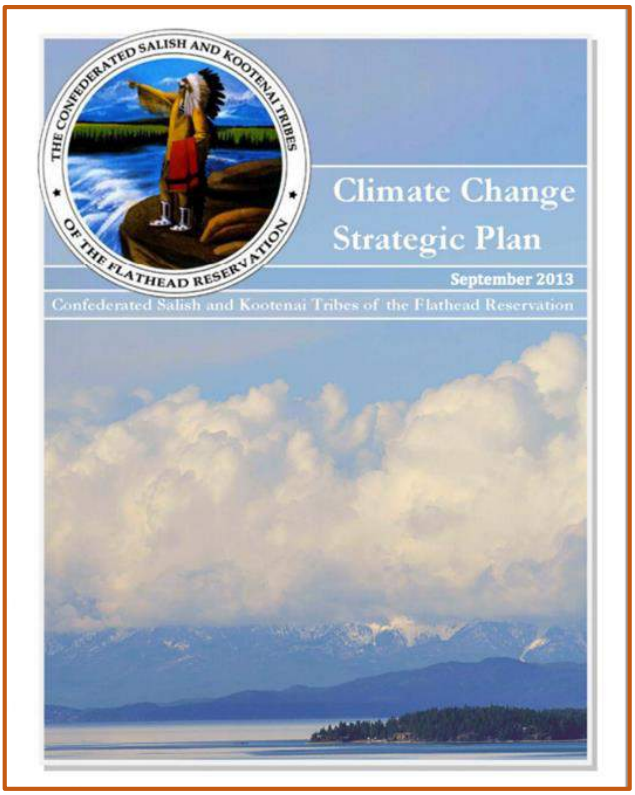


Table 4. Tribal Representatives to the Steering Committee of the Great Northern LCC, 2015.

Great Northern LCC Tribal Representatives – Steering Committee	
Eric Quaempts Carl Scheeler (alt)	Confederated Tribes of the Umatilla
Aaron Miles	Nez Perce Tribe
Steve Lozar	Salish Kootenai Tribe
Phil Rigdon	Yakama Nation

Great Basin LCC

The USRT is the only Columbia River Basin Tribe or Intertribal organization actively participating in the Great Northern LCC (Table 5). The USRT representative was recently added as a Tribal representative to the Great Northern LCC. In 2014, the Great Basin LCC developed a Science and Traditional Ecological Knowledge (S-TEK) Strategic Plan to establish science priorities for the LCC. In 2014, almost $600,000 in funding was made available to support five science projects and three traditional ecological knowledge (TEK) projects, however few of these projects specifically address the upper Snake River Tribes of the Columbia River Basin.

Table 5. Tribal Representatives to the Great Basin LCC, 2015

Great Basin LCC Tribal Representatives	
Ed Naranjo	Confederated Tribes of the Goshute Reservation
Kim Townsend	Duckwater Shoshone Tribe
Gaylor Robb	Paiute Indian Tribe of Utah
Heather Ray	Upper Snake River Tribes Foundation
Vacant	

North Pacific LCC

Of the Columbia River Basin Tribes or Intertribal organizations, CRITFC is the most active participant in the North Pacific LCC (NPLCC). The NPLCC is governed by a Steering Committee (SC). A core staff reports to the SC and implements both the SC strategic plan and the day-to-day operations of the LCC. The SC establishes and supervises standing subcommittees and other ad hoc groups as necessary to help execute its responsibilities. Of particular importance from a Tribal perspective is the Tribal / First Nations Committee (Table 6). The Tribal/First Nations Committee is a unique component of the governance structure of the NPLCC as compared to the Great Northern and Great Basin LCC governance structure where this Tribal/First Nations standing committee does not exist. As a result, the NPLCC has established an effective Tribal/First Nations engagement strategy including providing travel support for Tribes and First Nations. The Tribal/First Nations Committee provides an opportunity for the numerous Tribes and First Nations to play an active role in the governance and decision making of the North Pacific LCC.

Of the three LCC's, the NPLCC has funded significantly more Tribe/First Nations science and TEK projects than either the Great Northern or Great Basin LCC's. From 2012-2014, the NPLCC has helped fund nine traditional ecological knowledge (TEK) projects and nine tribal vulnerability assessments. The NW CSC has also contributed funding to some of these projects. In 2013, the NPLCC funded the Columbia River Inter-Tribal Fish Commission to conduct an assessment of *"Coupled (Ocean and Freshwater) Assessment of Climate Change Impacts on Pacific Lamprey and Pacific Eulachon".* The NPLCC has the greatest number and the most actively engaged Tribes and First Nations of all of the three LCCs.

Table 6. Tribal Representatives to Tribe/First Nations Committee of the North Pacific LCC, 2015

Tribal/Alaska Native/First Nations Representatives	
Alaska	
Eric Morrison Ray Paddock III (Alt)	Alaska Native Brotherhood Central Council of the Tlingit and Haida Indian Tribes of Alaska
British Columbia	
Vacant	
Washington	
Terry Williams Preston Hardison (Alt) Eliza Ghitis (Alt)	Tulalip Tribes Tulalip Tribes Northwest Indian Fisheries Commission
Oregon	
George Smith	Coquille Indian Tribe
California	
Joe Hostler	Yurok Tribe
Regional	
David Redhorse / Keith Hatch Don Sampson	Bureau of Indian Affairs – Pacific Region Affiliated Tribes of NW Indians

The NPLCC has identified science and TEK priorities that address primarily Pacific coastal tribes to optimize resource management decisions under climate change conditions, and it has funded several TEK-focused research projects. In the Columbia River Basin, the NPLCC has funded the Columbia River Inter-Tribal Fish Commission's *"Coupled (Ocean and Freshwater) Assessment of Climate Change Impacts on Pacific Lamprey and Pacific Eulachon, 2013"*.

Northwest Climate Science Center

The secretarial order established a national network of eight regional climate science centers (CSCs) with the mission to provide objective scientific information and tools that tribal and other managers of land, water, wildlife, and cultural resources can use to anticipate, monitor, and adapt to climate change. In the Northwest, this mission is carried out by the Northwest Climate Science Center (NW CSC). The NW CSC has developed a tribal engagement strategy to describe the opportunities for collaboration between the NW CSC and 52 Native American tribes within its geographic area, including the 15 Columbia River Basin Tribes and 3 Intertribal organizations. The strategic plan provides opportunities for tribal engagement in the NW CSC's executive services, science services, data services, communication services, and education and training services. The NW CSC has invited all 52 tribes in its area to engage in informal

dialogue and formal government-to-government consultation.

The NW CSC relies on input from tribal representatives, which include CRITFC, ATNI, and the Northwest Indian Fisheries Commission (NWIFC), on the Executive Stakeholder Advisory Committee to help it prioritize research needs, and it also relies on close collaboration with tribes to facilitate transfer of research results back to tribal resource managers. ESAC participation may be direct or through the three tribal organizations that are currently ESAC members.

Our survey results indicate about a third of the Tribes and Intertribal organizations are familiar with and actively utilize the NW CSC services (Figure 7). The Tribes have a variety of responses on why they do or do not utilize the NW CSC more effectively (Table 7). However, the CSC, in cooperation with the Bureau of Indian Affairs, will soon recruit a tribal Climate Extension Support Liaison who will work with Northwest tribes to identify priority climate information and knowledge needs of tribes and develop relationships with partners to address those needs. The liaison will also help enhance and implement the NW CSC Tribal Engagement Strategy. The Tribal representatives to the NW CSC ESAC are also responsible to conduct outreach to the Columbia River Basin Tribes as well as other Tribes to increase the level of engagement.

Figure 7. Overview of the 15 Columbia River Basin Tribes and 3 Intertribal organizations familiarity with and utilization of NW CSC Services

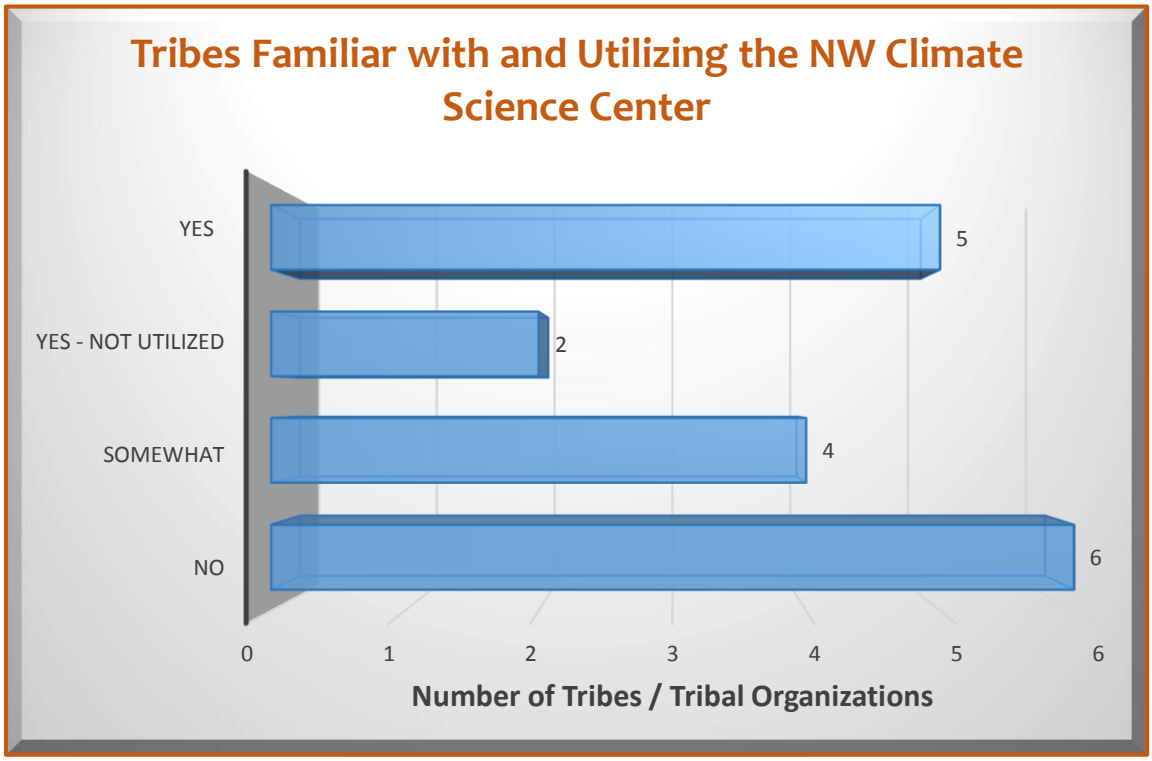


Table 7. Summary of responses regarding the 15 Columbia River Basin Tribes and 3 Intertribal organizations familiarity with and utilization of NW CSC Services

Burns-Paiute	No
Coeur d'Alene	Yes, but have not utilized it much yet. We will begin to utilize this information soon now that we have funding to work on this issue.
Colville	No Response
Cowlitz	No
CRITFC	Yes they are very helpful not just on CRITFC projects but also on tribal projects.
Kalispel	Only a little
Kootenai	Yes, review work product
Nez Perce	Yes. Currently the Tribe does not utilize their programs as a whole.
Paiute Shoshone	No Response
Salish & Kootenai	We are familiar with the Climate Science Centers. We currently are in contact and work with the Rocky Mountain Climate Science Center.
Shoshone-Bannock	No Response
Shoshone Paiute	No Response
Spokane	No Response
UCUT	Yes, UCUT is aware, but have not utilized their programs yet.
Umatilla	Yes, but CTUIR is conducting in house research and has alternate project subcontractors.
USRT	Yes
Warm Springs	Yes. Currently we are in capacity building mode and strategic planning for our climate change program. Outreach and collaboration with the CSC will increase in the future. However, the NWCSC prioritizes on CSC needs and do not facilitate or incubate well with multiple tribal needs.
Yakama	I've seen some stuff but not much.

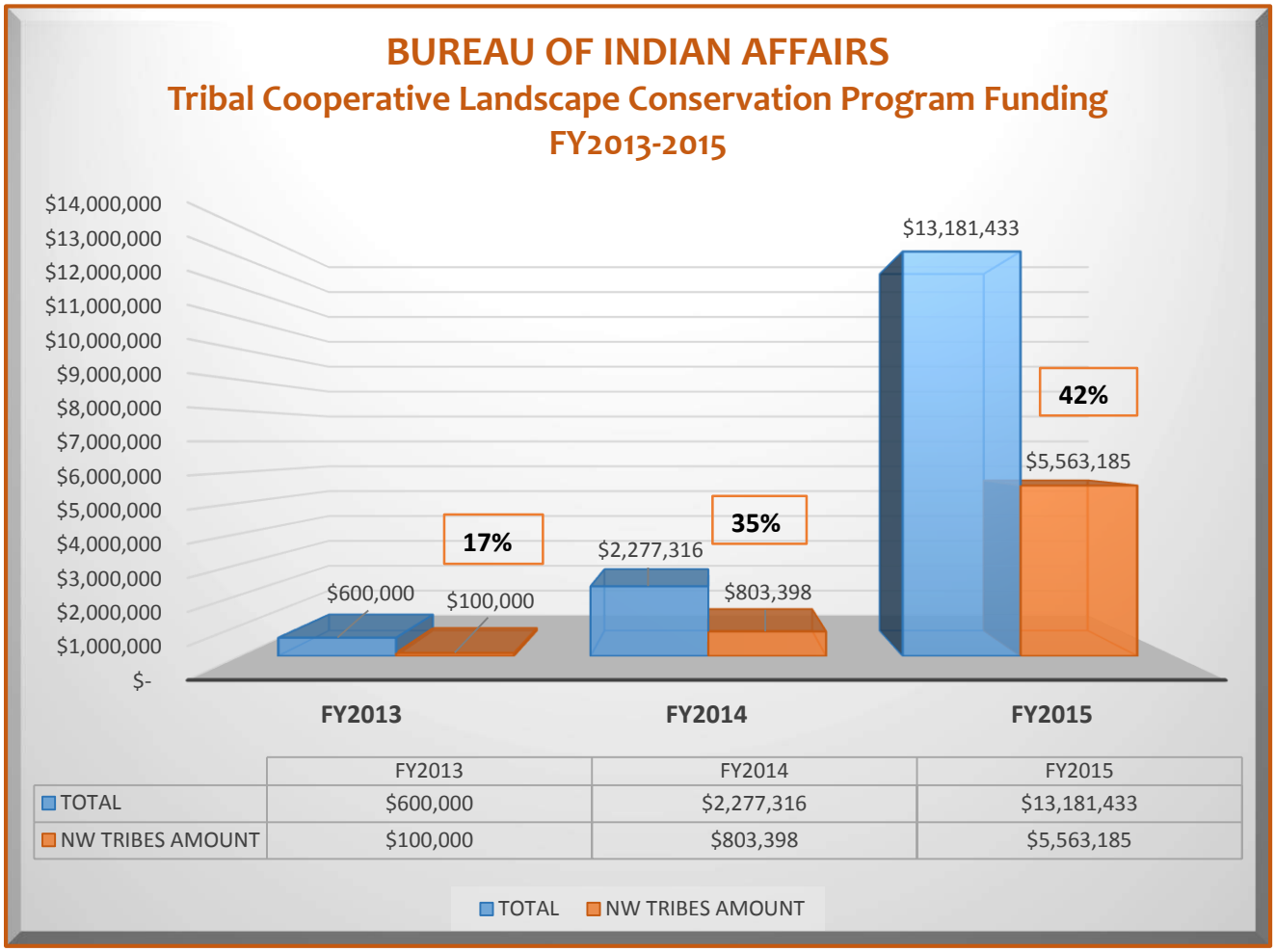
Bureau of Indian Affairs

The Pacific Northwest Tribes, as well as the Columbia River Basin Tribes and Intertribal organizations, have become increasingly aware of and successful in securing funding support from the Bureau of Indian

Affairs Tribal Cooperative Landscape Conservation Program as a primary source of funding for tribal climate planning (Figure 8). In FY2013 only one Tribe, Umatilla, received funding for climate change planning activities from the BIA program. In FY2014 only the Colville Tribe received funding for climate planning activities from the BIA program.

However, in FY2015 over 50% of the Tribes and Intertribal organizations received small BIA grants for travel support, and eight tribes (Salish-Kootenai, Coeur d'Alene, Colville, Yakama, Umatilla, Warm Springs, Nez Perce, and Shoshone-Bannock) and one Intertribal organization (USRT) received larger BIA grants for climate change planning activities. This national competitive grant program is now the primary source of funding for tribal climate planning for the 15 Columbia River Basin Tribes and 3 Intertribal organizations.

Figure 8. Comparison of funding to Pacific NW Tribes and Intertribal organizations (OR, WA, ID, MT) vs funding awarded nationally from the Bureau of Indian Affairs Tribal Cooperative Landscape Conservation Program



	FY2013	FY2014	FY2015
TOTAL	$600,000	$2,277,316	$13,181,433
NW TRIBES AMOUNT	$100,000	$803,398	$5,563,185

Other Forums

On the northwest regional level, CRITFC staff participates in the monthly PNW Climate Network conference calls, in the EPA Climate Adaptation Workgroup, in the River Management Joint Operating Committee, Climate Change Study Workgroup, in the North Pacific and Great Northern Landscape Conservation Cooperatives, and with the ATNI Climate Change Project. CRITFC also serves as advisory members for the NW Climate Science Center and the Climate Impacts Research Consortium.

There is very little involvement in other federal agency planning efforts such as the USDA HUBS or NOAA Regional Integrated Sciences and Assessment Programs. Few of the Tribes or Intertribal organizations are involved in state or local agency climate change initiatives except through existing federal forums like LCC's.

On a national and regional level, the Columbia River Inter-Tribal Fish Commission (CRITFC) is the most actively engaged tribal entity participating in multiple federal, state, and inter-tribal agency climate planning efforts**.** CRITFC provided comments on the White House Climate Change Task Force of Climate Preparedness 2013 and has worked with the National Congress of American Indians (NCAI) to promote national resolutions and policy on climate change.

4.3 Tribal and Inter-Tribal Capacity and Existing Planning Related to Climate Change

Increasing the climate resilience of tribal communities is critical to ensuring access to resources protected by rights and vitally important to the cultural existence and economic vitality of these communities. It is important Tribes have the tools and internal and external capacity to effectively develop vulnerability assessments, develop adaptation strategies, and implement and adapt those strategies in light of changing climate impacts.

The 15 Columbia River Basin Tribes and 3 Intertribal organizations have disparate levels of technical and management capacity dedicated to climate change planning. About half the Tribes have limited internal technical and management capacity to adequately conduct climate related planning or analysis and must rely solely on their respective Intertribal organizations or external organizations to provide technical and policy support. The remaining half of Tribes and intertribal organizations have multiple internal staff with extensive natural resource management and scientific expertise and possess a moderate to high level of education, experience, or training related to climate change. However, many Tribal staff are funded by non-climate change related grants and this limits their ability to provide effective climate change planning and analysis for the Tribe. About half of the Tribes and Intertribal organizations have full or part time staff dedicated to lead climate planning activities for their organization.

In all cases, each of the Tribes and Intertribal organizations identify the need to increase their internal and external technical and management capacity related to climate planning, research, and analysis, hire much needed climate change staff, and secure stable, long term climate change funding.

Internal and External Technical and Management Capacity

In assessing the internal and external capacity of the Tribes and Intertribal organizations we gathered and analyze the following information:

1. Whether there are existing plans, policies, or regulations to analyze and manage climate impacts, and if so, the general adequacy of those plans;
2. If a climate vulnerability assessment or adaptation plan has been developed or is being planned;
3. The existing staffs (primarily natural resources) general level of education, experience, and training related to climate change planning and analysis;
4. Whether there is a staff person specifically assigned to lead climate change planning activities within their organization;
5. Whether external technical support or training is needed;
6. What additional information is needed to analyze climate impacts;
7. If the Tribe or Intertribal organization utilize and incorporate the Tribal communities traditional ecological knowledge to assess and adapt to climate change impacts;
8. Whether the Tribe has existing or planned internal forums or processes to coordinate and develop climate impact assessments or adaptation plans; and
9. The capacity of executive management and policy leaders to formulate and implement actions and policies related to climate adaption strategies;

Existing Plans

The Tribes and Intertribal organizations identified a variety of existing Tribal plans, policies, and regulations that could be utilized to help analyze and manage the impacts of climate change (Table 8). About half the Tribes and one Intertribal organization identified natural resource related management plans and policies that will provide relevant information and data, management strategies, and policies or regulations that can be useful in analyzing or managing the impacts of climate change to those resources.

Table 8. Existing plans, policies, and regulations of the 15 Columbia River Basin Tribes and 3 Intertribal organizations that could be utilized to help analyze and manage the impacts of climate change on Tribal resources

Burns-Paiute	The work that we do at natural resources indirectly works to understand and mitigate the effects of climate change. By controlling invasive species

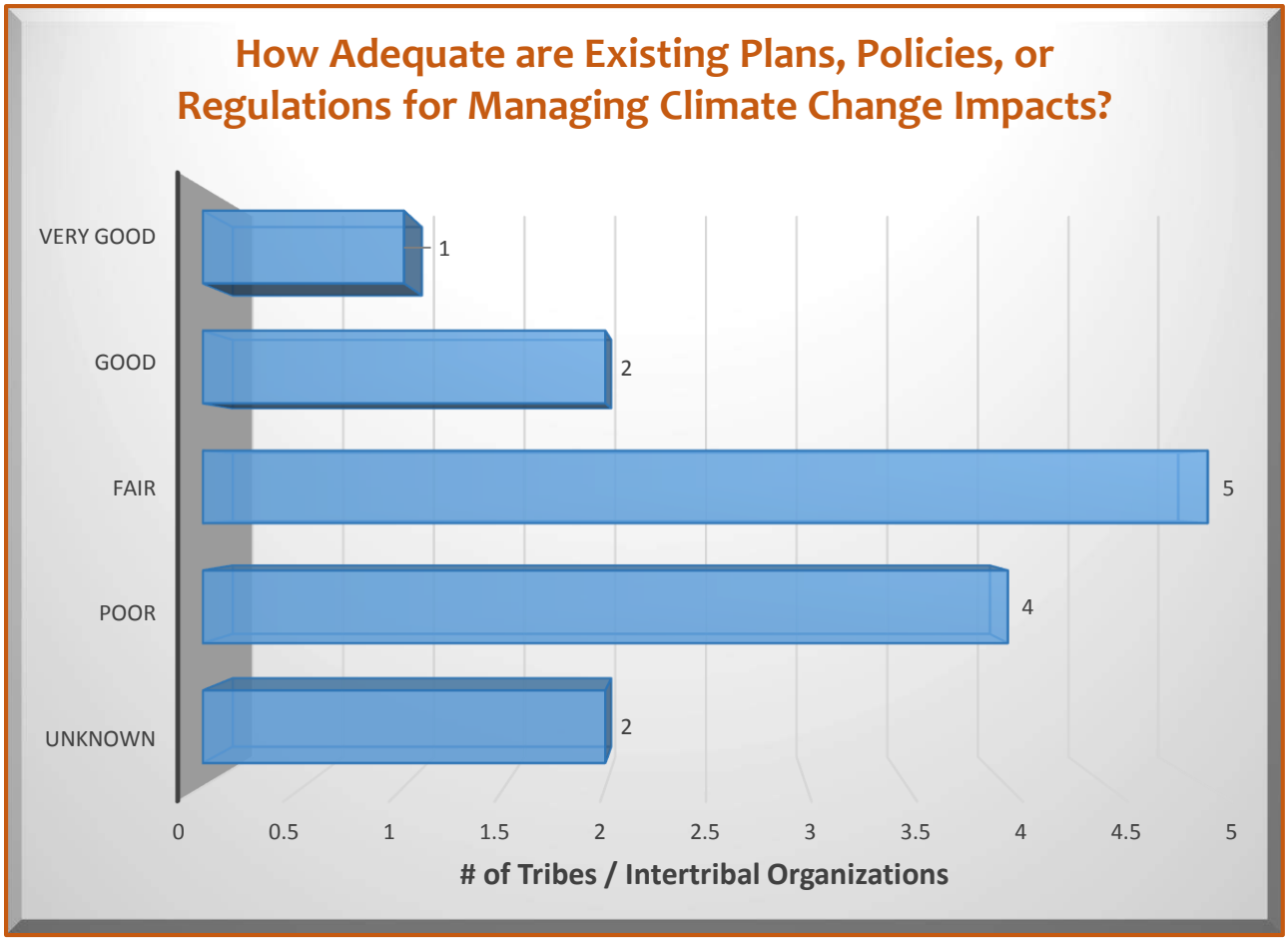
	(both flora and fauna), competition is reduced thereby helping native species be more resilient.
Coeur d'Alene	The Tribe's plans, policies and regulations are beginning to incorporate climate change impacts and/or provide a buffer against impacts: Integrated Resource Management Plan, The Coeur d'Alene Lake Management Plan (Tribe and State of Idaho), Hazard Mitigation Plan, etc.
Colville	Current Tribal plans have not been updated to include climate impacts that is what we are in the process of doing.
Cowlitz	None
CRITFC	1) The CRITFC Information System (CIS) model has already contributed greatly to supporting the tribal initiative of ecosystem function in the Columbia River Treaty negotiations and for analysis of alternatives that may change future allocation of loads and resources from the winter period to the summer period on the hydropower system. This involves working with federal, state and tribal sovereigns to assure that these analyses and their potential impacts on tribal First Foods be conducted. The model allows one to adjust river operations, reservoir fill and flows under different climate scenarios. CRITFC is currently adding fish life cycle data and water and air temperature data that will enhance this model. This information will benefit not just the tribes but everyone in the PNW. 2) Each of the tribes have passed their own resolutions and formed climate working groups consisting of tribal staff from all of the different departments, not just the natural resources departments. CRITFC staff are also members of various regional and national tribal climate groups working on policy and funding issues.
Kalispel	None that I know of
Kootenai	Unknown – Council
Nez Perce	No. The Tribe does not have any plans, policies or regulations in place to buffer against climate change. The only effort we have is an Emergency Operations Plan, which is a "here and now" type of plan. This is not comprehensive plan because the plan essentially provides an organizational chart to properly "react' to an event that has already happened. We are in the works of developing a comprehensive approach to the events to avoid catastrophe.
Paiute Shoshone	No response. See USRT response below.

Salish & Kootenai	We are including climate change in our Forest Management plan, Disaster and Emergency Preparedness Plan and many other plans.
Shoshone-Bannock	No response. See USRT response below.
Shoshone Paiute	No response. See USRT response below.
Spokane	No response. See UCUT response below.
UCUT	More information needs to be gathered from each UCUT member to fully assess the current plans and regulations. The Spokane and Colville Confederated Tribes both have had Integrated Resource Management Plans for well over 40 years that look at the environmental impacts of resource extraction economies and cultural impacts to these activities. Staff, within those tribes, are aware of and have looked at the coming climate change affects.
Umatilla	Tribal plans and policies largely omit climate change related information and responses. A few plans recognize the need to address these issues but it has yet to be done.
USRT	Currently there are not any USRT plans, policies, and/or regulations that account for the impacts of climate variability or change, or inherently provide a buffer against climate impacts. I do believe that the Shoshone-Bannock Tribes are accounting for climate change to some degree in their land use plans, which are currently being revised.
Warm Springs	No Plan or policy document specifically states climate change, however several, if not all, plans and policy documents go a long way in creating suitable buffers regarding climate variability on the landscape. The Confederated Tribes of Warm Springs Integrated Resources Management Plan is a working, adaptive document revised every five years and represents the best means to which natural resources will be managed on the reservation. The Peoples Plan (or Comprehensive Plan) is another adaptive document revised every ten years and acts as a guiding document for Tribal Council providing measurable benchmarks and prioritization metrics. The unwritten laws help guide some of the tribal employees in their work and interactions with the community to protect natural resources for future generations.
Yakama	The Yakama Nation activities include many different plans that work to address the impacts to climate change. Our policy of restoring habitat by putting wood in the creeks, moving roads out of the floodplain, fixing culverts, restoring mountain meadows and many other similar projects are all aimed to increase/store cooler water that allow later cooler water into

	the late summer. These projects are described in many of the watershed plans and salmon recovery plans that Yakama participates. The Yakima Basin Integrated Plan includes fish passage on the reservoirs in the Yakima Basin, which will allow greater access to upper elevation salmon/fish habitat. The Forest Management Plan on the Yakama reservation is aimed at thinning forest to retain fire adapted species. This makes our forest more resilient to large catastrophic fires.

The respondents also provided their general opinion regarding the adequacy of existing plans, policies, or regulations for assessing and managing climate impacts as very good, good, fair, or poor. Overall, while three of the respondents identified their existing plans as good to very good, most described them fair to poor in their adequacy to address and manage climate impacts (Figure 9).

Figure 9. General adequacy of existing plans, policies, or regulations of the 15 Columbia River Basin Tribes and 3 Intertribal organizations for analyzing or managing climate impacts to Tribal natural resources.



In summary, half of the Tribes and Intertribal organizations have a variety of natural resource management plans, policies, and regulations of which most inadequately analyze or address climate change impacts. However efforts are underway now, primarily due competitive grant funding provided by the BIA Tribal Cooperative Landscape Conservation Program in FY2015, to conduct specific vulnerability assessments, risk assessments, or adaptation plans. Two Tribes have completed vulnerability assessments and seven Tribes and one Intertribal organization are just now initiating vulnerability assessments or adaptation plans (Figure 10 and Table 9).

Seven Tribes (Burns-Paiute, Shoshone-Paiute, Paiute-Shoshone, Spokane, Kootenai, Kalispel, and Cowlitz) and UCUT have not completed any vulnerability or risk assessments to date, primarily due to a lack of funding. It is important these Tribes and Intertribal organizations secure funding to develop climate impact assessments and adaptation plans. In the case of the USRT Tribes, they plan to engage all four USRT Tribes in the broad scale *"Collaborative Climate Change Vulnerability Assessment"* and then each Tribe may conduct a more localized analysis for their respective reservations and ceded lands in the future.

CRITFC is currently conducting a climate change survey of its four member tribes from which a unified CRITFC Strategic Plan will be developed. Each of the four tribes are developing their own vulnerability assessments and hope to develop adaptation plans in the future.

Figure 10. Status of Tribal or Intertribal Vulnerability Assessments or Adaptation Plans.

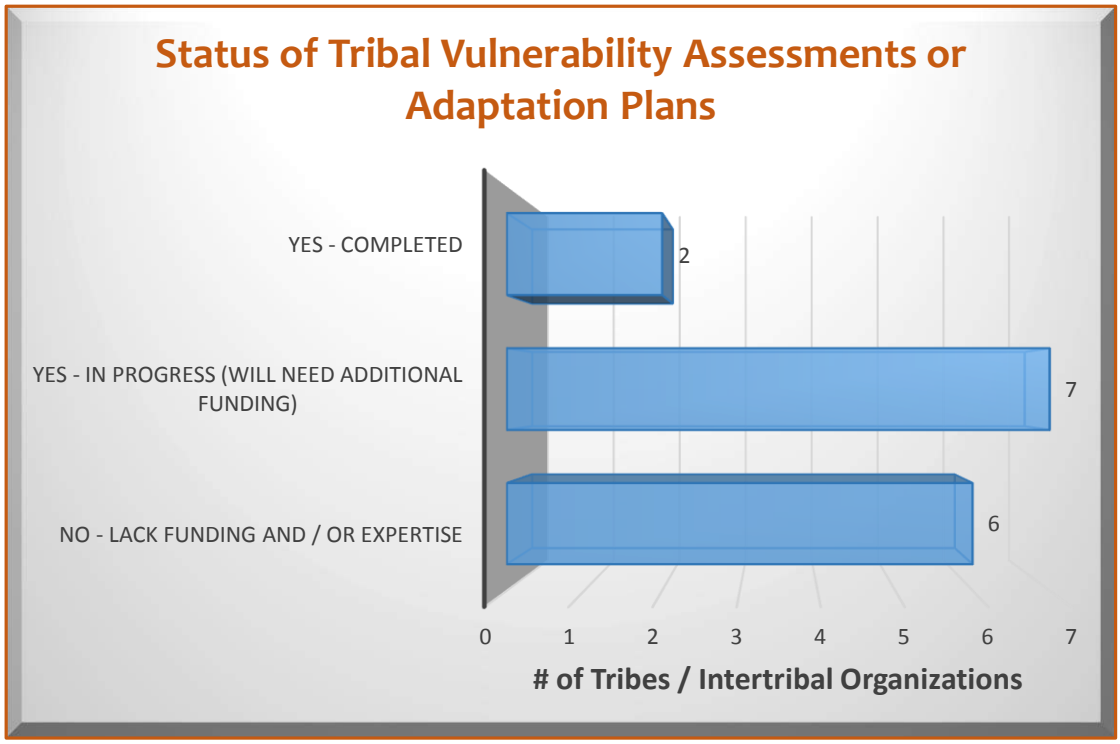


Table 9. List of Columbia River Basin Tribes and Intertribal organizations that have completed or currently developing climate impact assessment, adaptation, and/or implementation plans.

Coeur d' Alene	"Climate Change Impact Assessment Project"
Colville	"Develop Climate Adaptation Plans, Vulnerability Assessments, and Data Analysis"
Nez Perce	"Clearwater River Sub-basin Climate Change Adaptation" (*completed 2011*)
Salish-Kootenai	Salish-Kootenai Climate Change Strategic Plan" (*completed 2013*), "Tribal Collaboration to Address Climate Change in the Crown of the Continent" (*in development*)
Shoshone-Bannock	"Climate Change Vulnerability Assessment and Adaptation Plan for the Fort Hall Reservation"
Umatilla	"CTUIR Climate Change Adaptation Action Plan and Implementation Strategy"
USRT	"Collaborative Climate Change Vulnerability Assessment"
Warm Springs	"Vulnerability Assessment for the Warm Springs Reservation"
Yakama	"Climate Adaptation Plan: Technical Analysis and Planning for the Future"

Of all Tribes and Intertribal efforts, the most advanced climate planning effort has been accomplished by the Salish-Kootenai Tribe. The *"Salish-Kootenai Climate Change Strategic Plan"* addresses climate impacts and vulnerability to nine categories of tribal life: forestry, land, fish, wildlife, water, air, infrastructure, people, and culture. It draws heavily on the knowledge of tribal elders to ensure that Traditional Ecological Knowledge (TEK) is integrated into adaptation planning by the tribe, and that cultural priorities inform all aspects of the plan. They are now proceeding with the *"Tribal Collaboration to Address Climate Change in the Crown of the Continent"* in an effort to develop implementation actions.

The most geographically expansive and comprehensive Columbia River Basin-wide Intertribal efforts to mitigate and adapt to climate change is the U.S. – Canada Columbia River Treaty (CRT) review process, which utilizes base case Columbia River hydroelectric dam regulation modeling cases that are the foundation for climate change modeling comparison. The Columbia River Treaty (CRT) only addresses two primary purposes – hydropower and flood risk management. Ecosystem-based Function has been proposed by the Columbia River Basin Tribes as a third primary purpose for the Treaty. This proposal has

been widely accepted by regional sovereigns and stakeholders in the U.S. as integral to modernizing the Treaty. All 15 Tribes and 3 Intertribal organizations are involved in this effort to varying degrees.

The second largest collective Intertribal effort is the USRT Foundation's *"Collaborative Climate Change Vulnerability Assessment"* which will evaluate how climate change has and is expected to affect resources (water, ecotypes/habitats, aquatic/terrestrial species, and tribal enterprises) both on USRT member tribes' four reservations and within the entire Upper Snake River Basin. The vulnerability assessment will be a broad, regional-scale assessment covering 81,167 square miles (51,946,880 acres). Within the 81,167 square miles there are approximately 10,164 miles of river that are anticipated to be affected by climate change. The proposed assessment area includes all watersheds and wetlands within the Upper Snake River Watershed. Project area ecotypes/habitats include but are not limited to Great Basin sagebrush steppe, forest communities, riparian zones, and the culturally significant Camas Prairie. Rivers of focus will include the Upper Snake, Bruneau, Malheur, Owyhee, Portneuf, and Salmon. In general, terrestrial species of focus will be big game, small mammals, and upland birds. Aquatic species of focus will include both anadromous and resident fish. Tribal enterprises of interest include but are not limited to agriculture/aquaculture, ranching, recreation programs, and fish and wildlife enhancement programs and harvest management. USRT has identified the following goals for completing a climate change vulnerability assessment for the Upper Snake River Watershed and their four member tribes' reservations:

1. Identify the level of climate change vulnerability resources in the Upper Snake River watershed face now and in the future;
2. Support decision-making by tribal leadership and tribal resource management staff;
3. Bolster current tribal management plans including tribal enterprises, fish and wildlife, environmental, natural resources, water quality/quantity for each of USRT's four member tribes to include climate change impact assessments; and
4. Prepare the tribes to complete additional climate change work in the future, in particular a climate change vulnerability assessment.

This effort is just beginning and will involve all four USRT Tribes.

Staff Capacity

Overall, half of Tribes and intertribal organizations believe their existing internal staff have a high level of capacity in natural resource management and scientific analysis based upon their education, training, and experience (Figure 11). In addition, they also possess a moderate to high level of technical capacity related to climate change issues. As an example of Tribal climate expertise, CRITFC has been conducting research and analyzing climate impacts on the hydrology of the Columbia River Basin and its' tributaries for almost ten years. CRITFC has incorporate climate change technical and policy strategies as part of 2014 update of *"Wy-Kan-Ush-Mi Wa-Kish-Wit"* the Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakama Tribes. However for most Tribes, their existing

natural resource professionals are funded by non-climate change related grants and therefore this limits their ability to provide effective climate change planning and analysis for the Tribe (Table 10).

The remaining half of the Tribes have a moderate to low level of education, training, and experience related to climate impact assessments or adaptation planning. The principal reason is they have no funding or staff dedicated to participating in regional climate change planning forums, participating in climate change training seminars, or conducting climate impact assessments or adaptation planning.

Figure 11. Overall assessment of Tribal and Intertribal organizations staff capacity and expertise based upon education, training, and experience related to climate change planning.

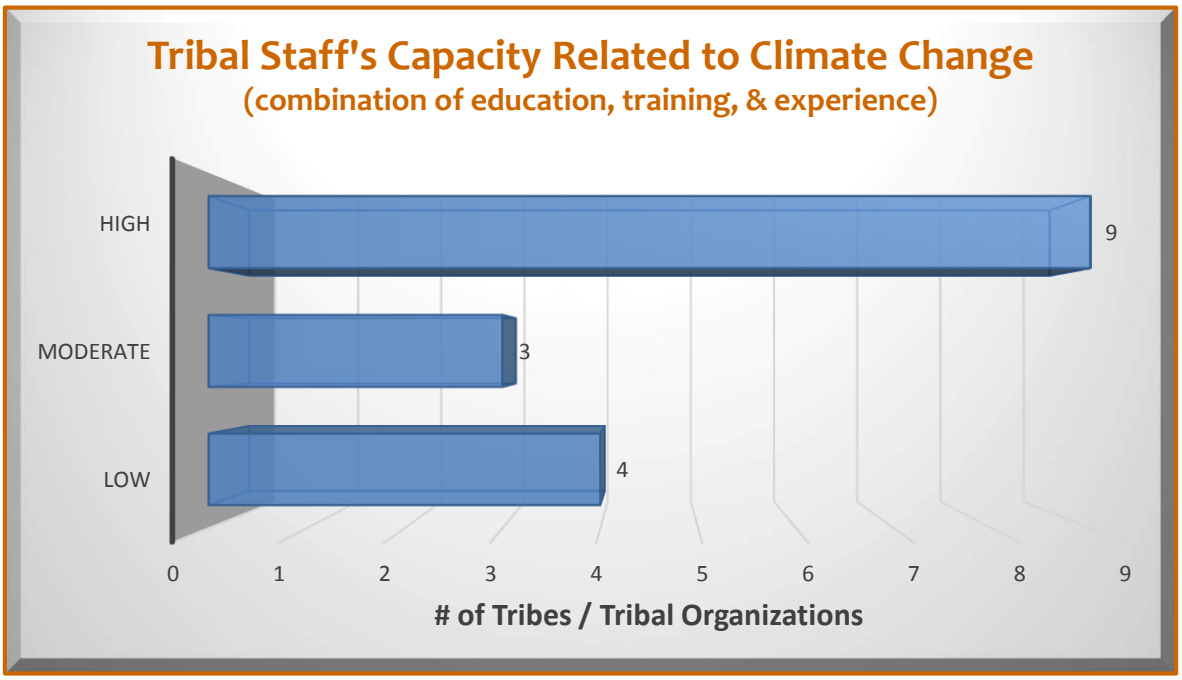


Table 10. Description of the 15 Columbia River Basin Tribes' and Intertribal organizations' staff education, training, and experience related to climate change planning and analysis.

Burns-Paiute	Limited
Coeur d'Alene	We have a lot of staff persons with B.S., M.S. and Ph.D. level educations, many years of experience with science, planning and implementation of projects. What we need is more time to work on this issue, and the items listed above.
Colville	The current team has science and climate change education as well as legal and management training public service and planning. The training is

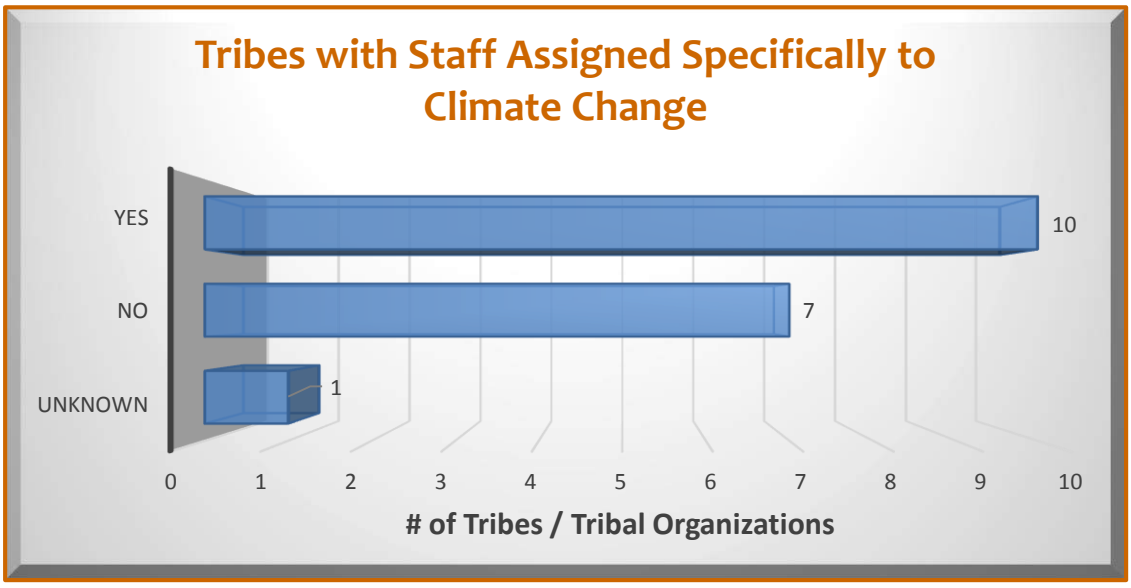
	ongoing and involves webinars from various agencies, workshops from DOE, USDA, NRCS, BIA, NOAA, USGS, GNLCC, PNLCC, PNW climate project,
Cowlitz	We currently have qualified staff. One problem is that we are a grant based department with little funding at this time to dedicate current staff on this endeavor.
CRITFC	There is a small CRITFC climate workgroup made up of professionals with much experience in modeling, hydrology, GIS, communications and policy development.
Kalispel	Very little capacity
Kootenai	Environmental department has the greatest general background in CC issues through work with EPA, ITEP & TAMS
Nez Perce	There is a subset of departmental staff that are more than aware of changes to come yet others who are in disbelief.
Paiute Shoshone	No Response. However, based upon our knowledge of the Tribe, the Paiute Shoshone only has a few (1-3) natural resource management staff and limited experience related to climate change planning.
Salish & Kootenai	No Response. However based upon our knowledge of the Tribe, Salish-Kootenai has very experienced staff with experience completing the vulnerability assessment and now the climate adaptation and implementation plan.
Shoshone-Bannock	No Response. However based upon our knowledge of the Tribe, Shoshone-Bannock has educated and experienced staff (i.e. Environmental Manager with PhD as well as Fish and Wildlife managers) and are working on a climate vulnerability assessment and recently ITEP conducted climate change planning training.
Shoshone Paiute	No Response. However, based upon our knowledge of the Tribe, the Shoshone-Paiute have educated and experienced natural resource management and environmental program staff (6-8) and some experience related to climate change planning.
Spokane	No Response. However based upon our knowledge of the Tribe, Spokane has educated and experienced staff natural resource staff, however their involvement in climate change planning is limited.
UCUT	Policy Analyst, TFW Coordinator and Committee Coordinator have experience and knowledge of Climate Change studies and efforts.

Umatilla	1) Patrick Mills – CTUIR Climate Change Vulnerability Assessment Project Manager 2) Steven Link – past climate change related research
USRT	Currently, USRT is a small organization with limited resources As I am the only one working on climate change issues at USRT, I will describe my capacity. <u>University of Idaho</u> BS in Environmental History BS in Political Science (focus in natural resource policy) MS in Environmental Science (focus on policy and law) <u>Specific Trainings</u> • Climate change vulnerability assessment training at the USFWS National Conservation Training Center • Climate change adaptation planning training through the Institute for Tribal Environmental Professionals • Attendance at many workshops and conferences either focusing exclusively on or partially on climate change issues (many times tribally-focused) <u>Experience</u> Very little experience working on climate change issues prior to working at USRT. I did do a little climate change work while working for the US Forest Service and at an environmental consulting firm in Missoula. Essentially I'm learning as I'm going.
Warm Springs	Climate Change Working Group year one: • **Trainings/Conferences** o Northwest Climate Science Center; Climate Science Boot Camp Fellowship: 2 attendees o ANTI Climate Change summit: 5 attendees o CRITFC adaptation planning workshop: 1 attendee o Pacific Northwest Climate Science Conference: 3 attendees o 2nd National Adaptation Forum: 2 attendees o EPA national air quality forum: 1 attendee, which led to service on the National Tribal Toxics council o ITEP adaptation planning workshop: 2 attendees o ITEP strategic planning online course: 2 participants o Participate in the Great Northern Landscape Conservation Cooperative steering committee meetings.

	○ Attended the South Central Oregon Adaptation Partnership workshop • Hydrologist/ Climate Change Program Coordinator: BS in Biology. MS in Hydrology and Science Management. NWCSC Climate Science Boot Camp. ITEP Adaptation Planning Workshop • Environmental Specialist/ Education Coordinator: BS in Environmental Science. MS in Environmental Studies. NWCSC Climate Science Boot Camp. ITEP Adaptation Planning Workshop • Wildlife Biologist: BS in Biology. US Marine Veteran
Yakama	College graduates with training in climate change.

In order to effectively conduct Tribal climate vulnerability assessments, risk analysis, and adaptation planning, it is important to have an experienced and trained staff person dedicated at least part time to lead and coordinate the planning effort. Currently only 8 Tribes and two Intertribal organization (CRITFC and USRT) have a staff person dedicated to climate change planning (Figure 12) and most of these staff dedicate less than half their time to climate planning activities. For most Tribes and Intertribal organizations this capacity has developed only in the past one to three years, primarily due to their ability to secure BIA Climate Change program funding, and to a lesser extent Environmental Protection Agency (EPA) General Assistance Program (GAP) funding. Securing stable funding for each the Tribes or Intertribal organizations to have a dedicated staff person to lead climate change planning will be an important strategy to improve Tribal planning capacity as well as engagement in regional and national climate planning forums.

Figure 12. Tribes or Intertribal organizations with staff dedicated and assigned specifically to climate change planning.



Training, Technical Support, and Information Capacity

To further understand the internal and external capacity of the Tribes and Intertribal organizations, we inquired as to their specific training, technical support, or informational needs and capacity. The respondents identified their needs including learning from other Tribes who have developed climate impact assessments or adaptation plans; training on climate vulnerability assessments and adaptation planning; documenting and incorporating TEK; how to effectively conduct outreach and engagement of tribal communities; downscaling of climate models to analyze their local resource impacts; and basic climate change planning education for Tribal leaders, community members, and non-natural resource department managers (Table 11)

Table 11. Training and technical support needs of the 15 Columbia River Basin Tribes and Intertribal organizations

Burns-Paiute	Perhaps
Coeur d'Alene	I would like training from tribes who have completed tribal-wide vulnerability (impact) assessments to help us learn from their experiences. Later, I would like training on adaptive management. These trainings should include discussions on obtaining the information as well as the planning processes, and address involving the Tribal community and culture.
Colville	Yes, we need specific training for each department to give them the resources they need to adequately plan for climate change.
Cowlitz	We would need additional training, but would prefer a dedicated staff person to organize and work with current staff to assist in dealing with the issue.
CRITFC	More downscaling of climate models, more adaptation trainings and more funding specifically for tribes.
Kalispel	Evaluation and education for community of likely impacts to be expected by the Kalispel Tribe
Kootenai	ITEP & TAMS provide greatest concentrated resources for compiling an adaptation plan
Nez Perce	I think it would be essential to have a climatologist assist with our knowledge and understanding so that the non-believers can begin to absorb the idea and problem.
Paiute Shoshone	No response
Salish & Kootenai	No response

Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	No specific training
Umatilla	Technical assistance for formulating study plans would be useful. It would also be useful if the CTUIR was officially a partner with a climate science research/data center (Oregon Climate Change Research Institute, NWCSC, etc.).
USRT	• I feel as if there are quite a few training opportunities out there. However, there are not many that focus exclusively on Great Basin issues. That would be helpful. The tribal climate change boot camp should be very worthwhile. I also feel that many of the trainings are quite technical, whereas many of the tribes and tribal consortia could use some more basic training opportunities. • USRT does require technical support to undertake climate change work. While I feel competent to do some of it, I'm definitely in need of assistance. This is due to not only a lack of knowledge of all climate change issues, but that I simply do not have the time to do it. I'm juggling a multitude of issues and can't focus only on climate change issues.
Warm Springs	Yes. How to employ vegetative models to show alternative management activities on wildlife forage potential/populations and traditional plant abundances and distribution under downscaled climate scenarios. Creation of Distributed hydrologic model for the Deschutes Basin and students to run simulations. Creation of sustainable economies. Groundwater vulnerability assessments (stable isotopes). Greater remote sensing aptitude. Pros and cons of landscape forest management to tribal governance and membership.
Yakama	There probably is, and our current assessment is evaluating the need.

In addition to specific training and technical support, we inquired as to what general or specific information related to climate impacts the Tribes and Intertribal organizations need in order to increase their capacity to plan for and manage climate impacts. A variety of information needs including down scaling of models to local area and resources, connectivity of ecoregions and impacts on wildlife, local impacts of water and air temperature regimes changes, conveying scientific information on climate impacts to tribal communities, etc. (Table 12).

The Tribes and Intertribal organizations identified the Pacific NW Tribal Climate Project, Institute for Tribal Environmental Professional (ITEP), Northwest Climate Science Center (NW CSC), and the North Pacific, Great Northern, and Great Basin LCC's, and Affiliated Tribes of Northwest Indians (ATNI) as external organizations with the expertise, training resources, data, and analytical capacity to support them in climate resiliency planning and capacity building. Each of these external organizations should increase their level of outreach and meet with each of the respective Tribes and Intertribal organizations to develop action plans to provide specific training, technical support and climate modeling analysis and data. This capacity assessment report can serve as a beginning point to further refine training, technical support, and information needs of each respective Tribe and Intertribal organization.

Table 12. Information and data needs the 15 Tribes and 3 Intertribal organizations identified to improve their capacity to plan for and manage climate change impacts.

Burns-Paiute	I think information that maps changes in air temperatures, vegetation regimes, and precipitation levels over time, non-native pest species proliferation, wildlife and vegetative disease spread, and changing wildlife movement patterns would be really handy and serve to drive home impacts of a changing climate.
Coeur d'Alene	We are just about to get into information gathering for our impact assessment and so it would be good to have information that is downscaled for the Coeur d'Alene Reservation as well as the other UCUT member tribes' reservations and the Nez Perce Reservation on potential climate changes over the next 100 years (such as precipitation, timing of precipitation, temperature, wind estimates, and other information).
Colville	The connectivity of the ecoregions and how it will affect wildlife movements and connectivity of habitat types.
Cowlitz	Funding for a dedicated staff professional to analyze tribal resources and develop mitigation plans and engage with policy leaders to address symptoms and assist in driving efforts toward global changes associated with what is causing global climate change (i.e. coal burning).
CRITFC	A better educated public and tribal community on the impacts of climate change so that planning decisions that change the status quo will be more acceptable. And of course always more funding for tribes specifically to deal with these changes.
Kalispel	Need to understand possible future impacts to Kalispel Natural Resources. There has been 5 years of good water so all appears well for us to most tribal members and resource staff.

Kootenai	More localized analysis
Nez Perce	Most of the pertinent information will be helpful in emergency management or disasters. This fire year could become the new norm for the Pacific Northwest especially if less snowfall and snowpack along with less overall precipitation with warmer temperatures continues. What fire ecologists consider a stochastic 100-year naturally occurring event, are being considering a more frequent fire interval event with disastrous effects. The 100 year fire interval is characterized as the forest stand replacing kind of fires that can potentially wipe out most everything, resulting in millions of dollars in property damage, fish and wildlife loss, and also loss of human lives. If this is a recurring theme, land managers along with fish and wildlife managers will be entering a new phase of resource management goals and objectives unknown to the present regime.
Paiute Shoshone	No response
Salish & Kootenai	We are continuing to gather information and updating our Plan
Shoshone- Bannock	No response
Shoshone-Paiute	We are in the process of completing a vulnerability/risk assessment. When that is completed we should have a better idea.
Spokane	No response
USRT	Focused climate change information on the Upper Snake River Basin
UCUT	We need more information around water temperature regimes, other tribal plans and studies on climate change, EPA and WA Dept. of Ecology efforts to address this issue.
Umatilla	Changes to air temperature will decrease annual snowpack and increase water temperatures. This will impact water resources and fish populations (as well as other first foods), forest resources, and other natural resources related to these. Impacts to salmon are currently the greatest concern.
Warm Springs	Distributed hydrologic models that use downscaled global climate scenarios and the ability to apply land use changes on a watershed scale will better prepare local adaptation, collaboration and planning. A detailed study of aquifer interactions in the Deschutes Basin will be helpful to identify potential in-stream flow reductions. Aid in connecting the science with community needs would be useful.

Yakama	Continue to review new information and continued research on the success/ challenges on projects being implemented to connect floodplain/groundwater/river interactions.

Utilizing Traditional Ecological Knowledge

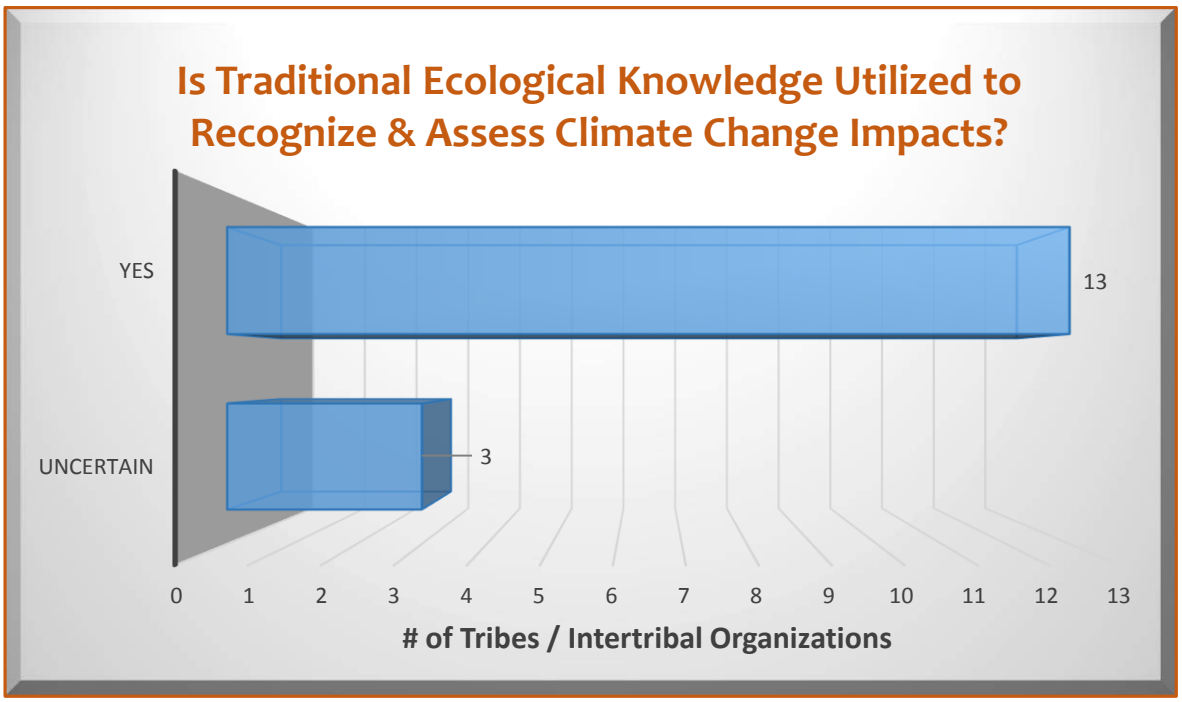
Traditional ecological knowledge (TEK) is the Tribal way of understanding relationships among species, ecosystems, and ecological processes. In the Columbia River Basin, Tribes have utilized TEK in the sustainable management of their natural and cultural resources for thousands of years. Today, this knowledge can play a vital role in climate change assessment and adaptation efforts that bridge human and environmental systems. Riedlinger and Berkes (2001 as cited in Berkes 2008: 164) identified five areas in which science and TEK can communicate and collaborate through the use of TEK:

- As local-scale expertise
- As a source of climate history and baseline data
- In formulating research questions and hypotheses
- As insight into impacts and adaptation in communities
- For long-term community-based monitoring

Nearly all of the 15 Columbia River Basin Tribes and 3 Intertribal organizations state they utilize TEK, in some manner or other. The UCUT states, "*the Tribes have sensed the effects of climate change in the root gathering, berry picking, salmon fishing activities in all of their lands. The behaviors are dramatically different than the "normal" variations that the elders have experiences over the centuries*". The Colville Tribe currently engage their Tribal elders in climate impact planning and assessment, "*we are utilizing that knowledge (TEK) in our educational efforts and we are also sending elders to current meetings on climate change so they can communicate their knowledge regarding past events and their effects*". USRT has begun a climate change curriculum project for tribal students that has a focus on documenting and teaching TEK to tribal youth.

For a few of the Tribes, staff are unaware of the extent Tribal members or the community recognize and assess climate change impacts based upon their traditional knowledge and food gathering practices. The Tribes and Intertribal organizations should clearly identify a strategy and process on how to best incorporate TEK in their climate change assessment and adaptation efforts.

Figure 13. Response of the 15 Columbia River Basin Tribes and 3 Intertribal organizations whether the Tribes or their respective Tribal members use traditional ecological knowledge to recognize or assess climate impacts to their resources and community



Internal Coordination

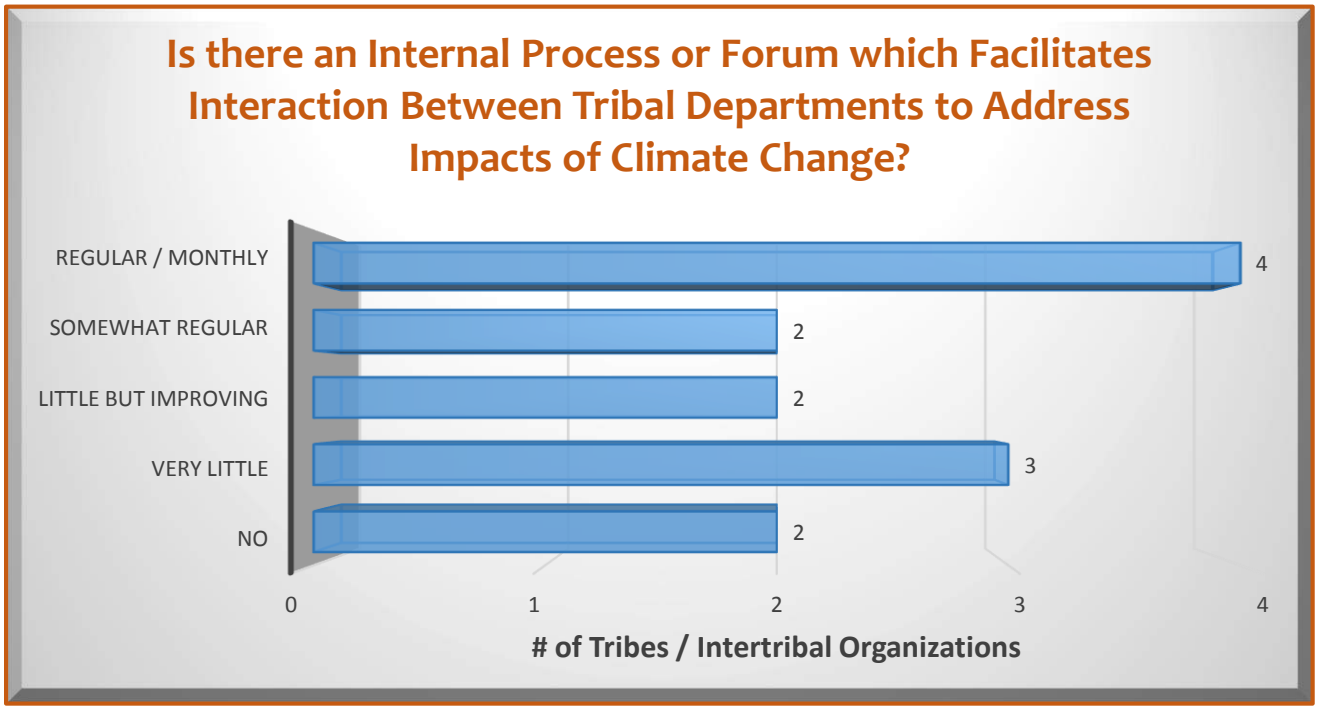
Climate change will affect many Tribal government services, operations, and infrastructure, including multiple natural resources, utilities, roads, water and sewer systems, housing, health care, economic development, education, public relations, etc. How the Tribal government and community respond to the impacts of climate change must be analyzed and planned across numerous Tribal departments, divisions, and programs. Many of the Columbia River Basin Tribes have developed interdisciplinary studies and management plans such as Integrated Natural Resource Management Plans (IRMP's). These efforts require coordination among multiple departments in order to analyze and implement management strategies and actions. Similarly, climate change vulnerability and risk assessments and adaptation plans will require this level of coordination across departments, jurisdictions,and levels of government. This coordination may be achieved through a climate change preparedness team and/or by designating a point person within the Tribal government. About 10 of the Tribes and Intertribal organizations have a point person at least part time. In addition to a lead person, it is important the Tribe or Intertribal organization establish and maintain a forum and process to coordinate climate change planning efforts. Importantly, forming a climate change preparedness team with a cross-section of representatives is useful for overseeing, coordinating, and advocating for preparedness efforts.

About half the Tribes and Intertribal organizations have established a forum and process to facilitate

interaction and coordination between Tribal departments for climate change planning efforts. As an example, the Warm Springs Tribe has just initiated their climate impact assessment and has established a Climate Change Working Group (CCWG) consisting of tribal members from each Branch of Natural Resource departments and each Tribal Council Committee. The CCWG actively engages with the tribal community (radio, newspaper, tabling, and special events). The Salish-Kootenai Tribe completed the Salish-Kootenai Climate Change Strategic Plan in 2013 and has a Climate Change Oversight Committee (CCOC) that continues to meet on a monthly basis. They are now initiating an adaptation plan *"Tribal Collaboration to Address Climate Change in the Crown of the Continent Climate"* and have expanded their CCOC to include other regional professionals from the USFWS, USFS, USGS, and The Wilderness Society, Crown of the Continent and the Great Northern Landscape Conservation Cooperative and others.

The remaining Tribes have no current forum or established process to coordinate climate change planning. In order for the Columbia River Basin Tribe to efficiently and comprehensively analyze climate impacts and develop adaptation strategies, they must establish a cross-department coordinating workgroup or committee such as the Salish-Kootenai CCOC. These Tribes would benefit from training, such as that provided by ITEP, on the process to develop vulnerability and risk assessments and adaptation plans. In addition, it would be helpful for Tribes and Intertribal organizations with climate planning experience to share their internal coordination strategies so other Tribes can learn from that experience.

Figure 14. Tribes and Intertribal organizations description of the internal process or forum to facilitates interaction between various departments within the Tribe/Intertribal organization to coordinate on climate change



Tribal Policy Leaders and Executive Management Capacity

Snover et.al developed a climate change planning guide entitled *"Preparing for Climate Change: A Guidebook for Local, Regional, and State"* and describe the need for a *"climate change champion".* A climate change champion is a leader or leaders at high level of government who are committed to learning about climate change impacts. Similarly, a Tribal climate change champion must be respected and trusted by the Tribal citizens and government leaders, knowledgeable about climate change impacts, and willing to take risks by developing policy recommendations that will be challenging to implement. Based upon our survey and interviews, Tribal policy leaders and executive management have limited experience and capacity to formulate and implement actions and policies related to climate adaption strategies due to a number of factors:

1. Tribal management and policy leaders have a "moderate" level of awareness and education on climate impacts, developing climate policy, and familiarity with planning methods;
2. Tribal citizens have a low to moderate level of aware of the impacts or importance of addressing climate impacts and may place a lower priority on climate change adaptation relative to other pressing issues (employment, housing, health care, etc.)
3. Only two tribes (Salish-Kootenai – 2013 and Nez Perce - 2014) have completed a climate change vulnerability assessment and five Tribes and one Intertribal organization are just initiating the process to develop vulnerability assessments (Umatilla, Yakama, Colville, Coeur d'Alene, Shoshone-Bannock, USRT) from which to base an adaptation and action plan upon;
4. There are few models of "how to" implement a climate adaptation plan; and/or
5. There is limited funding for climate adaptation plan implementation.

In order to increase the capacity of Tribal elected leaders and executive managers, it is important that they receive training on climate impact assessments, climate change policy development, affective communication strategies with Tribal communities, and creative approaches to fund and implement climate adaptation plans.

In summary, the Tribes and Intertribal organizations have a number of opportunities and needs related to TEK, climate assessments and plans, staffing, internal coordination processes, and training or technical which are important factors in building the climate resiliency and adaptive capacity of the Tribes and their communities. This matrix (Table 13) identifies some of the important considerations as the Tribes and Intertribal organizations prepare for their respective climate planning efforts.

Table 13. Summary of each of the 15 Columbia River Basin Tribes and 3 Intertribal organizations status related to use of TEK, climate assessments and plans, staffing, internal coordination process, and training or technical support needs

	Traditional Ecological Knowledge			Vulnerability Assessment (VA) or Adaptation Plan (AP)				Lead Staff Person(s)			Process or Forum in Place				Training (TR) or Technical Support (TS) Needs			
	Does the Tribe or tribal members utilize traditional ecological knowledge to recognize and assess Climate Change impacts?			Does the Tribe have an existing Vulnerability Assessment (VA) or Adaptation Plan (AP)? Does the Tribe plan to develop such a plan?				Is there a lead staff person(s) assigned specifically to Climate Change issues?			Is there currently a process or forum in place that facilitates interaction/coordination between departments within the Tribe on climate change?				Is there specific training (TR) or technical support (TS) needed to increase your Tribe's capacity?			
TRIBE	Yes	Uncertain	No Response	Yes - Completed	Yes - In Development	Neither	No Response	Yes	No	No Response	Yes	No	Developing one	No Response	Yes	No	Uncertain	No Response
Burns-Paiute															TR/TS			
Coeur d'Alene					VA										TR			
Colville					VA										TR			
Cowlitz															TR			
CRITFC															TR/TS			
Kalispel															TS			
Kootenai															TS			
Nez Perce				VA											TR/TS			
Paiute Shoshone															TR/TS			
Salish & Kootenai				VA	AP													
Shoshone-Bannock																		
Shoshone Paiute															TR/TS			
Spokane																		
UCUT																		
Umatilla					VA										TS			
USRT					VA										TR/TS			
Warm Springs					VA										TR/TS			
Yakama					VA										TR/TS			

4.4 Needs and Recommendations

Overall Needs and Recommendations for the 15 Columbia River Basin Tribe and 3 Intertribal Organization

There are a number of issues, needs, and recommended actions identified by the Columbia River Basin Tribes and Intertribal organizations to increase their capacity to effectively plan and adapt to climate change impacts. Below is a summary of the issues, needs, and recommended actions in priority order:

1. **Protect natural resources and first foods**
    a. **Key Impacts**: Climate change effects on natural resources, tribal lands, cultural resources, and the ability to sustain traditional lifestyles are key issues identified by the Tribes and Intertribal organizations. Key impacts include water quality and quantity, fish and habitats/passage (including above blocked areas), forests and wildfire preparedness, Columbia River hydropower operations, range, wildlife, and habitats.
    b. **Capacity and Resources**: Tribes need the capacity and resources to develop comprehensive vulnerability and risk assessments, adaptation plans, and effective strategies to implement climate action plans to protect these important resources.
    c. **Treaty Rights, Executive Order, and Trust Obligations**: Federal and state resource agencies must work with Tribes to develop collaborative and strategic approaches to address legal, institutional, research, and management actions and policies to restore natural and cultural resource protected by treaty rights, executive order, and trust obligations that will be impacted by climate change.

2. **Increase funding and staffing** for climate planning and climate forum participation, analysis and research, infrastructure, and building tribal staff capacity.
    a. **Federal Funding**: Securing stable funding for each the Tribes or Intertribal organizations to have a dedicated staff person to lead climate change planning will be an important strategy to improve Tribal planning capacity as well as engagement in regional and national climate planning forums. The BIA, EPA, LCC's, and NW CSC should increase programmatic funding to each of the 15 Tribes and 3 Intertribal organization beginning in FY2016 (see Appendix B – Questions 26: Tribal and Intertribal Programmatic Funding Needs 2016-2020).
        - Eleven of the 18 Tribes and Intertribal organizations estimated their funding needs for the period 2016 through 2020; we used the information provided to project a minimum funding need for those 11 Columbia River Basin Tribes and Intertribal organizations of over $30.5 million.

b. **Specific Needs**: Seven Tribes (Burns-Paiute, Shoshone-Paiute, Paiute-Shoshone, Spokane, Kootenai, Kalispel, and Cowlitz) and UCUT have not completed any vulnerability or risk assessments to date, primarily due to a lack of funding. It is critically important these Tribes and Intertribal organizations secure grant funding from the BIA Tribal Cooperative Landscape Conservation Program, EPA GAP grants, or other funding sources to develop climate impact assessments and adaptation plans. The other Tribes and Intertribal organizations that are developing or have completed vulnerability and risk assessments will need additional funding to develop adaptation and action plans and resources to begin implementing those plans.

   - Tribes should secure BIA or LCC funding to support travel to participate in the LCC's as well as for Intertribal coordination efforts.
   - In the case of the USRT Tribes, it is important they engage in USRT's broad scale *"Collaborative Climate Change Vulnerability Assessment"* and secure resources to conduct more localized analysis for their respective reservations and ceded lands.

c. **BIA:** CRITFC recommends that within the Bureau of Indian Affairs (BIA) an Office of Climate Change Adaptation be established that will facilitate information sharing and support for the tribes in the following areas, and as needed:

   - Establishment of a consistent funding stream to sustain tribal capacity building for climate-related activities;
   - Climate change vulnerability assessment; and
   - Climate Change Adaptation Plans

d. **Increase education and outreach** to the Tribal community and within Tribal government on the causes and impacts of climate change, vulnerability and risk assessments, utilization of TEK in climate planning, and climate adaptation strategies.

e. **Improve partnerships, training and technical support, and effective regional coordination with federal, tribal, state agencies, and other organizations** to improve cooperating agencies/organizations ability and willingness to work with the Tribes and develop comprehensive plans, climate change data, research, and analysis.

f. **Tribes learn from each other**: The capacity to address climate change varies by tribe. It is important Tribes learn from each other, especially from Tribes who have developed climate impact assessments or adaptation plans;

g. **Partner organization support**. The 15 Tribes and 3 Intertribal organizations identified the Pacific NW Tribal Climate Project, Institute for Tribal Environmental Professional (ITEP), Northwest Climate Science Center (CSC), and the North Pacific, Great Northern, and Great Basin LCC's, and ATNI as external organizations with the expertise, training resources, data, and analytical capacity to support them in climate resiliency planning and capacity building.

These partner organizations can help increase Tribal climate change capacity and resiliency by:

- Providing training on climate vulnerability and risk assessments and adaptation planning, including innovative strategies to fund implementation of those plans;
- Tribal models for documenting, preserving, protecting, and incorporating TEK;
- How to effectively conduct outreach and engagement of tribal communities;
- Downscaling of climate models to analyze their local resource impacts;
- Provide access to data and tools, and develop or disseminate guidance to support Tribal decision-making; and
- Basic climate change impacts and planning education for Tribal leaders, community members, and non-natural resource department managers including workshops, community conferences, informational videos and brochures, etc.

It is recommended these organizations meet with each of the respective Tribes and Intertribal organizations to develop action plans to provide specific training, technical support and climate modeling analysis and data. This capacity assessment report can serve as a beginning point to further refine training, technical support, and information needs of each respective Tribe and Intertribal organization.

h. **Collaborative Forums**: There are a number of existing forums to facilitate cross-tribal, state, and federal agency collaboration on climate change practices, however we identify the five forums and entities which are most frequently utilized by the 15 Tribes and 3 Intertribal organizations. Improving outreach to Tribes, funding participation (travel), and increasing the level of Tribal and Intertribal organization engagement in each of these forums will help improve Tribal and interagency collaboration.

   - The **Columbia River Basin Tribes CRT Coalition** could serve as a forum for cross-tribal collaboration to address Columbia River Basin-wide policy and technical issues related to climate impacts. The 15 Tribes and 3 Intertribal organizations established the Coalition as part of the U.S. – Canada Columbia River Treaty (CRT) review process. This group meets regularly (quarterly) and could serve as a forum to facilitate intertribal collaboration and dissemination of effective and innovative climate change practices beyond those issues related specifically to the CRT. Participation in this group is funded by each individual Tribe/organization, therefore funding would need to be secured for this entity to take on this additional work.
   - The **Affiliated Tribes of Northwest Indians (**ATNI) Climate Change Project was established in 2014 to foster cross-tribal, state, and federal agency collaboration to serve the 57 Tribes of ATNI. ATNI provides important region-wide Tribal policy level events including the Tribal Leaders Summit and three ATNI conventions each

year. ATNI could serve to provide a regional forum to coordinate and promote climate change policy issues with the 15 Columbia River Basin Tribes and 3 Intertribal organizations as well as address national and international climate policy.

- The **Northwest Climate Science Center** (CSC) has a specific Tribal Engagement Strategy which identifies opportunities to support tribal, state, and federal agency collaboration. Currently there is limited to moderate engagement by Tribes. However, the CSC, in cooperation with the Bureau of Indian Affairs, will soon recruit a tribal Climate Extension Support Liaison who will work with Northwest tribes to identify priority climate information and knowledge needs of tribes and develop relationships with partners to address those needs. The liaison will also help enhance and implement the NW CSC Tribal Engagement Strategy and bolster the NW CSC tribal research and knowledge-management portfolio. The Intertribal representatives to the Executive Stakeholder Advisory Committee (ESAC) of the NW CSC will also need to increase outreach to the Columbia River Basin Tribes so they better use the various services of the NW CSC.

- The **North Pacific, Great Northern, and Great Basin LCC's** are similar forums, however each has different Tribes involved from the Columbia River Basin and less than half the Tribes and Intertribal organization actively engage in these LCC's. There is an opportunity to more effectively utilize these LCCs in coordinating Columbia River Basin Tribes climate issues by semi-annually convening the LCC Tribal representatives and the 15 Columbia River Basin Tribes and 3 Intertribal organizations. This forum could be used to share best practices, adaptation plans, traditional ecological knowledge projects, LCC Tribal engagement and governance improvements, tribal citizen outreach, and education and training.

  The role of Tribes and Intertribal organizations in the governance structure of the LCC's is of particular importance. The Tribal/First Nations Committee is a unique component of the governance structure of the NPLCC as compared to the Great Northern and Great Basin LCC governance structure where this Tribal/First Nations standing committee does not exist. This model of Tribal participation in the governance and decision making of the NPLCC has established an effective Tribal/First Nations engagement strategy that the Great Northern and Great Basin LCC's should adopt to improve Tribal engagement and effectiveness, as well as providing equitable representation and recognition of sovereign status of Tribal governments.

- The **Pacific Northwest Tribal Climate Change Project** (Project) works to support the understanding of the impacts of climate change on tribal culture and sovereignty, foster meaningful opportunities for tribes to engage in regional and national climate initiatives, and coordinates the PNW Tribal Climate Change Network (Network)

which includes some Columbia River Basin Tribes. Tribes regularly participate in the Network and utilize the training of **ITEP**. The Project, ITEP, and ATNI should more closely coordinate on the dissemination of climate change resources, profiles, publications, and collaborate on developing specific training opportunities to meet the needs of the Columbia River Basin Tribes and Intertribal organizations.

i. In addition to identifying the forums for collaboration, it is important to identify the climate change issues most critical to Columbia River Basin Tribes include **sharing best practices and innovative methods** to:

- Develop Tribal vulnerability assessments which engage and address multiple sectors (health, natural resources, infrastructure, housing, etc.) within Tribal governments and communities;
- Create effective adaptation plans and identify innovative approaches to secure tribal, federal, state, and local resources to implement those plans;
- Conduct effective outreach and education to Tribal citizens and communities to increase the awareness of climate impacts and develop strategies to adopt;
- Engage Tribal leadership and management in climate adaptation planning and practical methods to implement those plans as well as actively engage in regional, national, and international climate change forums;
- Identify, preserve, document, and utilize traditional ecological knowledge as part of climate change planning efforts; and
- Provide analysis, downscaling, and modeling of climate data and research to the specific geographic areas and resources of interest for each of the Tribes or Intertribal organization.

j. **Effectively engage Tribal leadership and executive management** in Tribal climate change planning efforts in order to improve coordination and get support for climate planning, adaptation, and management actions. Tribal elected leaders and executive managers should receive training on climate impact assessments, climate change policy development, effective communication strategies with Tribal communities, and creative approaches to fund and implement climate adaptation plans. Tribes that have experience developing impact assessments and adaptation plans should share their experience and ideas with Tribes with little or no experience.

In order for the Columbia River Basin Tribe to efficiently and comprehensively analyze climate impacts and develop adaptation strategies, they must establish a cross-department coordinating workgroup or committee such as the Salish-Kootenai CCOC. In addition, it would be helpful for Tribes and Intertribal organizations with climate planning experience to share their internal coordination strategies so other Tribes can learn from that experience.

k. **Address Tribal, community, and individual health related to climate change** by

identifying and demonstrating the potential impacts to individual and community health and incorporating this information into climate adaptation strategies.

l. **Utilizing Traditional Ecological Knowledge.** The Tribes and Intertribal organizations should clearly identify a strategy and process on how to best incorporate TEK in their climate change assessment and adaptation efforts including, but not limited to:

- Local-scale expertise
- A source of climate history and baseline data
- Formulating research questions and hypotheses
- Insight into impacts and adaptation in communities
- Long-term community-based monitoring

The Tribes and Intertribal organizations identified their individual issues, needs, and priorities which describe important opportunities to improve their internal and external climate change capacity and climate resiliency. This information can serve as a starting point for developing specific climate change strategies for each Tribe and Intertribal organization to effectively build their capacity.

Individual Tribe and Intertribal Organization Needs

Table 14. The Tribes and 3 Intertribal organizations identified their individual top five issues, needs, and recommendations in order to effectively address climate change impacts.

Burns-Paiute	**1**	Climate change is often seen as an ambiguous, amorphous, non-urgent threat without apparent solution… disseminating concrete information to counteract those perceptions is paramount
	2	Relate climate change to individual actions partly responsible for creating it in order to develop a personal stake in solving the problem
	3	Illustrate to tribal members the breadth of the problem in a multitude of disciplines (e.g. flora and fauna, water resources) and the connections between those disciplines (big picture)
	4	Relate climate change to personal health
	5	Wildfire preparedness
Coeur d'Alene	**1**	Funding
	2	Information on climate change projections into the next 100 years
	3	Technical Assistance and Training
	4	Cooperating agencies/organizations ability and willingness to work

		with the Tribe and tribes
	5	Support and involvement at the local level
Colville	1	Gain approval from the Tribal Council
	2	Develop a conduit for better interagency communication (monthly events)
	3	Climate literacy education to help the Tribal community understand climate change and potential impacts for the Tribes
	4	Develop working relationships with county city and federal agencies on and around the reservation in order to develop a comprehensive plan that recognizes the connection on the landscape
	5	Improved community support for Tribal climate adaption planning.
Cowlitz	1	Funding
	2	Dedicated professional staff
CRITFC	1	Manage the Columbia and Snake Rivers hydropower system to a greater extent to assist salmon migration and survival, including alternative floodplain management.
	2	Fish Passage restored in all Blocked Areas in the Columbia River Basin such as above Grand Coulee Dam.
	3	Continuing supporting tribal participation in the Columbia River Treaty (CRT) renegotiation with Canada to ensure that future scenario planning includes consideration of climate change and ecological concerns in the next CRT.
	4	Explore means for greater flexibility in the application of water rights and their potential use for ecosystem functions.
	5	Reduce existing stressors on fish, including fish toxins, habitat degradation, and impediments to fish migration. In addition to these five priorities, see Appendix A: Columbia River Inter-Tribal Fish Commission's Recommendations for the Climate Resilience and Preparedness Task Force (Natural Resources and Agriculture Topic Area) April 7, 2014
Kalispel	1	Community education/understanding of potential impacts from climate disruption that will likely affect the Kalispel Tribe
	2	Education about possible mitigation strategies for climate disruption impacts

Kootenai	**1**	Funding
	2	Staff
	3	Coordination by Council direction between KTOI departments
	4	Expanded funding and staff for F&W & Environmental departments
	5	Regional Coordination across agencies
UCUT	**1**	First Foods
	2	Fish Passage at hydro project
	3	Water temperatures, flows and management
	4	Wildlife Habitat protection
	5	Forest practices
Nez Perce	**1**	Information and education of the organization
	2	Community partnerships
	3	Impacts to reservation communities through tribal treaty rights
	4	Collaboration with non-Nez Perce residents on the reservation
	5	Broad policy initiatives to assist in buffering the communities from climate change
Paiute Shoshone		No response
Salish & Kootenai		No response
Shoshone-Bannock		No response
Shoshone Paiute		No response
Spokane		No response
UCUT		No response
Umatilla	**1**	Funding for research
	2	Funding to develop climate change combatting technologies
	3	Funding to improve infrastructure and other systems that are vulnerable to climate change
	4	Funding for enhanced climate change adaptation planning efforts
	5	Assistance spreading climate change awareness
USRT	**1**	Financial Resources

	2	Technical Expertise
	3	Additional USRT staff members to share the workload
	4	Improve modes of communication to our tribes so that they understand the importance of addressing climate change issues
	5	None of USRT's four member tribes have staff dedicated to working only on climate change issues. Thus, USRT has to communicate with many different tribal staff members in diverse departments. This is cumbersome. Thus, it is a priority that each tribe finds the resources to have a climate change coordinator.
Warm Springs	1	Funding for salaries and new positions
	2	Collaboration and education regarding local climate change impacts
	3	Sustainable economies not linked to non-renewable resources
	4	Education and capacity building opportunities for tribal members
	5	Collaboration with regional tribes and nontribal entities to ensure treaty rights and careers in every level of policy
Yakama	1	Capacity
	2	Funding
	3	Access to modeling
	4	Urgency to implement projects for fish habitat
	5	Maintain forest infrastructure to manage forest

5. REFERENCES

Clark, Ken and Jenifer Harris. 2011. "Clearwater Subbasin (ID) Climate Action Adaptation Plan." Nez Perce Tribe Water Resources Division; Model Forestry Policy Program; Cumberland River Compact.

Climate and Traditional Knowledges Workgroup (CTKW). 2014. Guidelines for Considering Traditional Knowledges in Climate Change Initiatives. https://climatetkw.wordpress.com.

Columbia River Anadromous Fish Restoration Plan of the Nez Perce, Umatilla, Warm Springs, and Yakama Tribes - "Wy-Kan-Ush-Mi Wa-Kish-Wit". 2014 Update.

Confederated Salish and Kootenai Tribes. 2013. Confederated Salish and Kootenai Tribes Climate Change Strategic Plan. 2013. http://www.cskt.org/NRD/docs/CSKT%20Climate%20Change%20Adaptation%20Plan%20FINAL%2009%2010%202013.pd

Fostering Tribal Engagement in Climate Science Centers and Landscape Conservation Cooperatives. 2012. Kathy Lynn with the Pacific Northwest Tribal Climate Change Project drafted this paper. Contributors and reviewers included Gustavo Bisbal, Northwest Climate Science Center, Preston Hardison, Tulalip Tribes, John Mankowski, North Pacific Landscape Conservation Cooperative, Gary Morishima, Technical Advisor to the Quinault Indian Nation and the Intertribal Timber Council, Don Motanic, Intertribal Timber Council, Garrit Voggesser, National Wildlife Federation and Kyle Powys Whyte, Michigan State University. http://tribalclimate.uoregon.edu/files/2010/11/Tribal_engagement_10-15-2012-1izz31b.pdf

Nez Perce Tribe Water Resources Division (Nez Perce) - Clearwater River Sub-basin Climate Change Adaptation Plan. 2011. http://www.mfpp.org/wp-content/uploads/2012/03/ClearwaterRiverSubbasin_ID_Forest-and-Water-Climate-Adaptation-Plan_2011.pdf

Pacific Northwest Climate Change Project. 2011. Tribal Climate Change Profile: Exploring the Role of Traditional Ecological Knowledge in Climate Change Initiatives - http://tribalclimate.uoregon.edu/publications/

Pacific Northwest Climate Change Project. 2011. Tribal Climate Change Profile: First Foods and Climate Change - http://tribalclimate.uoregon.edu/tribal-profiles/first-foods-andclimate-change/

Riedlinger, D.; Berkes, F. 2001. Contributions of traditional knowledge to understanding climate change in the Canadian arctic. Polar Record. 37(203): 315-328.

Snover, A.K., L. Whitely Binder, J. Lopez, Willmott, Jay, D. Howell, and J. Simmonds. 2007. Preparing for Climate Change: A Guidebook for Local, Regional, and State Governments. In association with and published by ICLEI – Local Governments for Sustainability, Oakland, CA.

Swinomish Indian Tribal Community [Swinomish]. 2010. Swinomish climate change initiative climate adaptation action plan. http://www.swinomishnsn.gov/climate_change/Docs/SITC_CC_AdaptationActionPlan_complete.pdf (June 27, 2012).

United States Department of the Interior, Bureau of Indian Affairs FY 2015 Tribal Cooperative Landscape Conservation Program Funding: http://www.bia.gov/cs/groups/public/documents/document/idc1-029384.pdf

Vinyeta, Kirsten; Lynn, Kathy, 2012. Exploring the role of traditional ecological knowledge in climate change initiatives. Gen. Tech. Rep. PNW-GTR-XXX. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. Xx p.

6. APPENDICES

Appendix A

Columbia River Basin Tribes Climate Change Capacity Assessment – Survey

Institute for Tribal Government
Portland State University

Columbia River Basin Tribes
Climate Change Capacity Assessment - Survey

This survey form is designed to expand if additional space is needed for your responses. Completed Survey should be returned to Don Sampson at Don@seventhgenerationllc.com. If you have any questions, please do not hesitate to email or contact us at (541) 215-2753.

General Information

1. Name of person, title, department, phone number(s), and email address completing this survey.

Name	
Title	
Division / Dept.	
Phone Number(s)	Work: Mobile:
Email Address	

2. What is the natural resource or built resource(s) that you are responsible for? Please use sector names:

NATURAL RESOURCES		BUILT RESOURCES	
Agriculture		Water and Sewer	
Forestry		Utilities	
Water		Transportation / Roads	

Environmental Management		Housing	
Fisheries		Tribal Buildings & Facilities	
Wildlife		Economic Development Enterprises	
Cultural Resources		Other: _____	
Health Services			
Other:_____			

General Awareness of Climate Change Impacts

3. Within your Tribe, how would you rate the following groups awareness of regional Climate Change impacts and issues in the Pacific Northwest:

   Rate from a low of 1 to high of 5 (1- not aware, 5 highly aware)

	1-LOW	2	3	4	5-HIGH
Tribal Member / Citizens					
Tribal Council / Governing Body					
Tribal Committees					
Tribal Executive Management					
Tribal Department Staff					

4. What do you believe are the major Climate Change impacts your Tribal community and/or natural resources are experiencing? Please list.

Assessing Sensitivity

5. How is Climate Change likely to affect your natural resources or built resource? Of these impacts, which present the greatest concern and why?

6. What additional information about climate impacts would help further your ability to plan for and manage Climate Change impacts?

7. Does the Tribe or tribal members utilize traditional ecological knowledge to recognize and assess Climate Change impacts?

8. Do you know of, or can you identify, potential economic impacts from Climate Change in your Tribal community? Please state what the potential or expected impacts are and why they may occur.

Assessing the Capacity to Adapt to Climate Change

9. Does the Tribe have an existing Vulnerability Assessment or Adaptation Plan? Does the Tribe plan to develop such a plan? If so, when? Does the Tribe have the funding and expertise to develop these plans?

10. To what extent do current Tribal plans, policies, and regulations address the impacts of climate variability or change, or provide a buffer against climate impacts? Please list those plans or policies, their purpose, and briefly describe how it will help address climate impacts.

11. How adequate are these existing plans, policies, or regulations for managing climate impacts: (very good, good, fair, poor)? If answering for more than one plan, policy, or regulation, please answer for each.

12. What additional actions, authorities, policies, or regulations are needed for managing Climate Change impacts?

13. If specific recommendations are not identifiable, what process would the Tribe utilize to identify Climate Change adaptation strategies?

14. Do you have existing forums or committees to do this?

15. Is there a lead staff person or persons assigned specifically to Climate Change issues? If so, please provide name, title, email, and phone number.

16. **Please attach a copy of the Tribal and your department/program organizational chart** to help understand the structure and capacity of your organization as it pertains to Climate Change.

Cross-department and Cross-sector Interactions

17. To what extent do Climate Change impacts and adaptation activities in your resource affect other sectors (listed above)? Please specify. *Example – As a Natural Resource manager, drought conditions may affect natural resources like salmon or trout habitat but also may affect Public Works (built resources) like ground water and municipal water supply to your Tribal community.*

18. What other Tribal departments or other non-tribal (federal, state, county, city, etc.) government agencies need to be involved in developing and implementing adaptation responses to Climate Change for your natural resource or built resource?

19. Is there currently a process or forum in place that facilitates interaction between departments (various sectors: fish, water, health, housing, public works,) within the Tribe to coordinate on climate change? If so, please specify.

20. What is the Tribe's/Inter-Tribal Organizations level of participation in regional or national forums to address regional or national Climate Change issues? Please identify what forums the tribe currently participates in and how effective the forum engages or supports your respective tribe.

    a. White House Climate Change Task Force of Climate Preparedness?
    b. Landscape Conservation Cooperatives ("LCCs") such as the North Pacific LCC, Great Northern LCC, or Great Basin LCC?
    c. USGS Climate Science Centers?
    d. NOAA Regional Climate Science Centers?
    e. USDA Climate Change HUBS?
    f. PNW Tribal Climate Change Network?
    g. Affiliated Tribes of NW Indians?
    h. Institute for Tribal Environmental Professionals, NAU?
    i. Others – pleases list?

21. Are you familiar with the science, data, and technical services and programs of the NW Climate Science Center? If so, how do you utilize their programs?

Tribal Capacity and Needs

22. Please identify your five top priority needs in order for the Tribe/Intertribal organization to effectively address Climate Change:

1	
2	
3	
4	
5	

23. Please briefly describe your existing tribal staff's capacity related to Climate Change (education, specific trainings, experience).

24. Is there specific training or technical support needed to increase your Tribe's capacity.

25. What current source of funding does the Tribe have (BIA, USFWS, USGS, EPA – GAP, etc.) to support Tribal Climate Change planning efforts? Please list source, dollar amount, and grant period.

Funding Sources	Purpose	Dollar Amount	Grant Period

26. Over the next five years (2016-2020) what do you project the Tribe's annual funding needs will be to effectively address Climate Change impacts such as:

- Tribal Climate Change Training
- Developing a Climate Change vulnerability assessment,
- Climate Change adaptation/action plan,
- Community Outreach & Education,
- Documenting Tribal Ecological Knowledge, etc.
- Travel support (to attend LCC meetings, ATNI, training, etc.)

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016		
2017		
2018		
2019		
2020		

27. Please provide any additional information that you would like to share.

Don Sampson, Executive Director
Don@seventhgenerationllc.com
(541) 215-2753

Peggy Harris, Program Coordinator
Peggy@seventhgenerationllc.com
(541) 215-2919

Institute for Tribal Government
Portland State University

Appendix B

Compiled Columbia River Basin Tribes Climate Change Capacity Assessment Survey Responses

Institute for Tribal Government
Portland State University

Columbia River Basin Tribes
Climate Change Capacity Assessment - Survey

This survey form is designed to expand if additional space is needed for your responses. Completed Survey should be returned to Don Sampson at Don@seventhgenerationllc.com. If you have any questions, please do not hesitate to email or contact us at (541) 215-2753.

General Information

1. Name of person, title, department, phone number(s), and email address completing this survey.

TITLE / NAME	TITLE	DIVISION / DEPT
BURNS PAIUTE Brandon Haslick	Fish & Wildlife Biologist	Natural Resources
COEUR D'ALENE Tiffany Allgood	Environmental Programs Mgr.	Natural Resources
COLVILLE Rhonda Dasher	Climate Change Planning Lead	Fish and Wildlife
COWLITZ Taylor Aalvik	Director	Natural Resources
CRITFC Laura Gephart	Watershed Programs Coordinator	Watershed Dept.
KALISPEL Ken Merrill	Program Mgr.	Water Resources
KOOTENAI Kevin Greenleaf	Environmental Director	Environmental
NEZ PERCE Aaron Miles Sr.	Director	Natural Resources
PAIUTE SHOSHONE		

SALISH & KOOTENAI Michael Durglo	Environmental Director	Natural Resources
SHOSHONE-BANNOCK		
SHOSHONE-PAIUTE Heather Lawrence	Environmental Director	Environment
SPOKANE TRIBES		
UCUT DR Michel	Executive Director	UCUT
UMATILLA Patrick Mills	Scientist 1	Science and Engineering
USRT Scott Hauser / Robert Austin	Environmental Program Director	USRT Foundation
WARM SPRINGS Jonathan Treasure & Pah-tu Pitt	Hydrologist / CC Prog. Coord.. & Enviro. Specialist / Educ. Coord.	Natural Resources
YAKAMA Philip Rigdon	DNR Superintendent	Natural Resources

TRIBAL ENROLLMENT – Number of Enrolled Tribal Members by Tribe

2. What is the natural resource or built resource(s) that you are responsible for? Please use sector names:

NATURAL RESOURCES		BUILT RESOURCES	
Fisheries	Burns Paiute Colville Cowlitz CRITFC UCUT USRT Yakama	**Tribal Buildings & Facilities**	
Wildlife	Burns Paiute CRITFC Nez Perce Shoshone-Paiute UCUT USRT Yakama	**Economic Development Enterprises**	Nez Perce
Environmental Management	Coeur d'Alene Cowlitz CRITFC Kalispel Kootenai Nez Perce Salish & Kootenai UCUT Warm Springs Yakama	**Housing**	CRITFC
Water	Cowlitz Kalispel	**Transportation / Roads**	Nez Perce Yakama

	Nez Perce Salish & Kootenai Shoshone-Paiute UCUT Warm Springs Yakama		
Agriculture	Shoshone-Paiute Nez Perce UCUT USRT Yakama	**Water and Sewer**	Nez Perce Salish & Kootenai
Forestry	Cowlitz Nez Perce UCUT USRT Yakama	**Utilities**	Nez Perce
Cultural Resources	Cowlitz Nez Perce Shoshone-Paiute UCUT USRT Yakama	**Other:** • **Public Health** • **Biodiversity** • **Water Quality** • **Flood Hazard Mgmt** • **Stormwater & Wastewater Mgmt**	• Shoshone-Paiute • Shoshone-Paiute • Shoshone-Paiute • Shoshone-Paiute • Shoshone-Paiute
Health Services			
Other: Planning	Nez Perce		

USRT	BUILT RESOURCES: Except for the Shoshone Bannock Tribe, most USRT members do not have access to salmon and steelhead and are working in several arenas to achieve restoration of harvestable and sustainable populations of salmon and steelhead (resident fish, e.g., sturgeon, bull trout, whitefish, redband trout, cutthroat trout, and others) across their historic ranges.

General Awareness of Climate Change Impacts

3. Within your Tribe, how would you rate the following groups awareness of regional Climate Change impacts and issues in the Pacific Northwest:

Rate from a low of 1 to high of 5 (1- not aware, 5 highly aware)

	1-LOW	2	3	4	5-HIGH
Tribal Member / Citizens	Colville Nez Perce	Umatilla USRT	CDA CRITFC Kootenai Salish & Koot. Sho-Pai UCUT	Cowlitz	

			Warm Springs Yakama		
Tribal Council / Governing Body	Colville		Nez Perce Sho-Pai USRT	CDA Cowlitz CRITFC Kootenai Salish & Koot. UCUT Warm Springs Yakama	Umatilla
Tribal Committees	Colville Nez Perce		CDA Kootenai Sho-Pai UCUT USRT	Cowlitz CRITFC Salish & Koot. Umatilla Warm Springs Yakama	
Tribal Executive Management	Colville	Nez Perce	Salish & Koot. Sho-Pai UCUT Warm Springs	CDA Cowlitz CRITFC Kootenai USRT Yakama	Umatilla
Tribal Department Staff		Colville	CDA CRITFC Nez Perce Sho-Pai Umatilla	Salish & Koot. UCUT Warm Springs	Cowlitz Kootenai USRT Yakama

COMMENTS:

Burns-Paiute	No response
Kalispel	Don't know
Shoshone-Paiute	We are in severe drought conditions and I think most people don't think in terms of climate change. They just think a drought is just a drought and at some point things will go back to normal.

4. What do you believe are the major Climate Change impacts your Tribal community and/or natural resources are experiencing? Please list.

Burns-Paiute	Declining water availability, increasing number and intensity of wildfires, spread of noxious/invasive vegetation, increasing water temperatures.
Coeur d'Alene	Water Resources, Fisheries, Wildlife, Agriculture, Forestry, Human Health, Culture
Colville	We are in the early stage of planning but on the surface, we have just experience huge wildfires for the second year in a row, these fires have burned a substantial part of the Reservation, including homes and large tracts of fish and wildlife habitat. Tribal equipment has also suffered. The topic of water quantity and quality is of concern, Tribal foods like deer, elk and huckleberries are already showing signs of climate impact. Fisheries for

	Chinook and sockeye were greatly impacted by high water temperatures and low water this year. Blueberry bushes are dying and getting stressed by people using rakes to collect the berries because the rakes take off leaves. The need for a sustainable energy source is important as the price for energy from the dams becomes more expensive. Air quality has changed and during the fires was hazardous. Lack of snowpack created a short freshet and low water at critical periods for summer steelhead eggs developing in the gravel. Summer steelhead are a listed stock and we have been working to recover them but climate change is definitely causing issues in the freshwater and saltwater habitat. The economic impact will be huge as the fires have burned stands of trees that were going to be sold to the Mill and now the timber inventories will have to be analyzed to see how much timber is gone and how many years production has been affected. Culturally significant plants are also being impacted by changing weather. We are still sending people for training so we can get an educated membership before we discuss total impacts.
Cowlitz	Dramatic changes in seasonal cycle of when traditional resource gathering takes place (i.e. timing of huckleberry ripening). For the last few years, a very noticeable change in winter weather patterns.
CRITFC	1) Higher summer water temperatures in the tributary watersheds will stress both juvenile and adult fish (All fish life stages have optimum temperature ranges. Warmer temperatures increase juvenile metabolic rates and can impede or kill adults during their upstream migration). 2) Lower summer stream flows will change channel structure, impede upstream migration of adult fish and contribute to water temperature increases. 3) Higher peak winter flows will likely cause erosion of sediment that can damage salmon/steelhead spawning areas, scour eggs, and "wash out" the emerging fry of fall-spawning populations. 4) Earlier spring runoff will alter the migration timing of smolts in snowmelt-dominated systems. Migration patterns have naturally evolved to move juveniles to the ocean at the same time that ocean upwelling delivers important food sources. 5) Fish populations at the greatest risk of extinction will likely be those already in habitats that are near the limits of their thermal tolerance, and for those with less resilience and diversity. 6) Climate impacts to all the First Foods and the tribal way of life.
Kalispel	Rising stream/river temperatures, low stream flow, possible increase in forest fires, expansion of invasive pests
Kootenai	Changing seasonal temperature and seasonal precipitation volume shift
Nez Perce	Major impacts are direct and negative to tribal fishing rights. Anadromous fisheries is a key species to the Nez Perce Tribe, but more than the survival of the fish is the habitat and water conditions for spawning and the return of adult salmon. In recent years and in particular this winter 2014-15, snow pack was minimal. The snow melted in the high mountains relatively fast which normally snow pack can sometimes be enough to last through part of the summer and sometimes the entire summer. The combination of low snow pack and no precipitation led to a major drought year and also what might be considered a stochastic fire event rival to the 1910 Fire or 100 year fire event. The less cold water from the mountains means warmer water in the tributaries for salmon. This decreases the survival of next year's broodstock and also adult fisheries dying quicker in the life cycle.
Paiute Shoshone	No response
Salish & Kootenai	The CSKT Climate Change Strategic Plan is available at www.cskt.org/CSKTclimateplan.pdf This document outlines the major impacts identified in each of 9 sectors.
Shoshone-Bannock	No response

Shoshone-Paiute	No response
Spokane	No response
UCUT	The major Climate Change impacts revolve around the extreme disruption at the hydropower projects on the Columbia River. UCUT members report drastic changes in timing of seasons for first foods (amount, heartiness and length of season), reduction in water regimes, low snow pack outside of norms, change in salmon runs, extreme wildfire damage, stressed upon wildlife due to heat. The blocked areas of the Upper Columbia River within the US borders have been disrupted for the last 80+ years since the Grand Coulee Dam artificially floods our cultural resources, our wildlife habitats, economic ventures. Hydropower facilities need to be considered for what they are; human created climate change and disruption. This climate change happens every year with the raising and dropping of the reservoir pool behind Grand Coulee Dam.
Umatilla	• Water resources • First Foods • Forest resources • Economy
USRT	• Increased fire frequency and intensity • Increased water temperatures • Decreased water availability • Water issues noted above cause declining fish numbers • Declining snow packs • Increase in invasive plant species affecting habitat for wildlife and decline or loss of culturally important animal/plant species • Change in temperature/precipitation regimes that affect the availability and timing of culturally important plant species
Warm Springs	Water scarcity (no snow); Increased flooding; changes in water quality DO, Temperature, presence of algae, and suspended solids. Increased wildfire severity, intensity and size; Wildfire regime change; Changing phenology (chronological shifts in plant and animal life stages and movements); periodic decreased access to traditional foods, medicines, and materials; Changes in passing on knowledge; Decrease in Ecosystem Function and complexity; Increased invasive species; Increased food costs; Increased cost to treat drinking water; less hydropower and timber production and increased livestock losses and/or increased cost for livestock production; Increased allergies and respiratory issues.
Yakama	Climate change are having a major impact, drought this summer has exacerbated problems on the reservation including, catastrophic fire, warm water, water quality, low flows, timing of traditional foods, habitat for wildlife, water rights, air quality, and agriculture within the reservation.

Assessing Sensitivity

5. How is Climate Change likely to affect your natural resources or built resources? Of these impacts, which present the greatest concern and why?

Burns-Paiute	All factors described in the previous question will affect the Tribe's natural resources. Of greatest concern to me is rising water temperatures and a decreasing quantity of available water as these impacts critically impair populations of imperiled bull trout, a native species I spend the majority of my time and effort conserving.

Coeur d'Alene	This is something that we are just beginning to work on. Preliminary answers would be water as a first impact, then fisheries, wildlife, agriculture, forestry, and culture as something that overarches everything.
Colville	The natural resources are a large part of the economics for the Tribe and that is why we are looking at possibly entering the energy production market to diversify the economic base and generate capital to build some of the community infrastructure that is outdated or missing like a large senior center and community center. A business park to encourage Tribal business and income from business properties. Also the natural resources are responsible for the First foods that are very important to the Tribes. The impact to habitat will affect both plants and animals that will then impact the first foods, ceremonies, gatherings.
Cowlitz	I can speak to natural resources. Climate change is likely to impact traditional practices associated with resource gathering in the future. Timing of when traditional practices takes place has been noticeable over the last few years. Climate change also would likely change the outlook of less winter snowpack in the winter with earlier runoff in the Spring and dryer summers. There are likely scenarios of more punctuated or significant weather events within shorter time frames that may lead to considerable natural resource damage (i.e. flooding events).
CRITFC	1) The First Foods of the Columbia River Inter-Tribal Fish Commissions' (CRITFC) four member tribes (Confederate Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, and the Nez Perce Tribe) include water, salmon, steelhead, sturgeon, lamprey, wild game, roots and berries. The culture and subsistence of tribal members revolve around the harvesting of these foods. Climate change will impact many, if not all, of these resources and may necessitate adaptation by the tribes to maintain their traditional culture and way of life. 2) Over 20,000 CRITFC tribal members live within the Columbia River Basin (CRB). The CRB is 258,000 square miles in size, and includes several jurisdictions, encompassing large portions of the states of Washington, Oregon, and Idaho, as well as British Columbia. The ceded lands of the CRITFC tribes cover 66,575 square miles, approximately one quarter of the CRB area. 3) Salmon and steelhead are dependent on healthy watersheds of cool-water streams and rivers that allow for freshwater spawning, rearing, and migratory habitat. Seasonal snowmelt from the mountains of the CRB produces a year-round supply of water that supports multiple downstream uses, including historically abundant runs of salmon and steelhead. Climate change may imperil many fish populations by reducing winter snowfall, changing seasonal stream flows and by increasing water temperatures.
Kalispel	Warmer water and possibly higher wildfire threat. Not sure about others
Kootenai	1) Fisheries concerns are the greatest potential impact, warming stream temperatures and reduced summer volume 2) Kootenai River is artificially temperature and volume controlled due to Libby, MT dam.
Nez Perce	The warmer the climate becomes, the more impactful to the terrestrial component for fish and wildlife habitat. The inland Northwest Valleys are very dry by natural standards and trees in lowland areas are sparse. The bull pine or Ponderosa pine that exist in these areas will not exist naturally because the warmer temperatures will push the elevation where they can grow naturally up the incline. The warmer temperatures will shift native habitat and our natural and traditional ecological knowledge to a different trend not familiar with our oral traditions and culture. Although there might be positive impacts for few aquatic and terrestrial species, by and large most of the impact will be negative. The positive impacts will more than likely be beneficial to non-native or exotic species, favoring species that are already undesirable likely to be noxious and invasive.
Paiute Shoshone	No response

Salish & Kootenai	Also outlined in our Plan
Shoshone-Bannock	No response
Shoshone-Paiute	Having little water is pretty serious in a ranching community and it can impact drinking water.
Spokane	No response
UCUT	Once again, Grand Coulee Dam, Chief Joseph Dam and the other hydropower projects have permanently affected our tribe's natural resources and built resources. That is the greatest impact and now with climate change coming, it will affect those water regimes further to accommodate a changing water pattern that BPA will continue to make profits off the power generated in the federal hydropower dams. The added heat and reduced snow packs will further impact salmon passage/survival, wildlife habitat, roots, berries, trees and other plants.
Umatilla	No response
USRT	• Water supply, quality and availability since it impacts most all plant and animal communities. • Water resources for agricultural crops may be reduced • Heat stress to agricultural crops • Introduction and proliferation of invasive species in agricultural crops and forest resources • Increased fire frequency and intensity in forests • Lack of water for salmon recovery and biodiversity • Change in rainfall/snowfall patterns • Lack of cold water for salmon recovery and biodiversity • Loss of cultural plants from fire, heat stress, invasive species • Loss of cultural resources from disturbance, shifting water needs (e.g. development of new reservoirs and dams)
Warm Springs	• Blue green algae from the Pelton Dam complex will increase the cost for treating and monitoring drinking water. • Water Scarcity; impacts all other resources including but not limited to a lack of or shift in distribution of traditional plants, game availability, timber production, forest complexity, livestock production, salmonid production and increased wildfire activity. • Wildfire exacerbates the above mentioned water scarcity impacts. Post-fire activities, such as salvage logging may remove some of the fire-resistant structure of the forest, which impacts the soil's moisture content, making recovery slower, especially if logging practices do not focus around burn severity information. • The above mentioned impacts limit the amount of food tribal members can utilize from the natural environment and will likely cause increased food expenses for tribal members from non-local, non-natural sources (grocery stores) and increase the carbon foot print (40 miles round trip to store). Transportation to food in itself may be prohibitive for some members. • Sustainable economic development is important for mitigating impacts to the tribal community and resources. The most negative impact could be the loss in cultural practices. • Past transportation infrastructure may not meet current or future needs (i.e. roads, public transport, fuels reduction, hazardous materials abatement, dumping, natural resource theft, etc.).

Yakama	Hotter summers, less snow pack will cause concern for salmon restoration, water for our community and agriculture, forest fires, ability for salmon to return to rivers due to thermal issues. The greatest concern is the salmon and water quality.

6. What additional information about climate impacts would help further your ability to plan for and manage Climate Change impacts?

Burns-Paiute	I think information that maps changes in air temperatures, vegetation regimes, and precipitation levels over time, non-native pest species proliferation, wildlife and vegetative disease spread, and changing wildlife movement patterns would be really handy and serve to drive home impacts of a changing climate.
Coeur d'Alene	We are just about to get into information gathering for our impact assessment and so it would be good to have information that is downscaled for the Coeur d'Alene Reservation as well as the other UCUT member tribes' reservations and the Nez Perce Reservation on potential climate changes over the next 100 years (such as precipitation, timing of precipitation, temperature, wind estimates, and other information).
Colville	The connectivity of the ecoregions and how it will affect wildlife movements and connectivity of habitat types.
Cowlitz	Funding for a dedicated staff professional to analyze tribal resources and develop mitigation plans and engage with policy leaders to address symptoms and assist in driving efforts toward global changes associated with what is causing global climate change (i.e. coal burning).
CRITFC	A better educated public and tribal community on the impacts of climate change so that planning decisions that change the status quo will be more acceptable. And of course always more funding for tribes specifically to deal with these changes.
Kalispel	Need to understand possible future impacts to Kalispel Natural Resources. There has been 5 years of good water so all appears well for us to most tribal members and resource staff.
Kootenai	More localized analysis
Nez Perce	Most of the pertinent information will be helpful in emergency management or disasters. This fire year could become the new norm for the Pacific Northwest especially if less snowfall and snowpack along with less overall precipitation with warmer temperatures continues. What fire ecologists consider a stochastic 100-year naturally occurring event, are being considering a more frequent fire interval event with disastrous effects. The 100 year fire interval is characterized as the forest stand replacing kind of fires that can potentially wipe out most everything, resulting in millions of dollars in property damage, fish and wildlife loss, and also loss of human lives. If this is a recurring theme, land managers along with fish and wildlife managers will be entering a new phase of resource management goals and objectives unknown to the present regime.
Paiute Shoshone	No response
Salish & Kootenai	We are continuing to gather information and updating our Plan
Shoshone-Bannock	No response
Shoshone-Paiute	We are in the process of completing a vulnerability/risk assessment. When that is completed we should have a better idea.
Spokane	No response
UCRT	Focused climate change information on the Upper Snake River Basin

UCUT	We need more information around water temperature regimes, other tribal plans and studies on climate change, EPA and WA Dept. of Ecology efforts to address this issue.
Umatilla	Changes to air temperature will decrease annual snowpack and increase water temperatures. This will impact water resources and fish populations (as well as other first foods), forest resources, and other natural resources related to these. Impacts to salmon are currently the greatest concern.
Warm Springs	• Distributed hydrologic models that use downscaled global climate scenarios and the ability to apply land use changes on a watershed scale will better prepare local adaptation, collaboration and planning. A detailed study of aquifer interactions in the Deschutes Basin will be helpful to identify potential in-stream flow reductions. • Aid in connecting the science with community needs would be useful.
Yakama	Continue to review new information and continued research on the success/ challenges on projects being implemented to connect floodplain/groundwater/river interactions.

7. Does the Tribe or tribal members utilize traditional ecological knowledge to recognize and assess Climate Change impacts?

Burns-Paiute	Yes
Coeur d'Alene	I believe so but it is anecdotal at this time, to my knowledge.
Colville	Yes and we are utilizing that knowledge in our educational efforts and we are also sending elders to current meetings on climate change so they can communicate their knowledge regarding past events and their effects.
Cowlitz	Much of what we are noticing in regards to climate change is based upon Traditional Ecological Knowledge (i.e. as mentioned before, timing of when traditional resources are gathered).
CRITFC	Yes always
Kalispel	I have not heard of any, but I would assume that it is occurring to some degree by individuals.
Kootenai	Yes
Nez Perce	Yes, the tribe does use TEK through its oral history and traditions. There are many of the tribe's stories about interconnectivity among fish, wildlife and natural habitat. Some of the stories tell when the tribe is supposed to fish, hunt or gather. If the new norm has a different trigger than the tribe's tradition will change.
Paiute Shoshone	No response
Salish & Kootenai	Very much so
Shoshone-Bannock	No response
Shoshone-Paiute	We have people that come here to fish and camp, which requires water. This is a ranching community and people need the water to irrigate and water livestock. Having not so great drinking water means having to purchase water, etc.
Spokane	No response
UCUT	The Tribes have sensed the effects of climate change in the root gathering, berry picking, salmon fishing activities in all of their lands. The behaviors are dramatically different than the "normal" variations that the elders have experiences over the centuries.
Umatilla	Baseline data so that impacts may be determined.
USRT	USRT has begun a climate change curriculum project for tribal students. The project is in its earliest stages and lacks needed funding. It will have a focus on TEK. I'm currently

	unaware of USRT member tribes utilizing TEK to recognize and assess climate change impacts.
Warm Springs	Yes
Yakama	TEK is important as it is tied to our way of life, so the work we do is tied to that knowledge.

8. Do you know of, or can you identify, potential economic impacts from Climate Change in your Tribal community? Please state what the potential or expected impacts are and why they may occur.

Burns-Paiute	A changing climate exacerbates the spread of noxious weeds which in turn requires the Tribe to spend more money/effort controlling them. The impacts of increasingly dangerous and extensive wildfires manifest themselves economically in damage to property, to furnish the salaries of wildland firefighters, and potentially in decreased tourism dollars. Agricultural production can be reduced by climate change and an increase in insect pests can require larger sums of money invested in controlling them. My specific job for the Tribe requires resources to be spent dealing with climate change. Temperature extremes also may require fortifications of home and wardrobe which can be pricey.
Coeur d'Alene	Agriculture (lower yields), forestry (insect, disease and fire susceptibility), tourism (Coeur d'Alene Lake, hunting, fishing, etc.).
Colville	As mentioned previously, the fires have destroyed many stands of timber that the Tribe was selling to a contractor running a mill on the Reservation. The lack of timber will affect the amount of money the Tribes make and if the Tribes cannot supply the required timber to the mill the Tribes could be penalized and loose even more money. Lack of jobs for Tribal members will increase if the Mill can't get logs. That's why there need to be more economic options for the Tribes.
Cowlitz	With traditional resources being impacted (i.e. huckleberry harvest with smaller and fewer berries during dry years, and more dry years over time), fewer resources would be available for harvest with much more effort for our people to collect resources, there would be a noticeable impact associated with the economies of tribal members.
CRITFC	Potential impacts include loss of revenue from salmon sales if fish continue to decline, loss of timber sales due to increase in fires and many other ramifications.
Kalispel	None that I know of, but there may be some.
Kootenai	Increased building heating & cooling cost, decreased timber growth, decreased availability of fish harvest, loss of crop revenue
Nez Perce	The social, cultural and economic impacts if climate change on the trajectory and path that it is taking will have far reaching negative impacts as time goes by. The loss of native species to extinction or at the very least extirpation means loss of a culture that impacts the social and economic status of the tribe. The tribe's financial resources along with the federal and state governments could be more in tune with emergency response and paying for natural resource damage and private property damage from flood and fire events. Far reaching is beyond our understanding of what we normally can fathom in today's terms of loss. Over time could natural disasters bankrupt the federal government or any other government trying to rebuild? Disaster recovery is normally long-term, so if disasters are on top of each other they begin to compound. In our response to the Clearwater Complex Fire on the Nez Perce Reservation the tribe spent over one hundred thousand to provide humanitarian aid to its own membership. It found itself providing fire suppression to support the efforts of the main fire suppression efforts for lack of resources because the whole Northwest was burning down. In order to save human lives and property all governments had to chip in, whether knowingly or unknowingly.

Paiute Shoshone	No response
Salish & Kootenai	Please see the Plan
Shoshone-Bannock	No response
Shoshone-Paiute	No response
Spokane	No response
UCUT	The Upper Columbia United Tribes are attempting to put together a study that will examine the full costs and impacts of Climate Change in our communities. We have not yet fully evaluated how costly these wildfires will be to our communities as the fires are still burning. It is almost impossible to put a number on what value is lost to the coming generations and their ability to fish for salmon or access their First Foods.
Umatilla	Energy costs are likely to rise, and there is the potential for different kinds of carbon emissions related taxes.
USRT	• Reduced revenue from agricultural crops if affected adversely by climate change • Loss of revenue from tribal fishing/hunting licenses if those resources are negatively impacted by climate change. • Any impacts to plant and animal resources will affect tribal community economics. Again, more direct analysis and vulnerability assessments are needed for all of the USRT members.
Warm Springs	• The above mentioned impacts limit the amount of food tribal members can utilize from the natural environment and will likely cause increased food expenses for tribal members from non-local, non-natural sources (grocery stores) and increase the carbon foot print (40 miles round trip to store). Traditional harvesting and gathering make up a considerable portion of some people's annual earnings. • Sage and bitterbrush stand replacing fires decrease the amount of forage for wildlife and livestock, which is a restoration need not necessarily accounted for through wildfire response. • Hydropower production will likely be reduced. • Timber production and jobs will likely be impacted due to loss of timber stands from fire and with trees sold by maximum yield.
Yakama	Endangered species (steelhead and salmon) has an impact on the ability for our members to catch and support themselves, climate change will add to this. Large fires impact our forest economy and two fires in the last three summers will have a major impact on timber available in the long-term.

Assessing the Capacity to Adapt to Climate Change

9. Does the Tribe have an existing Vulnerability Assessment or Adaptation Plan? Does the Tribe plan to develop such a plan? If so, when? Does the Tribe have the funding and expertise to develop these plans?

Burns-Paiute	No and I don't think plans are in the works to develop one. Lack of funding/expertise might be factors as to why the Tribe hasn't develop a plan yet.
Coeur d'Alene	Not yet. We just received funding from the BIA to conduct an impact or vulnerability assessment. We will need more funding to complete an adaptation plan and then funding to

	implement these plans. We have some expertise but would benefit from partnering with outside entities for more expertise.
Colville	We are currently in the process of planning and we are utilizing people from other Tribes that have completed their Climate Change Plan. We are trying to educate the personnel involved in the planning process in order to improve the planning process by being able to have an educated and meaningful dialogue about where the Tribes are at, What the priorities are and How we move into the future with a comprehensive plan that includes contingencies that cover our priority items.
Cowlitz	No. we would like to, but lack capacity and dedicated staff to pursue these goals.
CRITFC	CRITFC is currently conducting a climate change survey of the four tribes from which a unified CRITFC Strategic Plan will be developed. Each of the four tribes are developing their own vulnerability assessments and will develop adaptation plans in the future. The Nez Perce Tribe has already completed an adaptation plan for the Clearwater Basin. CRITFC Commissioners passed a climate resolution in 2009. But all of the tribes need more funding to adequately complete these documents.
Kalispel	Not that I know of for first two questions. There is no funding or expertise to develop plan
Kootenai	1) No, not at this time, no funding currently budgeted or available from current grants 2) Council plan and other department plans unknown
Nez Perce	No it doesn't have a vulnerability assessment or adaptation plan. Yes it does plan to develop an adaption plan. We do have the expertise but need the financial resources.
Paiute Shoshone	No response
Salish & Kootenai	Our Plan was completed in September of 2013. We continue to work to update and re-visit the Plan
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	• UCUT does not have an assessment or adaptation plan. The Environmental Committee has attempted to bring together this information and plan to host a workshop on how each Tribe can begin that process or share where each Tribe is at in that process. Each Tribe has the ability to apply for funding, but they have very little resources dedicated to it right now. UCUT does not have any funding dedicated to this issue at the moment. • USRT doesn't have an existing vulnerability assessment or adaptation plan. However, USRT is in the process of identifying contractors to provide services to us for the completion of a vulnerability assessment. The vulnerability assessment will need to be completed by September 30, 2016. • Through grants from the BIA and EPA, USRT has funding for the vulnerability assessment. We do not currently have funding to do an adaptation plan, which we hope to complete in FY 2017. To complete the adaptation plan we will seek funding from the BIA and EPA, as well as other agencies/organizations if necessary. • USRT does not have the expertise to complete these plans. Thus the need for funding to hire a contractor.
Umatilla	The CTUIR is currently developing a climate change vulnerability assessment to be completed before the end of CY 2015. Funding for an adaptation action plan and implementation strategy has also been secured. That project will commence in 2016.
USRT	• USRT doesn't have an existing vulnerability assessment or adaptation plan. However, USRT is in the process of identifying contractors to provide services to us for the

	completion of a vulnerability assessment. The vulnerability assessment will need to be completed by September 30, 2016. • Through grants from the BIA and EPA, USRT has funding for the vulnerability assessment. We do not currently have funding to do an adaptation plan, which we hope to complete in FY 2017. To complete the adaptation plan we will seek funding from the BIA and EPA, as well as other agencies/organizations if necessary. • USRT does not have the expertise to complete these plans. Thus the need for funding to hire a contractor.
Warm Springs	• No Vulnerability Assessment or Adaptation Plan currently exists. • We have funding to complete both of these technical reports and hope to complete them in 2016 through the climate change-working group. This group was initiated in February of 2015 and has several objectives (securing funding, strategic planning and prioritization of the group's objectives, vulnerability assessments (VA) and adaptation plans (AP)). We have identified possible approaches for VA and AP and plan to complete drafts by December 2016. The working group is secondary to many of the participant's main job duties at the tribe and could use additional resources (funding, trainings and access to outside expertise). There is a considerable gap in the influx of tribal members working in the natural resources sector and the group balances building individual technical capacity while providing their expertise to address community needs.
Yakama	The Yakama Nation is currently developing a long-term assessment; we do have resources to start the plan and will be seeking additional funding in the future. Other resource plans also incorporate values that make our land, water, and forest more resilient to climate; including the Forest Management Plan, Water Management Plan, and

10. To what extent do current Tribal plans, policies, and regulations address the impacts of climate variability or change, or provide a buffer against climate impacts? Please list those plans or policies, their purpose, and briefly describe how it will help address climate impacts.

Burns-Paiute	The work that we do at natural resources indirectly works to understand and mitigate the effects of climate change. By controlling invasive species (both flora and fauna), competition is reduced thereby helping native species be more resilient.
Coeur d'Alene	The Tribe's plans, policies and regulations are beginning to incorporate climate change impacts and/or provide a buffer against impacts: Integrated Resource Management Plan, The Coeur d'Alene Lake Management Plan (Tribe and State of Idaho), Hazard Mitigation Plan, etc.
Colville	Current Tribal plans have not been updated to include climate impacts that is what we are in the process of doing.
Cowlitz	No extent
CRITFC	1) The CRITFC Information System (CIS) model has already contributed greatly to supporting the tribal initiative of ecosystem function in the Columbia River Treaty negotiations and for analysis of alternatives that may change future allocation of loads and resources from the winter period to the summer period on the hydropower system. This involves working with federal, state and tribal sovereigns to assure that these analyses and their potential impacts on tribal First Foods be conducted. The model allows one to adjust river operations, reservoir fill and flows under different climate scenarios. CRITFC is currently adding fish life cycle data and water and air

	temperature data that will enhance this model. This information will benefit not just the tribes but everyone in the PNW. 2) Each of the tribes have passed their own resolutions and formed climate working groups consisting of tribal staff from all of the different departments, not just the natural resources departments. CRITFC staff are also members of various regional and national tribal climate groups working on policy and funding issues.
Kalispel	None that I know of
Kootenai	Unknown – Council
Nez Perce	No. The Tribe does not have any plans, policies or regulations in place to buffer against climate change. The only effort we have is an Emergency Operations Plan, which is a "here and now" type of plan. This is not comprehensive plan because the plan essentially provides an organizational chart to properly "react' to an event that has already happened. We are in the works of developing a comprehensive approach to the events to avoid catastrophe.
Paiute Shoshone	No response
Salish & Kootenai	We are including climate change in our Forest Management plan, Disaster and Emergency Preparedness Plan and many other plans.
Shoshone-Bannock	No response. See USRT response below.
Shoshone Paiute	No response
Spokane	No response
UCUT	More information needs to be gathered from each UCUT member to fully assess the current plans and regulations. The Spokane and Colville Confederated Tribes both have had Integrated Resource Management Plans for well over 40 years that look at the environmental impacts of resource extraction economies and cultural impacts to these activities. Staff, within those tribes, are aware of and have looked at the coming climate change affects.
Umatilla	Tribal plans and policies largely omit climate change related information and responses. A few plans recognize the need to address these issues but it has yet to be done.
USRT	Currently there are not any USRT plans, policies, and/or regulations that account for the impacts of climate variability or change, or inherently provide a buffer against climate impacts. I do believe that the Shoshone-Bannock Tribes are accounting for climate change to some degree in their land use plans, which are currently being revised.
Warm Springs	No Plan or policy document specifically states climate change, however several, if not all, plans and policy documents go a long way in creating suitable buffers regarding climate variability on the landscape. The Confederated Tribes of Warm Springs Integrated Resources Management Plan is a working, adaptive document revised every five years and represents the best means to which natural resources will be managed on the reservation. The Peoples Plan (or Comprehensive Plan) is another adaptive document revised every ten years and acts as a guiding document for Tribal Council providing measurable benchmarks and prioritization metrics. The unwritten laws help guide some of the tribal employees in their work and interactions with the community to protect natural resources for future generations.
Yakama	The Yakama Nation is activities include many different plans that work to address the impacts to climate change. Our policy of restoring habitat by putting wood in the creeks, moving roads out of the floodplain, fixing culverts, restoring mountain meadows and many other similar projects are all aimed to increase/store cooler water that allow later cooler water into the late summer. These projects are described in many of the watershed plans and salmon recovery plans that Yakama participates. The Yakima Basin Integrated Plan includes fish passage on the reservoirs in the Yakima Basin, which will allow greater access

	to upper elevation salmon/fish habitat. The Forest Management Plan on the Yakama reservation is aimed at thinning forest to retain fire adapted species. This makes our forest more resilient to large catastrophic fires.

11. How adequate are these existing plans, policies, or regulations for managing climate impacts: (very good, good, fair, poor)? If answering for more than one plan, policy, or regulation, please answer for each.

Burns-Paiute	Fair to poor I would say
Coeur d'Alene	All of the plans are fair for managing climate impacts. They weren't really looking very specifically at climate change so that needs to be reviewed in an adaptation planning phase.
Colville	The policies that are currently in place for the Tribes are poor to fair in regards to addressing change and including plans to deal with those changes.
Cowlitz	Poor
CRITFC	Right now I would say all of these efforts are fairly adequate because they are all in the initial stages of development due to the delay in getting BIA funding. The CRITFC model so far is good but more enhancements need to be added.
Kalispel	Can't define adequacy of any planning without better defining the defining the threat to Kalispel resources.
Kootenai	Unknown – Council
Nez Perce	There are no plans to deal with climate change at this particular point, only response to a disastrous event through an Emergency Operations Plan. Our EOP Plan is not comprehensive or long-term so our existing policy is poor.
Paiute Shoshone	No response. See USRT response below.
Salish & Kootenai	We are continuing to update these plans.
Shoshone-Bannock	No response. See USRT response below.
Shoshone Paiute	No response. See USRT response below.
Spokane	No response
UCUT	Good to very good
Umatilla	Currently, plans and policies poorly manage anticipated climate impacts.
USRT	Poor for USRT and likely the same for USRT's four member tribes.
Warm Springs	Currently fair to poor, but maintains great potential to manage for climate impacts in future revisions.
Yakama	I think the plans are very good for the fish plans and good for the forest management plan.

12. What additional actions, authorities, policies, or regulations are needed for managing Climate Change impacts?

Burns-Paiute	Unsure
Coeur d'Alene	We need to continue on our process to understand the answers to this question. We need to complete our impact assessment and then complete our adaptation plan in order to answer this question.
Colville	Tribal policies regarding natural resources need substantial revision to include contingencies for various climate impacts. The emergency management policies also need to be revised to address current and future changes and how we will deal with them. Environmental Trust policies and energy policies need to be revised in accordance to current and projected impacts for our area.

Cowlitz	We don't have anything to address climate change at this time.
CRITFC	There needs to be national climate legislation implemented and enforced and adequately funded.
Kalispel	Not sure
Kootenai	Unknown – Council
Nez Perce	The tribe needs to collectively understand the climate change impacts and not leave it up to one employee or several employees to guess at what changes are coming. Information and education is key for the tribe to begin tackling this issue.
Paiute Shoshone	No response. See USRT response below.
Salish & Kootenai	We are in the process of developing policies and regulations.
Shoshone-Bannock	No response. See USRT response below.
Shoshone Paiute	No response. See USRT response below.
Spokane	No response
UCUT	Water, BPA Accords, Wildlife Planning, and many many more areas.
Umatilla	After the climate change vulnerability assessment, climate change adaptation action plan and implementation strategy, there needs to be funding for carrying out those measures prescribed to mitigate the risks posed by climate change. Depending on the level of severity, these might be emergency funds. Funding for conducting climate change related research is also necessary to understand climate change impacts for which there is currently no data for.
USRT	• USRT and its four member tribes are in need of a whole suite of additional actions, authorities, policies, and regulations for managing climate change impacts given that lack thereof currently. • National level changes, direction, and funding support
Warm Springs	• Tribal Council Resolution stating the need to plan/prepare for climate change • More funding needed to create new positions specific to socio-economic and natural resource proactive objectives with respect to climate impacts. • Landscape management for landscape resiliency. More meaningful engagement with regional, national and international climate change impact and policy groups (White House Climate Change Task Force of Climate Preparedness, Landscape Conservation Cooperatives ("LCCs") such as the North Pacific LCC, Great Northern LCC, or Great Basin LCC, USGS Climate Science Centers, NOAA Regional Climate Science Centers, USDA Climate Change HUBS, PNW Tribal Climate Change Network, Affiliated Tribes of NW Indians, Institute for Tribal Environmental Professionals, NAU, and non-profits). • Greater programing around higher education in STEM fields to build future capacity.
Yakama	I think additional resources to implement more fish habitat projects would be the best. I also think that the ESA Consultation with US Fish & Wildlife Service needs to be more collaborative.

13. If specific recommendations are not identifiable, what process would the Tribe utilize to identify Climate Change adaptation strategies?

Burns-Paiute	Forums/presentations/information sharing
Coeur d'Alene	First, we will conduct an impact assessment and then work on an adaptation plan (if we are funded for this next step) and then begin to implement the plan.

Colville	We are utilizing current vulnerability assessments that have been done for our region and utilizing additional data on the local scale to further refine the data so we have a dataset that is pertinent to our area and circumstances.
Cowlitz	First we would look to obtain expertise in this area through adding a staff person dedicated to help formulate assessment and plans.
CRITFC	CRITFC would consult with staff and other participants in the ongoing regional climate forums and research the web-based information available.
Kalispel	Don't know how to develop strategies for impacts not well defined
Kootenai	Review current widely published literature and other Tribal climate adaptation plans
Nez Perce	We need the vision and possibilities of what is projected to happen in the next 5 years, 10 years, 20 years, and the next century of climate impacts.
Paiute Shoshone	No response
Salish & Kootenai	No response
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	We need to look at what the Confederated Tribes of the Salish and Kootenai have done so far as a template.
Umatilla	Regular interdepartmental meetings held with the objective to address climate change associated risks. Representatives from each sector of the tribal government (planning, public works, natural resources, public safety, etc.) would be present to provide assistance in their respective area of expertise.
USRT	• Financial resources to conduct a USRT climate change vulnerability assessment • Tribal engagement in the process • Outside technical expertise
Warm Springs	The tribe is poised to help develop best management practices and technologies due to land base and cultural ties. The climate change-working group consists of tribal members and tribal employees committed to prolonging culture and everything associated with it. Attendance to conferences and trainings to gain perspective and ideas for community resiliency are major tasks. This group offers a holistic approach following IRMP directives with the best intentions to consider all potential climate change impacts and ways to prepare at the landscape scale.
Yakama	I think that is the assessment the tribe is currently looking at. Are the foods that we ceremonially gather going to be where they have always been? I also think the Tribal Ecological Knowledge is important.

14. Do you have existing forums or committees to do this?

Burns-Paiute	No
Coeur d'Alene	We have some existing committees to work on this but we will likely form a new one internally.
Colville	We are developing those groups as a part of our planning process.
Cowlitz	No
CRITFC	1) CRITFC continues to prepare and provide technical input for the 15 basin tribes' small work group and Sovereign Technical Team (STT) and Sovereign Review Team (SRT) meetings for the Columbia Treaty Review (CRT) on base case hydro regulation modeling cases that are the foundation for climate change modeling comparison.

	2) CRITFC staff participates in the monthly PNW Climate Network conference calls, in the EPA Climate Adaptation Workgroup, in the River Management Joint Operating Committee (RMJOC II) Climate Change Study Workgroup, in the North Pacific and Great Northern Landscape Conservation Cooperatives, ATNI and serves as advisory members for the NW Climate Science Center and the Climate Impacts research Consortium.
Kalispel	No
Kootenai	Tribes, EPA, ITEP, NOAA and other federal agencies
Nez Perce	We have ways to inform our tribal public and make the climate change issues a community one.
Paiute Shoshone	No response
Salish & Kootenai	We have a "Climate Change Oversight Committee" continues to meet on a monthly basis
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	UCUT is planning a workshop this Fall/Winter to start that process.
Umatilla	There are numerous individuals involved with climate change related work spread out through the organization, but there is currently no formal group in charge of climate change related efforts. Plans exist to form a climate change steering group during the next CTUIR climate change project.
USRT	• Essentially, no. USRT has submitted proposals to conduct climate change vulnerability assessment work, but as of yet it has not been funded. We do not have existing forums or committees formed within USRT or our member tribes at this time. • USRT, others through the LCC's? EPA?
Warm Springs	The Climate Change Working Group and the Project Interdisciplinary Team
Yakama	Yes, we are working with our tribal council and have a team of specialist from Fish, water, wildlife, cultural, and forestry help develop a long term climate change strategies.

15. Is there a lead staff person or persons assigned specifically to Climate Change issues? If so, please provide name, title, email, and phone number.

Burns-Paiute	No
Coeur d'Alene	Tiffany Allgood
Colville	Yes, the information is listed above. We will be adding additional personnel on in the near future and the list will be updated
Cowlitz	There is no lead staff person. Currently, climate change issues default for myself to look into.
CRITFC	Yes. Laura Gephart, Watershed Programs Coordinator
Kalispel	Me by default
Kootenai	No
Nez Perce	As the Natural Resource Manager, the Nez Perce Tribal Executive Committee has appointed my position to work on climate change.
Paiute Shoshone	
Salish & Kootenai	Michael Durglo, Environmental Director, Climate Change Planning Coordinator
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	Not officially, none signed

Umatilla	Dr. Steven Link, Scientist 3 CTUIR Department of Science & Engineering
USRT	While I work on many different issues, I am the lead at USRT on climate change issues. See contact information above.
Warm Springs	• Jonathan Treasure, Hydrologist/Climate Change Program Coordinator • Pah-tu Pitt, Environmental Specialist/Education Coordinator
Yakama	Jonalee Sqeochs and Bob Rose in Yakama Nation Fisheries

16. **Please attach a copy of the Tribal and your department/program organizational chart** to help understand the structure and capacity of your organization as it pertains to Climate Change.

    - Did not include organizational charts into the CRB Tribes Climate Change Capacity Assessment report because very few were provided.

Cross-department and Cross-sector Interactions

17. To what extent do Climate Change impacts and adaptation activities in your resource affect other sectors (listed above)? Please specify. *Example – As a Natural Resource manager, drought conditions may affect natural resources like salmon or trout habitat but also may affect Public Works (built resources) like ground water and municipal water supply to your Tribal community.*

Burns-Paiute	A declining snowpack and changing precipitation patterns do affect groundwater and municipal water supplies as well as agricultural production. Wildfires can threaten infrastructure. A reduction in air quality along with temperature extremes affect personal health.
Coeur d'Alene	We are still looking into this but we know that there is a lot of cross-departmental and cross-sector interactions with public health, facilities, culture, natural resources, economics, etc.
Colville	I am in Fisheries and climate change can affect how many juveniles survive to go to the ocean and return as adults. The fish that return have an impact on whether Tribal members have the fish that is so important to them. It may also have an economic impact for people that sell their fish. Likewise if something goes wrong and there is contamination of the water by a broken sewer line that built resource will have a detrimental effect on the survival of the fish in the stream or river that is contaminated. The built and natural things are connected and issues caused by one can cause one or more issues for other things connected to it.
Cowlitz	Need additional resources to ascertain this situation.
CRITFC	CRITFC works on all treaty tribal fishery related issues in the Columbia River Basin specifically, and also in the Pacific Northwest and internationally. This also includes working and participating in the Pacific Salmon Commission process and the Columbia River Treaty process. Climate change impacts all of these areas and processes.
Kalispel	I have tried to explain possible threats to fisheries staff, but there does not seem to be any significant concern about impacts or need to develop mitigation strategies
Kootenai	1) Increased building heating & cooling cost, decreased timber growth, decreased availability of fish harvest, loss of crop revenue 2) All departments' duties would be affected to greater or lesser extent

Nez Perce	As a tribal utility authority we have one particular place where groundwater has not been able to recharge an existing well. If drought continues we may have problems with recharge not only for this one area but many others. Our human consumptive needs for water are great. Although we have signed the Snake River Basin Settlement with the State of Idaho and federal government, without water the tribe and other entities have no right to argue about. But while the water becomes limited, resources will become expended in litigation and compliance with existing water rights.
Paiute Shoshone	No response
Salish & Kootenai	Please see our Plan. We have also included other regional professionals on our Committee. Including USFWS, USFS, USGS, and The Wilderness Society, Crown of the Continent and the Great Northern Landscape Conservation Cooperative and others.
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	As an intertribal consortium specifically tied to natural resources, every action will be compromised and impacted by climate change.
Umatilla	Often, almost all climate change related projects have interdepartmental support.
USRT	Currently, other than the sectors identified above, there are little perceived climate change impacts or concomitant adaptation activities underway.
Warm Springs	Departments and sectors are all closely connected with respect to climate change impacts and adaptation efforts. The list of vulnerabilities provided in the image below help illustrate the many social, natural and public resources as well as economic linkages.
Yakama	Drought impacts agricultural, salmon, river flows, resident fish, water rights, air quality, timber lands, water quality, healthy forest, air quality, and domestic ground water.

18. What other Tribal departments or other non-tribal (federal, state, county, city, etc.) government agencies need to be involved in developing and implementing adaptation responses to Climate Change for your natural resource or built resource?

Burns-Paiute	U.S. Forest Service, U.S. Dept. of Agriculture, Bureau of Land Management, Bureau of Reclamation, Oregon Dept. of Fish and Wildlife, U.S. Fish and Wildlife Service, NOAA, U.S. Geological Survey, Environmental Protection Agency, Oregon Dept. of Forestry, local government, various non-profits.
Coeur d'Alene	We are still determining this.
Colville	Planning, environmental trust, water resources, GIS, history and archeology, Forestry, Wildlife, Resident Fish, Hatchery management, public works, TERO, Emergency Management, Mt Tolman Fire, Transportation, BIA, TOSHA,Parks and Recreation, law enforcement. In addition, coordination with Okanogan County, The cities of Omak, Okanogan< Tomnasket, Bridgeport, NRCS, USDA, and county and state roads, Douglas county PUD and Okanogan PUD and Okanogan county emergency management.
Cowlitz	Need additional resources to ascertain this situation. Tied to traditional resources, one major player the Tribe would have to work with would be the US Forest Service on the Gifford Pinchot National Forest. NOAA fisheries and EPA would also be significant players.
CRITFC	All federal, state and local agencies need to include the tribes on all decisions related to natural resources and the built environment.
Kalispel	Because of the relatively small land-base, the Kalispel Tribe must rely on many outside agencies to protect natural resources. I think there is a similar uncertainty about what

	climate change means to NE WA and N ID that has resulted in apathy toward the need for developing mitigation strategies
Kootenai	Due to the interrelated lands and resources involved in the Tribal aboriginal territory many transboundary, U.S. & Canada federal, state and local agencies would be involved in an encompassing adaptation plan.
Nez Perce	The entire tribe needs to develop into a formidable leader through education and outreach because the region that surrounds the tribe is pessimistic. It will take data, projections, and knowledge to get more people on board. Our membership lives in larger non-Nez Perce communities where logging, ranching, and farming communities are tied to these respective resources. The tax base of the counties and city governments are built upon the timber and agricultural resources. The effort is bigger than the tribe and climate change is bigger than our mini swimming pool. This is a global effort that takes larger federal policies at the UN level.
Paiute Shoshone	No response. See USRT response below.
Salish & Kootenai	See above
Shoshone-Bannock	No response. See USRT response below.
Shoshone Paiute	No response. See USRT response below.
Spokane	No response
UCUT	Dept. of Interior and all of its agencies, Bureau of Indian Affairs, EPA, Ecology, Eastern Council of Washington Governments (County Commissions of Eastern WA).
Umatilla	Funding is most often provided by the federal government and there is a local climate focus group (in Pendleton) but the state of Oregon There could be more support at the state level, although, the Oregon Health Authority has been exceptionally helpful.
USRT	All four of USRT's tribal governments need to be intimately involved in climate change activities. However, I believe that tribal governments and tribal departments cannot develop and implement adaptation responses prior to completing a vulnerability assessment.
Warm Springs	<u>Tribal</u> The Education Department, Land Use planning, Public Utilities, Social and cultural services need to be better solicited. Tribal consortiums (CRITFC) need to more actively engage technical staff as well as increase transparency. <u>Non-tribal</u> Municipalities and irrigation districts in the Deschutes Watershed as well as Federal and state agencies (BLM, USFS, USGS, ODEQ, ODFW, ODOT, Landscape Conservation Cooperatives and Climate Science Centers) need to meet regularly to assess climate impacts, future project planning and additional support. Non-tribal entities should do a better job at meeting treaty trust responsibilities.
Yakama	The Yakama Nation is involved with many of the federal and state agencies including the Forest Service, Bureau of Reclamation, Bonneville Power Administration, USDA NRCS, and state agencies like Fish and Wildlife, Ecology, DNR, and Ag. Local county governments, conservation districts, irrigation districts, and the community at large also play a key role.

19. Is there currently a process or forum in place that facilitates interaction between departments (various sectors: fish, water, health, housing, public works,) within the Tribe to coordinate on climate change? If so, please specify.

Burns-Paiute	Not to my knowledge
Coeur d'Alene	Not too many yet. We have a project coordination meeting once or twice a year on our various projects. We will have a team identified soon.
Colville	No, currently, there is very little cross-communication except for the Project Review Committee (3P) that contains representatives from many departments on the reservation that reviews proposed projects on the reservation for approval and comments.
Cowlitz	No
CRITFC	1) During the monthly CRITFC Commission meetings information is exchanged. 2) Regular meetings and calls between CRITFC and tribal staff facilitate interaction on climate related issues.
Kalispel	Not much
Kootenai	Yes, monthly Council and Director meetings
Nez Perce	The tribal executive committee has made the department of natural resources the lead department for the Integrated Resource Management Plan. The IRMP will also have to address climate change.
Paiute Shoshone	No response
Salish & Kootenai	No comments
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	Environmental Committee is the forum which is organized by the Committee Coordinator.
Umatilla	Funding is most often provided by the federal government and there is a local climate focus group (in Pendleton) but the state of Oregon There could be more support at the state level, although, the Oregon Health Authority has been exceptionally helpful.
USRT	• Climate change is discussed at regularly scheduled USRT Technical Work Group and Commission meetings, but in an informal matter. USRT currently doesn't have a process or forum in place. • EPA?, NPCC coordination forums and workshops, LCC's
Warm Springs	Yes. The Climate Change Working Group consisting of tribal members from each BNR department and each Tribal Council Committee. The CCWG actively engages with the tribal community (radio, newspaper, tabling and special events).
Yakama	There are some forums such as the Yakima Basin Integrated Plan but others are limited.

20. What is the Tribe's/Inter-Tribal Organizations level of participation in regional or national forums to address regional or national Climate Change issues? Please identify what forums the tribe currently participates in and how effective the forum engages or supports your respective tribe.

Burns-Paiute	To my knowledge, none of the organizations listed but I don't really know for sure.
Cowlitz	We lack capacity to engage with many of these organizations. We do to the best of our ability, garner information and participate on the subject at ATNI.
Kalispel	Very little participation currently with any forums about climate change
Salish & Kootenai	No comments
Umatilla	There are plans to hold a symposium on climate change adaptation efforts at the end of the next climate change adaptation planning project.
USRT	EPA, NPCC forums, Columbia River Treaty collaborative forums, LCC's, Columbia River Basin Partners, ITEP, Tribal Climate Change Program out of the University of Oregon

a. White House Climate Change Task Force of Climate Preparedness?

Coeur d'Alene	Not to my knowledge
Colville	No
CRITFC	Yes CRITFC submitted recommendations (see attachment) and I think it helped shaped Obama's commitment to working with tribes on climate activities.
Kootenai	Review when working with EPA
Nez Perce	None
UCUT	Attend the conference calls
Warm Springs	Does not participate/Unknown
Yakama	Minimal – limited effects

b. Landscape Conservation Cooperatives ("LCCs") such as the North Pacific LCC, Great Northern LCC, or Great Basin LCC?

Coeur d'Alene	Talked with these folks and met with some of them
Colville	Yes, GNLCC and PNLCC both interact with our climate change planning. We have received two grants from GNLCC
CRITFC	CRITFC participates in both the NPLCC and the GNLCC and has received funding for a climate related project through the NPLCC.
Kootenai	Review, no direct involvement
Nez Perce	None
UCUT	Low level, read literature
Warm Springs	GNLCC, steering committee and Columbia River Basin Partner Forum
Yakama	Some interaction but limited effect

c. USGS Climate Science Centers?

Coeur d'Alene	**Talked with these folks and met with some of them**
Colville	**We collaborate with CSC on potential projects and accessing data from their regional data**
CRITFC	**CRITFC is an advisory board member for the NWCSC and many CRITFC tribal members have participated in the Climate Boot Camps.**
Kootenai	**Review, no direct involvement**
Nez Perce	**None**
UCUT	**Low level**
Warm Springs	**Climate Science Boot Camp (2 years), explored partnering for grant opportunities**
Yakama	**Minimal – limited effects**

d. NOAA Regional Climate Science Centers?

Coeur d'Alene	Not as much interaction that I know about here but possibly our Water Resources Program is in touch with them.
Colville	We utilize NOAA to help with education and funding of our education efforts
CRITFC	CRITFC is an advisory board member for the NWCSC and many CRITFC tribal members have participated in the Climate Boot Camps.

Kootenai	Review, no direct involvement
Nez Perce	None
UCUT	Low level
Warm Springs	Does not participate/Unknown
Yakama	Minimal – limited effects

e. USDA Climate Change HUBS?

Coeur d'Alene	Not to my knowledge
Colville	We do utilize information and webinars, workshops and data from the USDA hubs
CRITFC	So far CRITFC has had no involvement with this organization.
Kootenai	Review, no direct involvement
Nez Perce	None
UCUT	Low level
Warm Springs	Does Not Participate/Unknown
Yakama	Minimal – limited effects

f. PNW Tribal Climate Change Network?

Coeur d'Alene	New funding will allow us to participate more often; been on a couple of conference calls
Colville	We participate in the monthly meetings and utilize them to find funding resources and additional information regarding models and projects relating to our area.
CRITFC	CRITFC participates in the monthly calls and utilizes the resources provided. This has been very beneficial to the tribes.
Kootenai	Review, no direct involvement
Nez Perce	None
UCUT	Low level, read literature
Warm Springs	Participate in monthly conference calls and use the funding guide
Yakama	Quite a bit of interaction and plays a key role in providing supporting information to tribes.

g. Affiliated Tribes of NW Indians?

Coeur d'Alene	We participate with this one, Alfred Nomee participates and shares information
Colville	We haven't really interacted much with this group but would welcome information.
CRITFC	CRITFC staff attends all of the ATNI meetings and served on the planning committee for the Climate Summit and hopes to continue to be involved in all climate related activities.
Kootenai	Direct involvement by Council
Nez Perce	Maybe
UCUT	Medium level, making connections and sharing information with other Tribes.
Warm Springs	Participates
Yakama	Minimal – limited effects

h. Institute for Tribal Environmental Professionals, NAU?

Coeur d'Alene	We are trying to participate in their trainings but they are full
Colville	We have some contract with them regarding training.

CRITFC	CRITFC has assisted in various trainings over the years.
Kootenai	Direct involvement by Environmental Department
Nez Perce	None
UCUT	Low level
Warm Springs	Participates and successfully awarded funding together
Yakama	Tribal natural resource organizations such as CRITFC, Intertribal Timber Council, Native American Fish and Wildlife, and NCAI.

i. Others – pleases list?

Coeur d'Alene	BIA climate change listserv
Colville	None listed
CRITFC	Institute for Tribal Environmental Professionals – Collaborated on climate adaptation training where many tribal staff received training which was beneficial. Also see #14 answer.
Kootenai	Direct involvement with EPA CAA 105 & IGAP program grants, U.S. forest Service, U.S. F&W, ACOE and others1\
Nez Perce	The Tribe was involved with carbon sequestering projects through the Intertribal Timber Council. Before the Chicago Climate Exchange no longer bought and sold projects, the tribe was heavily involved with sequestering carbon through planting of conifer tree species. Although the idea was on target, the Bush II Administration didn't sign the Kyoto Protocol which would have made our efforts greater.
UCUT	Low level, Bonneville Environmental Foundation, EcoTrust Foundation

21. Are you familiar with the science, data, and technical services and programs of the NW Climate Science Center? If so, how do you utilize their programs?

Burns-Paiute	No
Coeur d'Alene	Yes, but have not utilized it much yet. We will begin to utilize this information soon now that we have funding to work on this issue.
Colville	No comment
Cowlitz	No
CRITFC	Yes they are very helpful not just on CRITFC projects but also on tribal projects.
Kalispel	Only a little
Kootenai	Yes, review work product
Nez Perce	Yes. Currently the Tribe does not utilize their programs as a whole.
Paiute Shoshone	No response
Salish & Kootenai	We are familiar with the Climate Science Centers. We currently are in contact and work with the Rocky Mountain Climate Science Center.
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	Yes, UCUT is aware, but have not utilized their programs yet.
Umatilla	Yes, but CTUIR is conducting in house research and has alternate project subcontractors.
USRT	Yes
Warm Springs	Yes. Currently we are in capacity building mode and strategic planning for our climate change program. Outreach and collaboration with the CSC will increase in the future.

	However, the NWCSC prioritizes on CSC needs and do not facilitate or incubate well with multiple tribal needs.
Yakama	I've seen some stuff but not much.

Tribal Capacity and Needs

22. Please identify your five top priority needs in order for the Tribe/Intertribal organization to effectively address Climate Change:

Burns-Paiute	**1**	Climate change is often seen as an ambiguous, amorphous, non-urgent threat without apparent solution… disseminating concrete information to counteract those perceptions is paramount
	2	Relate climate change to individual actions partly responsible for creating it in order to develop a personal stake in solving the problem
	3	Illustrate to tribal members the breadth of the problem in a multitude of disciplines (e.g. flora and fauna, water resources) and the connections between those disciplines (big picture)
	4	Relate climate change to personal health
	5	Wildfire preparedness
Coeur d'Alene	**1**	Funding
	2	Information on climate change projections into the next 100 years
	3	Technical Assistance and Training
	4	Cooperating agencies/organizations ability and willingness to work with the Tribe and tribes
	5	Support and involvement at the local level
Colville	**1**	Gain approval from the Tribal Council
	2	Develop a conduit for better interagency communication (monthly events)
	3	Climate literacy education to help the Tribal community understand climate change and potential impacts for the Tribes
	4	Develop working relationships with county city and federal agencies on and around the reservation in order to develop a comprehensive plan that recognizes the connection on the landscape
	5	Improved community support for Tribal climate adaption planning.
Cowlitz	**1**	Funding
	2	Dedicated professional staff
CRITFC	**1**	Manage the Columbia and Snake Rivers hydropower system to a greater extent to assist salmon migration and survival, including alternative floodplain management.
	2	Fish Passage restored in all Blocked Areas in the Columbia River Basin such as above Grand Coulee Dam.
	3	Continuing supporting tribal participation in the Columbia River Treaty (CRT) renegotiation with Canada to ensure that future scenario planning includes consideration of climate change and ecological concerns in the next CRT.
	4	Explore means for greater flexibility in the application of water rights and their potential use for ecosystem functions.
	5	Reduce existing stressors on fish, including fish toxins, habitat degradation, and impediments to fish migration.
Kalispel	**1**	Community education/understanding of potential impacts from climate disruption

		that will likely affect the Kalispel Tribe
	2	Education about possible mitigation strategies for climate disruption impacts
Kootenai	1	Funding
	2	Staff
	3	Coordination by Council direction between KTOI departments
	4	Expanded funding and staff for F&W & Environmental departments
	5	Regional Coordination across agencies
UCUT	1	First Foods
	2	Fish Passage at hydroproject
	3	Water temperatures, flows and management
	4	Wildlife Habitat protection
	5	Forest practices
Nez Perce	1	Information and education of the organization
	2	Community partnerships
	3	Impacts to reservation communities through tribal treaty rights
	4	Collaboration with non-Nez Perce residents on the reservation
	5	Broad policy initiatives to assist in buffering the communities from climate change
Paiute Shoshone		No response
Salish & Kootenai		No response
Shoshone-Bannock		No response
Shoshone Paiute		No response
Spokane		No response
UCUT		No response
Umatilla	1	Funding for research
	2	Funding to develop climate change combatting technologies
	3	Funding to improve infrastructure and other systems that are vulnerable to climate change
	4	Funding for enhanced climate change adaptation planning efforts
	5	Assistance spreading climate change awareness
USRT	1	Financial Resources
	2	Technical Expertise
	3	Additional USRT staff members to share the workload
	4	Improve modes of communication to our tribes so that they understand the importance of addressing climate change issues
	5	None of USRT's four member tribes have staff dedicated to working only on climate change issues. Thus, USRT has to communicate with many different tribal staff members in diverse departments. This is cumbersome. Thus, it is a priority that each tribe finds the resources to have a climate change coordinator.
Warm Springs	1	Funding for salaries and new positions
	2	Collaboration and education regarding local climate change impacts
	3	Sustainable economies not linked to non-renewable resources
	4	Education and capacity building opportunities for tribal members
	5	Collaboration with regional tribes and nontribal entities to ensure treaty rights and careers in every level of policy
Yakama	1	Capacity
	2	Funding
	3	Access to modeling

	4	Urgency to implement projects for fish habitat
	5	Maintain forest infrastructure to manage forest

23. Please briefly describe your existing tribal staff's capacity related to Climate Change (education, specific trainings, experience).

Burns-Paiute	Limited
Coeur d'Alene	We have a lot of staff persons with B.S., M.S. and Ph.D. level educations, many years of experience with science, planning and implementation of projects. What we need is more time to work on this issue, and the items listed above.
Colville	The current team has science and climate change education as well as legal and management training public service and planning. The training is ongoing and involves webinars from various agencies, workshops from DOE, USDA, NRCS, BIA, NOAA, USGS, GNLCC, PNLCC, PNW climate project,
Cowlitz	We currently have qualified staff. One problem is that we are a grant based department with little funding at this time to dedicate current staff on this endeavor.
CRITFC	There is a small CRITFC climate workgroup made up of professionals with much experience in modeling, hydrology, GIS, communications and policy development.
Kalispel	Very little capacity
Kootenai	Environmental department has the greatest general background in CC issues through work with EPA, ITEP & TAMS
Nez Perce	There is a subset of departmental staff that are more than aware of changes to come yet others who are in disbelief.
Paiute Shoshone	No response
Salish & Kootenai	No comments [HIGH]
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	Policy Analyst, TFW Coordinator and Committee Coordinator have experience and knowledge of Climate Change studies and efforts.
Umatilla	1) Patrick Mills – CTUIR Climate Change Vulnerability Assessment Project Manager 2) Steven Link – past climate change related research
USRT	As I am the only one working on climate change issues at USRT, I will describe my capacity. <u>University of Idaho</u> BS in Environmental History BS in Political Science (focus in natural resource policy) MS in Environmental Science (focus on policy and law) <u>Specific Trainings</u> • Climate change vulnerability assessment training at the USFWS National Conservation Training Center • Climate change adaptation planning training through the Institute for Tribal Environmental Professionals • Attendance at many workshops and conferences either focusing exclusively on or partially on climate change issues (many times tribally-focused)

	Experience Very little experience working on climate change issues prior to working at USRT. I did do a little climate change work while working for the US Forest Service and at an environmental consulting firm in Missoula. Essentially I'm learning as I'm going.
Warm Springs	Climate Change Working Group year one: • **Trainings/Conferences** ○ Northwest Climate Science Center; Climate Science Boot Camp Fellowship: 2 attendees ○ ANTI Climate Change summit: 5 attendees ○ CRITFC adaptation planning workshop: 1 attendee ○ Pacific Northwest Climate Science Conference: 3 attendees ○ 2nd National Adaptation Forum: 2 attendees ○ EPA national air quality forum: 1 attendee, which led to service on the National Tribal Toxics council ○ ITEP adaptation planning workshop: 2 attendees ○ ITEP strategic planning online course: 2 participants ○ Participate in the Great Northern Landscape Conservation Cooperative steering committee meetings. ○ Attended the South Central Oregon Adaptation Partnership workshop • Hydrologist/ Climate Change Program Coordinator: BS in Biology. MS in Hydrology and Science Management. NWCSC Climate Science Boot Camp. ITEP Adaptation Planning Workshop • Environmental Specialist/ Education Coordinator: BS in Environmental Science. MS in Environmental Studies. NWCSC Climate Science Boot Camp. ITEP Adaptation Planning Workshop • Wildlife Biologist: BS in Biology. US Marine Veteran
Yakama	College graduates with training in climate change.

24. Is there specific training or technical support needed to increase your Tribe's capacity.

Burns-Paiute	Perhaps
Coeur d'Alene	I would like training from tribes who have completed tribal-wide vulnerability (impact) assessments to help us learn from their experiences. Later, I would like training on adaptive management. These trainings should include discussions on obtaining the information as well as the planning processes, and address involving the Tribal community and culture.
Colville	Yes, we need specific training for each department to give them the resources they need to adequately plan for climate change.
Cowlitz	We would need additional training, but would prefer a dedicated staff person to organize and work with current staff to assist in dealing with the issue.
CRITFC	More downscaling of climate models, more adaptation trainings and more funding specifically for tribes.
Kalispel	Evaluation and education for community of likely impacts to be expected by the Kalispel Tribe
Kootenai	ITEP & TAMS provide greatest concentrated resources for compiling an adaptation plan
Nez Perce	I think it would be essential to have a climatologist assist with our knowledge and understanding so that the non-believers can begin to absorb the idea and problem.
Paiute Shoshone	No response

Salish & Kootenai	No response
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	No specific training
Umatilla	Technical assistance for formulating study plans would be useful. It would also be useful if the CTUIR was officially a partner with a climate science research/data center (Oregon Climate Change Research Institute, NWCSC, etc.).
USRT	• I feel as if there are quite a few training opportunities out there. However, there are not many that focus exclusively on Great Basin issues. That would be helpful. The tribal climate change boot camp should be very worthwhile. I also feel that many of the trainings are quite technical, whereas many of the tribes and tribal consortia could use some more basic training opportunities. • USRT does require technical support to undertake climate change work. While I feel competent to do some of it, I'm definitely in need of assistance. This is due to not only a lack of knowledge of all climate change issues, but that I simply do not have the time to do it. I'm juggling a multitude of issues and can't focus only on climate change issues.
Warm Springs	Yes. How to employ vegetative models to show alternative management activities on wildlife forage potential/populations and traditional plant abundances and distribution under downscaled climate scenarios. Creation of Distributed hydrologic model for the Deschutes Basin and students to run simulations. Creation of sustainable economies. Groundwater vulnerability assessments (stable isotopes). Greater remote sensing aptitude. Pros and cons of landscape forest management to tribal governance and membership.
Yakama	There probably is, and our current assessment is evaluating the need.

25. What current source of funding does the Tribe have (BIA, USFWS, USGS, EPA – GAP, etc.) to support Tribal Climate Change planning efforts? Please list source, dollar amount *[Dollar Amounts have been omitted as requested by the Tribes]*, and grant period.

COEUR D'ALENE

Funding Sources	Purpose	Dollar Amount	Grant Period
BIA	Impact Assessment		8/2015 to 8/2016

COLVILLE

Funding Sources	Purpose	Dollar Amount	Grant Period
BIA	Climate adaption planning		9/1/2015-8/31/11
GNLCC	Travel and training		10/1/2014-9/3015
GNLCC	Climate change research and monitoring, training		10/1/2015-9/30/16

CRITFC

Funding Sources	Purpose	Dollar Amount	Grant Period
BPA	Climate Change Impacts to First Foods		2015 - 2018

BIA-RPI 2015	1) CRITFC Climate Change Documentary & 2) Climate Change Threats to Salmonid Food Webs: A Tribal Vulnerability Assessment		2015-2017
BIA-RPI 2014	CRITFC Climate Survey and Strategic Plan Development & Fish Passage above Grand Coulee Outreach Campaign		2014-2016
NPLCC	Climate Impacts to Lamprey and Eulachon		2013-2015

KALISPEL

Funding Sources	Purpose	Dollar Amount	Grant Period
GAP	Gain understanding about climate change		Annually

NEZ PERCE

Funding Sources	Purpose	Dollar Amount	Grant Period
BIA	Climate change forestry		FY'16

UMATILLA

Funding Sources	Purpose	Dollar Amount	Grant Period
BIA	Climate Change Vulnerability Assessment		FY14-15
BIA	Climate Change Adaptation Action Plan and Implementation Strategy		FY16-17
BIA	Climate information database development		FY14-17
BIA	Baseline data collection: aquifer recharge research		FY16

USRT

Funding Sources	Purpose	Dollar Amount	Grant Period
BIA	Vulnerability Assessment		FY 15/16
EPA	Vulnerability Assessment		FY 16

WARM SPRINGS

Funding Sources	Purpose	Dollar Amount	Grant Period
BIA RPI 2014	Create CCWG,VA/AP, Secure Funding		1/1/15-12/31/16
BIA RPI 2015	Hazardous Fuels Reduction improvements		1/1/16-12/31/16
GNLCC	Tribal Capacity building-travel funding		1/1/16-12/31/16
BIA National	Inter-tribal Phenology project and two pilot project		1/1/16-12/31/17
BIA Youth	Internship program		1/1/16-12/31/17

YAKAMA

Funding Sources	Purpose	Dollar Amount	Grant Period
BIA	Climate Change Strategy		2015-2016

USFWS	Climate Change Strategy		2015-2016
	We have other grants pending		

26. Over the next five years (2016-2020) what do you project the Tribe's annual funding needs will be to effectively address Climate Change impacts such as:

- Tribal Climate Change Training
- Developing a Climate Change vulnerability assessment,
- Climate Change adaptation/action plan,
- Community Outreach & Education,
- Documenting Tribal Ecological Knowledge, etc.
- Travel support (to attend LCC meetings, ATNI, training, etc.)

Comments:

USRT	I'm not really sure about funding for 2018-2020. The numbers below are very speculative and based on nothing more than a guess.
Warm Springs	This budget reflects leveraging funds with other projects

Tribe	Year	Purpose / Use of Funding	Amount
Burns-Paiute	2016	No idea here …	
Kootenai	2016	Unknown	
Salish & Kootenai		None listed	

COEUR D'ALENE

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Adaptation Planning	$ 120,000
2017	Implement Adaptation Plan (depends on what is in plan)	$ 120,000 to ???
2018	Implement Adaptation Plan	$ 120,000 to ???
2019	Implement Adaptation Plan	$ 120,000 to ???
2020	Implement Adaptation Plan	$ 120,000 to ???

COLVILLE

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Continued monitoring, research , education, planning	$ 300,000
2017	Vulnerability assessments, TEK documentation,	$ 245,300
2018	Climate change adaption and implementation plan	$ 175,000
2019		
2020		

COWLITZ

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Climate change assessment	$ 150,000
2017	Climate change planning	$ 150,000

2018	Climate change reporting and mitigation development	$ 150,000
2019	Climate change mitigation and policy outreach	$ 150,000
2020	Continued mitigation and policy representation	$ 150,000

CRITFC

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Alternative Floodplain Management, Climate Modeling of the Hydrosystem, CRT Participation, Fish Passage Restoration in Blocked Areas Pilot Projects, Toxics Reduction projects	$3,500,000
2017	Alternative Floodplain Management, Climate Modeling of the Hydrosystem, CRT Participation and Fish Passage Restoration in Blocked Areas Pilot Projects, Toxics Reduction projects.	$3,500,000
2018	Alternative Floodplain Management, Climate Modeling of the Hydrosystem, CRT Participation, Fish Passage Restoration in Blocked Areas Pilot Projects and toxics Reduction projects	$3,000,000
2019	Water rights issues, Development of Tribal Adaptation Strategies	$2,500,000
2020	Development of Tribal Adaptation Strategies	$2,500,000

KALISPEL

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	• Travel support for tribal leaders and staff • Tribal Climate Change Training	$ 15,000 $ 15,000
2017	• Community Outreach/Ed • Documenting Tribal Ecological Knowledge • Climate Change vulnerability assessment • Draft - Climate Change adaptation/action plan	$ 10,000 ? $ 10,000 ? $ 20,000 ? $ 20,000 ?
2018	• Community Outreach/Ed with outside • Final - Climate Change adaptation/action plan • Travel support for tribal leaders and staff	$ 20,000 ? $ 30,000 ? $ 10,000 ?
2019	Adaption implementation?	?
2020	Adaptation implementation?	?

NEZ PERCE

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Climate Change Training – training conducted here	$ 10,000
2017	Assessment – Train the trainer up to 5 individuals	$ 20,000
2018	Climate Change Adaption Plan	$ 20,000
2019	Community Outreach & Education	$ 20,000
2020	Production of plan and implementation	$ 20,000

UCUT

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Tribal Climate Change Training & Community Outreach and Education, Travel Support	$1,000,000
2017	Developing a Climate Change vulnerability assessment & Travel Support	$1,500,000

2018	Climate Change Action Plan & Travel Support	$1,500,000
2019	Climate Change Action Plan & Travel Support	$ 500,000
2020	Implement Changes	$2,000,000

UMATILLA

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Research and adaption planning	$ 278,770
2017	Research, adaptation planning and new staff	$ 355,000
2018	Research, adaptation planning and infrastructure/systems improvements	$ 480,000
2019	Research, adaptation planning and infrastructure/systems improvements	$ 580,000
2020	Research, adaptation planning and infrastructure/systems improvements	$ 580,000

USRT

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Vulnerability Assessment	$ 98,386
2017	Adaptation Plan	$ 150,000
2018	Training/Outreach & education/travel support	$ 75,000
2019	Training/Outreach & education/travel support	$ 75,000
2020	Training/Outreach & education/travel support	$ 75,000

WARM SPRINGS

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Training/adaptation/outreach/vulnerability assess./TEK/Travel/IMPLEMNTATION/Monitoring	$ 250,000
2017	Training/adaptation/outreach/vulnerability assess./TEK/Travel	$ 250,000
2018	Training/adaptation/outreach/vulnerability assess./TEK/Travel/ Operating (does not including capital expenses)	$ 350,000
2019	Training/adaptation/outreach/vulnerability assess./TEK/Travel/IMPLEMENTATION/ MONITORING	$ 550,000
2020	Training/adaptation/outreach/vulnerability assess./TEK/Travel/ IMPLEMENTATION/MONITORING	$ 550,000

YAKAMA

Year	Purpose / Use of Funding – (Expand as needed)	Amount
2016	Assessment - Action Plan – Documenting TEK	$ 200,000
2017	Action Plan – Documenting TEK Travel for Regional Climate Community Outreach	$ 400,000
2018	Action Plan – Documenting TEK Travel for Regional Climate Community Outreach	$ 400,000
2019	Implementing Action Plan	$ 500,000
2020	Implementing Action Plan	$ 500,000

27. Please provide any additional information that you would like to share.

Burns-Paiute	No response
Coeur d'Alene	We are just beginning our process at the Coeur d'Alene Tribe and are looking forward to collaborating with other tribes and tribal organizations to work on this important issue.

	Also, since I am just one Tribal staff person, I am not able to represent this issue completely. Please take these answers as a starting point.
Colville	We are currently applying for additional funding and will continue to acquire funding to assist with our education and outreach, planning and coordination.
Cowlitz	No response
CRITFC	CRITFC also recommends that within the Bureau of Indian Affairs (BIA) an Office of Climate Change Adaptation is established that will facilitate information sharing and support for the tribes in the following areas, and as needed: 1) Establishment of a consistent funding stream to sustain tribal capacity building for climate-related activities; 2) Climate change vulnerability assessments; and 3) Climate change adaptation plans.
Kalispel	As we spoke before and as you can see from the survey answers, there is little knowledge available to understand how the Kalispel Tribe might be impacted and what mitigation/adaptation might be available.
Kootenai	No response
No response	No response
Paiute Shoshone	No response
Salish & Kootenai	No response
Shoshone-Bannock	No response
Shoshone Paiute	No response
Spokane	No response
UCUT	No response
Umatilla	The CTUIR has taken the time to prepare a more detailed breakdown of needs required for addressing climate change. That document is also attached for your reference.
USRT	• Climate change, as projected through many of the existing regional models (Columbia River Treaty modeling exercises, NPCC and others), will be extremely challenging for the USRT members to address as they continue to build their capacity to restore a semblance of the productive natural resources such as salmon, steelhead, resident fish, wildlife resources and natural vegetation that was lost to development such as the FCRPS, federal irrigation, and other non-federal hydro-generation and irrigation projects. Other outstanding challenges include the lack of understanding and financial support of U.S. and state (ID) leaders for programs and direction that would lessen the effects of climate change across broad landscapes in the U.S. and particularly in the Northwest. Granted there are numerous scientific forums beginning to work at a landscape level to address many of these issues although with extremely limited financial resources and lack of real influence on broad resource decisions and direction. I'm concerned that there may be little support for restoration of anadromous fish above the currently blocked upper Snake River due to the costs involved over time as well as the impacts of climate change such as a more limited/uncertain water supply for sharing among existing agricultural and municipal demands and natural resource and tribal cultural needs. • I also strongly believe there are constructive ways to forge more cooperation and collaboration among what appear to be interest groups competing for the same limited resources. The impacts of climate change can be addressed in a manner that could allow for common and sustainable solutions for most all users or water, energy and related natural resources.

Warm Springs	No response
Yakama	No response

Don Sampson, Executive Director
Don@seventhgenerationllc.com
(541) 215-2753

Peggy Harris, Program Coordinator
Peggy@seventhgenerationllc.com
(541) 215-2919

Institute for Tribal Government
Portland State University

Appendix C

Columbia River Inter-Tribal Fish Commission's Recommendations for the Climate Resilience and Preparedness Task Force

Columbia River Inter-Tribal Fish Commission's Recommendations
for the Climate Resilience and Preparedness Task Force
(Natural Resources and Agriculture Topic Area)
April 7, 2014

1. Please describe the challenge or opportunity as it pertains to the needs of tribal governments.

The First Foods of the Columbia River Inter-Tribal Fish Commissions' (CRITFC) four member tribes (Confederate Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes and Bands of the Yakama Nation, and the Nez Perce Tribe) include water, salmon, steelhead, sturgeon, lamprey, wild game, roots and berries. The culture and subsistence of tribal members revolve around the harvesting of these foods. Climate change will impact many, if not all, of these resources and may necessitate adaptation by the tribes to maintain their traditional culture and way of life.

Over 20,000 CRITFC tribal members live within the Columbia River Basin (CRB). The CRB is 258,000 square miles in size, and includes several jurisdictions, encompassing large portions of the states of Washington, Oregon, and Idaho, as well as British Columbia. The ceded lands of the CRITFC tribes cover 66,575 square miles, approximately one quarter of the CRB area.

Salmon and steelhead are dependent on healthy watersheds of cool-water streams and rivers that allow for freshwater spawning, rearing, and migratory habitat. Seasonal snowmelt from the mountains of the CRB produces a year-round supply of water that supports multiple downstream uses, including historically abundant runs of salmon and steelhead. Climate change may imperil many fish populations by reducing winter snowfall, changing seasonal stream flows and by increasing water temperatures.

Below are several climate change challenges that CRITFC has identified that will specifically affect the tribes and their natural resources:

A) Mainstem Rivers (Columbia and Snake Rivers)

1) Higher summer water temperatures in reservoirs will stress both juvenile and adult fish, affecting their migration timing and survival, and may benefit non-native predatory fish.
2) Lower summer flows will increase competition for limited water supplies in tributaries and mainstem rivers for different uses (hydropower, irrigation, fish migration).

B) Watershed Health

1) Higher summer water temperatures in the tributary watersheds will stress both juvenile and adult fish (All fish life stages have optimum temperature ranges. Warmer temperatures increase juvenile metabolic rates and can impede or kill adults during their upstream migration).
2) Lower summer stream flows will change channel structure, impede upstream migration of adult fish and contribute to water temperature increases.
3) Higher peak winter flows will likely cause erosion of sediment that can damage salmon/steelhead spawning areas, scour eggs, and "wash out" the emerging fry of fall-spawning populations.
4) Earlier spring runoff will alter the migration timing of smolts in snowmelt-dominated systems. Migration patterns have naturally evolved to move juveniles to the ocean at the same time that ocean upwelling delivers important food sources.
5) Fish populations at the greatest risk of extinction will likely be those already in habitats that are near the limits of their thermal tolerance, and for those with less resilience and diversity.

C) Ocean and Estuaries

1) Changing ocean conditions (higher water temperature and ocean acidification) will alter the marine food web and will affect salmon/steelhead.
2) Sea level rise will likely reduce coastal estuarine habitats used by juvenile salmon.

2. What specific actions can be taken at the federal level to encourage and support tribal government in these efforts?

CRITFC has developed a set of specific federal level actions that could support the tribal efforts in adapting to the climate change challenges listed above, along with additional recommendations:

A) Mainstem Rivers (Columbia and Snake Rivers)

1) Manage the Columbia and Snake Rivers hydropower system to a greater extent to assist salmon migration and survival.
2) Support tribal participation in the Columbia River Treaty (CRT) renegotiation with Canada to ensure that future scenario planning includes consideration of climate change and ecological concerns are included in the next CRT.

B) Watershed Health

1) Protect and restore stream connectivity to coldwater refugia (including connections to side channels and the river floodplain).
2) Restore ecosystem function to streams and rivers (including riparian restoration, livestock management and other restoration actions).
3) Explore means for greater flexibility in the application of water rights and their potential use for ecosystem functions.
4) Support the rights of tribes to sufficient instream flows to support salmon and other treaty-protected fish, especially during summer.
5) For populations that are most vulnerable, further genetic research into ways of increasing resiliency to climate change is warranted.
6) Reduce existing stressors on fish, including fish toxins, habitat degradation, and impediments to fish migration.

C) Ocean and Estuaries

1) Support research into how climate change may affect marine food webs that are critical to salmon and steelhead.
2) Protect coastal estuarine habitats that are used by salmon and steelhead.

D) Prioritization of Habitat and Restored Fish Passage

Potential habitat and restoration areas should be prioritized based on salmon and steelhead vulnerabilities to climate change. Water temperatures will continue to rise due to climate change. Freshwater effects will likely be greatest on "stream type" salmon populations (steelhead, coho, and spring/summer Chinook) because juveniles remain in freshwater environments for a longer period and adult fish return from the ocean during the spring/summer months. Estuarine effects will likely be greatest on "ocean type" populations (chum, and fall Chinook) because juveniles

spend time in the estuarine environment before migrating to the ocean.

The best cool water habitats for fish populations in the CRB are in the upper watersheds of central Idaho and the Upper Columbia, in areas that are impeded by large dams. Restored passage to these areas should be included as an important climate change strategy to protect CRB populations, and to ensure the overall survival of these species into perpetuity.

E) Institutional Actions

CRITFC also recommends that within the Bureau of Indian Affairs (BIA) an Office of Climate Change Adaptation is established that will facilitate information sharing and support for the tribes in the following areas, and as needed:

1) Establishment of a consistent funding stream to sustain tribal capacity building for climate-related activities;
2) Climate change vulnerability assessments; and
3) Climate change adaptation plans.