

Northwest Climate Adaptation Science Center



External Review Team Final Report

Prepared with and on behalf of the NW CASC External Review Team (ERT)

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Background Information

About the Review Process

The external review of United States Geological Survey (USGS) Regional Climate Adaptation Science Centers (RCASCs or CASCs) Host-Universities is designed to gain information and insights from external reviewers about the activities and effectiveness of each RCASC Host-University, and to inform decisions about USGS's future development and administration of Host-University partnerships (this and additional information can be found [here](#).)

Donna Silverberg Consulting ([DS Consulting](#)) is the External Review Manager selected by the National Climate Adaptation Science Center (NCASC) through an open solicitation to design, coordinate, and conduct the structural and operational review component of the external reviews for all eight RCASC Host-Universities, including report writing with and on behalf of the ERT. The DS Consulting team consists of:

- Donna Silverberg, JD (Principal and External Review Team Lead, Facilitator, & Manager)
- Michelle Helman, MA Peace & Conflict Studies (Evaluation Specialist)
- Tina Patterson, MA Dispute Resolution, MDR, MCI Arb, CF APMP, CICM (Project Advisor and Facilitation Support)
- Colby Mills, BA Anthropology (Logistics and Facilitation Support)
- Charles Wiggins, LLM (Report and Materials Editor)

Purpose of the Review

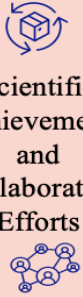
- 1. Assess the competencies, efficiencies, challenges, and areas for improvement** of each RCASC host-university in managing the administrative requirements and terms and conditions of the corresponding host agreement;
- 2. Assess the contribution** by each RCASC host-university and associated academic consortium with respect to:
 - a. Scientific Achievements on climate impacts and vulnerability science;
 - b. Collaborative Efforts with stakeholders to develop adaptation products applicable to priority regional decision-making;
 - c. Education and Training of early career professionals; and
 - d. Outreach and Communication services;
- 3. Review the effectiveness** of each RCASC host-university and associated academic consortium in meeting the goals established under their current host agreements;
- 4. Aid** the National Climate Adaptation Science Center (NCASC) in developing improved requirements for re-competition of the next university host agreements.

External Review Model Framework:

1. What was the Host's proposed approach?
2. What did the Host implement and how did they do it?
3. So what: What did the Host learn? How did they respond and adjust?

External Review Categories and Process Schedule

The Northwest CASC (NW CASC) External Review Team (ERT) was asked to focus on specific categories stemming from the Host-University's Proposal Narrative. These categories and the dates devoted to their discussion follows. Daily summaries of the ERT Sessions and a listing of session attendees may be found in Appendix 1:

	March 14	March 16	March 17	March 18
Topic	Administrative Management 	Scientific Achievements and Collaborative Efforts 	Capacity Building and Outreach & Communications 	Overall Effectiveness towards Host's Goals

External Review Team (ERT)

Review team composition:

ERT members were nominated by USGS administrators and then selected by the ERT Manager based on the following criteria, with a goal of having an ERT that had varying degrees of experience and expertise to suit the NW CASC Review. Each member had:

1. Scientific, administrative, and/or stakeholder engagement process knowledge;
2. Working knowledge of the CASC Network;
3. Time, willingness, and support to serve on the ERT;
4. No conflict of interest (e.g., not receiving funding from any CASC at this time, nor expecting to receive funding from the CASC they were reviewing in the next funding cycle).

NW CASC ERT Members included:

- Susan Cordell, Ph.D., Director, Pacific Southwest Research Station, Institute of Pacific Islands Forestry (USDA-FS)
- Bethany Morrison, Long Range Planner (County of Hawaii)
- David Reidmiller, Ph.D., Director, Climate Center (Gulf of Maine Research Institute)
- Mark Shafer, Ph.D., Dep. Director, Southern Climate Impacts Planning Program (U of OK)
- John Tracy, Ph.D., Director, Texas Water Resources Institute (Texas A&M AgriLife Research and Extension)

All ERT members signed Conflict of Interest and Non-Disclosure forms prior to participating in the review.

Findings of the ERT – Administrative Management

	Institutional Development <i>Staffing, Leadership Team, and Consortium Members</i>		Fiscal Management <i>Budget, awards, and grant management</i>
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The Host and Consortium

The University of Washington (UW) (hereafter Host) proposed and developed an administrative and fiscal management team that provides administrative support to the NW CASC. **The ERT wishes to emphasize at the outset of this report that the program, as is, is exceptional.** Any suggestions offered below are areas that COULD be improved in the future. No changes are needed to meet and exceed the agreement with USGS' NCASC program.

The NW CASC's mission is to "Deliver science to help fish, water, land, and people adapt to changing climate". The NW CASC's five strategic goals are:

- 1) Scientists and resource managers co-produce actionable science;
- 2) Communities of practice strengthen and expand;
- 3) The NW CASC is recognized as a thought leader in co-producing actionable science;
- 4) Partners value our collaborative approach; and
- 5) Efficient and effective operations.

The NW CASC's four focus areas are science, training and capacity building, communication, and tribal engagement.

The NW CASC is located within UW's College of the Environment, enabling an efficient means of information sharing, support and communication among a number of like-minded programs and experts. The Host supports the work of the NW CASC at many levels, from the University of Washington as a whole, to the College of the Environment, EarthLab, and the Climate Impacts Group (CIG). CIG is a host and sister organization to the NW CASC and has been a trusted provider of actionable climate science in the region for over 20 years. CIG has been a lead for regional climate change research since 1995 and has a staff of 17 who, working in tandem with the NW CASC's 3.5 FTE, enable integrated climate science efforts. Being co-located with and partners of both CIG and the National Oceanic and Atmospheric Administration's Regional Integrated Sciences and Assessments (NOAA RISA) allows the entire NW CASC to produce more actionable science than the sum of its individual parts. NW CASC leadership described effective and supportive communication with UW administration to respond to needs of the NW CASC as they arise.

The ERT finds that the Host met and exceeded what was proposed for the 5-Year agreement. The Host has excellent tracking and oversight of the project. It has a strong and efficient university grant management system, and is able to leverage expertise from other units on campus that serve to strengthen and provide confidence about the fiscal management of the

Center. The Host team has regular interactions with their broader consortium members and with USGS counterparts. The Host and Consortium are producing actionable science for USGS and are strengthening and expanding communities of practice.

Leadership & Management Approach:

The Host manages the fiscal and day-to-day operations of the CASC, and the Consortium provides oversight, guidance, and implementation of actionable science. The Consortium is led by the University Leadership Team (ULT) which is comprised of faculty or research scientist level academics from six collaborating universities: Boise State University (BSU), Oregon State University (OSU), University of Montana (UM), University of Washington (UW), Washington State University (WSU), and Western Washington University (WWU). The ULT works together to identify and coordinate efforts, foster connections across the NW CASC and university partners' faculty and staff, allocates and administers research Fellowships, and ensures smooth, cross institution award and sub-award administration and fiscal management. ***The ERT finds the ULT to be a highly skilled, committed leadership team which represents the range of science topics that the NW CASC should address. In addition, the ERT commends the high number of women in leadership positions as a part of this scientific endeavor.***

In addition, the ERT finds that the Consortium ULT is supported and valued by the Host and collaborator institutions. The leadership team is well engaged with each other, and looks to have developed a good working rapport. The ULT has been very stable, with very little turnover in the past five years. The ULT appears to respect one another and their attendance at the review sessions suggests a high level of shared ownership of and pride in the NW CASC. The ULT members also appear to be engaged with faculty and research personnel at their home institutions, indicating that an admirably broad engagement with the academic community throughout the Pacific Northwest is occurring.

The ERT finds that the Consortium has developed an innovative structure, with a combination of deep dives to work collaboratively with stakeholders to define research questions, and annual science fellows to conduct research projects based upon the deep dives and other priorities defined by USGS. This structure is very responsive in producing a large amount of requested, useable science for USGS and for other regional stakeholders.

The ERT finds that the Host's administrative management team is to be commended on their thorough process in administering the NW CASC consortium. In particular, the degree of oversight by Senior Scientist and Deputy University Director Meade Krosby, is exemplary. As noted by one ERT member, it is rare to have leaders who are aware and cognizant of all aspects of the organization's efforts (i.e., science, collaboration, outreach etc.).

Administrative & Fiscal Management:

The ERT finds that the Host meets and exceeds the administrative and fiscal requirements and is meeting the terms of their agreement with USGS. As a major university, the Host has well-established fiduciary and administrative processes in place to ensure that the funding received

from the USGS is correctly administered and applied to the workings of the NW CASC. Contributions in terms of both personnel and external funding from the Host, its partners, and other grant sources add substantially to the impact and effectiveness of the NW CASC. To enhance compliance, all Consortium Principal Investigators are trained in grant management and the NW CASC is supported by an embedded fiscal compliance and grant manager who provides technical assistance and oversight. Placement of this fiscal manager within the NW CASC assures USGS that federal funds are being well managed and stewarded. ***The ERT finds, on all accounts, that fiscal management of the agreement is a fine-tuned machine.***

Administrative Competencies

The ERT finds the Host has exhibited competent administrative and fiscal support of the CASC in a variety of ways:

- The Host team and Consortium have a breadth of disciplinary expertise.
- The Host and Consortium have many women in leadership; when coupled with their focus on tribal engagement, this aspect of the NW CASC can serve as a model for advancing DEI considerations for the broader CASC network.
- There is connectivity of ULT members across their respective universities, not just in one single Department.
- Providing guidance and support so that the NW CASC University director can gain effective Congressional engagement, not only for this CASC, but for the entire CASC Network.
- Providing leadership in communications within UW, across the consortium, and between the Host and USGS.
- Developing an effective strategy to engage the region's stakeholders, including Tribal communities. In addition, the community engagement activities are resourced well enough to ensure effective engagement.
- Thorough processes for grant management.
- Strategic staffing solutions to eliminate silos and clear perceptions of roles and responsibilities; they know what they, collectively and individually, are supposed to do and what USGS is supposed to do.

Administrative Efficiencies

The Host has found a number of efficiencies running the NW CASC. From responsive staffing to co-located programs to leveraging people, programs, and dollars, the ERT finds the Host's administrative efficiencies to be a bonus for USGS. Examples of these efficiencies include:

- Stability in key personnel at Host and consortium institutions, especially in recent years of external turmoil

- Efficiencies are gained by regularly scheduled staff and Consortium conference calls/zoom meetings that allow all members to stay abreast of issues, track new developments and make shared decisions about next steps.
- Leveraging Doris Duke, EarthLab and other funding to boost student engagement in all the NW CASC does.
- The Host University's Provost, College of the Environment, and CIG all provide added funds which leverage the Federal investment.
 - There is quite a bit of leveraging of resources of collaborative programs at the Host institution to help administer the Center. In particular, some of the resources shared or leveraged with the CIG appear to have greatly aided the function of the CASC, and the impacts it is having.
- The Host has created efficiencies which led to fiscal savings that then were reinvested into the Fellows Program.

Administrative Challenges

Many of the Host's greatest challenges are outside of its control, such as aligning the timing of Federal funding cycles with academic calendars, USGS staffing vacancies, reporting requirements, and COVID-19 and its impact on in-person work. While the support for administration of the NW CASC covers all the necessary functions (budget management, communications, program managers, etc.), the support appears to be thinner than the robust program it supports, a testament to the high level of performance of the university staff. ERT members noted that temporary loss of a single administrative support personnel, through no fault of the Host, could significantly impact NW CASC performance. The ERT sees the following administrative challenges the Host faced during the 5-year agreement:

- Misalignment in timing of federal project funding and academic calendar is particularly problematic given the focus on student supported, co-produced science.
- Piecemeal Federal funding inhibits start-up, seamless management/staffing plan, and programmatic achievement.
 - 1-year federal funds came late and needed to be expended before more funds were provided.
- There appears to be a need for increased support for the administrative function of the Host. This support could come from either the CASC funding from the USGS, or from some of the matching funds provided by the Host through the return of recovered Facility and Administrative (F&A) costs to the Center.
- The administrative time commitment appears to be greater than anticipated. Several key staff with 25% or 50% FTE are "either working miracles or are working overtime with no compensation".
 - Thought needs to be given to creating some redundancies in administrative support. As it is, key staff appear to be overworked.
 - Align actual staff effort with budgeted staff effort (e.g., Host Director's time).

Opportunities for Improvement

Finding solutions to funding issues, increasing racial diversity and breadth of topic areas, and recognizing administrative roles of personnel, on all sides, are opportunities the Host and USGS could embrace in the next round of funding in the NW. The ERT suggests these as places to start:

- Work with USGS to determine mechanisms that would support multiyear funds.
- Recognize the administrative duties/roles that each of the ULT members perform for the NW CASC to enhance recognition by their home institutions and aid in creating institutional commitments to the NW CASC.
- Formalize MOUs between the NW CASC member institutions to help create stronger and more sustainable institutional arrangements to support the NW CASC's mission.
- Increase FTE or hire additional support to assure long term sustainability of the programs and help current staff to thrive.
- Increase diversity of cultural and substantive focus on the ULT, such as faculty who come from diverse places and specialize in terrestrial habitat, grassland, and desert environments.

RECOMMENDATIONS: Administrative Management

- 1) Enhance your leadership team as you move forward.**
 - Now that you are making progress with those you know, diversify the topics and types of people on your ULT to more accurately reflect your region and enhance the Diversity, Equity and Inclusion (DEI) you have begun.
 - Include more tribal people, for longer duration, in future review sessions since Tribal Engagement is one of your 4 focus areas.
 - Formalize MOUs between the Consortium institutions to help create stronger and more sustainable institutional arrangements to support the NW CASC's mission.
- 2) Enhance all of your strategy documents to clarify your internal processes and decision-making for providing flexibility to meet future challenges.**
 - How do you select and include members on your ULT?
 - How will you utilize your goals and values to make decisions regarding which opportunities you might follow in the future?
 - How will more diverse leaders (diverse in the sense of culture, geography, and substantive expertise) be included in your processes?
 - How will you and others know if you have been successful in the work of the CASC?
- 3) Work with UW and Consortium universities to enhance Promotion and Tenure (P&T) requirements such that doing co-production work may be 'counted'.**

- Consider helping junior faculty develop a phased approach to projects that would allow them to write and publish more frequently.
- If a phased approach is not possible, request that P&T committees accept pre-published drafts of in-progress, collaborative, co-produced science done under the auspices of the NW CASC.

4) Work with USGS to determine funding mechanisms that are more temporally aligned with the academic calendar and provide multi-year funding.

- Continue to work with the National CASC and USGS leaders to better match the realities of university budgets, timeframes, and project work for faculty and Fellows.

5) Use funds saved due to administrative efficiencies to support staff, not just more Fellows.

- The Host staff are top-notch scientists and administrators. Losing them due to burnout would be a great loss for the program and the field. As such, use funds to support the actual time needed for staff to do their job or add more support.

Findings of the ERT – Scientific Achievements

	Scientific Achievements <i>Scientific Achievements on climate impacts, vulnerability, and adaptation science</i>
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The NW CASC 5-Year Science Agenda includes management priorities that are set by the USGS side of the CASC in collaboration with its Stakeholder Advisory Committee (SAC). The Host and Consortium implements that science while identifying any additional or deeper science needed by the region.

The ERT learned that the Host uses three primary mechanisms to develop and implement their science agenda, all of which follow a model of co-development of knowledge to produce actionable science. These mechanisms are:

- 1 – **Deep Dives**, which are used to identify emerging science needs within the scope of the USGS funding mission for CASCs and then develop a roadmap for co-production of actionable science related to those needs.
- 2 – **The NW CASC Research Fellowship Program**, which is used to support research fellows at Consortium institutions to implement and conduct research for the USGS's Science Agenda. The scholarship on co-production leads to training and publications on how to achieve co-production effectively.
- 3 – **The CASC Post-doctoral Fellowship Program**. While this is a national program available to all regional CASCs, the NW CASC uses this support mechanism to advance and implement its 5-year science agenda and contributes to national research syntheses.

Scientific contributions of the NW CASC, led by the Host's placement of students and convening of partners, cover a wide range of topics addressing both aquatic and terrestrial ecosystems, invasive species, wildfires, and at-risk species and ecosystems. The largest contribution appears to be related to aquatic resources, as water tends to be a limiting resource for support of almost any ecosystem in the West, even those located west of the Cascade Mountains. In addition, the Host has begun scientific contributions regarding effective practices in co-produced climate adaptation science via its social science-based evaluation of this work; the scholarship on co-production has led to training and publications on how to achieve co-production effectively and serves as a model for similar organizations, nationally.

In addition, the Host has implemented an internal effectiveness evaluation led by its Social Science lead, Dr. Alison Meadows. The purpose of internal evaluation is to understand the impacts of the NW CASC, improve the practice of key approaches and principles, and to incorporate its findings as a learning tool that can support organizational learning. One of the tools the Host is using in this process is a framework to explore the societal impacts of research and the way in which research and the processes of conducting research influences the world beyond academia. Impacts explored include instrumental, conceptual, capacity-building, connectivity, and socio-environmental. At this point in the NW CASC evaluation process, evaluation activities have focused on how successes and impacts from UW contributions address the NW CASC goals of scientists and resource managers successfully co-producing actionable science, strengthening and expanding communities of practice, and the NW CASC being recognized as a thought leader. Next steps in the evaluation process will include expanding to explore additional NW CASC strategic goals and the effectiveness and efficiency of NW CASC operations.

Overall, the ERT finds that the Host has successfully developed and is leading processes and people whose scientific contributions are highly relevant to the climate adaptation information and process needs for the region. The addition of an effectiveness evaluation will benefit not only the Host, but the entire CASC network.

The Host is still in its early stages, as this is its first review cycle, yet the ERT sees the Deep Dive strategy as an effective mechanism to create actionable science related to climate change adaptation. The three science agendas developed thus far by the Host are indeed being implemented by NW CASC Research Fellows. They include:

- 2018 - Managing Western Washington Wildfire Risk in a Changing Climate
- 2020 - Ecological Transformation Now? Managing Post-Fire Vegetation Change in a Warming Climate
- 2021 - Deep Dive into Shallow Waters: Managing Climate Change Effects on Stream Drying in the Northwest

The Deep Dives, as reported, appear to be highly collaborative (i.e., informed by stated needs of regional resource managers), facilitated processes that improve understanding of emergent climate risks, while informing strategic science investments. ***The ERT finds that the Deep Dives are an innovative concept that successfully and impressively engages stakeholders in both developing and implementing the region's science agenda.***

The ERT finds that the Deep Dive process is working well, and the approach is developing a pathway for:

- Identifying key climate adaptation science agendas that fall within the NW CASC's mission (so long as it stays aligned with the USGS, SAC-based 5-year Science Agenda);
- Selecting Research Fellows who then focus on specific elements of the Science Agenda, while having significant interaction with regional stakeholders in both their research activities and their project outcomes; and
- Leading the development of knowledge, technology, and management approaches that can be, and are, adopted by stakeholder agencies.

The ERT also finds it is notable (and impressive / encouraging) that of the 12+ representatives of the NW CASC on the science Zoom call, all of them were women. The number of women in leadership positions and engaged in the NW CASC's scientific work was noted consistently by ERT members. It is remarked upon here, under the scientific achievement category, because it is both unique and noteworthy: The ERT applauds the Host and USGS for creating a center that welcomes, supports, and celebrates women in science. The ERT suggests the NW CASC promote this success more visibly. The ERT encourages a similar approach to adding people of color, especially since the fourth focus of the Host is Tribal Engagement.

The ERT heard a number of factors which limited the Host's ability to be even more far reaching with its scientific achievements. Of note to ERT members are:

- Timing mismatches of the NW CASC funding year vs the academic calendar year (e.g., funding ends for Fellows in the middle of summer field season);
- Fellow recruitment process, while strong in most areas, lacks human dimensions expertise on ULT;
- Uneven distribution across Science Agenda priorities (e.g., few human dimensions projects and not as many eastern Washington oriented priorities as compared to western issues);
- Explicit prohibition by the last Administration to pursue the human dimensions work that is critical for sustainable climate adaptation science to occur.
- COVID made Deep Dives more difficult since they were designed to be day-long, in-person events. However, the Host and Consortium were able to successfully move to an online format that lead to increased engagement by Deep Dive #3. ERT members noted

that, for a center whose science is built on collaboration, COVID made this aspect particularly challenging; and

- Reliance on one-year Fellows produces actionable science information, but may be difficult to develop sustained, deeper understandings that contribute to disciplinary knowledge.

The ERT finds that the Host successfully managed around these challenges by:

- Adjusting timing for fellows' recruitment, selection, and funding;
- Refining the recruitment process (e.g., solicited specific expertise, engaged in cross-evaluation, and developed a workable checklist);
- Addressing under-represented Science Agenda funding priorities by holding special calls;
- Developing programs that were productive despite COVID's effect on co-production and training. The science has been responsive and actionable in spite of COVID; and
- Providing support to students and partners while being flexible enough to pivot to online training and Deep Dive sessions.

RECOMMENDATIONS: Scientific Achievements

The ERT explicitly requested this report be clear in noting that **the Host has gone above and beyond what it said it would do in its proposal**. As such the following are suggestions the Host could consider as it grows into the future:

1) Broaden engagement with research scientists and faculty at Consortium institutions outside of the Fellows program OR improve the presentation about that engagement.

- There appears to be engagement with Consortium faculty in the Deep Dive process, but it is not clear to the ERT how faculty who do not have students in the Fellows program, but are interested in the work of the NW CASC, can stay substantially engaged with the Center. The ERT sees benefits to this occurring, if it is not.

2) Consider adding a Faculty Fellows program to broaden faculty engagement.

The addition of a Faculty Fellows program might allow faculty to receive support (e.g., one month in the summer) to work with NW CASC to develop larger NSF or USDA proposals that could support portions of the NW CASC's science agenda more than USGS can alone. This would allow both for increased faculty engagement and leveraging of USGS resources provided to the Host.

3) Capture, document, and then share your insights about Co-Production of Knowledge.

Co-production of Knowledge continues to evolve in both application and theory. There are several definitions and/or types of co-production and various groups think differently about the topic. The work you have led to study this is impressive. Continuing to publish what you

have done and learned through your research, evaluation, and experiences will be a valuable addition to the field.

4) Track and report the application of your science.

- How are resource management partners and stakeholders *applying* some of the adaptation science products? How are your products assisting the National Park Service, U.S. Fish and Wildlife Service, the state Departments of Fish and Game, Tribes and local communities? Are they mainly in terms of understanding vulnerabilities, or are you beginning to see adaptation actions? How might you deepen your academic products to help shift the paradigm?
- Also, consider shifting the flow of information for future reviews. For example, presenting information about the impact of the science after discussion of how it was done would have helped the ERT clarity about your program sooner than the last day.

5) Expand the use of social scientists by building a cohesive CASC network.

Build on the very good work of Dr. Alison Meadows and add sociologists, anthropologists, decision scientists, psychologists, etc. to your consortium. Lead the development of a network of social scientists, help them to develop a clear vision of the work you want and need in the region, then lead the way forward with people on your own team.

Findings of the ERT – Collaborative Efforts

	Collaborative Efforts <i>Collaborate with stakeholders to develop and deliver adaptation products applicable to priority decision-making</i>
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The ERT heard that collaboration is fundamental to everything done at NW CASC: science; training and capacity building; communications; and Tribal engagement all are rooted in a collaborative approach to the work being produced. The Host and Consortium work hard to bring together relevant qualified experts from across the region, regardless of affiliation, to explore, discuss and co-produce climate adaptation science that matters to regional stakeholders. They ensure broad coverage of regional issues through their active connections with agencies and decision makers in the Northwest. The Host and consortium help to organize the annual NW Climate Conference, and work with NW Tribes, Tribal associations and Tribal networks to ensure that tribal priorities and decision support needs are reflected in Consortium-funded research, education & communication activities.

The ERT finds that the Host and Consortium are very effective at engaging key stakeholders within the region, being both able to engage stakeholders in developing their science agenda, and having stakeholders engage in supporting their research activities through interactions

with Research Fellows. They do this by making themselves available to those who ask for assistance, and are building and maintaining trust with all with whom they work. The Host and Consortium are attuned to the sensitivities around Tribal engagement in the northwest and, as they noted, “default to YES” when a request comes from a Tribal partner.

ERT members note that one of the biggest contributions to collaborative efforts was the development of the Deep Dive process for supplementing the Center’s 5-Year Science Agenda by supporting focus on one specific, emerging science topic. While this might be considered a scientific output/outcome, the ERT finds this to be an effective strategy for creating functional collaborations between Center members, collaborators, and stakeholders for addressing high priority climate adaptation issues across the region. The opportunity for Research Fellows to learn the process and practices of good collaboration, and then put that into actual practice by supporting and enabling actual climate science research collaborations, is a bonus. That said, the ERT urges that the University-led Deep Dives remain consistent and aligned with the USGS 5-Year Science Agenda developed by the SAC—or, at least articulate why a deviation was made (and include Federal endorsement of that deviation).

Finally, another area the ERT finds to hold great promise is the nascent “5 Centers” forum – comprised of the USGS NW CASC, NOAA RISA, USDA NW Climate Hub, CIG, and the Oregon Climate Change Research Institute. As one member noted, this collaboration is “super intriguing and so needed!”

RECOMMENDATIONS: Collaborative Efforts

1) Publish the lessons learned from the external evaluation of your collaborative efforts.

The lessons learned about eliciting interest and keeping partners engaged in climate adaptation work are important to pass more broadly. Sharing the best practices that you have been developing with others will help the field to grow more quickly.

2) Expand the staff capacity to coordinate among Fellows’ research projects and communicate their findings

Currently, a big part of the Host’s scientific collaborative efforts falls on one person (Deputy Director) who is only part time. Expanding this capacity would support both Fellows and your staff.

Findings of the ERT – Capacity Building

	Capacity Building <i>Educate and train to build capacity of early career professionals and others</i>
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The ERT heard that the Host implemented capacity building through research fellowship programs, seminars, science Deep Dives, collaboration with the Doris Duke Undergraduate

program, and post-doc opportunities. The Host's unique model is such that they do not train Fellows in disciplinary science expertise; instead, they support Fellows in developing collaborative research and co-production skills. Then they provide funding for Fellows to do climate adaptation science research with regional partners. Capacity building was evenly distributed across the consortium and most pronounced in the Fellowship program and Tribal engagement. The Deep Dives included Consortium participation. Consortium members seem to be deeply engaged and supportive of the overall program. To date, the Host and Consortium have trained 58 Fellows since 2017, covering 20 different academic departments, and engaged in 65 collaborations with Tribal (~12), federal (10), state (13) and local (6) governments, and non-governmental organizations (7). To reach the broadest number, Fellowships are funded for 1 year. The original plan had been to train 35 Fellows, which the Host exceeded by many.

The ERT heard from many Fellows and Post-docs, all of whom stated the importance of this program in their career development. Fellows noted that they were given extensive training in science communication, co-development of research with managers, participation with senior scientists across the ULT and science community on the science Deep Dives, which was made stronger by the development of cohorts. Post-docs also played a central role in Consortium climate adaptation science and capacity building with the publication of a high-profile paper on engaging these principles in training.

Students seem well-prepared for the job market, give very good lightning talks, and speak enthusiastically of their experience through the program. Similarly, natural resource managers who engaged via webinars, at conferences and with Fellows also spoke highly of their experience.

The ERT finds that the Hosts capacity building program provides a great deal of support to Research Fellows and postdocs in learning co-production processes and applications. The ERT also finds that the Host's contribution to capacity building to both Climate Adaptation Science and Actionable Science is quite significant through the Deep Dive, Actionable Science Post-Doctoral Fellowship, NW CASC Fellows, and actionable science focused webinar/seminar programs. The implementation of these programs was demonstrated to engage both a large number of people, and a diverse range of communities and agencies. The Center personnel demonstrated a thorough understanding of appropriate engagement processes, and modified their processes to ensure the engagement was culturally appropriate. Use of recorded webinars extended the capacity of staff, as new Fellows could watch recorded presentations and minimize questions to which staff must respond.

Finally, **the Host also has gone above and beyond what it had planned by contributing to capacity building** via the National CASC's Climate Adaptation Postdoctoral fellowship and Doris Duke Conservation Scholars Programs. In addition, the Host supports Consortium members and their students in preparation of their applications to the NW CASC Research Fellowship Program.

RECOMMENDATIONS: Capacity Building

1) Develop metrics and track the success of all your capacity building work.

- The program is apparently excellent; back this up with metrics that show the longer term effectiveness of the capacity you are building to support climate science and adaptation efforts by tracking where students land and what they do with the skills and knowledge you have imparted to them.

2) Continue to build the longitudinal development of your Fellow alums by providing an on-going cohort structure.

- ERT members' experience has shown that this added structure can reap further rewards for both the student and the Host institution. Alums flourish with this added structure, and the Host can better ascertain where students land and track what they are producing as a result of their initial training experience. In addition, the ever-growing network provides an invaluable professional resource for all participants throughout their careers.

Findings of the ERT – Outreach and Communications



Outreach & Communications

Manage and transfer information and data related to research activities

The ERT learned that the Host's Communications process includes the use of a NW CASC webpage, bi-monthly newsletters, an active social media presence, webinars supporting actionable science, and project-based communication services for the NW CASC Fellows and USGS researchers. Communications support is a single position within the Center, which is quickly reaching its limit to increase communications activity. The Center's approach to communication has connected with a large number of stakeholders, with fairly diverse interests and backgrounds. The approach being used is connecting well with pre-interested stakeholders (e.g., those already with an interest in climate adaptation, environmental science, etc.), but it is not clear if this strategy is effectively engaging with stakeholders that have not already shown a clear interest in the science and information being developed at the Center.

The communications strategy focused on priority audiences such as resource managers, scientists and researchers, DOI audiences, Tribal audiences, and internal audiences. Successes include the comprehensive website with science products and training resources; the bimonthly newsletter, social media feeds, actionable science and skill building webinars. Webinars attracted over 900 individual attendees and Fellows' research appeared more than 35 times in the media. Communications also focused on cross-CASC planning and coordination. Challenges included the time needed to build and maintain effective processes, as well as shifting expectations and requirements.

The ERT finds the major contribution of communications is twofold. First, it is one of the few outlets for Climate Adaptation Strategy and Practice science. There are a large number of groups in the region that discuss climate change, but most focus on the science of climate change, and not methods to adapt to climate change. The second contribution is related to focusing on the processes and outcomes of actionable science through publications, seminars, and newsletter articles.

The primary factor limiting the Outreach and Communications results is the resources committed to this activity, and the lack of leveraging these resources with related communication groups that exist within the Consortium's organizations. In particular, there appears to be no leveraging of State Extension communication services that exist at WSU and OSU, which are quite substantial. The ERT suggests developing collaborative relationships with state Extension units that have related missions, as this could greatly increase the overall effectiveness of the Host's communication efforts.

The ERT finds that the communications work for the number of staff assigned to this task is commendable. The Host and team are ambassadors for the entire network. The products they have developed are polished and reflect well on the field.

RECOMMENDATIONS: Outreach and Communications

- 1. Bolster your Communication strategy by engaging support from Consortium institutions.**
 - The communication strategy developed by the Host does not appear to include an approach to engage with communication support at member institutions, or other administrative units within the Host institution, except for the Climate Impacts Group. Build your organizational capacity by collaborating with and drawing on talents at member institutions.
- 2. Consider a set of impact metrics that could further bolster the success and effectiveness of your communications work.**
 - What are the metrics for success and effectiveness?
 - How might you relay the feedback received from end users of products as an established qualitative metric?
- 3. Find ways to provide added support to your talented staff.**
 - The communications work you are doing is excellent. Support them however you can, and do not add more to an already full plate. ERT members expressed concern that the limited staff could burn out if more were to be added to the important work they are doing.

Findings of the ERT – Overall Effectiveness

OVERALL ERT RECOMMENDATIONS

As noted above, **the ERT wishes to emphasize the Host's efforts to date have been exceptional, as is.** The structure, leadership, staffing and products are top rate. The Host is doing commendable work both at the NW CASC and more broadly by supporting the entire CASC Network in providing needed information to Congress and other key leaders. It is a model for the field. Any suggestions offered are areas that COULD be improved in the future.

In addition to the suggestions noted above, the ERT makes the following recommendations about the review process and suggested approach for the Host, NW CASC (and consideration by the National CASC with the entire CASC Network):

- **USGS should reach out to the sister DOI agencies in the region in advance of reviews**
 - This will help USGS and future ERT's to get a better sense as to whether the actionable science being produced by DOI's science agency (USGS) is serving the applied needs of resource managers in non-USGS DOI agencies.
- **For the CASC network:** USGS – as a research supporting agency, the ERT suggests you include funding for an independent external evaluator to assess the impacts and effectiveness of every Host agreement. The NW CASC Hosts should be commended for including this activity in their current agreement.
 - Adopt Best Practices developed by other knowledge-based agencies to assist the development of this arm of your work. These practices include:
 - Requiring an independent external evaluator as part of the host agreement, which is noted above (required by all large USDA-NIFA CAP and NSF Center grants).
 - Use of a logic model to map the pathway of resource inputs to program impacts (required by all large USDA-NIFA CAP grants, and some large NSF grants).
 - Re-align, if at all possible, the USGS-derived 5-Year Science Agenda development timeline so that it is complete in advance of the Host re-compete timeline.
 - Do this so those competing know what science they will be responsible for implementing and can compete with this knowledge in hand.
 - With this knowledge in hand, Hosts could propose how they would support the pre-confirmed USGS Science Agenda and, by so doing, affirm their support for that science agenda.

- **The review process itself was well planned, well organized, and broken into digestible pieces.**
 - The hiring of an outside team that could focus on the process of the information distillation and discussion was helpful.
 - The sessions were well planned, well facilitated, and the summary documents supported a full review of what was presented for further consideration by the ERT.
 - Add time for direct conversations with resource managers without CASC staff present to allow ERT members to further query the successes and areas for improvement that might get missed in open discussions with CASC staff present.
- **The entire external review process is time consuming and a ‘heavy lift’ for all involved.**
 - USGS should consider whether the time and resource commitment of all involved is providing the information USGS needs to support the overall program.
 - If it is, leave it as is.
 - If not, consider whether the process could be leaner and/or condensed to get the information you actually need, so that more resources are available to do the actionable, co-produced science that the Centers were meant to accomplish.
 - All ERT members on this panel were supported by their own institutions for the process.
 - To gain additional perspectives that might not have such institutional support, USGS might want to consider providing honorariums for their active participation.
- **For future ERT reviews, the ERT recommends:**
 - NCASC should consider ways by which the overall review process could be streamlined. For example, work with the communications teams from the CASCs to develop a template for annual reports that could more easily be rolled-up into the external review process and report.
 - Any presentations should include plenty of time for questions, answers, and dialogue in the review process.
 - Continue holding the ERT sessions online due to the improved accessibility for ERT members, overall carbon emissions footprint, and sustainability of the process being in alignment with climate change adaptation.

END OF REPORT CONTENT

Scrivener's Note: This report was compiled by Donna Silverberg Consulting in active coordination with the ERT members listed on page 2. The ERT members reviewed and refined a number of drafts until all members could support having their names acknowledged on this Final ERT Review Report.

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APPENDIX & ATTACHMENTS

Appendix 1 – Attendees

Attendees for all or part of the sessions, alphabetical by last name (affiliations included).

ERT Members: Susan Cordell (USDA-FS), Bethany Morrison (County of HI), David Reidmiller (GMRI), Mark Shafer (UofOK), and John Tracy (TAMU).

Host, Consortium and CASC Presenters: Mike Anthony (UW), Lara Whitely Binder (King County WA), Jan Boll (Co-Lead WSU), Robyn Darbyshire (USDA/USFS), Laura Davis (UW), Nicole DeCrappeo (USGS NW CASC), Jenny Dettman (UW NW CASC), Solomon Dobrowski, (University Lead, U of M), Robert Emmet, (2018 Fellow), Alejandro Flores (Co-Lead, BSU), Cari Furiness, (SE CASC), Matt Gardner (UW), Laurel Genzoli (UW Fellow), Martha Groom (UW), Peter Harris (UW), Shannon Healy (UW Fellow), Selina Heppell (University Lead, OSU), Tyler Hoecker (UW, NW CASC Fellow), Kyle Hogrefe (2021 Fellow), Chas Jones (ATNI/USGS), Kendra Kaiser (Co-Lead, BSU), Meg Krawchuk, (NW CASC Grantee), Meade Krosby (UW NW CASC), Juan Lepez (UW), Alison Meadow (U of Arizona), Ben Packard (UW), Julie Padowski (Co-Lead, WSU), Holly Prendeville (USDA-NW Climate Hub), Carol Rhodes (UW), John Rybczyk (University Lead, WWU), Amy Snover (UW NW CASC), Katie Swensen (UW Fello), Maya Tolstoy (UW), and Darcy Widmayer (UW NW CASC).

Observers: Doug Beard (USGS), Gustavo Bisbal (USGS), Emily Fort (USGS), Gregg Garfin (SW CASC), Brad Romine (PI CASC), Katherine Smith (USGS), and Jane Wolken (NC CASC).

Facilitation Team: Colby Mills, Tina Patterson, and Donna Silverberg (DSC).

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Appendix 2 – Daily Review Session Agendas and Session Summaries

Day 1 – Administrative & Fiscal Management

DAY 1	March 14, 2022: Administrative Management	
	Purpose: Reflect on the Competencies, Efficiencies, Challenges, and Areas for Improvement of the host-university in managing the <u>administrative requirements and terms and conditions</u> of the corresponding host agreement, with a focus on Institutional Development and Fiscal Management review categories.	
Time	Topic	Presenters, Titles & Affiliations
9:45 - 10:00 Pacific time	External Review Team - closed door: Get settled, frame the day	ERT Members and Facilitation Team
Introduction to the NW CASC		
10:00-10:15	Welcome, Introductions & Role Clarification	Donna Silverberg, ERT Manager/Facilitator, DS Consulting
10:15-10:30	Introduction to the NW CASC - Our Region - The CASC as a Federal-university partnership - USGS roles & activities	Amy Snover, University Director, NW CASC Nicole DeCrappeo, USGS Director, NW CASC
10:30-10:45	Introduction to the NW CASC - Consortium roles & activities - Co-production of actionable science	Amy Snover
Review topic: Administrative Management/Institutional Development: <i>Staffing, Leadership, and Consortium Members</i>		
10:45-11:30	Introduction to the NW CASC - UW as host institution - Consortium members - Staffing & structure	Maya Tolstoy, Dean, UW College of the Environment Ben Packard, Director, UW EarthLab John Rybczyk, University Lead, Western Washington University Lejo Flores & Kendra Kaiser, University Co-Leads, Boise State University Selina Heppell, University Lead, Oregon State University Solomon Dobrowski, University Lead, University of Montana Jan Boll & Julie Padowski, University Co-Leads, Washington State University
11:30-11:45	Q&A: NW CASC Institutional Development	Donna Silverberg All
11:45-12:15	Lunch Break To avoid zoom fatigue: Please turn off and step away from your computer screen if AT ALL possible!	
Review topic: Administrative Management/Fiscal Management <i>Review of Fiscal Management: Budgets, awards, & grant management</i>		

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12:15-12:20	Overview: Administrative Management/Fiscal Management	Amy Snover
12:20-12:40	UW administrative, fiscal & compliance systems	Carol Rhodes, Director, Office of Sponsored Programs Juan Lepez, Associate Director, Grant and Contract Accounting Mike Anthony, Senior Consultant, Management Accounting & Analysis Peter Harris, Senior Auditor, Internal Audit Matt Gardner, Assistant Director, Post Award Fiscal Compliance
12:40-12:45	EarthLab administrative, fiscal & compliance systems	Ben Packard, EarthLab Executive Director
12:45-1:05	NW CASC fiscal management processes	Laura Davis, NW CASC Grants Manager
1:05-1:20	Administrative challenges and adjustments	Amy Snover & Laura Davis
1:20-1:35	Q&A: Administrative Management	Donna Silverberg
1:35-2:00	Facilitated discussion with ERT regarding Administrative & Financial Management: What are the host's Competencies, Efficiencies, Challenges and Areas for Improvement?	Donna Silverberg
2:00 – 2:30	External Review Team - closed door: Initial reflections on the day. Questions, concerns, and insights	Facilitation Team and ERT

DAY 1: Facilitator's Summary

March 14, 2022, 10:00am – 2:00pm PT

Topic: Administrative & Fiscal Management

Prepared by DS Consulting Facilitation Team

The following summary was intended to capture basic discussion, reflections, concerns, and insights from the session.

Attendees present for all or part of the meeting (in alphabetical order):

ERT Members: Susan Cordell (USDA/FS), Bethany Morrison (County of HI), David Reidmiller (GMRI), Mark Shafer (U of OK), John Tracy (TAMU)

Host, Consortium and CASC Presenters: Mike Anthony (UW), Jan Boll (Co-Lead WSU), Laura Davis (UW) Nicole DeCrappeo (USGS), Jenny Dettmann (UW) Solomon Dobrowski, (University Lead, U of M), Lejo Flores (Co-Lead, BSU), Matt Gardner (UW), Peter Harris (UW) Selina Heppell

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(University Lead, OSU), Kendra Kaiser (Co-Lead, BSU), Meade Krosby (UW), Juan Lepez (UW), Alison Meadow (U of Arizona), Ben Packard (UW), Julie Padowski (Co-Lead, WSU), Carol Rhodes (UW), John Rybczyk (University Lead, WWU), Amy Snover (UW Director), Maya Tolstoy (UW), Darcy Widmayer (UW).

Observers: Doug Beard (USGS), Gus Bisbal (USGS), Emily Fort (USGS), Bradley Romine (PI CASC), Katherine Smith (USGS NE/SE CASC), Jane Wolken (NC CASC)

DS Consulting Team: Facilitator, Donna Silverberg; Reporting and Support, Tina Patterson and Colby Mills.

Purpose for Day 1: To reflect on the competencies, efficiencies, challenges, and areas for improvement of the host-university in managing the administrative requirements and terms and conditions of the corresponding host agreement, with a focus on institutional development and fiscal management review categories.

Welcome, Introductions & Role Clarification

Facilitator, Donna Silverberg, welcomed the group and conducted a round of introductions that included NW CASC ERT Members, NW CASC Host (UW), USGS staff, consortium members and partners, and session observers.

NW CASC Introduction

Host Director, Amy Snover, welcomed the group and began the presentation with a land acknowledgement recognizing the indigenous peoples who are the past, present and future stewards of the lands associated with the region of the NW CASC. Amy began her presentation sharing with the ERT the agenda for the day. The presentation, *Intro and Institutional Development*, is available [here](#), see pages 1 to 5). Amy described the NWCASC as a ‘federal - university partnership’, (see presentation pages 6 to 10, *Intro and Institutional Development*). The NW includes a range of diverse ecosystems, so climate adaptation takes on many aspects in the NW CASC. She noted that there are six universities in the NW CASC consortium. University of Washington (UW) is the Host. Amy told the ERT about the NW CASC’s shared strategic approach by outlining the NW CASC’s mission to “Deliver science to help fish water, land, and people adapt to changing climate”. The NW CASC’s five strategic goals are 1) scientists and resource managers co-produce actionable science 2) communities of practice strengthen and expand, 3) the NW CASC is recognized as a thought leader in co-producing actionable science, 4) partners value our collaborative approach, and 5) efficient and effective operations. The NW CASC’s four focus areas are science, training and capacity building, communication, and tribal engagement.

USGS NW CASC Director, Nicole DeCrappeo, explained USGS’ roles and responsibilities in the partnership, see presentation pages 11 to 21, *Intro and Institutional Development*. Nicole reiterated the NW CASC’s collaborative approach toward a common mission and reminded the ERT that they are focused on the Host and consortium in this review, so they will not see all of

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the federal components. Nicole presented the high-level roles and responsibilities for USGS and the Consortium.

USGS' high-level roles and responsibilities are to develop the five-year science agenda and identify annual science priorities for funding. The Consortium's high-level roles and responsibilities are to implement the five-year science agenda and train and build capacity.

The USGS side of the NW CASC works with an advisory committee to develop the science agenda. The advisory committee, which includes state, federal, and Tribal governments, meets quarterly. The NW CASC Science Agenda for 2018 -2023 includes a variety of science opportunities associated with seven management priorities:

- aquatic resources,
- at-risk species and habitats,
- forest ecosystems,
- shrub-land ecosystems,
- invasive species and diseases,
- working lands and waters, and
- the human dimensions of climate change.

Nicole described the FY22 project solicitation process of funding and administering science and research projects. This project solicitation focused on three key science opportunities: invasive species and disease (rates of spread; control methods; impacts to culturally important species), shrubland ecosystems (thresholds; management treatments, climate envelope models), and ecological transformation (post-fire regeneration; novel communities and species interactions, RAD framework). For this solicitation, 41 statements of interests were received, 25 proposals submitted and \$7.5M requested. 8 to 10 new projects will be funded in the near term. Nicole stressed the value and importance of the University partnership to USGS with regards to scientific expertise, staffing capacity, training expertise, and communications capacity. Nicole noted that there are no other partnerships like the CASCs within USGS.

Amy told the ERT about the Consortium Roles and Activities, see presentation pages 22 to 28, *Intro and Institutional Development*. Amy described the consortium's development from the USGS funding opportunity to proposal development to cooperative agreement, which sets out a "terms sheet". The terms sheet outlines what UW is expected to report and deliver to USGS throughout the life of the cooperative agreement. Amy described how the terms sheet ties to the focus areas and strategic goals she mentioned earlier.

Host University Deputy Director, Meade Krosby, spoke to the ERT about the Consortium's approach to co-production and actionable science, see presentation pages 29 to 37, *Intro and Institutional Development*. She noted that the NW CASC is a partnership driven program focused on actionable science. Her presentation included an explanation about the co-production of actionable science being two-way information sharing and development that results in new knowledge. She presented the ERT a roadmap of how the NW CASC mission, strategic goals and focus areas align with the review sessions. Day one: administration and

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management; day 2: all four focus areas (science, training and capacity, communications, tribal engagement); day three: two focus areas: training & capacity building and communications; day four: they will show how all four focus areas are integrated into the work of the entire center (administration and management, strategy and evaluation, as well as national engagement).

Institutional Development

Amy presented an overview of the host, consortium, and USGS approach and role in institutional development, see presentation pages 38 to 41, *Intro and Institutional Development*. She noted that the group would hear how the Host Institution has developed and supports the work of the CASC at many levels, from the University of Washington as a whole, to the College of the Environment, EarthLab and Climate Impacts Group.

Maya Tolstoy, Dean, UW College of the Environment, came from Columbia University because she was drawn to the solutions work being done at UW, including the CASC. Her three main priorities for the college are: Diversity, Equity, and Inclusion (DEI); strategic planning; and raising the College's profile. Maya has found that UW's solutions-based work is done with sensitivity and in a collaborative way. She noted that the UW is a R1 university doing top research in a very collaborative environment. In addition, people across the College, AND University-wide, are supportive of the interdisciplinary work needed to address the climate crisis. She stated that being part of a network helps accelerate actionable science.

Ben Packard (UW, Director, EarthLab) stated his group's goal is to provide equitable and just solutions to environmental problems, such as climate change. EarthLab has four focus areas: convene, invest in new collaboratives and partnerships, build capacity of individuals to do transdisciplinary science, and support and amplify member organizations (of which the NW CASC is one). Ben stated that he viewed EarthLab's role, in partnership with others, is to advise and inform faculty, students, and researchers, and to bring speakers to campus.

Amy provided an overview of the Climate Impacts Group (CIG), of which she is also the Director. CIG is a sister organization to the CASC and has been a trusted provider of actionable science in the region for some time. CIG has been a lead for regional climate change research since 1995 and has a staff of 17 who, working in tandem with the CASC's 3.5 FTE, enable integrated climate science efforts. Being co-located with and partners of both EarthLab and the National Oceanic and Atmospheric Administration's Regional Integrated Sciences and Assessments (NOAA-RISA) allows the entire center to produce more actionable science with the sum of its parts.

Consortium Members and University Leadership Team (ULT). See presentation pages 42 to 40, *Intro and Institutional Development*. In addition to what is available at the Host, consortium members add to the work of the NW CASC. Consortium members introduced themselves via short video segments: [Lejo Flores](#) (a hydrologist, Boise State University), [Kendra Kaiser](#) (hydrologist, Boise State University) [Solomon Dobrowski](#) (landscape ecologist University of Montana), [Jan Boll](#) (hydrology and water quality, Interim Director, Center for Environmental Research, Education and Outreach, Washington State University), [Julie Padowski](#) (hydrologist, Assistant Director, Center for Environmental Research, Education and Outreach, Washington

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State university), [John Rybczyk](#) (coastal ecologist, Western Washington University (WWU), and [Selina Heppell](#) (marine ecologist and conservation biologist, chair, Department of Fisheries, Wildlife & Conservation Sciences, Oregon State University (OSU)). Amy explained that OSU joined the consortium in 2019. OSU has a long-standing relationship with USGS. In 2017 OSU also submitted a proposal, OSU and UW had already discussed how they would work together depending on the outcome of the funding award.

ULT Roles and Responsibilities

Presentation pages 51 to 55, *Intro and Institutional Development* describes how the ULT works together to identify and coordinate efforts, foster connections between the CASC and university partners' faculty and staff, allocates and administers research Fellowships, and ensures smooth, cross institution award and sub-award administration and fiscal management.

Staffing

The NW CASC host university currently has a program coordinator, a communications lead, a grants and contracts manager, a Lead for social science and evaluation, support from the College for federal relations, and one full time post-doc Fellow on the staff (see presentation pages 56 to 57, *Intro and Institutional Development*. The position of actionable science postdoctoral fellow is currently open; the two people previously in that position have successfully found positions doing related work (one is the Climate Change Research & Adaptation Advisor at Seattle City Light, one is a Senior Associate at Cascadia Consulting Group).

Q&A Administrative Management

- Regarding consistency on the ULT, have you seen much turnover? If so, has it introduced challenges?
 - There's been very little change, Selina joined when OSU joined the consortium. WSU had a change that led to Jan Boll and Julie Padowski joining (the previous WSU lead took a position at the National Science Foundation). Tom DeLuca at University of Montana (Dean of the Franke College of Forest & Conservation) passed responsibility to Solomon Dobrowski.
 - The ULT has been remarkably stable, considering what often happens in academia. The personnel changes mentioned happened early on.
- How do you do all of this with a half time position?
 - Nicole (USGS) is half-time. Amy (Host) is quarter time in this role. The work of the CASC ebbs and flows. The proposal did not put enough time for the administration of the Center and we do not have faculty directing this Center as other CASCs do. Instead, we have a really good team who work well together. We need to account for the amount of time it actually takes and would need to request more funding in the future.
- First, NW CASC is to be commended for the number of women in leadership positions. Second, would you talk about the undergrad scholars' program at EarthLab?
 - Two undergraduate programs were mentioned. First: EarthLab is launching its first summer undergraduate internship program this summer. It will fund UW

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undergraduates to work with EarthLab member organizations (such as the NW CASC) for 10 weeks. Although no internships are earmarked for the NW CASC this summer, it is a possibility for future years. Second: the NW CASC supports undergraduates to work with NW CASC partner organizations through the Doris Duke Conservation Scholars program (a separate EarthLab member organization). This program will be discussed more during capacity building (Day 3). It is an experiential learning program.

- We heard the priorities for science agenda, yet the ULT seems to show a very strong representation from hydrology, less on terrestrial. Can everything be adequately represented?
 - We work with all types of environmental researchers. As a ULT, we seek people who are well connected and willing to reach out to other faculty at the universities. We try to be very broad and have access to ALL faculty and other scientists.
 - The Host and NW CASC does its science by funding research Fellows annually, not faculty (and not the ULT).

Administrative Management/Fiscal Management Overview

Amy provided an overview of NW CASC Fiscal Management. The presentation, *Fiscal Management and Admin Conclusions* is available [here](#), see pages 1 to 5.

UW administrative, fiscal & compliance systems

UW personnel delivered a series of presentations to the ERT about NW CASC administrative, fiscal and compliance systems.

Carol Rhodes spoke to the ERT about the Office of Sponsored Programs and how her office supports all research at UW. She walked the group through the different phases of her office's assistance to researchers and research programs. See pages 6 to 16, *Fiscal Management and Admin Conclusions*.

Juan Lepez spoke to the ERT about Grant and Contract Accounting at UW, noting the university received awards totaling more than \$1.89 billion in 2021. He spoke about their process for budget set-up, invoicing, reporting and closing grants and contracts. In addition, his office provides training about processes and management needs for Principal Investigators (PIs) See pages 17 to 20, *Fiscal Management and Admin Conclusions*.

Matt Gardner spoke to the ERT about Post Award Fiscal Compliance at UW. He too noted that for large complicated grants, his office offers upfront and on-going training to support the effective management of funds received and utilized at the UW. See pages 21 to 24, *Fiscal Management and Admin Conclusions*.

Mike Anthony spoke to the ERT about Effort Reporting and Cost Share at UW. Mike noted that the federal government has reporting requirements and certifications that his office provides to

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support programs such as the NW CASC. See pages 25 to 28, *Fiscal Management and Admin Conclusions*.

Peter Harris spoke to the ERT about UW's internal audit processes to assure that funds are handled effectively, and in the manner for which they were intended. If necessary, his office, which reports directly to the President of the University, conducts investigations and provides consultation and education services to the university. See pages 29 to 32, *Fiscal Management and Admin Conclusions*.

EarthLab administrative, fiscal & compliance systems

Ben Packard spoke to the ERT about EarthLab's fiscal and compliance system that supports science to action. See pages 33 to 35, *Fiscal Management and Admin Conclusions*. EarthLab uses a shared services platform and supports eight member organizations, the NW CASC being one. EarthLab's supported initiatives stem from State, federal, foundation, and private sectors.

NW CASC fiscal management processes

Laura Davis spoke to the ERT about the NW CASC administrative fiscal and compliance Systems. See pages 35 to 47, *Fiscal Management and Admin Conclusions*. She noted that it takes a "team of skeptics" who look at transactions, dates, dollar amounts and the reasonableness of all of this to assure proper management and reporting of large federal projects. She is embedded in the CASC's work to better understand what they are doing and how they are doing it.

Administrative Performance Challenges and Adjustments

Amy delivered an overview of the NW CASC overall administrative performance. See pages 48 to 53, *Fiscal Management and Admin Conclusions*. She noted that, when looking at their proposal's "Terms Sheet", they had done most of the work they said they proposed/agreed to do. COVID affected their ability to visit all consortium partners in person, but they made up for this by using Zoom. Amy clarified that ULT members are not paid for the work they do in support of the NW CASC; instead, their work is in-kind support.

Amy discussed how the NW CASC Host and consortium navigated limitations. See pages 54 to 57, *Fiscal Management and Admin Conclusions*. The presentation focused on challenges (piecemeal, uncertain start-up funds, delays and slowdowns in USGS approvals and contracting during the last administration, changing federal priorities, timing mismatches of the federal vs. academic schedule, the difficulties of federal annual funding in the academic setting, and the siloed and changing review/reporting categories), solutions they created, and successes. Successes included: a shared mission, vision, goals, and values which transcend institutional and administrative boundaries; strong and collaborative ULT; cohesive and empowered staff; strong home institution support; transparent and streamlined administrative transfer processes; an expanded consortium to include OSU; and fiscal cost savings that helped to save \$250,000 over the 5-year period.

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Q&A Fiscal Management

- Would the administrators comment on the service you receive from USGS? Timeliness? Clarity and consistency of response?
 - Have not heard of any issues. Personally, the USGS partners have been responsive. USGS back east does an admirable job of responding to our questions and needs.
 - The challenges we mentioned are at a much higher level than who we are working with. Difficulties have been with the reporting and approval process.
- Regarding your transition to a new financial system and turnover, have there been any hiccups or additional work you've had to do for internal management?
 - It is very time consuming. The idea is to reduce duplication of data entry. We'll have a new cost share system that integrates with the financial system. It should create some efficiencies.
- What do you think are solutions to the timing of funding challenge?
 - The huge challenge is, we receive money in one-year increments. Other federal cooperative agreements are for five years (e.g., NOAA). Here, the agreement is for five years, but payment is annual. Yet, all the money must be used in the five-year period. If it matched up with our program it wouldn't be a problem. The solution is a five-year agreement AND five years of funding.
- Thinking of continuing resolutions, there may be a whole year that you can't fund. How do you resolve that? An additional year?
 - This has affected USGS, not UW. Timing and number of awards remain uncertain. The Host managed that, and Nicole is very transparent with us.
- For the purposes of budgeting, is the funding considered spent when the subcontract is made or when 75% is spent?
 - When it is spent (by UW). It's a continuing struggle. So, we are trying to push our sub-awardees to invoice as soon as possible. Laura has developed Excel spreadsheets and a process showing percentage spent. We also follow up with Fellows about their money spent. Fiscal management is a significant amount of effort.
- For annual RFP awards, do they still go through UW?
 - "Annual" RFP awards to university researchers for science projects managed by the USGS side of the NW CASC run through UW. This is how USGS acquisition management manages the awards.
 - Annual awards for NW CASC research fellowships (managed by the Consortium) are run through UW to Consortium partners as modifications of the original (Year 1) sub-award. We competed for a five-year award, they provide that award money annually over the 5-year period.
- How does the USGS Deputy Director vacancy impact management?
 - As a whole center we're not able to run as far as fast. Nicole does an amazing job. We talk about what we can do with what we have. Yet, we need to get the position filled as soon as possible.
- Oregon State University and University of Arizona seem to separate. Would you explain?

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- Oregon State University was not part of the original proposal. Originally, they were a competitor. UW and Oregon State discussed and decided to bring Oregon State University on board in 2019.
 - For University of Arizona: UW wanted a social scientist on the team. Alison Meadows is at the University of Arizona and has done social science related work at many CASCs.
- UW presumably is home to numerous federal efforts. Would the financial team speak to reporting for other efforts compare to CASC?
 - From an auditing perspective, research centers are considered riskier, so they receive more auditing assistance. On the cost share side, it's not a high administrative burden. For sub-awards, it's not a high administrative burden. It IS different from a programmatic side, but it helps to have an embedded staff person who can understand the requests and help put them through the UW system. For example, when an RFP is released for a Fellow, Amy works directly with Laura so she can move the information into her system and streamline the process.
- It is clear that UW financial oversight is covered well. How have you experienced this with consortium members?
 - Some universities are slower to respond and invoice than others. Laura follows up with them.
 - On the program side, NW CASC or the appropriate ULT member follows up with the Fellows or if there's a variance.
 - They're all doing their job. If there are questions Laura follows up. If there's an error, it gets changed or fixed.
- Is there communication among finance and admin staff that takes place about lessons learned or best practices?
 - Nothing has bubbled up yet for UW. For USGS, it may be worth exploring lessons learned at the cross-CASC level. Perhaps quarterly or annually. There's a group of CASC project managers and coordinators that meet. And, the CASC Host Directors meet monthly to problem solve and discuss issues that could be presented in a unified message.
- When connecting with the congressional delegations, is the timing of funding something you discuss?
 - There are things that Congress thinks is its business and things that are not. Congress expects the agencies to manage such issues, so we don't raise such issues to Congressionals.
 - Instead, Congress has shown high level, bi-partisan support of the CASC system and want it to succeed.

Donna thanked the ERT, Consortium & CASC Members, and Observers for their participation, engagement and attendance at the session. And with that, the meeting was adjourned.

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ERT Reflections on the Day

The ERT met in closed session to discuss what they had heard. In general, the ERT was impressed with how well organized the session had been and how much information was shared. They thought the complex relationships and processes were well depicted in graphics, helping them to understand as much as possible. The Host made clear the roles and relationships between the Host, USGS, consortium members and partners very well.

The ERT asked clarifying substantive questions for the Host to answer at some point during the next sessions:

- What influence does UW have on the science priority setting process?
- Regarding the cost sharing requirement: was the savings in F&I, F&A or...?
 - How do you and the UW agree on where you reinvest funds?
- What does the UW gain from Hosting the CASC? What's in it for the University?
- What projects have grown OUT OF the CASC for UW? How has the Host been able to leverage the relationship with USGS?

This session summary was submitted by the Facilitation Team. Edits were welcome and included.

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Day 2 – Scientific Achievements & Collaborative Efforts

DAY 2	March 16, 2022: Scientific Achievements and Collaborative Efforts Purpose: Reflect on the by the host-university and associated academic consortium's contributions with respect to: Scientific Achievement and Collaborative Efforts.	
Time	Topic	Presenters, Titles & Affiliations
9:45 - 10:00 Pacific Time	External Review Team - closed door	ERT Members and Facilitation Team
Review topic: <i>Scientific Achievements on climate impacts, vulnerability, and adaptation science</i>		
10:00-10:15	Overview of Scientific Achievements	Meade Krosby, Deputy University Deputy, NW CASC
10:15-11:00	Research Fellowship Program	Meade Krosby NW CASC Fellows
11:00-11:30	Actionable Science Deep Dives	Meade Krosby Kendra Kaiser, Boise State University
11:30-12:00	Q&A: Fellowship Program & Deep Dives	
12:00-12:30	Break To avoid zoom fatigue: Please turn off and step away from your computer screen if AT ALL possible!	
12:30-12:50	Climate Adaptation Postdoctoral (CAP) Fellowship Program	Meade Krosby Tyler Hoecker, Climate Adaptation Postdoctoral Fellow, NW CASC
12:50-1:00	Scholarship on Co-Production	Meade Krosby
1:00-1:15	Q&A: CAP Program and Scholarship on Co-Production - How is the host university managing their program and doing Actionable Science; - What is the process? What patterns have emerged? What is/is not working well? - What are the host university and its academic consortium contributions to climate adaptation science?	Donna Silverberg All
Review topic: Collaborative Efforts		
<i>Collaborate with stakeholders to develop and deliver adaptation products applicable to priority decision-making</i>		
1:15-1:45	Overview of Collaborative Efforts Overview and discussion of the Host's collaborative engagement relating to the NW CASC	Amy Snover, University Director, NW CASC Chas Jones, Tribal Climate Resilience Liaison, NW CASC Holly Prendeville, Coordinator, USDA Northwest Climate Hub Lara Whitely Binder, Climate Preparedness Program Manager, King County and Co-Chair, Puget Sound Climate Preparedness Collaborative

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1:45-2:00	Q&A: Collaborative Efforts Dialogue and discussion with ERT, including: How effective is the Host at engaging others in activities? How do the Host's collaborative efforts to design, implement, and evaluate their activities enhance the Host's overall effectiveness?	Donna Silverberg All
2:00 – 2:30	External Review Team - closed door: Initial reflections on the day. Questions, concerns, and insights	Facilitation Team and ERT

DAY 2: Facilitator's Summary

March 16, 2022, 10:00a – 2:00p PT

Topic: Scientific Achievements and Collaborative Efforts

Prepared by DS Consulting Facilitation Team

The following summary is intended to capture basic discussion, reflections, concerns, and insights from the session.

Attendees present for all or part of the meeting (in alphabetical order):

ERT Members: Susan Cordell (USDA/FS), Bethany Morrison (County of Hawaii), David Reidmiller (GMRI), Mark Shafer (OU), AND John Tracy (TAMU).

Host, Consortium and CASC Presenters: Lara Whitely Binder (King County WA), Nicole DeCrappeo (NWCASC USGS), Jenny Dettmann (UW), Laurel Genzoli (UW Fellow), Shannon Healy (UW Fellow), Selina Heppell (OSU), Tyler Hoecker (UW, NWCASC Fellow), Chas Jones (ATNI/USGS), Kendra Kaiser (Boise State U), Meade Krosby (UW), Alison Meadow (UW/U of Arizona), Julie Padowski (WSU), Holly Prendeville (USDA-NW Climate Hub), Amy Snover (University Director, NWCASC), Katie Swensen (UW Fello), and Darcy Widmayer (UW).

Observers: Doug Beard (USGS), Gus Bisbal (USGS), Emily Fort (USGS), Gregg Garfin (SW CASC/UA), Brad Romine (PI CASC), Katherine Smith (USGS NECASC/SECASC), and Jane Wolken (NC CASC).

DS Consulting Team: Facilitator, Donna Silverberg; Reporting and Support, Tina Patterson and Colby Mills.

Purpose for Day 2: To reflect on the contributions by the Host University (University of Washington-UW) and associated academic consortium with respect to scientific achievements and collaborative efforts.

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Welcome and Introductions

Facilitator, Donna Silverberg, welcomed the group and conducted a round of introductions that included NW CASC ERT Members, NW CASC Host (UW), USGS staff, consortium members and partners, and session observers.

Overview of Scientific Achievements

NW CASC Host University Deputy Director, Dr. Meade Krosby (UW), presented an overview of the Host's scientific achievements within the NW CASC, (this presentation can be viewed [here](#)). She reminded the group that USGS sets the 5-year NW CASC Science Agenda, in consultation with the NW CASC Stakeholder Advisory Committee (SAC) and a science advisory panel. The Science Agenda includes management priorities of the SAC members. Both UW and the Consortium implement the Science agenda. The Host and Consortium implements science via the NW CASC Research Fellowship Program, Actionable Science Deep Dives, Climate Adaptation Postdoctoral Fellowship Program, and scholarship on co-production. This consortium-directed science addresses both the management priorities identified in the NW CASC Science Agenda and the emerging needs identified through Deep Dive Actionable Science.

The NW CASC 5-Year Science Agenda reflects priority research needs of Northwest resource managers in preparing for and responding to climate impacts. Priority areas include: aquatic resources, at-risk species & habitats, invasive species & diseases, shrubland ecosystems, forest ecosystems, working lands & waters, and the human dimensions of climate adaptation. In addition, the Host has led annual Actionable Science 'Deep Dives' on topics that have regional interest and scientific uncertainties that would benefit from a closer, collaborative look. These have included: managing Western Washington wildfire risk in a changing climate, managing Northwest post-fire vegetation change in a warming climate, and managing climate change effects on stream drying in the Northwest.

The Host and consortium aim to provide science that can be applied to decision-making to help build climate resilience of Northwest natural systems. Consequently, the consortium-funded science must be conducted in close partnership with Northwest natural resource managers. Meade noted that this approach to co-produced/collaborative research to create actionable science takes time, yet the end result yields trained researchers capable of meeting societal demands related to climate science.

Research Fellowship Program

Meade provided background on NW CASC Research Fellowship Program (*see presentation pages 9-23, Scientific Achievements*), which comprises the Consortium's single largest investment in actionable science to address management research priorities and emerging science needs. The one-year Fellowships are awarded through a competitive process and proposals must: be aligned with the NW CASC Science Agenda or Deep Dive Actionable Science Agendas; identify a co-production partner who is a NW CASC stakeholder (DOI bureaus, Northwest tribes and Northwest State fish and wildlife and natural lands agencies); and should leverage other resources. The one-year intensive program is intended to be an opportunity in

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co-production capacity-building to train the greatest number of early career students, while also funding science.

The 2017-2022 research Fellows include 5 cohorts, 58 Fellows (45 completed), from 6 Consortium universities and over 20 different academic departments. Most of the funded research projects address more than one science priority and produce more than one type of product. These Consortium-funded projects are complemented by USGS-funded science in addressing NW CASC science priorities. The majority of Fellowship awards average about \$30k (ranging from \$0-\$60k, up to \$65k for post docs). Fellows have worked with natural resource managers from over 65 different agencies to co-produce diverse actionable science products. Fellowship research has led to 29 peer-reviewed publications as well as a diverse suite of tools, reports, maps, datasets and databases, and other products that address local and regional management decision-making needs, as well as providing broader scientific contributions on the national level.

Meade introduced three former Fellows, [Laurel Genzoli](#), [Shannon Healy](#), and [Katie Swensen](#), via pre-recorded lightning talks, to present their NW CASC research outcomes. ERT Members posed the following questions for the former Fellows:

- What have you learned from your cohort, and what further programmatic offerings might have been useful?
 - Learned: how to communicate and build relationships with partners as a foundation for doing actionable science; a balance of general graduate school education with climate adaptation strategies to enhance degree; learning with and from Grad students and a cohort of people supporting applied work made the work feel worthwhile.
 - Some projects could benefit from more regular engagement with Federal Partners throughout the entire program.
 - A Slack channel among Fellows could be helpful for communicating.
- How did you develop research topics?
 - Advisors and prior interest, combined with a desire to help local communities helped form these Fellows' research topics; CASC provides capacity for funding and post-monitoring analysis that would not be done without this support. The program provides an opportunity to enhance research project dimensions and work with local communities.
- With a brief one-year period for co-production, how engaged were you with managers on co-development? Did you enjoy the co-production? How did you communicate with resources managers?
 - Field collaborations are the best way to have dialogue and build relationships beyond virtual connections; post-fieldwork engagement was more challenging, especially during COVID-19; CASC was a resource to learn tools for communicating with partners when not in the field.

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ERT Q&A on Fellowship Program

- Is there follow-up with Fellows after the program to reinforce actionable science and continue to provide professional development?
 - The CASC has distributed alumni surveys for updates on professional careers and what needs the CASC might support; they have a listserv for funding opportunities;
 - The CASC has found the most high-impact way to support professional development is involving former-Fellows in the Deep Dives. Fellows are a critical component of Deep Dive teams and have the opportunity to apply their work and are funded to participate. The CASC also offers support to former Fellows to attend the NW Climate Conference (cross cohort mingling).
 - An ERT member emphasized that the longitudinal connection to a Fellow's cohort, and the broader network post-Fellowship, proves to be invaluable throughout their career.
- How does the NW CASC/UW advertise the Fellowship opportunity? Are there ways to outreach more broadly at universities and reach a wider range of departments?
 - University Leadership Team (ULT) members play a key role in advertising the Fellowship Program at their respective Universities and have developed creative ways to engage students.
 - Opportunities are shared through the NW CASC newsletter, social media platforms (encouraging past Fellows to re-share), expanding listservs, proposal-writing sessions, virtual Q&A sessions, and a robust website with supporting resources.
- Are there differences between consortium member universities' ability to compete for the Fellowship opportunities due to gaps in skillsets vs USGS criteria?
 - The NW CASC works hard to ensure equal distribution of Fellowship opportunities; Fellows are only funded at Consortium schools. OSU and UW tend to have more applicants versus the smaller student base/research program universities. Fellowships are generally funded proportionately across Consortium schools.
 - University Co-Lead, Kendra Kaiser (BSU), noted that last year they focused on informing students earlier, so students could engage with potential stakeholders as early as the Fall to prepare for the RFP process in January.
 - USGS and DOI have rigid criteria for priority funding areas and partners. As a result, there has not always been flexibility to bring in more social scientists, for example. There are limitations.
- Approximately 1/3 of Fellowship applications are funded (30-45 applications, 10-13 funded every year).
- The Fellowship training/capacity building program will be addressed on the Day 3.

Actionable Science Deep Dives

Meade and Kendra expanded on the Consortium's Actionable Science Deep Dives (*see presentation, pages 25-38, Scientific Achievements*), the annual (approx.) science and practice workshops held by the NW CASC. The sessions and outcomes are meant to address 'emerging

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climate risks of significant regional interest and uncertainty,’ and provide an opportunity for the region to respond to emerging issues that have little research attention. Deep Dives aim to build understanding of the state of the science and practice, provide a roadmap for co-producing actionable science to address gaps in knowledge, foster communities of practice around an emerging adaptation issue, and demonstrate and provide training in co-production.

Deep Dives synthesize and build understanding of what is known and not known around an emerging climate risk. Literature reviews, participant surveys, and Deep Dive discussions provide the basis of the synthesis, which allows the CASC to describe the knowns and unknowns about the potential impacts and possible management responses to address the risks. The syntheses are both processes and products. Actionable Science Agendas produced by the Deep Dive process provide a roadmap for co-producing actionable science to fill identified knowledge gaps. The final syntheses and Actionable Science Agendas include research and capacity needs, and are co-produced by Deep Dive participants and the Deep Dive Lead Team.

The CASC has completed 3 Deep Dives, with 284 participants engaged from over 100 NW government, academic, NGO and other entities. Deep Dives also aim for strong Tribal partnership, leadership, and participation. ULT members play a key role in the Deep Dives, and provide ways to leverage expertise on the ULT. Deep Dives are highly collaborative, facilitated, co-production processes on an emerging climate risk. Meade reviewed the three completed Deep Dives, providing examples of outputs from the post-fire vegetation transformation Deep Dive, including: summary report, working group syntheses, tools and tools database, Deep Dive website, factsheets, presentations (regional and national levels), as well as manuscripts currently in preparation. These included, 2018 “Managing Western Washington Wildfire Risk in Changing Climate”, 2020 “Ecological Transformation Now? Managing post-fire vegetation change in a warming climate” and 2021 [“Deep Dive into Shallow Water: Understanding and responding to climate-induced impacts on stream permanence in the Northwestern U.S.”](#). NW CASC University Director, Amy Snover, noted that the Actionable Science Deep Dives have improved the Consortium’s and CASC’s understanding of emerging climate risks in the NW region, while informing their strategic investments to address key information gaps.

Kendra (via recording) provided context behind the 2021 Deep Dive, a workshop that dealt with managing climate-induced impacts on stream permanence in the Northwest (*see presentation pages 37-38, Scientific Achievements*). She noted that this Deep Dive was centered on storytelling as a mechanism to interact with the topic and with each other, and that research and capacity needs on the topic were generated with participating stakeholders.

ERT Q&A on Actionable Science Deep Dives

- How are Deep Dive topics identified and developed?
 - Through a collaborative process. The ULT brainstorms emerging risks they have heard from management partners that best align with CASC science priorities. Ideas are then reviewed by USGS and SAC.

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- A critical component is stakeholder engagement. The NW CASC is responsive to the needs of stakeholders, identifying emerging needs each year, while continuing to engage managers and practitioners in the scientific inquiry process.
- What becomes of projects that don't align with the USGS criteria (e.g., social science topics)? Were there discussion items that arose that may not fit?
 - Kendra noted water rights policy changes to be the most difficult fit. This might provide an opportunity for Fellows within public policy programs, but it is not a 'scientific' issue. That said, most project suggestions fall within the CASC realm.
 - Deep Dives are a partnership between many entities, and limitations must be recognized. They are a forum to address issues in a complex holistic way that actually matters.
- The Deep Dives have an impressive list of deliverables. Is there evidence of these deliverables being applied by the managers they are intended to serve?
 - Relevant stakeholders not normally seen at science meetings are learning how to prepare communities' climate disaster-readiness. The range of recent participants is significant, with higher Tribal engagement contributing to rich storytelling because the Deep Dives have used and highlighted different communication styles.
 - A main challenge for tracking evidence of use is the time it takes to do actionable science. That said, indicators that show their deliverables have been relevant to decision-making include:
 - Invitations from resource managers to present findings to their networks and decision-making entities.
 - King County, Washington DNR held discussions on how to use Deep Dive science in their planning; Deep Dive participants (emergency managers for example) took science into their decision contexts and frameworks, linking to their own community of decision-makers.
 - The NW CASC is starting to track this issue more, developing ways to follow up and gather examples.
- How are Fellows' science projects ranked? What is the funding connection to Deep Dive topics?
 - Consortium-based science is based on the NW CASC 5-year Science Agenda and the Actionable Science Agendas from Deep Dives. Fellows are funded based on alignment with those two agendas, and must demonstrate in their proposals which items will be addressed in their work.
 - Deep Dive topics are high-level enough that they align well with the NW CASC Science Agenda.

Climate Adaptation Postdoctoral (CAP) Fellowship Program

Meade and CAP Fellow, Tyler Hoecker (UW/UM), provided background of the CAP Fellowship Program, (see *presentation pages 42-45*), a National CASC (NCASC)-coordinated program that provides cohorts of early-career researchers with management-relevant research experiences on the effects of climate change on fish, wildlife, and ecosystems. Each 2-year cohort focuses on a specific climate impact of concern across the CASC network.

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The program provides funding for the NW CASC/Consortium to hire postdoctoral Fellows to conduct science that addresses emerging science needs identified in the Actionable Science Agendas, and contributes to cross-CASC collaboration through the CAP cohort. Fellows also develop a national research synthesis in addition to their NW CASC-specific research. CAP is another opportunity for the NW CASC to provide professional development through co-production training and fostering a national community of practice.

The first cohort of CAP Fellows (2021-23) is focused on the “Future of Fire,” which in turn addresses the Actionable Science Agenda co-produced during the 2020 Deep Dive. Tyler presented his [research](#) on mapping pyro-climate adaptation distances in forested ecosystems that could inform decision-making by: supporting forest management decisions for likely future conditions; determining which areas should resist, accept, or direct vegetation transformations; and anticipating how much change to expect and when changes are likely to occur. Engagement with local managers is key to minimizing negative impacts to ecosystems and people.

Scholarship on Co-Production

Meade provided context on UW’s scholarship on co-production (*see presentation pages 47-53*), and how it informs the CASC’s work, while influencing national efforts to build capacity for the provision and use of actionable climate science. UW’s goal is to push the field of adaptation by sharing best practices and recommendations for effective co-production based on lessons learned through the CASC’s science, training, and capacity building programs. Of note is their Environmental Research Letters paper on building capacity for societally engaged climate science by transforming science training, which is in the top 5% of all research outputs scored by Altmetric and cited in a National Academies report on transforming NSF geoscience funding to better support societal needs. The team is preparing to submit another paper on scaling up co-production.

Scientific Achievements Summary

Meade reviewed the four avenues for Consortium science implementation (*see presentation pages 54-60*), noting that UW has achieved everything laid out in their Terms Sheet. She noted the following challenges limited UW’s scientific achievement results: timing mismatches between USGS funding years and Consortium academic calendars; fine-tuning recruitment processes; uneven distribution across Science Agenda priorities (few social science projects, partly a legacy of the past administration); tension between needing to deliver products while emphasizing co-production and training (non-specific science funding); and the COVID-19 pandemic (limited Tribal and student cohort engagement). Solutions to those challenges included: adjusted timing for Fellows’ recruitment, selection, and funding (e.g., provide no-cost extensions); a refined recruitment process (solicited expertise, cross-evaluation, and checklist); addressed under-represented Science Agenda funding priorities with special calls (evaluation of USGS and ULT funding); and providing support and flexibility by pivoting to online training and Deep Dives.

Significant successes in scientific achievements have been made by the UW team. Research Fellows (35 promised, 58 delivered) have made significant contributions to the NW CASC

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Science Agenda needs. Actionable Science Agendas are being implemented through USGS, Research Fellowship and CAP Fellowship research. Additionally, scholarship on co-production has honed the NW CASC's activities, while informing broader science efforts.

ERT Q&A on Scientific Achievements

- ERT member encouraged the team to invite more social science into programs, to address climate adaptation in the future through human behavior.
 - The CASC was explicitly forbidden from doing this by the last administration, and looks forward to having it back on the agenda with the current administration.
- Regarding career incentives, do you have more success in co-production work with tenured faculty vs earlier career faculty working towards publications?
 - Coproduction has actually attracted more earlier career faculty, as values and attitudes are more aligned. Part of the Fellowship Program is to offer incentives to tenured mentors, although more is needed to translate into current incentives.

Overview of Collaborative Efforts

NW CASC University Director, Amy Snover (UW), provided an overview of UW's collaborative efforts and engagement relating to the NW CASC (this presentation can be viewed [here](#)). She noted that collaboration is fundamental to all NW CASC activities including science, training & capacity building, communications, and Tribal engagement. Amy mentioned the relative roles for Tribal engagement in the NW CASC: A Bureau of Indian Affairs (BIA)-funded Tribal climate liaison is housed at the Affiliated Tribes of Northwest Indians (ATNI), and supervised, in part, by USGS NW CASC Director, Nicole DeCrappeo (USGS). The Tribal liaison ensures that the NW CASC is well connected to Tribal priorities. The Consortium side works with the Tribal liaison, as well as independently, to connect its efforts to Tribal priorities.

Amy introduced three NW CASC collaborative partners for a panel discussion: Chas Jones, Tribal Climate Resilience Liaison, ATNI/NW CASC (USGS); Lara Whitely Binder, Climate Preparedness Program Manager, King County and Co-Chair, Puget Sound Climate Preparedness Collaborative; and Holly Prendeville, Coordinator, USDA Northwest Climate Hub.

Chas explained that the ATNI is an inter-Tribal organization, with 57 member tribes, that supports Tribes in recognizing Tribal sovereignty and self-determination. He noted that ATNI has a strong relationship with the NW CASC and is now hiring a second Tribal liaison. ATNI leans heavily on CASC scientists and partners as they regularly provide services to Tribes such as science delivery, leadership summits, professional development, elevating Tribal voices and perspectives, internship programs, and training opportunities through the Climate Impact Group (CIG). Chas noted that the NW CASC is very effective at reaching out to Tribal Leaders directly, with a culturally appropriate perspective that is not often seen from other researchers. This foundation of trust is extremely important when working with the Tribes.

Lara noted that, for King County, the NW CASC is a go-to resource for information on climate impacts, ecosystems, and integration of climate change on decision-making. Accounting for

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climate change is hugely important to the County's work. King County and other Puget Sound communities are seen as respected leaders using climate change science due to their partnership with the NW CASC. She specifically noted the value that King County and the Puget Sound Preparedness Collaborative (a group of local and tribal governments, regional agencies, and concerned organizations working to ensure economic, environmental, and societal resilience to the impacts of climate change) derived from the NW CASC's first Deep Dive, on increasing wildfire risk west of the Cascades.

Holly noted that the NW Climate Hub's mission is to develop and deliver science-based region-specific information for agriculture rangelands, natural resource managers, forest land owners, indigenous communities, and rural communities, to help them make climate-informed decisions. The Hub partners with the NW CASC to leverage one another's resources, develop products while learning to work in a virtual world, and stay engaged. She commended the CASC on developing rich products while navigating a newly virtual world during the COVID-19 pandemic. The CASC helped shape and synthesize usable, foundational, go-to resources, has expert knowledge, and engages well with decision-makers, while making information accessible to tackle complex issues.

Amy noted that UW achieved everything that was laid out in the Terms Sheet regarding collaborative efforts. The following challenges limited UW's collaborative efforts results: COVID-19 resulted in no in-person convenings or collaborations and had disproportionate impacts on Tribal communities. In addition, the needs from Tribal communities exceeded the capacity of the BIA Tribal climate liaison. Solutions to these challenges include: re-designing the Deep Dives; pausing collaborative efforts/requests; and ATNI's efforts to raise sufficient funds to support a second liaison.

Significant successes within the NW CASC's collaborative efforts have been made by the Host team. Research Fellowships support and enable collaborations across science and practice. Deep Dive topics, framing, implementation, and follow-up reflect a deeply collaborative approach, and the nascent "5 Centers" forum will further encourage collaboration between entities.

ERT Q&A regarding Collaborative Efforts to Partners

- Do you have relationships with research Fellows/projects?
 - Chas noted limited exposure to Fellows or their work, besides introducing them to what the Liaison does.
 - Lara noted that wildfire proceedings involved several Fellows, and the County directly benefitted from product development via Fellow efforts.
 - Holly noted that Fellows helped to curate tools and products from Deep Dive workshops.
- Do you have advice to improve collaborative efforts based on experiences within other collaborative settings (maybe even through NCASC)?
 - Chas hasn't heard much from other Tribal liaisons regarding their partnerships with other CASCs. Still, he noted that not all academic partners are as skilled at

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Tribal communication as UW staff. Any opportunity to provide more resources to Tribes and support Tribal partners is always a benefit. He encouraged the team to ensure Tribal folks are compensated for their time and efforts on projects accordingly. CIG does this better than others.

- Holly noted that the “5 Centers” forum will help facilitate more collaboration, and will help connect with the UW side better. Better engagement with places we are not physically located in.
- If there were unlimited resources, what could be added to help you do more in your work?
 - Lara noted it would be helpful to have more staff capacity to allow UW staff to drop in on local government meetings more often. Additional CASC staff capacity would allow them to come talk and share knowledge and science directly to local government officials and communities.
 - Chas noted that NW CASC funding Tribes directly would be ideal as it would recognize sovereignty directly. More implementation funding for on the ground projects and funding Tribes directly would be key. A pilot project would be a good start.
 - Holly noted more capacity building within the partner organizations for better implementation of tools etc.
- ERT member noted that Chas’s comment on pilot project implementation is innovative, and would be great to see that work come forward.
 - Tribes need to have shovel-ready projects to move forward with.

Donna and Amy thanked the ERT, CASC & Consortium Members, presenters and observers for their participation, engagement and attendance at the session. And with that, the meeting was adjourned.

This session summary was submitted by the Facilitation Team. Edits were welcome and included.

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Day 3 – Capacity Building & Outreach and Communications

DAY 3	March 17, 2022: Capacity Building & Outreach and Communications Purpose: Reflect on the host-university and associated academic consortium’s contributions with respect to Capacity Building and Outreach & Communications.	
Time	Topic	Presenters, Titles & Affiliations
9:45 - 10:00	External Review Team - closed door	ERT Members and Facilitation Team
Review topic: Capacity Building <i>Educate and train to build capacity of early career professionals and others</i>		
10:00-10:55	NW CASC Capacity-Building Program ● Overview ● Research Fellowship Program ● Knowledge to Action Seminar ● Actionable Science Webinars Q&A: Capacity-Building	Meade Krosby, Deputy University Director, NW CASC Robert Emmet, 2018 Fellow, NW CASC
10:55-11:00	BREAK	
11:00-12:00	● Actionable Science Deep Dives ● Doris Duke Conservation Scholars Program ● Actionable Science Postdoctoral Fellowship ● Climate Adaptation Postdoctoral Fellowship Program Q&A: Capacity-Building	Meade Krosby Robyn Darbyshire, Regional Silviculturist, USDA Forest Service, Pacific Northwest Region Martha Groom, Faculty Lead, Doris Duke Conservation Scholars Program Tyler Hoecker, Climate Adaptation Program Postdoctoral Fellow
12:00-12:30	Break: To avoid zoom fatigue: Please turn off and step away from your computer screen	
Review topic: Outreach & Communications <i>Manage and transfer information and data related to research activities</i>		
12:30-1:00	Overview of Outreach & Communications Program Building a successful NW CASC communications program	Darcy Widmayer, Communications Manager, NW CASC
1:00-1:15	Q&A	Darcy Widmayer
1:15-1:20	BREAK	
1:20-1:40	Advancing climate adaptation efforts through effective communication	Darcy Widmayer Kyle Hogrefe, 2021 Fellow Meg Krawchuk, NW CASC Grantee Cari Furiness, Program Manager, SE CASC
1:40-1:45	Navigating limitations	Darcy Widmayer
1:45-2:00	Q&A: Outreach & Communications	Darcy Widmayer
2:00 – 2:30	External Review Team - closed door: Initial reflections on the day. Questions, concerns, and insights	Facilitation Team and ERT

Northwest Climate Adaptation Science Center – 2022 External Review

DAY 3: Facilitator's Summary

March 17, 2022, 10:00am – 2:00pm PT

Topic: Capacity Building and Outreach & Communications

Prepared by DS Consulting Facilitation Team

The following summary is intended to capture basic discussion, reflections, concerns, and insights from the session.

Attendees present for all or part of the meeting (in alphabetical order):

ERT Members: Susan Cordell (USDA/FS), Bethany Morrison (County of HI), David Reidmiller (GMRI), Mark Shafer (U of OK), John Tracy (TAMU).

Host, Consortium and CASC Presenters: Nicole DeCrappeo (USGS NW CASC), Robyn Darbyshire (USDA/USFS), Jenny Dettmann (UW), Robert Emmet, (2018 Fellow), Cari Furiness, (SE CASC), Martha Groom (UW), Selina Heppell (OSU), Tyler Hoecker (Post Doc Fellow), Kyle Hogrefe (2021 Fellow), Kendra Kaiser (BSU), Meg Krawchuk, (NW CASC Grantee), Meade Krosby (UW), Alison Meadow (U of Arizona), Julie Padowski (WSU), Amy Snover (UW NWCASC), Darcy Widmayer (UW).

Observers: Doug Beard (USGS), Gus Bisbal (USGS), Emily Fort (USGS), Gregg Garfin (SW CASC), Bradley Romine (PI CASC), Katherine Smith (USGS NE/SE CASC), Jane Wolken (NCCASC).

DS Consulting Team: Facilitator, Donna Silverberg; Reporting and Support, Tina Patterson and Colby Mills.

Purpose for Day 3: To reflect on the host-university and associated academic consortium's contributions with respect to Capacity Building and Outreach & Communications.

NW Capacity Building Program

NW CASC Host University Deputy Director, Dr. Meade Krosby (UW), presented an overview of the Host's capacity building within the NW CASC (*this presentation can be viewed [here](#)*). The Consortium leads the development of the NW CASC training & capacity-building strategy and implements a program that advances the goal of the NW CASC for research managers; undergraduate, graduate and postdoctoral students; academic, agency and Tribal scientist researchers; Tribal staff and NW CASC personnel.

Meade reminded the group that Consortium training and capacity-building is implemented through the Research Fellowship Program, Knowledge to Action Seminar, actionable science webinars, Actionable Science Deep Dives, the Doris Duke Conservation Scholars Program, Actionable Science Postdoctoral Fellowship, and the Climate Adaptation Postdoctoral Fellowship Program. Capacity-building goals are reflected in the training and capacity-building strategy, and focus on reaching the Consortium's priority audiences and learning groups, which

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include NW natural resources managers, scientists and researchers, and NW CASC personnel (who are constantly evaluating and learning from their work).

Meade reviewed how the Host implements its capacity-building strategic goals, noting that actionable science requires disciplinary expertise, collaborative research skills, and a community of practice to offer support and shared learning around best practices:

1. The NW CASC Fellowship Program is designed to develop early career researchers who are experts in their scientific disciplines, and able to link scientific knowledge to climate adaptation action through co-production;
2. NW CASC teaches/entrains students, resources managers, scientists, and Tribal communities in the NW region to know how to incorporate knowledge about NW climate risks and adaptation strategies into their management and research;
3. The NW CASC strives to be a leader in developing and sharing methods that scientists and managers can use to co-produce actionable climate adaptation science, and to link scientific knowledge to climate adaptation action;
4. The NW CASC fosters collaboration and develops a ‘community of practice’ engaged in co-producing, developing, and using actionable climate adaptation science; and
5. NW CASC personnel advance their own internal knowledge about climate risks, adaptation strategies, regional needs, and actionable science principles.

Research Fellowship Program

Meade reported that the 1-year Fellowship Program is the Consortium’s most intensive and targeted effort for building capacity of climate scientists in the Northwest (*see presentation pages 9-22, [Capacity Building](#)*). The program supports Fellows as they develop their disciplinary expertise by funding their climate adaptation research. The Host does not train Fellows in their scientific discipline; instead, the Host supports Fellows in developing their collaborative research and co-production skills, and helping them develop their community of practice by connecting early-career scientists with peers and NW scientists and resources managers.

The Host University has trained 58 Fellows since 2017, in partnership with over 20 different academic departments and engaged in 65 collaborative projects with Tribal, Federal, State governments and NGOs. Fellowships fund graduate students and postdoctoral students who study and work throughout the Consortium. The breakdown includes: 24 Masters students, 30 Ph.D. candidates, and 4 Postdoctoral students. The Fellows are fairly evenly distributed across Consortium universities, except match funding restrictions do not support postdocs at UW. Meade emphasized that the Consortium wants to reach as many students and postdocs as possible, hence only a 1-year program.

Fellowship training includes cohort training calls (skills training and shared learning), NW Climate Conference attendance (annually), Knowledge to Action seminar, Actionable Science webinars, Deep Dives, and other opportunities. Former Fellows have noted that skills building models shared during cohort calls have been very helpful as they further their careers. Meade covered the Fellowship recruitment lifecycle, noting that engagement and outreach starts during the Fellows recruitment phase and continues well beyond the first year after the Fellowship.

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2018 NW CASC Fellow, [Robert Emmet](#), spoke on highlights during his time as a Fellow. He noted that the impact of the Fellowship on his research was enormous; he uses the skills he learned in the Fellowship when engaging and communicating with resource managers, forging new partnerships, and thinking critically about his own research. The Fellowship program helps develop early-career research skills, while connecting it to decision-making. The 1-year intensive program has produced a high return on investment as the program creates future colleagues; one former Fellow is now on the University Leadership Team (ULT).

Knowledge to Action Seminar

The Knowledge to Action Seminar is a 2-credit graduate seminar based at UW that covers foundational and emerging literature on co-production of actionable science and links knowledge with action to address modern environmental changes (*see presentation pages 23-28, [Capacity Building](#)*). The seminar also invites guest speakers from various types of institutions and roles working at the boundary of science and practice in climate adaptation. The Seminar is attended by NW CASC Fellows as well as graduate students from across UW; 88 students have participated over the past 5 years. Evaluations reflect that students leave the seminar more optimistic about the potential for science to inform societal responses to environmental problems. UW was pleased to welcome two Native American students in the course this past year.

Actionable Science Webinars

This is a Fall and Spring actionable science webinar series (required attendance for Fellows) intended to support effective collaborations between scientific researchers and natural resources managers (*see presentation pages 29-32, [Capacity Building](#)*). This activity provides an opportunity for the Host to reach a much broader audience and increase its impact in building regional capacity for actionable science. Webinar recordings are archived on the website and utilized as learning materials and tools. Since 2018, there have been 8 actionable science webinar series, with 25 webinars, around 900 individual attendees, and over 175 repeat attendees. The most well-attended sessions focused on early-career research and collaboration with Tribal partners.

Q&A Capacity Building

- Is the Knowledge to Action Seminar only for UW Fellows, or cross-Consortium members?
 - Accessible to all Fellows across the NW CASC Consortium, and UW graduate students in general. Fellows at other schools get course credit (and are advised by ULT member).
 - The seminar is hybrid-style, with Fellows attending remotely. It has been totally remote during COVID-19, which has provided easier access for attendees.
 - The demand for the course is more than the UW staff can meet; so, they are discussing how to facilitate offering the course at other Consortium schools.
- Where do Fellows find themselves once they finish their degree programs? Are they finding jobs they want in their chosen fields?

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- NW CASC Social Science and Evaluation Lead, Alison Meadow (U Arizona), has been leading an evaluation of the Fellowship program. An alumni survey was distributed around the start of COVID-19, and results are still coming in; preliminary results are good. Out of 9 graduated Fellows who responded to the survey, 5 are working at universities, 1 at USGS, 1 at a State Wildlife Department, and 2 are at environmental NGOs. 5 reported job titles of Scientist or Researcher, 2 work in education, 2 are planners, and 2 are resource managers. Survey respondents indicated that skills built in the Fellowship were contributing towards the work in their current careers.
- Meade noted that the current market is hot for jobs in adaptation; specifically, hires for applied climate adaptation science.
- Are there departments or faculty that host numerous Fellows where work can be built over time?
 - UW tries not to fund too many students with the same advisor at the same time; the Fellowship purpose is to entrain a broad community of co-production scientists in the Northwest; as such, they intentionally do not fund clusters within a single lab.
 - Amy noted that the Fellowship funds graduate students who are working on their degree projects. The CASC Fellowship is for 1 year during their degree program, and while applicants are required to have deliverables within the 1-year period, they are not typically starting from scratch and finishing their entire research effort within the 1-year. Masters' students tend to be in labs with faculty with whom they have already built relationships which continue after the Fellowship.
- Are Fellows aware that the special nature of their career paths that does not follow traditional basic science tracts with tenured mentors? Is this being tracked?
 - Students are very aware of the career paths, and those faculty at CIG are not tenured professors. Where Fellows end up in academia is something that is being tracked.
 - Darcy added that UW tries to connect Fellows with as many different types of career opportunities available to them, not just in academia.

Robert noted that the Fellowship was very influential in his current career. It has been a framework that guides him where to look next for research, jobs and collaborations. It is a seed that has grown into other opportunities. He values the communication tools he built through the Fellowship program, and appreciates that it was as much about process as product.

- How did your Fellowship experiences help in approaching the job market and landing your current position?
 - Robert noted that, long-term, he is looking at Federal and State agency jobs. His Fellowship experience taught him where to look for postdoctoral opportunities, how to collaborate with people from different agencies and organizations, and how to communicate with actionable science language.
- Did your perception about co-production and actionable science change? Are there things you wish had been offered or that could have been useful?

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- Robert didn't know much about co-production or actionable science when he was applying for the Fellowship; he was missing the process piece prior to the Fellowship and gained that knowledge. He couldn't think of anything else that the Program could have offered him.
- How did your project evolve before and after the Fellowship, including your relationship with partners in the process?
 - The Fellowship helped support the 2nd part of Robert's project. It funded modeling and monitoring systems, giving him a structure to begin his work. The Fellowship helped him prepare for survey design planning, and planted seeds for future relationships.

Actionable Science Deep Dives

Meade reviewed how the Actionable Science Deep Dives foster communities of practice around emerging adaptation issues, and how they demonstrate and provide training in co-production (*see presentation pages 34-42, [Capacity Building](#)*). UW has conducted 3 Deep Dives (4th underway in planning), engaging 284 participants, and over 100 distinct entities. Survey responses suggest that connections are being forged among Deep Dive participants via new research partnerships, new initiatives led by participants, and new collaborations in science. 65% of participants in the 2021 Deep Dive reported that they wanted to stay connected to someone they met at the Deep Dive.

Deep Dives have effectively demonstrated and provided training in co-production. The most common response from 2021 participants about new ideas or concepts learned, was about collaborative practices and what they learned through the process about how to link research and practice effectively. The process of planning and running a Deep Dive provides hands-on training for co-production: the planning team for the 2020 Deep Dive was composed of an organizing committee, a facilitator, CASC Fellows, and a Deep Dive Advisory Committee. NW CASC Fellows receive hands-on training in co-production and networking opportunities as Deep Dive team members, and often alumni from the Fellowship Program return and get involved. 11 NW CASC Fellows have participated on Deep Dive teams. While they have not formally evaluated Fellows' Deep Dive experiences, the Fellows contributed to Deep Dive knowledge synthesis, supported to workshop facilitation, developed novel products (tools, databases), participated in manuscript preparation, and built networks and communities of practice.

Regional Silviculturist, [Robyn Darbyshire](#) (USDA/USFS), spoke as a 2020 Deep Dive Participant who oversees Forest Service lands in Oregon and Washington. She leads work on reforestation and provides training. The 2020 topic, Post-Fire Vegetation Transformation, was very relevant to her work at USFS, and the Deep Dive allowed her time to interact with scientists and other agency managers while considering the topics from other perspectives. She noted that the support offered by the NW CASC to participants was very high quality, and that she was able to engage with postdocs and others to help flesh out ideas and products. The engagement from NW CASC has continued; they have provided feedback and tool development, and send engagement opportunities to past participants.

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Meade clarified that the “Entrain” concept the Host uses to describe their work encompasses the entire process of bringing people into the knowledge of and capacity in the co-production of science, while building a community of practice of those engaged in actionable science to promote climate resilience in the Northwest.

Doris Duke Conservation Scholars Program

Meade introduced the Doris Duke Conservation Scholars Program (DDCSP) as a multi-summer undergraduate learning experience that supports emerging conservation leaders to develop unique perspectives and skills, drawing connections between conservation, individual and community identities, biodiversity, and environmental justice (*see presentation pages 43-47, [Capacity Building](#)*). The NW CASC partners with Doris Duke Conservation Scholars at UW by supporting climate adaptation internships with NW CASC stakeholders. Stakeholders include DOI Bureaus, State natural resource management agencies, and Tribes. While the program is based in Washington, students come from all over the country to participate in the 2-year program. The first year focuses on hands-on training in the Northwest, with team/internship/cohort science work in the second year. Through this program the NW CASC works with undergraduates and supports the diversification of the field of conservation.

Since 2018, UW supported 8 DDCSP interns, including 2 Native American interns in 2021 who spent their time working with Cascadia Consulting to support a network of Tribes in the Puget Sound with climate adaptation preparedness efforts. Most UW funding has supported students to work with Tribes in Washington. Tribes have been strong partners in this endeavor, building a pipeline for a more diverse conservation community. Meade noted that students felt a good balance between independent work and collaborative work within the program.

DDCSP Director, [Martha Groom](#) (UW), provided further background on the program. She emphasized that it is a training program for undergraduates coming from backgrounds that are underrepresented and under-supported in the field of conservation. The program has had a long association with the NW CASC. Scholars are able to meet with people who are deeply engaged in climate adaptation planning, learn the nature of collaborative relationships, and learn how to recognize themselves and their role within the discipline. The NW CASC has given strong support for student interns to work closely with Tribal Nations and their natural resources departments. This program is particularly significant for its Native scholars, who are introduced to a range of opportunities and return home to work with these processes within their own Tribes.

Actionable Science Postdoctoral Fellowship

Actionable Science Postdoctoral Fellows have played a central role in Consortium science and capacity building (*see presentation pages 48-52, [Capacity Building](#)*). This position was included in the Host’s proposal as a ‘key role’ for the NW CASC to support Research Fellow training and scholarship co-production. In 5 years, there have been 2 Fellows who have completed that program, Ronda Strauch and Mary Ann Rozance. Meade noted that recruitment on this position has taken a pause; the Postdoctoral turnover has caused significant disruptions to training efforts (specifically Research Fellows) that require continuity and consistency and long-term

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relationships. UW is considering whether to replace this position with a more full-time role at the CASC.

A significant success of the program has been creating future colleagues. Both Fellows noted in their exit surveys that they gained valuable skills and connections through their key role in the NW CASC science, training and capacity-building efforts. UW feels good about the experience, even as they consider alternative roles and positions to better fit the long-term continuity needed to support training programs at the NW CASC.

Climate Adaptation Postdoctoral (CAP) Fellowship Program

Meade concluded with additional context regarding the CAP Fellowship Program (see *presentation pages 53-57*, [Capacity Building](#)), coordinated by the National CASC (NCASC). CAP Fellow mentoring provides professional development through co-production training and building a community of practice by: fostering connections with decision-makers, providing mentoring in actionable science, supporting science communication, and offering community and collaboration with the Climate Impacts Group (CIG) and the NW CASC.

2021-2023 CAP Fellow, Tyler Hoecker, spoke about his experience as a CAP Fellow. He works with fire scientists in Missoula, MT, (including a ULT mentor) while collaborating with the CIG and NW CASC in Washington and is excited for the potential interdisciplinary work to push things forward for the future of fire prediction. Tyler is also embedded in the CIG; being able to see their work first-hand and how they work with communities and communicate their work has been very valuable. The NW CASC has helped leverage the community of practice from Deep Dives, while leveraging existing community. Tyler has been in his position as a CAP Fellow for 6 months, and it has already transformed the way he thinks about and approaches his science and work.

Q&A Continued: Capacity Building

- Have Doris Duke Scholars had the opportunity to interact with Fellows?
 - Martha noted that it depends on what kind of internship Scholars have; connections have been made with Fellows over the last 2 years and the opportunity is offered to Scholars, for sure.
- For the CAP Fellowship, does NW CASC have a part to play in evaluating those proposals?
 - The NW CASC writes the proposal to be awarded funding to hire out their own postdocs, this is entirely within the NW CASC control, and they evaluate applicants and run recruitment.
- Is the Doris Duke Program available to the Consortium as a whole? Or only UW? Does the program co-evaluate selectees for that program with the NW CASC?
 - This is a UW program open to students across the U.S. UW provides support for their interns where the work aligns with the NW CASC mission. UW does not select which scholars will be interns; that is up to the DDCSP.

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- Martha noted that Meade/NW CASC helps screen the potential projects once scholars have been accepted. Scholars are then matched to projects. Internships only take place in Washington.
- Can you expand further on the process and criteria used for selecting Research Fellows, who is involved in selection process?
 - Students' work must: address priorities within the NW CASC Science Agenda, or Deep Dive Actionable Science Agenda; clearly demonstrate how it will be co-produced with a NW CASC stakeholder; and contain a Letter of Support from whoever will be their main partner. In addition, work must be conducted within the NW CASC geographic domain, and UW strongly encourages evidence of leverage to show that their work is part of a larger effort supported by other funds.
 - A competitive RFP is released; applicants get a checklist of criteria, with clear ranking; UW convenes two calls with ULT to discuss applicants; Host proposes a cohort to the ULT which balances the strength of proposals and has representation across project topics for a good well-rounded cohort; they also receive input from USGS partners.
- What is the role of ULT members to promote and recruit the Doris Duke program at their institutions?
 - One applicant this year had experience working with the SC CASC in Oklahoma. There is/was a huge need for opportunities and support for program alumni, especially as a result of COVID-19.
- With the potential pivot away from the Actionable Science Postdoctoral Fellow, what types of hire would be considered for this permanent position?
 - It is still in the early stage of consideration; they have considered the possibility to leverage partners that already exist. Anyone who would be involved needs to have sophisticated, lived experience with co-production.
 - Robyn added that it was helpful to hear about this, "This is an impressive group of people to work with and it's important to have people there long-term".
- Getting undergraduates exposed to and engaged in this kind of work is very exciting. Is there a way to mainstream this into the NW CASC offering?
 - Meade noted that the Host does not work with undergrads as it is not their area of expertise. As such, they appreciate being able to partner with experts at facilitating work with undergrads and underrepresented students in this field.
- For Robyn: How did doing the Deep Dive shape the way you look at positions within your organization?
 - After the Replant Act was passed, the USFS now has 10 years to get caught up with reforestation needed from 'unplanned events.' In Oregon, they are strategizing how to approach their work with .5 million acres of burned forest. The ongoing interaction with NW CASC helps them consider and prepare for the team they need to support a successful replant.
- For Robyn: Do you have recommendations for agencies and managers about the Deep Dive process?

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- Managers involved with projects sometimes drop out. Agencies need to make sure the opportunity is a priority for managers to stick with their projects. Robyn's leadership has turned this into a management priority for USFS, making sure that managers are expected to be involved and get involved.

Overview of Outreach & Communications Program

Amy introduced Darcy Widmayer, Communications Director, to the ERT. She has been with the NW CASC since 2018. She previously was in Wisconsin where she helped foresters communicate more effectively with landowners (*this presentation can be viewed [here](#)*). Darcy explained that the Consortium led the development of a Communications (Comms) Strategy and the Host leads its implementation through a Comms Director position (Darcy). USGS provides content, input, and feedback.

The NW CASC Comms focuses its work on 'priority audiences': (1) Resources Managers (including their Stakeholder Advisory Committee (SAC), Tribes, local governments, state and federal agencies), (2) scientists and researchers (Fellows, DOI bureaus, and other CASCs), and (3) DOI (NCASC and other regional CASCs). The NW CASC is focused on internal and external communications.

The NW CASC communication goals lead to:

- Access & Use of our science – Researchers & resource managers understand and use NW CASC science, data, and product;
- Supporting training in co-production - Learn about and participate in coproduction of actionable science;
- NW CASC is visible and valued - Partners and broader adaptation community value NW CASC's activities and recognize its contributions towards advancing its mission; and
- Values-based, effective Internal Comms - Maintain effective internal communications consistent with values that contribute to a strong NW CASC with meaningful partnerships.

Darcy spoke of the NW CASC communication channels and activities:

Their website is located on the UW server and developed by the UW College of Environment's marketing team. The website features a database of all projects (fellows' projects & USGS-funded projects - both in progress and completed). The website also houses actionable science resources, such as actionable science webinar recordings. NW CASC used Google analytics to assess website activity. The most visited pages include: (1) Actionable Science webinars, and (2) Funding opportunities.

Their bi-monthly newsletter, "NW CASC Connections", is the main channel to push out science externally. The newsletter's 'Science Spotlight' showcases NW CASC research and science tools, while the other sections profile partners and connect readers to actionable science resources like papers on co-production. Twitter is the main channel for connecting with the academic community and other CASCs.

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Comms supports two types of Actionable Science webinars: applied science and skills building. The NW CASC hosts a skills-building webinar series in the fall and spring. The webinars are advertised broadly and recorded. The webinars live on the website, so people are continually directed to the webinars. Each series includes 1 to 4 webinars. The process to decide topics for the webinars series comes from several sources: NW CASC conducted an evaluation about desired webinar topics from participants, got feedback from Fellows regarding early career help, and feedback from Tribal Liaison Chas Jones about topics of interest to tribal partners and partners seeking to collaborate more effectively with tribes. They developed their series around these topics.

Comms also supports on-going project-based communications via regularly scheduled internal meetings within and between university staff and USGS staff. Comms conducts regular reporting to the National CASC so they are aware and can respond to questions about NW CASC activities.

Building a successful NW CASC communications program

Darcy shared with the ERT that it takes time, coordination, thought and interaction to build a communications program (see presentation pages 28-36, [Communication & Outreach](#)). She presented a roadmap of NW CASC's timeline, noting the delayed distribution of USGS funds slowed the Host's ability to hire staff. Once Darcy was hired, the strategic communications plan began. This led to development of overall strategic goals for NW CASC. Changing leadership and shifting guidance also prolonged the process. In addition, NW CASC comms helped: move from a Drupal site (an information clearinghouse) to a clean and tailored website (September 2018); work with a consultant to develop a new logo that captures the NW environment (January 2019); and led a newsletter planning process that was intentional and scoped (October 2019). Darcy noted that thoughtful planning and flexibility have yielded products that can be used in the future.

Darcy presented to the ERT the success of the communication channels. Highlights included: the number of webinars and webinar topics delivered since 2018, use of Google Analytics to track website visits, and Fellows research appearing in the media more than 35 times. Amy told the ERT that Darcy IS the communication program, supported by everyone on the Host team.

Q&A

- Do you get support from the UW Communications Department?
 - The UW College of the Environment helps with the website. Connecting with the media has happened more organically. We did do a press release on Tribal Vulnerability Assessment Resources in conjunction with the CIG Comms Manager.
- Could you go into more detail about web analytics? Are you able to break down by the type of person looking for communications? Especially community engagement.
 - We've more focused on priority communities (resource managers & researchers). We don't have site visit information broken down that finely. We did ask priority communities (the NW CASC Advisory Committee) how they

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receive communication and they described how they used the website and that they wanted a newsletter.

- Have you connected with WSU extension service? There's a couple of programs that perhaps could be amplified.
 - We haven't personally connected with WSU. We have been working with the University Leadership Team to find out who they're connected with at the consortium universities. We're not embedded in every project, but it is possible project-based efforts may be in touch with extension services.
- Is part of the communications plan preparation of press releases?
 - UW has specifics about what is needed for a press release. USGS also has a complicated process to put out a press release. When there's something larger, we push the information far and wide through our channels.
 - It was very difficult for USGS to communicate about climate matters during the last administration. Prior to the last administration there was a lot of coordination – and now is a time to reconsider that with NCASC. Framing the work has always been important.
 - Suggestion: if there's a school of journalism look to them and their students for free help. Also, consider asking consortium schools.
- Which communication changes have the best return on investment (ROI)? The least?
 - The webinar is the best ROI. The recorded webinar on Tribal work with Frank Lake gets lots of requests. It has also helped Frank because he can direct others to this webinar as a resource.
 - We're adapting and being flexible about things that aren't a good ROI. As an example, we cut the second email spotlight after reviewing email analytics. We're trying to be nimble.

Advancing Climate Adaptation Efforts Through Effective Communication

Darcy explained how the NW CASC comms program has helped increase continuity and coordination among the CASC network (see presentation pages 38-51, [Communication & Outreach](#)). The NW CASC comms program plans and coordinates monthly cross-CASC communications calls, and co-plans and co-leads communication sessions at All-CASC meetings.

Comms supports Fellows and CASC partners by: providing writing support; teaching them about facilitating good meetings, connecting Fellows to other training programs, and amplifying their research. [Kyle Hogrefe](#), [Meg Krawchuck](#), and [Cari Furiness](#) provided testimonials about their work with the NW CASC. Kyle noted that the CASC Comms had helped him in 4 specific ways: writing his project summary and web bios, presentation preparation, stakeholder meeting feedback (and moral support), and learning from readings and discussions in classes. He said one area for self-improvement would have been to document his experience along the way to help him day-to-day.

Darcy noted how the communications channels and activities aid NW CASC in meeting all the deliverables in the Key Terms sheet.

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Navigating limitations

Darcy shared challenges, solutions, and successes of the Host's communication and outreach efforts (see presentation pages 52-54, [Communication & Outreach](#)).

Q&A Outreach & Communications

- Do you notice a difference communicating with Fellows who have undergone your training than others?
 - We have a lot of projects going on at once. The USGS folks reaching out are a self-selecting group.
 - The combination of training through the fellowship program is helpful.
- The ERT commented on the Host's mastery of PowerPoint, graphics, and compelling imagery and content on the slides. These should be added to the list of competencies of the NWCASC.
- Can you say more about the Climate Bootcamp that was in your materials?
 - Climate bootcamp is now called Deep Dive. The name changed after the proposal was submitted.
- Kyle, was there any other support you would have liked if there were more resources?
 - Kyle, who applied three times, wished he had been selected the first time, three years ago. He felt it would have better prepared him for the community engagement work he has been doing in Wallowa County and help him write the third chapter of his dissertation. He also noted that he was a USGS researcher on the quantitative side. The program has helped him to think about and develop his qualitative skills.
- Kyle, how did you find the collaboration with Darcy to be?
 - Darcy always is willing to engage and help. Darcy came to one of my community meetings and gave me helpful feedback.
 - Suggestion: develop the checklist together and share with others.
- Meg, how does your experience working with Darcy compare to work through your regular university communications channels?
 - Darcy's work is a unique niche. She's provided so much time and talent to produce something more than the one-off press releases the media offices provide. We don't have anything similar to this in OSU communications.
- Do you have any ideas of tools or resources that you might want to facilitate cross-CASC communication and coordination?
 - The cross-CASC Communication calls have taken place for several years and have evolved. We're working to engage new science communication specialists as they come on board and to develop continuity. If there were something coordinated at the national level by NCASC, this would take it off the regionals and be helpful.
- Can you say more about your "Five Centers" (CASC, NW Climate Hub, RISA, CIG, OCCRI)?
 - It's still a new idea. The five centers in the NW are still having high-level discussions and thinking about what could be done collectively, such as webinars and shared projects. It hasn't made its way down to Darcy's level.

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- Is there any formal communications map or protocols regarding who you talk to and when? Or is it primarily Darcy as a hub and spoke? Do people learn by doing?
 - There is nothing formal to guide this work. With Fellows, Darcy introduces herself from the onset during the kickoff meeting. With researchers, Nicole and her team structure the calls and include Darcy in ongoing communications calls.
 - USGS is close to requiring the USGS-funded PIs to develop a Communications Plan for each project (similar to the required Data Management Plans). Darcy has developed a template for that and would be the person checking on how well they're implementing it.

Donna thanked the ERT, Consortium & CASC Members, and Observers for their participation, engagement and attendance at the session. And with that, the meeting was adjourned.

ERT Reflections on the Day

The ERT remains impressed by the work of the Host and consortium. They have found good information and enjoyed the visitor presentations. In preparation for the final day, they asked the Host to clarify the following:

- The Deep Dive process:
 - How exactly are the topics selected? How do advisory committees work together? Who is on the advisory committees for the Deep Dives?
 - How do you engage USGS in the decision process to assure the Deep Dives align with and enhance the CASC 5-Year Science Agenda?
- They heard today that Darcy's primary focus for communications is internal for the program; who and how are external communications done?
- Doris Duke Conservation Program: clarify the relationship to the UW/CASC.
 - What support do you provide and how much do you provide of what? In-kind? Financial? (This may be answered in writing to save time).

This session summary was submitted by the Facilitation Team. Edits were welcome and included.

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Day 4 – Overall Effectiveness Towards Host Agreement

DAY 4	March 18, 2022: Overall Effectiveness Towards Host Agreement - Review the <u>overall effectiveness</u> of the host-university and associated academic consortium in meeting the goals established under their current host agreements; - Aid the NCASC in developing improved requirements for re-competition of the next university hosting agreements; and - Make recommendations regarding possible cross-CASC & NCASC learning from this Host.	
	Time	Presenters, Titles & Affiliations
9:45 - 10:00 PT	External Review Team - closed door	ERT Members and Facilitation Team
Review topic: Overall Effectiveness Towards Host Agreement		
10:00-10:35	Cross-Cutting Threads • Tribal Engagement • National Engagement	Meade Krosby, Deputy University Director, NW CASC Amy Snover
10:35-10:40	BREAK	
10:40-11:10	Evaluating NW CASC impact • Against Center goals	Alison Meadow, NW CASC Social Science and Evaluation Lead, University of Arizona, Office of Societal Impacts
11:10-11:30	• Benefit to Consortium institutions	NW CASC University Leadership Team
11:30-11:45	Responses to ERT Questions from Days 1 & 3	Amy Snover, Meade Krosby, Darcy Widmayer
11:45-12:15	Lunch Break To avoid zoom fatigue: Please turn off and step away from your computer screen	
12:15-12:40	Summary of NW CASC Consortium Activities	Amy Snover
12:40-12:55	Reflection on NW CASC experiences & evaluation	Amy Snover Meade Krosby
12:55-2:00	Dialogue & Discussion Open dialogue and discussion between ERT and NW CASC team regarding the Overall Effectiveness and any questions left over from prior days	Amy Snover, University Director, NW CASC
2:00-2:30 pm	External Review Team - closed door Discuss ideas and insights gleaned from the four days: • What stands out? What needs comment in the ERT report? What are your initial thoughts about the overall effectiveness of this Host? Clarify next steps in the process: • What is due and when? Follow-up Zoom on March 21, 1-2:30 pm PT	Facilitation Team and ERT

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DAY 4: Facilitator's Summary

March 18, 2022, 10:00am – 2:00pm PT

Topic: Overall Effectiveness Towards Host's Goals

Prepared by DS Consulting Facilitation Team

The following summary was intended to capture basic discussion, reflections, concerns, and insights from the session.

Attendees present for all or part of the meeting (in alphabetical order):

ERT Members: Susan Cordell (USDA/FS), Bethany Morrison (County of Hawaii), David Reidmiller (GMRI), Mark Shafer (OU), and John Tracy (TAMU).

Host, Consortium and CASC Presenters: Laura Davis, University of Washington (UW), Nicole DeCrappeo (USGS- NWCASC), Jan Boll (Washington State U), Jenny Dettmann (UW), Alejandro Flores (Boise State U), Selina Heppell (Oregon State U), Kendra Kaiser (Boise State U), Meade Krosby (UW), Alison Meadow (UArizona), Julie Padowski (WSU), John Rybczyk (Western Washington U), Amy Snover (UW Director, NWCASC), and Darcy Widmayer (UW).

Observers: Doug Beard (USGS), Gus Bisbal (USGS), Emily Fort (USGS), Gregg Garfin (SW CASC), Brad Romine (PI CASC), Katherine Smith (USGS NE CASC/SE CASC), and Jane Wolken (NC CASC).

DS Consulting Team: Facilitator, Donna Silverberg; Reporting and Support, Tina Patterson and Colby Mills.

Purpose for Day 4: to review the overall effectiveness of the Host University (University of Washington) and associated academic consortium in meeting the goals established under their current host agreements, while diving deeper into UW's Tribal engagement; aid the NCASC in developing improved requirements for re-competition of the next university hosting agreements; and make recommendations regarding possible cross-CASC & NCASC learning from UW.

Tribal Engagement

NW CASC Host University Deputy Director, Dr. Meade Krosby (UW), provided deeper context into UW's contributions towards Tribal Engagement (presentation can be viewed [here](#)). She reviewed the respective roles for the Host Consortium, USGS partners and the CASC Tribal Liaison, noting that the Consortium engages with Northwest Tribes, Tribal associations, and Tribal networks to ensure that Tribal priorities and decision-support needs are continuously reflected across all programs and activities.

As Host University, UW addresses Tribal engagement through science, training and capacity-building, and communications by:

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- Addressing science needs for culturally important topics through Research Fellowships and Deep Dives;
- Building capacity for ethical and effective tribal engagement with Fellowship training, Deep Dives, Knowledge to Action (KtA) Seminars, webinars, and scholarship on co-production;
- Building Tribes' adaptation capacity through trainings, Research Fellowships, and Doris Duke Conservation Scholars Program (DDCSP) interns; and
- Supporting communication for NW CASC science conducted by or with Tribes, providing communications support for Tribal Liaisons, elevating Tribal voices in webinars, and amplifying opportunities and resources for Tribes by sharing across channels (funding & grants).

ERT Q&A Regarding UW's Tribal Engagement

- ERT members commended UW leadership on their efforts towards training the academic community on how to appropriately, respectfully, and effectively engage with Tribal partners and communities; he encouraged publishing papers with lessons learned on best practices for Tribal engagement.
 - Meade noted that work coming from UW has benefited from the expertise of Tribal scholars and organizations. Only by doing work with Tribes can academic communities learn how to do it the right way; it is a never-ending learning process. While there are great resources available on best practices, UW is focusing on providing specific and relevant climate adaptation science tools and lessons (for example, the Tribal climate tool) to Tribal communities.
- Working amongst different Tribal perspectives and capacities to address climate change, does UW have guidance (formal or informal) to help prioritize how, when, and where to engage with Tribes?
 - Decisions on Tribal priorities are left to the Tribes, as they are the experts on what they need and what could be provided. UW listens and then is responsive; the NW CASC Stakeholder Advisory Committee (SAC), which includes Tribal members, has also been very responsive to Tribal requests and needs.
- The ERT commended the UW approach to building trusting partnerships with Tribes. Do Tribes have priority ownership of relevant published material?
 - UW/NW CASC does not publish any documents that may include specific sensitive Tribal knowledge without explicit permission from Tribes; UW and USGS have a very clear principle of informed consent and "do no harm." Tribal scholars and organizations are collaborators and co-authors on UW-led scholarship involving Tribes and have ownership over products though no individual member can speak for all Tribes; publication decisions for UW-led scholarship regarding Tribes are Tribally-led. No sensitive information is published unless there is explicit permission from Tribes.
 - Historically in academia, extractive practice is the default practice. UW does not engage in "parachute science," rather they commit to leaving communities with more than has been taken, and train Fellows to do the same. UW also practices teaching repair and working to avoid repeating any mistakes made in the past.

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- Nicole noted that, for USGS-funded projects with tribal researchers, conversations are had upfront participants regarding culturally sensitive information. The USGS requires data management plans for all funded projects, and for tribal projects, USGS and UW agree to not collect and share culturally sensitive information. This is something they take very seriously and learned early on in the CASC network.
- After Fellows complete their work with Tribes, does UW see post-Fellowship employment with Tribes as a result of these relationships/partnerships? This seems like a natural pipeline and goal.
 - Tribal employment has happened in the past with 2 Fellows. This metric would be a good thing to start tracking, as a way of evaluating how the NW CASC is providing capacity directly to Tribes.

National Engagement

NW CASC University Director, Dr. Amy Snover, presented on UW's contributions to the NW CASC's national engagement efforts (*pages 7-16, [Overall Effectiveness Presentation](#)*). The NW CASC Consortium has made substantial investments in strengthening and supporting the National CASC network because UW believes the CASC network will do better work and have more impact if it is strong, and that they can help make it stronger through the various ways they engage in supporting it .

NW CASC National Engagement activities and purposes include:

- Promoting learning and knowledge exchange
- Improving Network Coordination -- for leadership, communications and program management
- Convening and participating in cross-CASC Working Groups
- Participating in annual All-Hands Meetings (CASC-wide)
- Observing Regional CASC annual reviews
- Designing and implementing the new National Climate Adaptation Postdoctoral Fellows Program
- Co-leading the Cross-CASC Visioning Effort
- Facilitating congressional and federal engagement in support of the CASC system.

UW plays a leading role in implementing coordinated legislative and administrative engagement efforts designed to increase federal funding that will ensure effective implementation of the CASC program. Along with the other CASC host universities and university directors, they have helped create solid bi-partisan Congressional support for the program and led outreach to help ensure effective implementation of the program. UW is proud of the impact they and the Network have had thus far. This impact of bi-partisan support is reflected in a 2022 increase in appropriation funds to the CASC program. Funds have increased from \$25.3M in FY2019 to \$51.9M in FY2022. Amy noted that UW is helping to advocate for more money to grow the CASCs because the NW CASC (and other centers) are “drowning in demands” as the region experiences climate change at an unexpected rapid rate.

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Another effort that UW has supported for several years is gaining congressional support to authorize the CASC program (this effort is being led by the SW CASC at the University of Arizona). Congressional authorization would provide another layer of official protection to the program, codifying areas of focus and structures. A bill was introduced during the recent session to the House Natural Resources Committee that would direct the Secretary of the Interior to establish (authorized) the NCASC and regional CASCs (cited as the “CASC Act”). The bill has had a committee hearing this year, which had bi-partisan support. One of the benefits cited by minority witnesses is that the CASC program can enable cross-silo collaboration within the USGS.

The substantial investments that UW has made to strengthen and support the CASC network was not part of the Host Agreement proposal or workplan, nor has UW been asked to report on these efforts. Still, UW has spent a lot of time on this important leadership function. Amy emphasized that the investments are not sustainable under their current funding model, and they would need to build the function into a future spending model or find another way to support it (by, e.g., reducing other CASC activities). Because the Climate Impacts Group (CIG) is a soft-money organization, NW CASC host agreement funds need to support NW CASC personnel at UW -- they cannot draw on faculty time in the way other centers might .

ERT Q&A on UW’s National Engagement

- The ERT commended UW on their tremendous work on National Engagement.
- As the CASC system budget increases, can funds flow back into the University side?
 - The 5-year Host Agreement has a set amount of money, and USGS cannot add more money into that existing agreement, even though the USGS budget nearly doubled. However, one way UW can benefit from more resources is when additional funding flows to the USGS NW CASC director, funds could be used towards any work within the Consortium that is relevant to the Science Agenda. UW is prevented by the Host Agreement structure from otherwise receiving additional funds to support the activities funded under the host award.
 - Another funding workaround (via RISA award) could be to write proposal agreements at a higher level than agreed upon, to create room to add more funding in future years.
 - USGS has a different contracting structure, and in some ways is more constrained than other federal agencies.
- The structure of the NW CASC partnering with non-Feds who are able to lobby seems hugely helpful and successful.
- The ERT requested clarity regarding increases to CASC appropriations and how it could lead to growth within the Fellows program.
 - NW CASC Research Fellows are competitively awarded by UW, and are funded by NW CASC Host Agreement money. These awards have stayed flat despite increasing appropriations for the CASC system.
 - Amy clarified that Nicole/USGS has competitively awarded science projects for faculty and, with the additional funding, more of these can supported or be larger.

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- Nicole added that through the USGS science funding mechanism, there are more graduate students being trained and working on projects, but they are not part of the NW CASC Fellows cohort and do not receive fellows training. While appropriations could increase support for graduate students, it would be through USGS, not through the UW Host's program.
- Amy emphasized that UW, as the Host University, must have strong fiscal management and manage everything as presented in the Host Agreement to be sure the program keeps running. As funds get added and USGS funds additional projects, the Host must manage those contracts, as per the agreement.

Evaluating NW CASC Impact

NW CASC Social Science and Evaluation Lead, Alison Meadow (UArizona), presented on the internal evaluation processes and strategies that have helped determine UW's contributions to NW CASC (pages 17-34, [Overall Effectiveness Presentation](#)). She reviewed the purpose of the internal evaluation, the evaluation process, NW CASC successes and impacts, and evaluation challenges and opportunities. UW considers evaluation to be a learning tool, and runs the NW CASC as a learning organization. The purpose of internal evaluation is to understand the impacts of the NW CASC, improve the practice of key approaches and principles, and to incorporate its findings as a learning tool that can support organizational learning.

One of the tools UW is using in this process is a framework to explore the societal impacts of research and the way in which research and the processes of conducting research influences the world beyond academia. Impacts explored include instrumental, conceptual, capacity-building, connectivity, and socio-environmental (most focus on the first 4 because: 1) changes in socio-environmental systems largely depend on changes that occur in behaviors and policies, which are captured in the first 4 categories; and 2) changes in the first 4 categories are more likely to be observable on project-scale timelines). At this point in the NW CASC evaluation process, evaluation activities have focused on how successes and impacts from UW contributions address the NW CASC goals of scientists and resource managers successfully co-producing actionable science, strengthening and expanding communities of practice, and the NW CASC being recognized as a thought leader. Next steps in the evaluation process will include expanding to explore additional NW CASC strategic goals including partners valuing collaboration with the NW CASC and the effectiveness and efficiency of NW CASC operations.

Evaluation challenges faced are in no way unique to the NW CASC. External challenges experienced during the last administration slowed the process of strategic planning and, by extension, the process of alignment of activities and NW CASC strategic goals. Generating societal impacts from all research, including co-produced science, takes time. Societal impacts of research are challenging to capture on a project timescale. Identifying and documenting impacts requires innovative approaches. Resources will need to be increased for long-term and in-depth evaluation of climate adaptation science research, impacts, and use. The UW now has excellent baseline data for the NW CASC, which can provide solutions to challenges faced. Evaluation tools will be revised to ensure they capture the data required to understand impacts. The evaluation tools and frameworks developed are better than standard academic

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metrics because traditional academic metrics do not address the impacts of research outside academia. UW will prioritize evaluation activities with careful consideration, based on available resources.

Next steps in the evaluation process include: continuing to collect data on the impacts of the NW CASC, expanding the evaluation to include Goals 4 & 5; reflecting on UW practices; collaborating with Federal leadership; and incorporating data and reflection into organizational learning.

ERT Q & A on Evaluating the NW CASC's Impact

- How easy is it to obtain information from “decision documents” (fact sheets, plans that reference research, policy documents) and how could accessibility to citations be improved?
 - Alison emphasized that it is hard, but not impossible. Existing tools that can be regularly incorporated into their work include: using established relationships to check in directly and ask where research is being used and making this a part of researchers’ practice; utilizing Google Scholar to find literature citations; using Altmetrics to monitor their expanding database of sources; and social media tracking.
- Does every RCASC have a process for program evaluation?
 - Evaluation processes are not embedded into every CASC proposal or Agreement. It was important to UW to link the vision laid out in the proposal to what UW is achieving and why. It is important to prove the Host University is doing good work.
 - Nicole noted that program evaluation does not come naturally to USGS, and that the CASC program (and the NW CASC specifically) is very unique. Including an evaluation component in the next RFP process could push the boundaries of the agency.
- How is this capacity for program evaluation being communicated to other CASCs? Assuming a static RFP for the next Host Agreement, how would you evolve your proposal based on this evaluation work?
 - Alison noted that there are conversations on evaluation happening throughout the network; different things are being assessed from both the University and Federal sides. There now is an Evaluation Working Group in the cross-CASC network. New findings haven’t been shared yet, but they will be whenever UW staff are ready.
 - Nicole added that she plans to invite Alison to present her evaluation information at one of the weekly Federal CASC staff calls (which is only the beginning for sharing the results).
 - Amy noted that after briefing the SAC on this External Review and the evaluation learnings, UW received requests to present their evaluation findings elsewhere.
 - *The question reflecting on how to evolve the Host proposal based on the evaluation work will be addressed below.*

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The ERT assumed a program evaluation component was included in the RFP and recommends including this invaluable piece to more effectively understand the impact and gaps of the entire network.

Benefit to Consortium Institutions

Amy reminded the ERT of the 6 consortium institutions, and the University Leadership Team (ULT) (*pages 35-39, Overall Effectiveness presentation*). The Consortium includes University of Washington (Host), Western Washington University, Washington State University, Oregon State University, University of Montana, and Boise State University. She noted that UW funds Research Fellows at the Consortium universities in any department with any advisor, so long as they meet the NW CASC RFP criteria. Resources are distributed across the consortium and are not tied to the ULT members. Participation in the NW CASC ULT is not funded by the Host Agreement, but rather by each member's respective institution.

The NW CASC benefits Consortium institutions by providing: a mechanism for new interactions and new networks for graduate students regarding climate adaptation science; CAP Fellows research opportunities; access to resources and a community of practice; unique opportunities to engage with agencies, Tribes, and other entities; assistance towards increasing student demand for training in actionable science; and contributions to the design of BSU's new interdisciplinary School of the Environment. For UW, being part of the NW CASC helps UW, EarthLab and the Climate Impacts Group achieve their missions and goals related to community engagement and applied/actionable science and reach more students; helps the Doris Duke Conservation Scholars Program provide experiential learning experiences for emerging conservation leaders seeking to engage on climate change, and to work with tribes; helps the Climate Impacts Group bring their co-production experience into the classroom and helped the UW/Climate Impacts Group in its successful application to become the new Northwest NOAA RISA team. For the Consortium as a whole, being part of the CASC network enables them to help shape the future of applied actionable science and accelerate regional and national adaptation to climate change.

ERT Q&A on Benefits to the Consortium

- Do Consortium faculty get credit from their institutions for the time and effort they put into their NW CASC work?
 - John Rybczyk (WWU) noted that efforts towards NW CASC activities may come at the expense of his home institution's activities. It is a commitment, and he gets a lot of help from the UW team. It's mostly a shift in service, from university and department service to professional service; the service does count towards institutional promotions at his university.
 - Alejandro Flores (BSU) noted that he has flexibility within his institution to provide service to the NW CASC, as long as he continues to teach and publish. It provides an opportunity to do research within BSU, more specifically for student professional development (build budgets, etc.). NW CASC service helps determine how BSU, as an institution, can be most effective for pre-career researchers, as well as early-career faculty.

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- Selina Heppell (OSU) reported that, as a tenured faculty member and department chair, she has less time to give, but more flexibility. OSU is very supportive of her involvement and service to the NW CASC, as the work matches OSU's mission and OSU was the former Host University. Deans from 3 OSU colleges supported the CASC Act.
- Kendra Kaiser (BSU) said that as an early career faculty researcher, NW CASC service provides an opportunity for her own professional development. She is able to see first-hand how research is coordinated across the region, including learning about the administrative and logistical side. It allows for applied knowledge to her teaching and research, in addition to providing CASC service.
 - Nicole noted that she is working to bring Kendra to the federal side for a detail working on the "5 Centers" Initiative.
- Julie Padowski (WSU) noted that, through engagement discussions and alignment of interests, NW CASC service has helped her shape what her institution does with projects that focus on community engagement and science in different ways. CASC service is very beneficial and aligns well from an administrative perspective.
- How is the ULT selected?
 - University partners and ULT members were identified in the proposal, which was written on behalf of the consortium. In crafting the proposal team / ULT, Amy sought out relevant expertise, alignment in interests, institutional commitment, and good people who had used collaborative approaches in their work; each ULT member was thoughtfully considered in relation to the whole. ULT turnover has been due to career advancement opportunities only, which is evidence of the cohesive group that has formed.
- Do Fellowships facilitate entry into PhD programs in climate change work?
 - John Rybczyk noted that although this metric hasn't really been tracked, most WWU Masters students are somewhat non-traditional; their goal often is not to get a PhD. Instead, more common tracks include working for Tribal, State, or local governments.
- How evenly are Fellowships distributed across the consortium?
 - Fellowships are spread fairly evenly (except at UW due to cost share). There may be more at bigger schools with bigger programs, but UW works hard to spread the opportunities evenly. The level of competition for Fellowships is also different at each school.
 - UW seeks regional distribution from universities and science topics to produce high-quality Fellows. ULT members feel the same, and they jointly agree on the final distribution.
 - Selina noted that both the quality and quantity of applications is getting higher.

ERT Q&A Regarding ULT Benefits

- To WSU and BSU primarily: do you feel as though there are activities, projects or other ways that the "inland" interests are served? Stereotypically, resources tend to be

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focused on west of the Cascades; do you see opportunities to deepen the eastern relations versus coastal?

- Alejandro: The geographic scope is fairer and more discussed than in other NW forums I've been involved in.
- Julie: Ditto Alejandro's sentiments.
- Kendra: The Deep Dive was useful to bring perspectives from across the region, and pushed students to consider other perspectives.
- The CIG and Amy have been thoughtful about representation to address the high/dry and wet/ocean climates. The Interstate 5 corridor and ocean bring a different type of climate adaptation questions than do the eastern regions. In addition, geographic diversity is reflected in the NW CASC's 5 Year Science Agenda and is discussed more in the NW CASC than other regional forums. The CASC has always been open to dialogue and helps to make sure all of the Northwest is represented.
- How do we partition the northwest that is useful? We talk to each other, recognize gaps and figure out how to fill them. We lacked expertise in social science, so we brought that expertise onto our team.

Responses to Questions from Day 3

(Pages 40-50, [Overall Effectiveness presentation](#))

Responses to Questions from Day 1

(Pages 51-54, [Overall Effectiveness presentation](#))

Summary of NW CASC Consortium Activities

Amy delivered a brief walkthrough of the summary of activities slides that will be provided to ERT for reference (pages 55-63, [Overall Effectiveness presentation](#)).

Reflection on NW CASC Experiences & Evaluation

Amy and Meade shared with the ERT their reflections on the NW CASC challenges, solutions, successes, and areas for growth (pages 55-63, [Overall Effectiveness presentation](#)).

Challenges

- Many challenges occurred under the previous Administration, many with legacy effects:
 - Piecemeal, uncertain start-up
 - Slowdown in USGS approvals and contracting led to federal funding delays
 - Changing federal priorities (e.g. were not allowed to do social science, but now are)
 - Shifting expectations and requirements in the context of a fixed, 5-year host agreement
 - Severe understaffing at USGS (e.g., grants, contracting, USGS HQ, and Fed side of NW CASC) (continues to be a problem)
- COVID had negative impacts on Fellows, partners (especially Tribal), and staff by disrupting face to face sessions, including field work.

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- Demand for NW CASC assistance exceeds capacity.
- Lack of structure from NCASC to support cohesion across the network, as a whole.
- Receipt of 5 years of cooperative-agreement funding in individually administered 1-year funding increments that don't align with the academic or Consortium calendar. This creates a significant administrative burden, difficulties supporting research & fieldwork and uncertainty and stress for NW CASC research fellows.
- Implementation of NW CASC training and capacity-building programs with a postdoctoral fellow was cost-effective but not sustainable, given the long-term continuity required for that program.

Solutions

- Necessitated a commitment to frequent communication, willingness to adjust and adapt, and increased national engagement (e.g., Congress).
- Paused some activities; re-designed activities to occur remotely; provided flexibility to Fellows.
- The current solution to the mismatch between funding years and activities is for the NW CASC team to spend significant time creating partial/incremental scopes of work, requesting & processing extensions and managing sub-awardees' and fellows' funding uncertainty. A long-term solution would be for USGS to still deliver Consortium funding one year at a time, but into a single award -- i.e., not requiring the CASC to spend one out before the other, request annual no-cost extensions, etc.
- NW CASC capacity could be increased by: increasing host awards, increasing USGS-side staffing, providing support for NW CASC's national engagement activities, CASC authorization and recovery of USGS internal staff and processes.

Implications for the Recompete

- Will USGS's Office of Acquisitions and Grants approve funding of a center that utilizes the NW CASC's nimble (annual) funding model for selecting and supporting research fellowships?
- How can universities navigate between USGS' cost-share expectations and university policies (based on federal guidance) about providing cost share?
- Will new host awards accommodate and support all of the activities that the NW CASC engages in, at the scale required to make them successful? If not, what are priorities for keeping/cutting?

Successes

- Demonstrated the Consortium's impact advancing actionable, adaptation science and training in the NW
- 35 Fellows were promised in the Consortium proposal, they delivered 58.
- Deep Dives enhanced communities and science around emerging needs, even though online.
- Scholarship which supports effective co-production was delivered.
- The team created highly-effective internal and external communications programs.
- Great fiscal management and cost savings.

Areas for Growth

- Diversity, Equity, Inclusion & Justice – the team anticipates refining, restructuring, and reorienting a future hosting proposal to address these issues.

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- Learn from the evaluation and refine metrics to meet refined goals (e.g., what Fellows have learned and the contribution the Host might have made to their learning).
- Incorporate recommendations from Fellows and explore ways to help their learning continue post-program involvement.
- Gain more capacity on both sides of the CASC to deliver science at a programmatic, topical level (e.g. State Wildlife Action Plans) rather than project-focused.

ERT Dialogue and Discussion with NW CASC & ULT

- One ULT member commented regarding DEI and Justice - this could be a place where the consortium universities may assist. For example, BSU has a diversity initiative funded by the NSF.
- One ERT member suggested, since two consortium members have USGS-funded Water Institutes, the NW CASC might consider talking with them how they've managed to maintain flexibility in research activities while complying with USGS requirements regarding project certainty .
- One ERT member was surprised by the funding challenges and asked what the other options are:
 - USGS has limited legal authority to support external research. Nicole provided a link to the USGS legal authority, [here](#).
 - USGS is not typically a science-funding agency, it has its own large scientific workforce. As a result, USGS is working with antiquated tools to do very modern work in the CASC network.
 - OAG interprets the legal authority narrowly, and this has caused some strain. OAG is continually being audited. It has gotten stricter over time. The lack of legal authority and ongoing scrutiny make OAG cautious.
- Regarding understaffing and management challenges at USGS (headquarters), could you reconcile how USGS understaffing impacts servicing NW CASC?
 - The Host has a predictable timeline for submitting information and getting answers. The biggest challenge is working to make sure everything is submitted in a timely manner so there is no delay. Hosts are affected because any delay impacts the PIs being funded.
 - USGS has figured out how to do this on the administrative side, and can change from year to year.
- Do you have undergraduate students working to support any of the roles and defray costs? For example, support to Darcy's communications work and the newsletter might be something a journalism student could assist?
 - The Host doesn't have capacity to take on undergraduates as they are not a primary focus. EarthLab is starting an undergraduate program, so this might be an opportunity to support the NW CASC. UW Capstone programs may have overlapped with NW CASC projects. But none have assisted with communications. Interesting to think about whether that might be a helpful way to alleviate capacity issues going forward.
- How are you thinking about engagement moving forward in light of COVID?

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- The NW CASC has been trying to respond to evolving formats by providing tools to their fellows - like a facilitation training that teaches creative ways to engage partners online. Virtual delivery makes it possible for more to participate. Webinar participation went up, however they have noted a decline in recent months. Because the NW CASC had been running webinars via Zoom for a while, NW CASC staff became the “go to” resource for how to run Zoom meetings for the University.
- The NW CASC has been flexible about how information is delivered online (e.g., polls, panels, Mural boards, lots of breakouts). People are taking their carbon footprints more seriously these days and not wanting to go back to their old travel habits. Experience with the seminar is that students are very engaged and willing to ask questions.
- The ERT encourages the NW CASC to consider going hybrid in the future.
- Does the science agenda get updated with the creation of a new RFP for Consortium/Host re-competition?
 - USGS creates the 5 Year Science Agendas independent of the host cycle. They are created every five years. A science agenda was developed by USGS for 2012-2017. USGS worked with the SAC to develop the 2018-2023 agenda.
 - The Host noted there is a mismatch in the science agenda process and the proposal development period. The timelines do not add up well, so the Host will be proposing to do science on the USGS science agenda that will be developed after the proposal and agreement are done, without any advance knowledge of what that agenda will be.
- Science Agenda, Annual Science Plans, and Deep Dives? Is that right?
 - NW CASC Science Agenda (USGS led, SAC + science advisory panel generated) + Actionable Science Agendas (generated by Consortium-led Deep Dives, in consultation with USGS and the SAC).
 - Both plans are implemented by both USGS (via competitive grants to PIs) and the Host Consortium (via Fellows and CAP postdocs).
- USGS wants you to speak more explicitly to the Science Agenda in the re-compete proposal, despite the next Science Agenda not really existing?
 - Yes.
- Can you comment on CIG / Host University / ULT engagement with regional USGS Science Centers and Fish and Wildlife Service (FWS) Cooperative Research Units (CRUs)?
 - BSU has a co-op with Fish and Wildlife.
 - WSU’s water center engagement has been a fruitful and collaborative relationship.
 - At OSU there’s a fair amount of integration between all of these. There’s also room for improvement. The one opportunity with the Fellows is capacity.

Amy and Donna thanked the ERT, CASC & Consortium Members, and Observers for their participation, engagement and attendance at the session. And with that, the meeting was adjourned.

This session summary was submitted by the Facilitation Team. Edits were welcome and included.