

CLIMATE RESILIENCE COMMUNITY CONVERSATION

CHELAN COUNTY

MAY 7, 2020

SUMMARY



CHELAN COUNTY CLIMATE RESILIENCE STRATEGY

Community Conversation Meeting Summary

May 7, 2020 | 9:00 – 11:00 AM | Virtual meeting on Zoom videoconference platform

INTRODUCTION

Partners and stakeholders throughout Chelan County attended this meeting for continued exploration of community climate resilience strategy development. This meeting continued the process established by two previous community resilience conversations held on January 31, 2019 and October 18, 2019.

This document summarizes the dialogue and next steps from a virtual meeting held on May 7, 2020 via Zoom videoconference platform hosted by Chelan County, the Chelan Public Utility District (PUD), as well as the Washington Department of Natural Resources (WA DNR). WA DNR co-hosted the meeting to continue the support of county-wide resilience planning efforts, which are supported by the agency's Plan for Climate Resilience, published in February 2020.

BACKGROUND

The foundation for planning the May 7, 2020 meeting was the key findings that emerged from the October 2019 meeting, summarized below:

- Four examples of current resilience planning and implementation across the county were presented: Chelan PUD Climate Resilience Report, Multi-Jurisdiction Natural Hazard Mitigation Plan, Chelan County Community Wildfire Protection Plan, and Icicle Peshastin Working Group. These examples indicate that resilience planning is considering climate impacts in various ways. Furthermore, these efforts suggest that **resilience planning is effective in Chelan County when it is in response to recent, local disasters or impacts, integrates similar planning efforts into a holistic approach, and is collaborative in nature.**
- **Resilience planning and implementation efforts face common challenges in Chelan County**, such as the difficulty in prioritizing actions in a generally high-risk environment and the sense that success will be difficult to achieve—but must be pursued—given current and projected risks.
- The key perceived benefits or values of a county-wide resilience planning effort are **improved communication and coordination, and the opportunity to advance projects of mutual benefit.** Given the number of ongoing resilience efforts, a key next step in county-wide planning may be a coordination forum that brings together those engaged in resilience projects to learn from each other, strategize around county-level initiatives, and support efficient communications, coordination, and advocacy.
- Resilience is broad and encompasses many things. **A county-wide resilience planning effort will need to be clear in defining what resilience means**, or defining which aspects of resilience are the focus of the plan or forum.



- **Existing state coordination and local public education and outreach around resilience are working well, but are insufficient.** Additional resources, capacity, and effort are needed.

PURPOSE

The purpose of the meeting was to build upon the two 2019 community conversations and launch a countywide climate resilience strategy development process with local stakeholders and partners. Specifically, the meeting aimed to build off the key findings from the October 2019 meeting that indicated what is most needed for future county-wide planning: improved communication and coordination, opportunities to advance projects with county-wide benefit, and strategies around integrated county-wide initiatives. To that end, the key objectives for this meeting were to:

- Share information about the countywide climate resilience strategy.
- Share information about local climate impacts expected for Chelan County.
- Identify key initiatives already occurring in Chelan County that build resilience to climate impacts.
- Identify opportunities for supporting those initiatives, support collaboration, and next steps for moving planning efforts forward.

PARTICIPATION

Chelan County sent invitations to attendees of the previous meetings in January and October 2019. Prior to the meeting, the planning team reached out to groups that had not participated in those meetings but are known to engage in climate resilience efforts in Chelan County, including the Latino Community Fund, Hispanic Chamber of Commerce, Café Wenatchee, and members of the agricultural community.

Thirty-one people attended the meeting (not including the facilitators; see Appendix A for a list of participants and their affiliations). Attendees included local government staff, elected officials, and staff from local non-governmental organizations and private industry. In addition, private citizens from the community and fires chiefs involved with wildland fire adaptation work attended.

There are multiple organizations and individuals in Chelan County working on community and landscape resilience initiatives. Many of these organizations were represented at this meeting, however, there were gaps in participation that are worth considering as next steps are developed in this planning process including:

- Several individuals and organizations that work in wildfire resilience were missing, including the United States Forest Service, North Central Washington Forest Health Collaborative, and the Chumstick Wildfire Stewardship Coalition. These groups could share valuable stories of building resilience through partnership and coordinated planning and action such as the Chelan Fire Pilot, Climate Innovation Lab, and Washington Fire Adapted Communities Learning Network.
- Many agricultural community members, who were identified as a group that had been underrepresented in previous meetings, were busy with production needs and unable to attend this meeting.



- Two members of Café Wenatchee, a Latinx organization, attended the meeting. During 2019 meetings, a need to include Latinx organizations was noted. Moving forward, local leaders can work together to increase whole-community representation in climate resilience planning.
- Although tribes were not represented at the meeting, there are numerous potential tribal interests affected by climate change and resiliency planning in Chelan County, given that the County jurisdiction overlaps with traditional territories and ceded lands of several federally recognized tribes.

Utilizing an online meeting format and the organizational stressors of the COVID-19 pandemic impacted participation from many groups. Improving methods for connecting while social distancing will yield broader participation in the future, and hopefully there will be more opportunities to meet in-person as risks of COVID-19 diminish.

METHODS

This meeting was originally intended to be held in-person. During to the global outbreak of COVID-19, which prompted federal, state, and local governments to order and advise people to not gather for in-person meetings, the planning team met with Chelan County partners and changed the format of the meeting to be virtual through an online platform.

The meeting was held utilizing Zoom remote videoconference technology. The virtual format led to a shorter and a more focused agenda. The agenda was organized into two sections. The first hour of the meeting was intended to provide information. Local elected officials, government employees, and staff from the University of Washington Climate Impacts Group (UW CIG) provided an overview of local climate impacts and climate resilience actions ongoing in Chelan County/North Central Washington. In addition, a representative from WA DNR provided an overview of the agency’s Plan for Climate Resilience.

The second hour of the meeting utilized the Zoom breakout group feature to support small group discussions. Participants were assigned to different small groups to discuss specific climate-related risks: wildfire, snowpack loss, flood risk, low instream flow, and water supply. Before the meeting, participants were able to request which breakout group they wanted to join and the planning team was able to accommodate most participants’ choices. Each small group had a designated facilitator to guide the conversation based on the following questions related to climate resilience in those risk areas.

1. **What are the key initiatives for building resilience to this climate-related risk** that everyone in the community should know about and that would most benefit from county-wide coordination?
2. **Is anything being done** on those initiatives, and if so, what’s the current status?
3. **What are the challenges** facing these initiatives? **What is needed to overcome** them and **advance** these key initiatives?

After the meeting, consultants supporting DNR’s agency-wide resilience planning and implementation process compiled and analyzed the input provided by breakout group participants and synthesized them to generate the notes and key findings in this summary.



KEY FINDINGS

The presentations and breakout group discussions generated several key findings, summarized below. The individual presentations are summarized in the following sections. The detailed information from breakout group discussions is presented in Appendix B.

- **There are multiple climate change impacts expected in Chelan County.** Warming winters impact snowpack, particularly at lower elevations, and increasing temperatures and duration of the snow-free season exacerbates wildfire season in terms of both severity and length. Increased peak flows and decreased base flows in rivers impact in-stream flow, flood severity, and water use.
- **Various initiatives in Chelan County are underway** to mitigate climate impacts, and they are at various stages of action. Hosting breakout discussions about specific climate-related risks was an **effective method to gather information** about the current status of initiatives.
- Many initiatives across climate risks had **overlapping themes within their objectives and priorities**. This indicates that there is **synergy across many initiatives** and there is potential that they can **leverage each other to achieve shared objectives**. Some common themes included:
 - **Keeping water in the right place** for the longest period of time.
 - **Balancing ecological restoration with infrastructure development** for resilience; specifically, the role of water storage in wilderness emerged as a common tension in public dialogue.
 - **Conducting outreach and engagement**, specifically for wildfire, floods, and instream flows. Priorities include:
 - Helping people learn their role in fire adaptation and promoting action beyond awareness.
 - Raising awareness about being prepared for flooding and conducting outreach specifically around post-fire flooding risk.
- There are **many challenges and needs identified to advance individual initiatives**, many of which were shared across multiple initiatives, including:
 - Need for **continued and expanded data collection** to inform planning and decision-making. In particular, there is a need for continued and/or increased SNOTEL and snowpack monitoring, as well as stream gauging.
 - Need to **conduct research and/or better understand** forest health and canopy density impacts on snowpack. In addition, more information is needed about how wildfire affects and interacts with other risk areas and natural processes, including snowpack and instream flows.
 - Challenge around the **tension and conflicts presented by multiple uses of the landscape**, including development, recreation, wilderness, agriculture, and habitat. In particular, conflict emerges around meeting all of these needs with limited water supply, which intersects with other climate-related risks.
- As Chelan County continues developing its climate resilience strategy, there is an opportunity for **local leaders to work together to increase whole-community representation** in climate resilience planning processes.



Presentation Summaries

VISION FOR CHELAN COUNTY CLIMATE RESILIENCE STRATEGY

Bob Bugert, Chelan County Commissioner

Commissioner Bugert introduced the vision for Chelan County's climate resilience strategy, emphasizing the value and importance of effective partnerships in addressing this issue, proactive measures, and co-benefits for the county residents.

A resilience strategy to be completed by Chelan County in the fall of 2020 would lead to: 1) improved communication and coordination, 2) opportunities to advance projects of mutual benefit, and 3) align opportunities for 2021 funding.

CLIMATE IMPACTS IN WASHINGTON STATE AND CHELAN COUNTY

Amy Snover, University of Washington Climate Impacts Group

Amy Snover shared information about how the climate has already changed in the Pacific Northwest, including warmer years on average, warmer winters, longer frost-free seasons, decreased snowpack, earlier peak streamflow from snowmelt, and an increase in number of large fires and area burned.

Amy also shared information about projected changes in Washington State, including: warmer temperatures, heavier rains, less snow and melting earlier in the year, rising seas, streamflows that have higher highs (indicating flooding) and lower lows (indicating lower streamflows in the late summer), and ongoing natural variability.

Amy then shared information about how projected changes are expected to impact other systems:

- Natural Systems, including: shifting species and ecosystems, changing pests and diseases, and increased invasive species and fires.
- Food and Agriculture, including: heat stress on crops, livestock, and workers; less water availability; and impacts on crop quality.
- Infrastructure, including: altering physical hazards, reducing infrastructure lifetime, and challenging system performance.
- Health and Well-being, including: increasing public health and safety hazards, and threatening community economic, spiritual, and cultural assets.
- Recreation, including: less snow for winter sports, stressed coldwater fisheries, and changing timing of wildland access.

LOCAL EFFORTS FOR CLIMATE RESILIENCE IN CHELAN COUNTY

Mike Kaputa, Chelan County Natural Resources Department

The Icicle Creek Work Group was provided as one example of a local group incorporating climate impacts in natural resource planning. The group is developing a long-term, comprehensive water resource management plan to upgrade infrastructure, improve instream flows, ensure fishing rights for tribes, and secure a long-term water supply. A question the group is working with is: if planning over 50-



year time frame, what are future stream flow conditions going to look like and how will that inform infrastructure planning now? The group is collaborating with UW CIG to use climate science to inform their decisions.

Mike Kaputa also noted there are many local initiatives related to forest health improvement, including a landscape evaluation with DNR and other partners. They are using moisture deficits and streamflow projections to determine what the right kinds of forest health treatments are to conduct now to be resilient in the future. Since forest health treatments are typically only happening once every 30-40 years, it is especially important to consider future conditions under climate change when developing restoration targets.

Mike discussed how the Chelan County Natural Hazards Mitigation Plan relates to this effort. A small part of the mitigation plan relates to climate change. Other than that, the plan is fairly standard, following a specified formula for FEMA-approved mitigation plans, and it does not include a substantial amount of locally-specific information. Eventually, the climate resilience strategy being developed through this process could inform future updates to the mitigation plan, which was just updated in fall 2019 and is on a 5-year update schedule.

Tracy Yount, Chelan Public Utility District (PUD)

Tracy Yount shared that the Chelan PUD is updating the PUD's annual plan based on the impacts of COVID-19. The community meeting scheduled for March for the Plain, Lake Wenatchee, and Leavenworth transmission line will be rescheduled to fall 2020. The plan's focus will still be how to integrate PUD planning with the broader needs of the community. The PUD is monitoring state and federal actions that may lead to opportunities, such as infrastructure investments.

Consistent with DNR's Resiliency Principle #2, the PUD continues to look at opportunities to engage in ways to partner and collaborate. One of the greatest areas of concern relates to the fire danger in the Leavenworth area. They are very interested in a community-coordinated partnership to address the risks where possible.

Tracy also shared a wildfire-related project video he encourages people to watch about resiliency in the electric system in the upper valley. The video can be accessed at: <https://www.chelanpud.org/learning-center/in-your-neighborhood/potential-electrical-system-improvements-in-the-upper-valley>.

WASHINGTON'S DEPARTMENT OF NATURAL RESOURCES STATEWIDE PLAN FOR CLIMATE RESILIENCE

Dan Stonington, Washington Department of Natural Resources.

Dan Stonington highlighted DNR's Plan for Climate Resilience, specifically the high-priority risks and responses. The plan prioritizes collaboration among DNR, communities, and other entities preparing for and adapting to the impacts of climate change. The plan will drive internal planning and alignment across programs.

The plan also includes statewide, system-level needs and opportunities, including:

- Establish an interagency climate resilience leadership structure.
- Provide state-supported climate impacts projections to support risk assessment, planning, and regulatory systems.



- Establish mechanisms for funding and financing resilience investments.
- Support and facilitate community-level resilience planning and implementation.
- Enhance education, outreach, and engagement.

DNR’s next steps are to complete program-specific strategies, prepare for the 2021 legislative session and address budget needs, and participate in and advance partner efforts.

CLIMATE RESILIENCE INITIATIVES IN WASHINGTON/NORTH CENTRAL WASHINGTON

Amy Snover, University of Washington Climate Impacts Group

Amy Snover provided an overview of climate resilience efforts among agencies operating in North Central Washington State, including:

- The US Forest Service and National Park Service completed a joint climate change vulnerability assessment and adaptation plan for North Cascades National Park and the Okanogan/Wenatchee National Forest. The National Park Service has developed a fire management plan that considers climate change and increasing fire risk; USFS is implementing climate-altered restoration targets.
- WA DNR completed their Plan for Climate Resilience supporting community-based resilience.
- Washington State Parks completed a climate vulnerability assessment and adaptation plan.
- Washington Department of Fish and Wildlife has identified climate vulnerable fish and wildlife species and is promoting climate-resilient culvert design.
- Washington Department of Transportation assessed vulnerability of state highways and other transportation infrastructure. They are designing climate-smart culverts for fish passage.
- The Colville Tribes completed a natural resources vulnerability assessment and a youth activity and teaching guide, as well as conducted climate adaptation workshops.
- Chelan County has supported multiple efforts, including the Icicle Creek Work Group and Chelan Emergency Management planning.
- Chelan PUD assessed climate risks to Lake Chelan operations and Rocky Reach power generation, and evaluated high-risk areas for wildfire. They are managing Lake Chelan for climate-altered flows and hardening transmission infrastructure to fire.

Amy noted that individually, many organizations and agencies have identified their individual roles and actions to take for climate resilience. Collectively, this has a big impact on resilience in the region.

CONCLUSION AND NEXT STEPS

The May 2020 Chelan County Climate Resilience Community Conversation built upon two climate resilience gatherings in 2019. The virtual meeting brought together key partners and stakeholders in county-wide resilience planning and implementation. Through presentations, breakout group discussions, shared plenary reflections, participants identified key initiatives that are building climate resilience in Chelan County, the current status of those initiatives, challenges they face, and their needs to make progress toward county-wide resilience.

The information gathered during this meeting will be the foundation for Chelan County’s Climate Resilience Strategy. This strategy will serve as a springboard to developing a holistic, county-wide, and long-term climate resilience plan. Chelan County has contracted with BERK Consulting to assist with this



endeavor, and the UW CIG will also help inform the process with climate science. The development of the Climate Resilience Strategy will be an opportunity to continue expanding the circle of people who are engaged with the effort. Moving forward, it will be important to be intentional with time and resources to engage groups who were not present in the meeting, specifically members of the agricultural community and Latinx community, as well as a broader suite of folks involved in wildland fire management.



APPENDIX A: LIST OF MEETING PARTICIPANTS

In addition to the following list of meeting participants, the event facilitation team included:

- Dan Stonington, WA DNR
- Ryan Anderson, Washington Resource Conservation & Development Council
- Emily Wright, Cascadia Consulting Group
- P.J. Tillmann, Cascadia Consulting Group
- Amy Snover, University of Washington Climate Impacts Group
- Harriet Morgan, University of Washington Climate Impacts Group

| NAME | ORGANIZATION |
|-------------------|--|
| Adam Maxwell | Audubon WA |
| Alexis Flores | Café Wenatchee |
| Amanda Barg | WDFW |
| Ben Silver | BERK Consulting |
| Bob Bugert | Chelan County Commissioner, District 2 |
| Brandt Cappell | Office of Washington State Representative Keith Goehner |
| Carmen Andonaegui | WDFW |
| Curt Soper | Chelan Douglas Land Trust |
| Dan Siemann | WA DNR |
| Darlene Hernandez | Café Wenatchee |
| Eric Pentico | WDFW |
| Jason Detamore | Chelan County |
| Jim Brown | Chelan County |
| Joan Qazi | WVC Geography |
| Josh Jorgensen | Mission Ridge |
| Keith Goehner | Washington State Representative, 12 th District |
| Kelli Scott | Office of Congresswoman Kim Schrier |
| Kevin Overbay | Chelan County Commissioner, District 1 |
| Lilith Vespier | City of Leavenworth |
| Lisa Grueter | BERK Consulting |
| Mick Lamar | Lake Wenatchee Fire & Rescue |
| Mike Cushman | Cascadia Conservation District |
| Mike Kaputa | Chelan County |
| Patrick Haggerty | Cascadia Conservation District |
| Ryan Rodruck | WA DNR |
| Sara Rolfs | Wenatchee Valley Museum |
| Scott Bailey | Chelan County |
| Sharon Waters | City of Leavenworth Councilmember, Position 5 |
| Steve Croci | City of Cashmere |
| Todd Welker | WA DNR |
| Tracy Yount | Chelan PUD |



APPENDIX B: BREAKOUT GROUP OUTPUT

| WILDFIRE | | Facilitator: Dan Stonington Participants: Patrick Haggerty, Mick Lamar, Sara Rolfs, Alexis Flores, Darlene Hernandez, Eric Pentico |
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| Key Resilience Initiative | Information & Current Status | Needs to Overcome Challenges & Advance Initiatives |
| Communication and outreach to drive local action | <ul style="list-style-type: none"> • Communication tends to be about longer wildfire seasons, impact on forest and less about what is driving change. • See resource: Chelan Fire District 1 – Living with Fire Videos. | <ul style="list-style-type: none"> • Better to communicate action, rather than cause. • Fire is a good example to show kids impact of climate change. • Keep outreach multi-lingual to ensure engagement with all members of the community. |
| Firewise | <ul style="list-style-type: none"> • At the neighborhood scale. | <ul style="list-style-type: none"> • None identified. |
| Fire Adapted Communities | <ul style="list-style-type: none"> • Supported by National Cohesive Strategy, DNR “20 Year Plan” and DNR Wildland Fire Strategy. | <ul style="list-style-type: none"> • None identified. |
| Landscape Planning | <ul style="list-style-type: none"> • 20 Year Forest Health Plan and 10 Year Wildland Fire Strategy. • Landscape Evaluations from Washington Conservation Initiative. | <ul style="list-style-type: none"> • There could be more opportunities around county-wide coordination. • There are different county wide coordination efforts that were not formally represented in the room. |
| Resilient infrastructure | <ul style="list-style-type: none"> • Chelan PUD has completed a risk assessment of transmission lines with the goal of developing a plan to fire-harden infrastructure | <ul style="list-style-type: none"> • None identified. |
| Land use codes | <ul style="list-style-type: none"> • Chelan County Fire Advisory Board is memorialized in county code and facilitates interagency fire prevention decisions and reducing wildfire hazards | <ul style="list-style-type: none"> • Land use codes are a challenging topic but important opportunity to discuss when considering longer fire seasons. |
| WATER SUPPLY (POTABLE & IRRIGATION) | | Facilitator: Amy Snover Participants: Bob Bugert, Jim Brown, Lilith Vespier, Mike Kaputa |
| Key Resilience Initiative | Information & Current Status | Needs to Overcome Challenges & Advance Initiatives |
| Icicle Work Group | <ul style="list-style-type: none"> • Key question: How do we hold back the water in absence of snowpack to benefit instream flows & water supply? | <ul style="list-style-type: none"> • Biggest challenge: perceived/real potential impacts on wilderness area. |

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| | <ul style="list-style-type: none"> • Model for collaboration & for addressing snowpack loss in other basins without large infrastructure (use of small storage areas) from a systems level. • Considering: groundwater recharge (floods), high-elevation small scale storage, run-of-river dam to create hydro to reduce costs of pumping. | |
| City of Leavenworth | <ul style="list-style-type: none"> • Working on new water metering program to understand usage (apparent 30% loss right now). • Part of Icicle Work Group. • Hope to help hotels understand (& reduce) actual water use. • Received proposals, about to select contractor, for meter replacement work; | <ul style="list-style-type: none"> • Biggest challenge is that current water use isn't well understood. 30% of current use is unaccounted for. Not sure why—are meters wrong? Are there leaks? |
| Chumstick & Mission Creek Alluvial Storage Projects | <ul style="list-style-type: none"> • Goal to increase stream complexity in key watershed areas to slow flow, increase infiltration. • County is currently undertaking, monitoring in place to evaluate effectiveness. | None identified. |
| Beaver Reintroduction – Mountain Springs area north of Leavenworth | <ul style="list-style-type: none"> • Current status unknown. Not sure who was doing the reintroductions – perhaps the Colville or the Yakama Nation. | None identified. |
| North Central WA Forest Health Collaborative | <ul style="list-style-type: none"> • Not sure of current status; possibly doing a field study to evaluate the relationship between forest cover & water supply—to what degree does reduction in forest cover enhance snow retention on the landscape? • Separately, research underway at UW to characterize this relationship in different locations in the state; not sure if any of that work is specific to Chelan. | None identified. |
| Okanogan Douglas PUD Water Management Tool | <ul style="list-style-type: none"> • Flow model used to balance instream/out of stream uses. • Used in Okanogan and Yakima; could be a useful tool for Chelan at some point. | None identified. |
| Chelan DNR Wenatchee Basin Alluvial Water System Model | <ul style="list-style-type: none"> • Modeling study in the Wenatchee basin to determine the amount and severity of stream incision across the watershed and to model the potential benefit that could accrue to water supply from reducing that incision. | None identified. |



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| Water Supply Data & Monitoring | None identified. | <ul style="list-style-type: none"> • Data/monitoring gaps identified for water supply: SNOTEL, snow pillows, forest gaps. • Data/monitoring gaps for water use include how, where, & how much water is being used from county wells—this would be useful info to support rural community water conservation efforts; maybe begin with voluntary metering/study. |
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SNOWPACK

Facilitator: Ryan Anderson

Participants: Josh Jorgenson, Joan Qazi, Ryan Rodruck, Mike Cushman, Scott Bailey

| Key Resilience Initiative | Information & Current Status | Needs to Overcome Challenges & Advance Initiatives |
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| Mission Ridge | <ul style="list-style-type: none"> • Record of snowpack since 1970 • Average 144 inches; 10-yr average is 164 inches; 5-yr average is 162 inches. • Keeping a close eye on situation; preparing for long term shift. | <ul style="list-style-type: none"> • Inconsistency is the consistency—need to be ready for anything. • Would lower elevation ski resorts have a different problem? Closer to coast more amplified. |
| Forest Management/Snowpack Snow-to-Flow model related to Forest Health | <ul style="list-style-type: none"> • Never really went live with model. | <ul style="list-style-type: none"> • Manage forest canopy. • Snow on ground lasts longer than on limbs. |
| Snowpack & Fire Interactions | <ul style="list-style-type: none"> • Snowpack is well understood to correlate to fire concern. • Having SNOTEL sights and stream gauges. • Ash-on-snow dynamics. • Post-wildfire impact on run-off – Hydrophobicity of soil. | <ul style="list-style-type: none"> • Need to continue SNOTEL and stream gauges and National Weather Service data—very important for planning. • Need to explore whether there is research about ash-on-snow dynamics, such as ash from wildfires impacting snowmelt rates. |
| Beaver Dam Analog – water storage | <ul style="list-style-type: none"> • Forest and DNR Groups working on BDA’s Beaver Dam Analog. • BDAs have other water storage/floodplain and increased hyporheic flow benefits • BDAs are linked to natural water storage benefits. | <ul style="list-style-type: none"> • None identified. |
| Snowpack & Species | <ul style="list-style-type: none"> • Some reports exist, e.g., snowpack impact on birds. | <ul style="list-style-type: none"> • Lot of work on researching snowpack influences/impacts on: changing vegetation and plant communities, birds/habitat, invasive species. |
| Long-term Values | <ul style="list-style-type: none"> • Looking at replanting post-wildfire as a cost-share element from conservation district. | <ul style="list-style-type: none"> • Funding for future opportunities. |



FLOODING

Facilitator: Harriet Morgan
 Participants: Amanda Barg, Ben Silver,
 Jason Detamore, Steve Croci

| Key Resilience Initiative | Information & Current Status | Needs to Overcome Challenges & Advance Initiatives |
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| County Comprehensive Flood Management Plan | <ul style="list-style-type: none"> Mitigation measures and mitigation actions; not necessarily all capital improvements; wide range of alternatives. Published report (late 2017) adopted by commissioners. | <ul style="list-style-type: none"> Staff/time/money limitations (small budget compared to west-side budgets). |
| Guidance for designing culvert sizing to future streamflow levels | <ul style="list-style-type: none"> Other folks are designing them, but WDFW is providing guidance. Climate Robust Culvert Design: Probabilistic Estimates of Fish Passage Impediments. UW Climate Impacts Group | <ul style="list-style-type: none"> USGS product called Stream-Stats to come up with hydraulic capacity. Large margin of error on eastside. Applying climate change model on top of that – wide range for interpretation. Need to refine information in collaboration with whoever needs to size a culvert (municipality/private landowner). WDFW wants to be part of that conversation to ensure culvert sized appropriately. |
| City of Cashmere Levy Management Plan | <ul style="list-style-type: none"> Potential opening of floodplain. Following what Chelan County is doing. Staff capacity and City capacity low compared to capacity needed to complete levy removal/setback projects. | <ul style="list-style-type: none"> Staff/capacity limitations. |
| WDFW 5-year Maintenance Permitting | <ul style="list-style-type: none"> On-going. Implemented over the past couple years. 5-year general Hydraulic Project Approval (HPA) permits—required for individuals planning hydraulic projects in or near state waters. Not all of these HPAs need to have site specific provisions. Hydraulic projects covered by HPAs include a suite of infrastructure types (e.g., culverts, bridges, outfalls) and practices (e.g., stream bank protection, aquatic plant removal, etc.). HPAs are required for new projects, repairing existing projects, modifying projects, or replacing hydraulic projects. Emergency HPA hotline—access to habitat biologist personal cell; offers verbal emergency HPA when something has to be done, but isn't a long-term solution. | <ul style="list-style-type: none"> Counties want more than WDFW can give. Limited on what types of actions can be covered in that kind of permit. |



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| Public education & outreach on flooding | <ul style="list-style-type: none"> • Misunderstanding that it doesn't flood on the eastside. • Variety of strategies: open houses, fliers, door-knocking, radio ads, social media, mailers, website updates. • On-going. • Two different messages: 1) Know your surroundings and be prepared; 2) General warnings and specific outreach after fire events (post-fire flooding). | <ul style="list-style-type: none"> • Lack accurate weather radar. • Inaccurate weather service warnings that come out. |
| WSDOT Climate Impacts Assessment | <ul style="list-style-type: none"> • Identifying impacts to infrastructure. | <ul style="list-style-type: none"> • None identified. |
| INSTREAM FLOWS | | Facilitator: P.J. Tillmann |
| | | Participants: Lisa Grueter, Carmen Andonaegui, Dan Siemann |
| Key Resilience Initiative | Information & Current Status | Needs to Overcome Challenges & Advance Initiatives |
| WDFW Climate-Smart Floodplains | <ul style="list-style-type: none"> • <i>Did not discuss. Participants not familiar with details.</i> | |
| Icicle Watershed Workgroup | <ul style="list-style-type: none"> • WDFW very active – supporting fish & instream flows. • Leavenworth using grant to reduce residential & commercial water use (provide meters, high-efficiency plumbing & appliances). • Fish Hatchery improving diversion to reduce water need. • Icicle Peshastin (IPID) and Cascade Orchards (COIC) Irrigation Districts take water out of Icicle and are making withdrawals more efficient; COIC went to groundwater for example. • Tension between interests, e.g., wilderness where water is stored naturally. | <ul style="list-style-type: none"> • Funding to implement suite of projects that have been identified. • Skilled facilitation team helps work group work through problems. • County-led community engagement; most important to continue the outreach. Did not identify any missing perspectives in the outreach. • Water storage in the wilderness is a source of recurring conflict. |
| WSDOT climate-smart culverts | <ul style="list-style-type: none"> • WDFW tool to help municipalities upsize culverts to support flow changes; similar work for WSDOT. | <ul style="list-style-type: none"> • None identified. |
| Entiat Watershed | <ul style="list-style-type: none"> • No current effort, but active community. Could be valuable to look at in-stream flows into future. | <ul style="list-style-type: none"> • None identified. |



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| Squilchuck Basin | <ul style="list-style-type: none"> • Trying to build resiliency via storage. Irrigation companies w/ multi-year plans could contribute to building resiliency via water storage. | <ul style="list-style-type: none"> • Population growth to Chelan County and the Valley, largely for recreation. Recreation interests can be in conflict. • Reservoirs are used for recreation. |
| Stimilt Basin | <ul style="list-style-type: none"> • Focused on cold-water fish. Irrigation companies w/ multi-year plans could contribute to building resiliency via water storage. • Agriculture influx of high-mountain cherries – conversion of forested habitat to orchards, and along w/ conversion, increased infrastructure and water use. | <ul style="list-style-type: none"> • Working through tensions that new orchards bring – CEQA reviews & County ordinances require review of this type of land conversion. • Wildlife impacts have been larger issue than water. Lack of concern or conflict among public, except for conflict with hunting interests. • Improving storage to keep water in stream as long as possible. |
| Comprehensive/watershed-scale approach to water banks for agriculture | <ul style="list-style-type: none"> • Group reported that nothing is known for water banks. • A water banking appraisal for Mission Creek was prepared for the County natural resources department in 2018. | <ul style="list-style-type: none"> • May be room for improvement in more collaborative discussion. |

