

Northwest Climate Resilience Collaborative



2021 – 2022 ANNUAL REPORT



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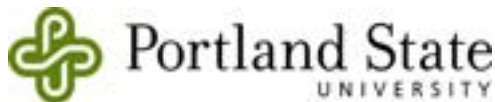
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The Northwest Climate Resilience Collaborative is part of the National Oceanic and Atmospheric Administration's (NOAA) Regional Integrated Science and Assessment (RISA) Program, which supports research that helps build capacity to prepare for and adapt to climate change. The Resilience Collaborative is one of 11 active RISA teams across the country.



The Northwest Climate Resilience Collaborative is grateful to our network of partner organizations.



Idaho State University



WASHINGTON STATE UNIVERSITY
Center for Sustaining Agriculture
and Natural Resources



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ABOUT THE NORTHWEST CLIMATE RESILIENCE COLLABORATIVE

The Northwest Climate Resilience Collaborative (NCRC) is part of a national network of 11 NOAA Regional Integrated Science and Assessment (RISA) programs. RISA programs build relationships that help local decision makers and researchers collaborate on adapting to climate change. First funded in 2021, the NCRC brings together ten partner organizations across Washington, Idaho, Oregon and western Montana.



Our Vision and Focus Areas

The NCRC's work is organized around three research portfolios: **Tribal Coastal Resilience**, **Rural Resilience**, and **Scaling Resilience**. Portfolios actively build partnerships with frontline communities and regional organizations to design meaningful co-production processes.

The Tribal Coastal Resilience Portfolio and the Rural Resilience Portfolio focus on key types of communities facing disproportionate climate change impacts in the Northwest. The work integrates natural and social science research to understand community needs, priorities, values, and opportunities for accelerating adaptation and deep community engagement to enhance local adaptive capacity through application of this knowledge.

The Scaling Resilience Portfolio includes activities designed to accelerate climate adaptation in the Northwest, across the RISA network, and in state and federal climate resilience programs and policies. Through ongoing evaluation of relationships, processes and outcomes, the NCRC applies adaptive management of its projects to advance the science of evaluation and build participatory research on resilience.



The Resilience Collaborative Model

Advancing Climate Resilience in Frontline Communities through Climate Adaptation Science, Assessments and Solutions



Meet the NCRC Team

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TRIBAL COASTAL RESILIENCE

Building Relationships and Establishing Partnerships

Co-governance and reciprocity in tribal-academic partnerships. The Tribal Resilience Coastal Team has identified several mechanisms throughout the research process to ensure the sovereignty and protection of tribal communities and individuals. The team has engaged in several outreach activities prior to the implementation of listening sessions as a means of honoring Free, Informed and Prior Consent (FIPC), as follows:

- **Project introduction to tribal networks.** Members of the team attended several inter-tribal meetings, which included Affiliated Tribes of Northwest Indians' (ATNI) winter and spring Quarterly Meetings and the Pacific Northwest Tribal Climate Change Network's monthly meetings, to distribute project information and encourage participation in key research activities.
- **Letters to tribal chairs.** The team sent formal letters to chairpersons of Northwest coastal tribes, requesting consent to participate in research activities. These letters contain clear, accessible descriptions of the program, key research activities and its potential impact to the tribes, with the goal of obtaining informed consent from each tribe's governing body.



Proudest Accomplishment: Ethical Co-Production

Prioritizing community benefit

The Tribal Coastal Resilience team strives to build an ethical co-production process. This emphasis reflects the team's recognition of historic injustices experienced by tribes when engaging in tribal-academic partnerships. Ethical co-production requires working relationships built on mutual trust, reciprocity, and the prioritization of community benefit for tribes, tribal organizations, and tribal members.

The team engaged in several activities to ensure that tribal governments and organizations can exercise informed participation and oversight over the research process and its outcomes, specifically in how this might affect the sovereignty and well-being of their communities. Notably, the NCRC includes leadership from Affiliated Tribes of Northwest Indians (ATNI) (i.e., Co-PI Jones) and includes a range of tribal partners.

Understanding the current state

The team conducted a review of climate adaptation plans for 31 coastal tribes. It provided the team with a better understanding of the specific needs, barriers, existing capabilities, opportunities for collaboration and cultural context before conducting listening sessions with the tribes. Listening sessions will be held with each of the tribes to co-produce a holistic, culturally relevant adaptation needs assessment through direct input.

Establishing trust

- Provide an intentional platform for tribal members to influence the research process and determine project outcomes, specifically as it relates to their individual and tribal sovereignty and well-being.
 - Establish trust, reciprocity and meaningful relationships between academic and tribal partners, as the foundation for co-production and means for reconciliation.
 - Document barriers, needs and opportunities for advancing climate resilience, as tribes define them.
 - Understand broader tribal priorities that intersect with climate resilience but may not historically be documented.
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Ensuring co-production

- To reduce duplicative efforts and to further align our research process to existing tribal-led work, several members of the team have been actively attending ongoing inter-tribal gatherings as learning sessions.
- The Tribal Advisory Group (TAG), ten tribal members that represent the expertise, interests, and geographic areas of the Northwest coastal tribes, is actively involved in setting research priorities while minimizing the burden on tribal partners.
- Additionally, the team will offer technical training and support on existing climate services and resources that are already available for the region.

Information Gathering and Sharing

Tribal climate adaptation plan review. Led by Blalock, a foundational component of the climate adaptation needs assessment is to conduct a Tribal Adaptation Plan Review. The review is an analysis of available climate change planning and assessment documents that focus on coastal tribes in Washington and Oregon. It will help the team understand the status of coastal tribes in the adaptation management cycle and support needed to make progress. It will also inform the design and structure of listening sessions, ensuring the team is prepared to engage with tribes meaningfully.

The team has collaboratively aggregated available climate plans and assessments for 31 individual coastal tribes, as well as plans that focus on multiple tribes. These were used to design the analysis methodology. Amongst the tribes, climate change planning varies; some have no available planning documents, while others have three or more at various degrees of specificity. Blalock and the team are analyzing the data for content such as specific needs or barriers, existing capabilities, opportunities for collaboration, specific climate adaptation or mitigation actions, potential funding programs, cultural context, and more.

The review is designed to produce multiple resources for the listening sessions, such as conversation guides. It will also produce an understanding of climate adaptation progress across tribes through inventories of planned adaptation efforts, specific needs or hurdles affecting adaptation, and available assets. The resulting qualitative data analysis database will be made available throughout the duration of the project to be employed and further explored as needed, pending emerging learnings and strategies.

Listening sessions with tribal coastal communities. During summer and fall of 2022, the Tribal Coastal Resilience Team (Krosby, Blalock, Asinas, Sirois, Poe, and Hatch) will conduct in-person and virtual listening sessions with coastal tribes in the region. Listening sessions will be co-designed with the portfolio's tribal partners, including ATNI, The Northwest Indian Fisheries Commission (NWIFC), the Columbia River Intertribal Fish Commission (CRITFC), and the newly formed TAG.

The Tribal Coastal Team will build the listening sessions from the review of tribal adaptation plans, which was led by Blalock this past year. The review provides an overview of the state of climate adaptation practices across 31 Northwest coastal tribes.

The team recognizes that information from these plans is limited for the following reasons:

1. Some tribal vulnerability assessments or adaptation plans are developed in response to funder priorities (e.g., the Bureau of Indian Affairs) and thus primarily reflect Western-scientific frameworks.
2. Some vulnerability assessments or adaptation plans are developed by tribal staff or contracted out to consultants with little community engagement, and thus may not reflect the diverse, holistic needs and priorities of tribal members.
3. Given the intersectional nature of climate impacts, there may be climate-related priorities and concerns that are not documented in vulnerability assessments and tribal

adaptation plans. Thus, listening sessions are a means for co-producing a holistic, culturally relevant adaptation needs assessment through direct input from tribal members.

Engaging individually with tribes allows the team to gather input from tribes that are typically not present in regional gatherings. Each listening session will be held with two members of the team, who will facilitate and transcribe the session and two to three tribal representatives, recommended either by the tribal chair or climate change director. The NCRC team has identified 31 tribes across the focus geography (coastlines of Washington and Oregon). However, additional tribes may become involved throughout the project if they self-identify as “coastal.” While the aim is to reach all 31 coastal tribes identified in the Northwest, it is expected that not all tribes will have the capacity or interest to participate during these summer sessions. Therefore, the team will pursue larger multi-tribe discussions through ATNI meetings and other events.

Each conversation will be transcribed live by the NCRC team. These conversations will then be analyzed individually and as a whole to inform future listening sessions, year one and two’s climate adaptation needs assessment, and project strategy moving forward. Analysis methods will be developed pending the results of the listening sessions and will be designed to integrate with the analysis methods being used in the NCRC’s review of tribal adaptation plans.

Learning sessions. As the Tribal Coastal Resilience Team plans to conduct listening sessions with individual tribes, they also recognize that tribes across the Northwest already have existing platforms in which they regularly convene to discuss climate-related challenges, such as the ATNI Tribal Climate Camp, The Olympic Coast Ocean Acidification Sentinel Site (OASeS) Symposium and the NWIFC Tribal Climate Change Forum. To reduce duplicative efforts and to further align our research process to existing tribal-led work, several members of the team have been actively attending these inter-tribal gatherings as learning sessions. Engagement in these convenings is continuously informing the design of the adaptation needs assessment in a manner that is responsive to emerging tribal priorities and initiatives.

Co-designing and Identifying Research Priorities

Co-production of Tribal Coastal Resilience portfolio. Over the past year, Krosby, Blalock, Asinas, Sirois, Poe, and Hatch have made progress in design and implementation of a climate adaptation needs assessment for and with coastal tribes in Washington and Oregon. With the acknowledgment that Northwest tribes are leaders in adaptation and have been observing and responding to effects of climate change for decades, the goal of this work is to further advance the science of climate resilience by co-defining research, capacity, and policy needs to support and accelerate adaptation action.

Convening the Tribal Advisory Group. The team identified the need for an additional mechanism for equitable co-governance of the research process and its outcomes. The team developed an advisory committee to provide guidance and feedback regarding the Team on research design and tribal engagement throughout the research process. In spring 2022, the team convened a Tribal Advisory Group (TAG) composed of ten tribal members representative

of the diverse range of interests, expertise, and geographic domains of Northwest coastal tribes. The TAG will:

- Provide continued input on the structure and scope of work of the advisory group.
- Provide guidance on the project's tribal outreach and engagement efforts, including ways to maximize benefit and minimize burden to tribal participants.
- Provide oversight and input on listening session design and implementation.
- Co-define project outcomes and deliverables that would be beneficial to coastal tribes.

Engaging inter-tribal organizations in research co-design. During project initiation, the team collaborated closely with the Northwest Indian Fisheries Commission (NWIFC) and NOAA Northwest Fisheries Science Center's Tribal Liaison (NWFSC). Most recently, the Columbia River Inter-tribal Fish Commission's (CRITFC) Climate Change Program has joined the portfolio as an external partner.

Streamlining regional outreach and engagement efforts. Many tribes are overwhelmed with requests for engagement and have limited capacity to respond. To streamline outreach, the team has developed partnerships with similar research initiatives, such as the NSF-Funded Cascadia Coastlines and Peoples Hazards Research Hub (CoPES Hub) and the Northwest Climate Adaptation Science Center (NWCASC).

Providing climate services to Northwest coastal tribes. The team will offer technical training and support on existing climate services and resources that are already available for the region.



This includes training on the Tribal Climate Tool, developed by the [UW Climate Impacts Group](#), access to the [Tribal Climate Technical Support Desk](#), and [ATNI's Climate Change resources](#).

RURAL RESILIENCE

Building Relationships and Establishing Partnerships

Chelan County Climate Resilience Roundtable. Led by Raymond, the Rural Resilience Team has expanded their partnership with Chelan County to identify capacity needs in support of the Chelan County Climate Resilience Roundtable's process to implement the county's Climate Resilience Strategy. Needs identified include funding to support the participation of nonprofits that represent the needs of Latina/o and low-income communities in the county, better understanding of economic baseline conditions to support prioritization of adaptation actions and establishing a Science Advisory Committee to support technical needs of the roundtable.



Extending the NCRC's reach to rural Oregon communities. Mauger, Roesch-McNally, Candib, Running, and Sugla have connected with state agencies, tribes, non-profit organizations, and community representatives across Oregon, with a focus on the northeastern portion of the state. Several have expressed interest in connecting with the NCRC's projects in the state. The team plans to leverage their work where there is overlap, while also serving as a regional hub to connect communities with relevant agencies and organizations to advance their resilience goals.

Engaging with Chelan County. Raymond is collaborating with Chelan County and its local and federal government and community partners to build a work plan as part of the Chelan County Climate Resilience Roundtable. As part of the roundtable, four sub-committees, (wildfire, water resources, public health and vulnerable populations, and communications), will develop work plans to implement the Chelan County Climate Resilience Strategy. Committee participants include the local conservation district, Chelan County government, city governments, federal natural resource agencies, and community non-profits.

Information Sharing

Conferences and Summits

In the past nine months, Running has engaged with USDA Rural Development and the Umatilla Energy Trust to build understanding of regional energy, climate, environmental, and social issues in Northeast Oregon, including the cities of Pendleton, Umatilla, Hermiston, and Echo. Running has attended two conferences in Pendleton, OR:

- **Regards2Rural Conference.** This conference was organized by the Rural Development Initiatives for state agency or non-profit representatives working on innovative economic models to help pave the way to rural vitality. Natural resource management, especially water management, was presented as the primary concern affecting regional communities. There was a strong focus on equity and inclusion, entrepreneurship and diversity in community leadership, public policy (at the city, state, and federal levels) and revitalization of rural areas equitably with federal monies and philanthropic support.
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- **Black Women's Rural Network Conference.** This conference highlighted the needs that Black rural residents of Oregon have in terms of promoting Black Excellence. The keynote speaker was Mayor Alexander D. Johnson II, of Albany, OR, who focused his address on celebrating many of the accomplishments of Black rural residents of Oregon, especially school superintendents and other city officials. A key focus was civic engagement and the need to improve the quality of life for Black rural residents.
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Chelan County Economic Summit. Headwaters Economics (Hernandez, Lawson, and Smith) analyzed socioeconomic data for Chelan County and presented key findings to the roundtable at an economic summit in May 2022. The goal was to frame how economic, demographic, and

other socioeconomic trends in the region create both opportunities and barriers to climate adaptation. The presentation noted that Chelan County has many strengths to build upon: the county's population is growing, unlike other rural areas in Washington, and the county is a key destination for outdoor recreation. The county's economy is relatively diverse and reliant on stable economic sectors, including government and health care. However, variability exists within the county, demonstrating the need for a nuanced assessment of potential socioeconomic vulnerabilities. For instance, most rural areas in the county are dependent on natural resource industries, representing a potential economic vulnerability to climate change.

The economic summit highlighted other areas to be addressed as the group furthers its resilience goals. For example, the county has a much higher proportion of rental properties compared to other rural areas in the state, as well as a greater proportion of second homes and short-term rentals. These combine to make housing a challenge for many residents.

The presentation emphasized that the challenges facing Chelan County are not unique to this area and have a range of solutions. Headwaters Economics presented several case studies highlighting potential solutions, including a community that has regulated short-term rentals as part of its affordable housing strategy and state and nonprofit-led efforts to diversify revenue streams for agriculture operators. After the presentation, the roundtable participants broke into small groups to discuss how changing socioeconomic trends in Chelan County will influence their work and how to capitalize on the identified opportunities.

Extension Action in a Changing Climate

Conference. Kruger, Hall, Yorgey, and Sallato helped plan WSU's All Extension summer gathering, **Extension Action in a Changing Climate**. From July 11-14, 2022, the conference brought together WSU Extension faculty and staff working across the state and many in rural communities, who are learning ways to integrate and infuse climate change considerations throughout their programming. Speakers included youth, researchers, and WSU personnel working on climate change and in diversity, equity, and inclusion.





Resource and Information Sharing

Rural portfolio researchers (Kruger, Hall, Yorgey, and Sallato) have engaged authors from several Pacific Northwest universities to write for [AgClimate.net](https://agclimate.net), a blog discussing the intersections between climate change and agriculture and natural resources. Blog posts share research, resources and tools with agriculture and natural resources professionals (e.g., Extension personnel, Conservation District staff).



The team has posted 21 full length articles, four brief “check it out” articles, and five announcements since August 2021. These include a full-length article describing the impacts of climate change on irrigated agriculture in the Yakima River Basin and economic trade-offs associated with these impacts; and a brief on the Climate Impacts Group’s Spanish translations of two key climate change related reports.

AgClimate articles received 10,291 unique page views, with the Yakima Basin article receiving 314 views with an average time on page of just under 4 minutes, and the “check it out” article mentioned above receiving 72 views of almost 5 minutes each, on average.

April 28, 2022

Adapting to Climate Change in the Yakima Basin: Agriculture’s Volatility and Tradeoffs

By Aaron Whittemore, Center for Sustaining Agriculture and Natural Resources, Washington State University



Fifty percent of the Yakima Basin’s agriculture is irrigated. Photo: Tyler Matheson, Unsplash

The Yakima River Basin is a snow-dependent, agriculturally important region in Washington state, leading in production of many commodities and specialty crops. Nearly 50% of agricultural production in the Yakima Basin is irrigated, and is vulnerable to future expected temperature increases and severe droughts.

Co-designing and Identifying Research Priorities

Establishing a Science Advisory Committee for Chelan County. Over the past year, Raymond and the Chelan County Climate Resilience Roundtable identified the need to have ongoing consultation with technical advisors as the county develops its work plans to implement the strategy. Raymond worked with the Roundtable to identify gaps in technical expertise that could be filled by scientists from academia or the federal government. From this work, Raymond assisted the county to establish and convene the Scientific Advisory Committee (SAC), which will provide ongoing consultation to ensure the work plans reflect current science on climate impacts and adaptation practices. Raymond and Mauger, among other scientists, are participating in the Science Advisory Committee.

Supporting grassroots engagement in climate resilience. In collaboration with the Chelan County Natural Resources Department, Raymond and Thill have developed contracts totaling approximately \$10,000 for two local NGOs, Sustainable North Central Washington (NCW) and Community for the Advancement of Family Education (CAFE) Wenatchee. These funds will help support local and Latina/o frontline organizations to meaningfully participate in the county's climate resilience planning and implementation process. The organizations will focus on the following:



- Work with the roundtable to identify climate impact actions, opportunities, and projects within respective work categories to advance the Chelan County Climate Resilience Strategy.
- Inform the development of an annual or biennial work plan consisting of a list of priority actions or projects that advance the objectives of the committee.
- Coordinate with other work groups with overlapping areas of responsibility and other stakeholders and agencies to facilitate cross-jurisdictional activities.



Rural resilience case study. Raymond and Thill are working with Chelan County to distill its climate resilience work into a case study with multiple outputs that will be useful for other communities and natural resource managers to both plan and implement climate resilience strategies in rural contexts. In 2021, the county established a Climate Resilience Roundtable, which began translating the County's Resilience Strategy into action steps and a comprehensive action plan.

The Team is using the process to develop a case study that will not only showcase a rural community moving from a climate adaptation plan to implementation of its strategies, but also demonstrate the effectiveness of (1) funding grassroots organizations to participate in climate resilience planning, (2) the economic summit to inform adaptation actions and (3) the Science Advisory Committee to inform the implementation of the county's resilience workplan. The Chelan County case study will:

- Serve as a roadmap for rural resource managers, policymakers, and community members to establish a process to develop and implement a climate resilience action plan.
- Increase knowledge of practitioners, NGOs, and academic institutions to better understand options in facilitating climate adaptation in rural communities.
- Elevate Chelan County as a resource for peer-learning, thereby facilitating coordination with other communities that share the same interest in climate change adaptation.

Farmworker resilience in Eastern Washington. Researchers (Kruger, Hall, Yorgey, and Sallato) are developing a literature review that will articulate the points of potential climate change impacts on farmworkers in Central Washington. The team will first iteratively review literature and then conduct informal interviews with key informants to better understand the farmworker/labor context, issues, and trends in the Yakima Valley and Central Washington. Findings from this work will produce a visual summary (e.g., map) of labor cycles and climate impacts, and a report that identifies relevant local and state farm labor legislation, protections, and practices (i.e., paid sick leave, emergency rules, and heat protections).

In the coming year, the team will carry out a needs assessment to identify entities that provide support to farmworkers on issues and needs that relate to potential climate change impacts, their needs around climate change science and extension support, and opportunities for providing that support (e.g., education, training, connections to research teams, connections to existing resources, etc.). The team will potentially kick off this process with a series of workshops.

Building a network in rural eastern Oregon. Researchers in the Rural Resilience and Scaling Resilience Teams (Mauger, Roesch-McNally, Candib, Sugla, Running, and Allen) have focused on making connections in Oregon to identify communities interested in participating in the NCRC rural resilience work, and to develop a network of collaborators in the state.

The team has focused on Northeast Oregon because it is more populous than Southeast Oregon and has similar climate and land use characteristics to other parts of the inland Pacific Northwest. The researchers intentionally focused their initial engagement on regional and state-level public and not-for-profit organizations, to avoid overburdening communities.

In the past nine months, highlights of the team's networking include:

- Connected with 20-30 organizations in Northeast Oregon.
- Engaged with state agency staff who are familiar with the region and have identified a few potential focus communities for the team to connect with during summer 2022.
- Explored potential partnerships with Euvalcree, which provides direct aid to the Latina/o community in Northeast Oregon, and Wallowa Resources, which works to advance land stewardship and economic sustainability.

The network-building aspect of this work will help the Rural Resilience Team connect its community with other organizations and resources in the region to continue outreach and networking for the Scaling Resilience Team. For example, the team has learned that Oregon [Executive Order 20-04](#), focused on greenhouse gas mitigation, requires some state agencies to consider climate change impacts and has a strong equity focus.

SCALING RESILIENCE PORTFOLIO

Building Relationships and Establishing Partnerships

Leading with trust-centered partnerships. The Scaling Resilience Team is working on several projects that advance understanding of how frontline and community-based organizations build climate resilience, how frontline organizations characterize or define climate resilience and adaptation, and how decision-makers and natural resource managers can better engage and meaningfully collaborate with frontline organizations on resilience projects. This approach will address challenges of collaborating with frontline communities—including lack of trust, structural inequities that underemphasize community-scale climate impacts and limited meaningful collaborations, among other challenges. These areas of focus frame the team's current and future projects, including collecting oral histories of climate resilience, a summer institute on co-production, staffing of frontline organizations, and mixed-methods research on characteristics of community-based resilience.

Front and Centered, key partner in the NCRC, is a coalition of frontline communities across the state of Washington focused on community resilience. NCRC has worked to develop a trust-centered relationship with Front and Centered through regular communications and meetings, and by allowing the space and time to co-design projects. Partnering with Front and Centered and other frontline organizations will not only develop better modes of co-production and co-design of adaptation practices, but the partnership will also provide roadmaps on how to meaningfully engage with frontline organizations on climate resilience.

Information and Resource Sharing

Building capacity of frontline organizations. The team (Sugla, Vogel, Mehta) is connecting with frontline organizations to build a program that will provide staffing support to increase capacity and enhance the ability of organizations to self-organize on climate resilience. The team is building partnerships with existing intermediary and staffing organizations, such as the Doris Duke Conservation Scholars Program (DDCSP), the University of Washington's Program on Climate Change, and engaging other organizations in the process. Recognizing that frontline organizations are most effectively staffed by members of their own community; the team is exploring different structures and partnerships to provide community-embedded staffing support.

Staffing support program for frontline organizations. Over the coming year, the Team (Sugla, Vogel, Asinas, Thill, and Mehta) will further develop a project that will provide staff support to frontline communities, provide work experience for underrepresented communities, and develop a more diverse climate resilience workforce in the region.

Many frontline organizations face multiple competing demands on their limited time, attention, and resources. This can make it difficult for frontline organizations to build capacity for climate resilience while not having the internal capacity to further their long- and short-term goals.



Over the past nine months, the team built a catalog of organizations that provide staffing support for frontline organizations. The next steps involve building a matching program for organizations to:

- Expand the number of staffing organizations who partner with the NCRC.
- Connect with frontline organizations and networks to learn staffing needs.
- Build a matching process to pair staff with organizations.
- Communicate staffing opportunities broadly through an online seminar, networks, emails, flyers, online listservs, etc.

Drawing from structures of successful community staff matching programs such as the Thriving Earth Exchange and the DDCSP, the Scaling Resilience Team will develop a regional forum through which to match frontline organization needs to potential staff or specific expertise. Students are placed at frontline organizations of various scales, such as grassroots community organizations and small nonprofits, community centered research labs, and tribal natural resources departments.

Identifying Priorities and Co-Designing Research

Oral histories of climate resilience. Led by Sugla and partnering with Min (Front and Centered), the Scaling Resilience Team is designing an oral histories project focused on documenting community-driven climate resilience. Oral history is the practice of facilitating and recording in-depth conversations that invite rich detail, deep context, and new meaning-making. The objectives of the oral history project are to:

- Build mutual understanding between researchers and community members through articulation of historical context for individuals and groups that have informed future goals.
- Create archives related to community resilience and adaptation pathways.
- Amplify stories to wide audiences the experiences of groups who historically have been marginalized or underrepresented in climate resilience work.

The Team will record 8-12 oral histories from frontline communities across the state of Washington that will be cut into 20-25 video reels shared online and published in the form of 2-3 longform photo essays.

Even though frontline communities face the brunt of climate impacts, their strategies for a climate-resilient future are often under-resourced. This work seeks to change this paradigm by providing a pathway for a science that draws upon collective insight to prioritize community-led protection of ecosystems and communities. The Team is creating the project, designing



the outputs, and crafting the narratives with the communities themselves to ensure that the work being created is not only a beautiful and accessible story for wider audiences, but also of value for the Northwest Climate Resilience Collaborative and community organizations' strategies.

From this work, the expressed needs of community members will be connected to an existing ecosystem of climate resilience work within the NCRC, in which the work will guide climate adaptation science and resources towards their communities.

Frontline communities' understanding of climate resilience. The Team (Sugla, Vogel, Asinas, Thill, Mehta, and Min) has developed a set of research questions and identified methods to understand the knowledge and practice of community-driven adaptation for frontline communities and organizations. The impetus of this research comes from the recognition that climate resilience projects led and prioritized by frontline communities often are not categorized as such by many practitioners and governmental bodies. Reshaping what is seen as climate resilience has significant implications for access to funding opportunities, inclusion in decision-making and policymaking arenas, and setting priorities for state agencies and natural resource managers.

To guide this body of work, the team is using the guiding research question: What is the state of equitable, community-driven climate adaptation in the Pacific Northwest? A set of mixed methods will be deployed to explore the research topic, including literature review, survey, and oral histories. Additional methods may include semi-structured interviews, focus groups, and case studies of community-driven projects.

Researchers (Asinas and Thill) are designing a survey that will be distributed to frontline organizations to build knowledge of how communities and organizations understand and act on climate adaptation. The team is coordinating with Front and Centered and its network of community-based groups to ground-truth survey questions. A pilot survey will be conducted late summer 2022, and anticipated launch of the full survey is fall 2022. The survey will be used to inform further research projects such as focus groups or semi-structured interviews and guide future projects and partnerships.

The team seeks to enhance understanding of frontline communities' needs so that they are empowered, equitably resourced, and have access to decision-makers and resource managers to advance their climate resilience priorities. At the same time, this work will also expand practitioners and boundary organizations' understandings of climate resilience within the broader climate adaptation field. The team's work will:

- Identify the gaps in theory and practice between the climate-adaptation practitioners and frontline organizations.
- Shift and broaden understandings of climate resilience and climate adaptation priorities.
- Increase expertise and agency for frontline organizations to advance their climate priorities
- Build stronger connections between communities, resource managers, and policymakers.

Summer career program for community-based work. Over the next year, researchers Sugla and Allen are designing a summer program for community-based co-production aimed at scientists, natural resource managers, and members of frontline communities and organizations. Few universities offer education on “community-based work” and often prioritize academic theory over praxis of co-production.

The goal of the summer school is to provide a space to discuss the theory and praxis of climate and environmental justice and to explore and redefine the role of scientists in the context of justice. The summer school will have elements of teaching and discussion, as well as providing practical skills on how to design community-based projects, engage in co-production, and apply for funding. Community members and other non-academic voices will be a central part of the project.

A vital component of the summer school is to build a community of scientists/experts across geographies to engage in grassroots climate and environmental justice work. Currently, the team is working on a syllabus and educational material and locating host universities for the summer school. The program is expected to launch in Summer 2023.

COVID-19 IMPACTS

Working with frontline organizations. PIs and researchers from across the NCRC have found that the past year has been a challenging time for frontline organizations. Many organizations have pivoted to building community resilience to the pandemic by holding online meetings and strengthening community ties. As the NCRC and organizations shift to an era of living with COVID-19, frontline organizations are beginning to open again to larger meetings and networking opportunities. To be thoughtful about the NCRC’s positionality, researchers and PIs are taking care to not overburden communities by asking for too much at this moment of reopening and reengagement.

To start relationships off on a positive note, teams are talking with frontline organizations to understand what they are currently prioritizing and actively working towards in the aftermath of the pandemic. This approach allows a relationship to form from shared values and solidarity, breaking down the binary between researcher and community members and encouraging relationship building to move at the speed of trust.

EVALUATION AND PROGRAM LEVEL IMPACT

Led by Caughman, the NCRC's evaluation approach seeks to measure project success, but also a broader climate justice agenda. NCRC understand and adaptively manage relationships between researchers and community members to ensure real equity and power sharing in the research program. Evaluation supports outcome attainment for each portfolio and the NCRC by collecting and compiling data to inform lessons learned, develop in-depth case studies, and identify needs and/or leverage points.

Caughman is applying formative evaluation (FE) as an iterative evaluation approach to assess and manage progress, while contributing to the evidence base to learn what works for whom and in what context. Used as a management tool, FE plays a structural role in collaborative resilience projects by deepening understanding of community needs and demonstrating accountability to stakeholders. The FE methodology is being implemented and analyzed collaboratively. This approach builds on a method of real-time evaluation for collaborative resilience projects. Caughman is measuring the Foundations, Actions, and Impacts of NCRC projects and the Interpersonal Context and Empowering Supports of NCRC relationships. Metrics and indicators are described in the table below.

FE design and implementation efforts are closely aligned with NCRC community engagement strategies to not overburden partners or replicate work.

The FE approach is being used to

1. Accelerate learning within and across projects.
2. Facilitate adaptive management of projects; and
3. Study the NCRC's ability to enhance capacity-building, procedural justice and knowledge exchange between community and researchers.

Caughman has conducted the first round of evaluation, consisting of informal interviews and an in-depth survey. She has engaged representatives from community and university partners within the NCRC. Data is being compiled and will soon be collaboratively analyzed and disseminated across NCRC project portfolios and leadership. Findings will be integrated into project management decision-making in real-time to enable the monitoring and adaptive management of each NCRC project individually and collectively. Caughman will continue to use surveys and informal interviews to gather data, strategically timed around key milestones, community constraints and other NCRC engagement activities (i.e., annual workshops). At regular intervals, evaluation results from individual projects will be shared across projects, accelerating cross-project learning, aiding reflexivity and contributing to studying the NCRC itself.

Table 1. Evaluation rubric for the NCRC.

Evaluation Category	Measures	Metrics	Indicator
Project	Foundation	<ul style="list-style-type: none">• Interest• Competency• Capacity	<ul style="list-style-type: none">• Motivation• Knowledge• Processes• Resources
	Actions	<ul style="list-style-type: none">• Planning• Implementing	<ul style="list-style-type: none">• Goals• Co-management• Methods• Co-production
	Impact	<ul style="list-style-type: none">• Outcomes	<ul style="list-style-type: none">• Impact• Achievement• Prospects
Partnership	Interpersonal Context	<ul style="list-style-type: none">• Collaborative history• Mutual understanding• Engagement	<ul style="list-style-type: none">• Performance of partnership and collaboration• Trust• Transparency
	Empowering Supports	<ul style="list-style-type: none">• Commitment• Resources	<ul style="list-style-type: none">• Formalization• Partnership mechanisms

EVIDENCE OF SOCIETAL IMPACT

The first round of evaluation is currently underway, so full results are expected by Fall 2022. However, preliminary findings highlight current progress towards enhancing regional adaptive capacity and are a snapshot into the current functioning of NCRC projects and partnerships.

To date, 11 NCRC members have participated in the year-1 evaluation survey. They represent each portfolio, and the leadership team. Nine people from university partnerships (researchers, faculty, and NCRC staff) and three community partners (community, non-profit, or governmental partners) participated. Overall, 73% of respondents are either somewhat satisfied or very satisfied with the progress towards the intended resilience impacts of the NCRC. Respondents note that the impacts so far seem more intangible, as building the foundation of relationships has taken priority this year.

One university respondent noted, “We’ve gone through a rigorous, consensus-based process of ensuring ethical co-production but have not yet implemented research/engagement activities (e.g., listening sessions) that put this process into practice.” A partner from a frontline community organization highlights this point, explaining that the actions this year commented, “Getting contracts in place; relationship building amongst Team, analysis of existing documents and resources, developing Tribal Advisory Group, discussing IRB process, developing plans for community engagement.”

The NCRC has been successful at laying the foundation for deeply collaborative work and co-production of knowledge (as can be seen in the “foundation” measure category below). The

positive outcomes include a nuanced and intentional approach to team development and project planning that will accelerate impactful and equitable work in year 2, highlighted in both the “impact” measure and overall partnership category, where nearly all measures earned high scores. One challenge is capacity, particularly providing all the resources needed to fully compensate community partners for their ongoing and enhanced engagement, and time dedicated to the project by university researchers/staff.

Table 2. Evaluation preliminary results.

Evaluation Category	Measures	Preliminary Results: (Metric - Rating)	Quotes
Project	Foundation	<ul style="list-style-type: none"> • High interest • High competency • Moderate/low capacity 	<ul style="list-style-type: none"> • “We are learning as we go, while also trying to raise the ethical standard for co-production beyond what is commonly practiced (e.g., consultation) so there is room for improvement.” • “Lots of collective brainpower, experience, and connections. We will have to wait and see how everything gels and adapts to new learnings.” • “We have our allocated funding and will do the best we can, but the limited funding for our participation is a limiting factor for our Team. ”
	Actions	<ul style="list-style-type: none"> • Moderate/high planning • Moderate implementing 	<ul style="list-style-type: none"> • “Capacity support for community, advising on process, science advisory committee, economic summit, funding for community groups. ” • “The primary action has been planning and scoping the portfolio work plan.”
	Impact	<ul style="list-style-type: none"> • High/moderate outcomes 	<ul style="list-style-type: none"> • “There has been some connection-building across the organizations and especially the leadership Team, which I think is an important goal.” • “Enhance capacity of rural community to plan for climate resilience.” • “Formation of Team and partners; plan for moving forward. ”

Partnership	Interpersonal Context and Empowering Supports	<ul style="list-style-type: none"> • High collaborative history • High mutual understanding • High engagement • High commitment • Moderate/low resources 	<ul style="list-style-type: none"> • “We are all communicating and getting to know one another's perspectives now, this has required less of a focus on outputs and outcomes and more on trust building and getting to know one another. ” • “I think both sides feel empowered, but the work (and assumedly the funding) is mostly going toward the academic partners.” • “For the most part, I appreciate that the academics are taking the lead on many aspects of the work and the budget reflects that fact, but it would be nice if other orgs had a larger budget so that they could justify taking more of a leading role.”
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Interviews offered insight into the overall functioning of the NCRC in year 1, as well as progress towards goals in each portfolio. Findings echo survey results, highlighting the importance of establishing equitable processes to set the foundation for equitable outcomes in the future. Participants noted substantial progress within the portfolios, while highlighting the need for more cross-portfolio collaboration and an enhanced NCRC-wide identity. Results are compiled in the Table 3.

Preliminary findings show that in the first year, the NCRC was dedicated to building the authentic relationships needed to complete equitable partnership-based climate adaptation and resilience work. Each team spent time crafting their work plans and approaches and listening to their partners. There was a high-level of reflection and learning in each portfolio and at the leadership level, highlighting the NCRC's ability to be self-critical, adaptive, and creative in their approach. The second year should have more tangible outcomes, the fruits of the labor from this year will start to manifest.

Table 3. Results from the NCRC Year 1 evaluation.

Project Area	Activities (i.e., Team meetings)	Outputs (i.e., document)	Outcomes (i.e., changes)	Exemplary Quotes
Overall NCRC Leadership	<ul style="list-style-type: none"> Leadership Team meetings NCRC meetings Communication 	<ul style="list-style-type: none"> Leadership structure in progress Monthly bulletin 	Building unifying vision for NCRC work that prioritizes community impact first and then research outcomes.	<ul style="list-style-type: none"> "The [NCRC] has a lot of good things, but not consistent vision or leadership. It can splinter into many parts, so we need to get to a larger research agenda."
Tribal Coastal Resilience	<ul style="list-style-type: none"> Regular meetings Team intensive planning sessions Listening sessions (upcoming) Inviting Tribal chairs 	<ul style="list-style-type: none"> Document analysis (in progress) Workplan Tribal Advisory Group (forming) IRB submitted 	Deepening respectful and equitable relationships with Tribal partners. Creating foundation for ongoing engagement. Finding best practices for partnership and research.	<ul style="list-style-type: none"> "After a lot of focus on relationship building, how to work together, what we want to do; now at an inflection point where more tangible things are starting to move forward." "I think we have established a good working relationship with the team. Would really love to feel the work is Tribally led, but that has not been fully realized yet. The Tribal Advisory Group will help that."
Rural Resilience	<ul style="list-style-type: none"> Team meetings Develop social science capacity and research questions Create science advisory board and the Chelan County Climate Resilience Roundtable Identify community partner 	<ul style="list-style-type: none"> Developed process for identifying partners. Provided funding to partner organization 	Adding capacity for Chelan County to implement resilience action. Building relationships with potential partners.	<ul style="list-style-type: none"> "Notion of building capacity was not something we called out directly but given where they [Chelan County] are at; building capacity to do this work is the bigger need." "It is messy, and it should be messy; brought to the forefront difficult questions i.e., we talked to an organization (they might want to collaborate) and they brought up housing, deportation, healthcare more than resilience."
Scaling Resilience	<ul style="list-style-type: none"> Reorganized team and redeveloped plan Weekly meetings 	Work plan for storytelling, research questions, capacity building	Strengthening relationship with community partner	<ul style="list-style-type: none"> "There is a lot of interest and energy in making it a really creative space, to try to do innovative work, not typical for climate adaptation focused organizations."

For more information about the **Northwest Climate Resilience Collaborative**, visit our website:

<https://cig.uw.edu/our-programs/the-northwest-climate-resilience-collaborative/>