

Southeast Climate Adaptation Science Center



External Review Team Final Report

Prepared with and on behalf of the SE CASC External Review Team

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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 was 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 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 & Project Co-Lead)
Tina Patterson, MA Dispute Resolution, MDR, MCI Arb, CF APMP, CICM (Project Advisor and Facilitation Support)
Colby Mills, BA Anthropology (Logistics and Facilitation Support)

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 External Review Team (ERT) was asked to focus on four 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:

	Jan 10	Jan 11	Jan 12	Jan 13
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 CASC. 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).

SE CASC ERT Members included:

- Danny Lee, Ph.D., Center Director, Southern Research Station, USDA Forest Service
- Karen Lips, Ph.D., Professor of Biology, University of Maryland (UMD)
- Gregg Nakano, Ed.D., Sustainability Scientist, Infinitum Humanitarian Systems
- Robert Newman, Ph.D., Professor of Biology, University of North Dakota (UND)
- Allison Shipp, Deputy Regional Director for Science, Rocky Mountain Region, at U.S. Geological Survey (USGS)
- Mark Wimer, M.S., Wildlife Program Manager at U.S. Geological Survey (USGS)

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
*Staffing, Leadership Team, and
Consortium Members*



Fiscal Management
Budget, awards, and grant management

The Host

The ERT finds that North Carolina State University (NCSU) (hereafter Host) has assembled a “talented team of researchers, communicators, and administrators” to manage the University component of the Southeastern Climate Adaptation Science Center (SE CASC), as outlined in the Proposal Narrative (which serves as the contractual agreement between the Host and NCASC). Based upon the presentations to the ERT, ERT finds that the Host has done “a masterful job of managing the SE CASC through changes in federal administrations and during a time frame made more challenging by the ongoing COVID-19 pandemic.”

The ERT finds that the Host is fully grasping the administrative requirements and are appropriately staffed. The Host is fully meeting the terms of their agreement with USGS. The Host had re-competed successfully before and is now finalizing the second 5-year term of USGS funding. As such, they have had 10 years to evolve the administrative, financial, and legal processes to ensure that management of the federal grant is done to specifications, on time, and according to USGS legal standards. The Host has overcome typical delays associated with large USGS-funded projects. As a major land-grant 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 SE CASC. Contributions in terms of both personnel and external funding from the Host and other grant sources add substantially to the impact and effectiveness of the SE CASC.

Program oversight, awareness of program purpose and details, was impressive both in written materials and in presentations by the Host leadership team. The Key Terms outlined in the Proposal Narrative are extensive and seem to be well-followed. Fiscal processes look to be well-constructed, the consortium looks to have enhanced the overall capacity of the CASC, and staff and student involvement seems to be high and engaged.

The Host has strong support from top university leadership levels as exemplified by comments from NCSU’s Vice Chancellor for Research and other administrators who spoke to the ERT. Both topics and people are well integrated into the existing NCSU infrastructure, with the Center Director and staff sitting side-by-side to the Applied Ecology’s Department Director and offices physically located in the heart of the department. The Host’s primary focus is on the Global Change Fellows (GCF) graduate program.

The Consortium

For this second, 5-year hosting cycle, and upon suggestion from the last external review completed in 2016, the Host shifted from a single entity Center to a Consortium-based Center.

The new model seems to be working well, with the Host framing this turnover as “an opportunity to bring new ideas and viewpoints”.

Collaborative agreements between NCSU and their new consortium-member universities seem appropriate and to be working well. The inability to host in-person meetings among collaborators (due to the ongoing impacts of COVID-19) is a significant challenge in terms of building relationships, and might be affecting the effectiveness of the Working Groups (WGs) and other forums for scientific exchange. The Host has taken reasonable measures to address these challenges.

That said, the ERT notes some lack of clarity about the process for inviting, selecting, and involving other university members in the consortium’s administration and management. It also is unclear to ERT members how the Host prioritized scientific research of the Host and its consortium members, for example how consortium members were selected and how they used the SE CASC science priorities.

Administrative Competencies

NCSU and consortium partners have considerable expertise and research activity in environmental programs, spanning numerous colleges and departments. The core Host management team seems very strong and focused on maintaining a coherent effort across disparate departments and Principal Investigators (PIs), who almost certainly have varying priorities and levels of engagement. The team of PIs from the Host and consortium members are all first-rate scientists/scholars. Those who presented to the ERT seemed engaged and enthusiastic about the work they were doing with the Host and the CASC generally. Because it was not possible (nor reasonable) to meet all consortium partners, it was difficult to assess how they mesh as a broader team. That said, ERT members note that consortium partners and individual PIs seem to find their own place in topic-based WGs based on interest and opportunity, and the number and range of PIs helps to ensure a breadth of interests for some time to come.

The ERT finds that the success and productivity of the capacity-building, outreach, program management, consortia, and WGs shows there is a solid administrative base. Since expanding to the consortium model, the host emphasized how they are “most effective when working as a team with members as well as USGS”. Regular meetings among all units suggests good communication. Support from university administration is strong and lends to a detail-oriented financial process. The Host and consortium are ‘plankholders’ or architects of the current organization, and they have a long and apparently strong relationship with USGS. As such, the NCSU administration has staff who know the background of the SE CASCs “why” and “how” that allows it to get things done – whether at the federal, state, or local level.

Administrative successes included: managing a high rate of Director-turnover efficiently and successfully; resolving fiscal challenges that stem from first-year, partial and/or late funding; utilizing the assistance of the SE CASC Federal Director and NCASC staff; building and maintaining

relationship stability with the USGS Office of Acquisition and Grants (OAG) staff; and mitigating roadblocks for funding approval.

Administration, management and a focus on the Global Change Fellows (GCF) program is excellent. The ERT finds that the focus on student training is positive, the management attention to diversity is laudable, and high levels of administration at the host institution are solidly committed to supporting the project now and into the future.

Administrative Efficiencies

Given the location and integration into the Applied Ecology department, the SE CASC at NCSU represents an important opportunity for graduate students to be engaged with science that has a purpose. In turn, this has become a resource for the University. The ERT finds the Host's departments, facilities, and resources seem well-suited to perform the work outlined in the Proposal.

Since NCSU has co-evolved with the SE CASC, they can support other interested universities with minimal administrative effort. Understanding USGS systems is important, and an asset to share with consortium PIs. This reduces the administrative load to which PIs would need to devote time, if NCSU were not properly managing this task for them. The consortium members who were present seemed engaged and aligned with the existing focus.

In addition, the ERT finds that the Host's thematic Working Groups (WGs) align well with existing expertise and research of the Host and within the consortium. This is structural and could become a constraint on the overall scope-of-work, yet the current synergy created by these opportunistic, interest-based WGs increases the prospects for sustainable effort. The research priorities identified are all important.

The ERT finds the delivery of graduate training through the GCF program is a key Host efficiency. Fellows bring a level of cohesiveness to the "infrastructure" of their experience (supporting communication education and practice, for example). They also integrate into the research of the working groups, providing real-world experience and opportunities that will help them to enter the workforce with a strong focus and potential for success.

Administrative Challenges

The Host has reported and effectively responded to a number of challenges during this second round of 5-year funding, including COVID-19, turnover in leadership, funding logistics, and geo-political issues.

COVID-19

The COVID-19 pandemic has presented the greatest challenge to the Host because so much of the training and co-production of science had previously been done in groups and in the field. That said, they seem to have navigated the challenges as well as can be expected.

Leadership

Turnover at the University Director level and lack of a full time/permanent USGS Director caused some challenges. However, the ERT found there was sufficient functional redundancy and strategic hiring to mitigate this issue.

Funding

Changing administrations caused interruption to GCF funding. USGS funding cannot be spent in advance of receipt. Waiting on congressional appropriations, while also trying to align to the academic calendar, challenged the Host's ability to plan strategically with partners. The ERT finds that maintaining the current and future work in progress will require sustained efforts towards predictable funding and continued engagement with stakeholders. The Host seems well positioned to help with this effort.

The Federal Rules' constraint on competed contracts means that new partnerships or consortium members cannot be added in the middle of an existing Host agreement. This has created challenges for the Host because it limits the Host's expansion efforts that seek to include more Tribal liaisons, a Historically Black College or University (HBCU), and to expand Diversity Equity and Inclusion (DEI) and minority student inclusion activities.

The ERT noted that fiscal management challenges included a lack of standard budget templates from USGS for carry-over and extension requests, and difficulty tracking re-budget thresholds over the course of project. The Host mentioned a challenge stemming from the requirement to monitor annual increments separately and track funds by fiscal year. The ERT was not clear if this was a result of comparing USGS requirements to other grants (e.g., National Science Foundation), the federal budgeting systems themselves, or other university systems.

Opportunities for Improvement

Diversity

Co-production of actionable science should leave no communities behind. As such, the ERT encourages the SE CASC and Host to continue prioritizing diversity in recruiting students and PIs to pursue this stated goal. One critical means of achieving this goal is to have faculty from historically underrepresented and under resourced communities (e.g., Black, Indigenous, Tribal, MSI/Latinx). That is the surest way to recruit students from those communities and engage communities that have been historically underserved.

Fellows

The ERT finds all aspects of the management of the GCF program to be impressive. However, in the Key Terms document, the Annual Report suggests that the work done by the Fellows should be spelled out in the terms of CASC priorities and science plan. The ERT suggests more clearly noting the linkage between the work done and how that work meets and enhances the CASC's science priorities.

General

The ERT encourages the Host to continue developing additional funding sources to augment its program beyond what the federal budget allows. While NCSU, through its on-going support of the program, provides a significant amount of state dollars, ERT members suggested looking at non-governmental sources as well. As one ERT member wrote, “Build your dream, figure out what the federal dollars will cover, and then find the sources to complete the rest”. The ERT also suggests that the Host should examine and then prevent funding gaps for graduate students by providing bridge funding, if necessary.

RECOMMENDATIONS: Administrative

1) Track the Alignment between the Overall SE CASC Strategy and Stakeholder Needs

- a. Clarify the overall SE CASC Strategic Plan and stakeholder needs or interests expressed to the Host through outreach and assessment.
 - i. Track how WGs’ themes, focus and research projects align to both the strategy and to external stakeholder needs. Show that the work is directly linked to the needs stated by the actionable science users (as opposed to being driven by faculty/PI interests).
- b. Clarify the goals of each program (e.g., the communications program and topic-based WG ‘programs’) similarly to how the Host has framed its GCF program as a means of evaluating your own effectiveness. *(An ERT-suggested example of an assessment structure is on page 19).*

2) Develop Consortium and Working Group Management Protocols

- a. Clarify the process for identifying, recruiting, selecting, and inviting both Consortium and WG members.
- b. Once members are engaged in either type of group, track the frequency of engagement, as well as their adaptability to refocus efforts as needed.
- c. Track what ideas or suggestions consortium and WG members have generated and then address any concerns raised by the consortium or WG members.
- d. Collect data to show whether and how the Consortium model is or is not an improvement on the previous Single-Host model.
- e. Prepare a functional interaction network graphic (e.g., a food web) that visualizes how the different components of the network interact, and the flow of information (who is setting priorities, how results from one become input to another, feedback loops, etc.).
 - i. Create a clear picture of *how* the host will achieve CASC goals, beyond a list of objectives. This should also include a realistic timeline that will be considered when evaluating progress and performance.

3) Track and then Report on Funds to Show how Federal Money Leads to Leveraging

- a. Prepare a flow chart of money coming in. Track how it is distributed based on the research/collaboration/educational goals, and how it is distributed to meet the mission of the Consortium.
 - i. Consider creating a ‘flow of funds’ diagram for future tracking and reviews to present award management and associated research more clearly. Indicate the financial breakdown of each project regarding consortium PIs and indicate which have gained additional funds stemming from the USGS funds.

4) Show Changes Derived from Multi-Phase Administration of the CASC

- a. Indicate changes and improvements you have implemented since the prior 5-year funding cycle.
 - i. An example for this review might have been identifying how the loss of LCCs benefited, created challenges, or resulted in areas that need improvement in both this CASC and the overall CASC system.
 - ii. Another example is to compare/contrast the single versus consortium model; what was learned, what are benefits/challenges of each.

5) Track, Support and Report on Global Change Fellows

- a. Explain the different ways GCFs are supported after the Fellowship ends (e.g., networks, interviews, and jobs to which the Host connected them).
 - i. The students are your "pollinators" or the vehicles for bringing new science approaches or tools to the region.
- b. If sufficient funds become available, fund first-year students and then strategically select students to fund for the cycle of their research and dissertation.
- c. Track and report on GCF's graduation rates.

Findings of the ERT – Scientific Achievements



Scientific Achievements

Scientific Achievements on climate impacts, vulnerability, and adaptation science

The ERT finds that the Host is engaged in much outstanding actionable science. The Host provided an impressive set of examples from WGs and Collaborators in its presentations to the ERT. Productivity seemed high for scientific achievement, and the ERT finds that the Host has met the broad science and Key Terms goals effectively.

The Host defines co-production as “engaging end-users and scientists to jointly develop science that can help people make decisions about their lives and how lands and species are managed”. Co-production and actionable science are driven through the WGs who, reportedly, are able to adapt to political, social, fiscal, and environmental challenges. The primary means for the Host to deliver Actionable Science appears to be through the efforts of the multiple WGs. USGS sponsors

a variety of other research efforts to develop scientific knowledge regarding mitigation and adaptation to climate change, but these efforts are separate from those of the Host. The ERT finds that this separate-but-co-mingled relationship between USGS and the Host seems to be working well in terms of producing good science and delivering it to stakeholders.

All the projects and project upgrades, including publications and fact sheets produced during this second 5-year funding cycle, are deemed high-quality research based on inspection of the Host's publication list located on the SE CASC webpage. The ERT finds that the clearest value was visible in the WGs and symposia which led to clear information transfer, convening power, and direct inclusion of land and resource managers.

WG projects appear to be engaging students and anticipating partner needs, as well as locating geographic areas that might be suitable for adaptation as climate shifts. Regular meetings and ongoing communication related to the mission appears to be occurring, including helping decision-makers understand and apply datasets (although this could be shown more clearly, see below). The nature and number of the WGs, scientific products, student projects, and participation in hosted activities with partners shows that the science is relevant to those audiences. The upcoming WG that will be evaluating how "actionable" projects turn out will help further. The ERT believes this effort would be more substantial if partners and managers who continue to engage, beyond an initial workshop or project, were included as a metric of success.

Research is at different stages, so it is too soon to know how actionable or actioned much of the science is. Developing research projects takes time, it takes time to see results, it takes longer to know if results will be used, and still longer to know that actions yield better outcomes.

Limits to co-produced science work noted by the Host included the inflexibility of contract terms, which cannot "legally" be changed, and the need for more funds. Still, the Host has created flexibility by adding additional WG members and affiliates. The ERT finds that the Host's creativity is helpful in providing some of the flexibility they seek.

RECOMMENDATIONS: Scientific Achievement

1) Track and Present Science Achievements More Thoroughly

- a. Differentiate when science activities, processes and products are "co-produced" and/or "actionable".
- b. Track and provide examples regarding the process and level of engagement from communication to co-production.
- c. A main goal identified in the Key Terms sheet regards "decision-focused, research-based information". Clarify if and how this goal relates to or differs from 'actionable', 'science application', and/or 'research'. This could help evaluate a possible growth in scientific achievements overall.
- d. Work with your USGS CASC partner to create a summary list of projects, participants in the projects, and feedback from natural and cultural resource managers to

facilitate assessment of contributions and if/how the research and science has penetrated policy, decision-making, and management.

- e. Document the use of research results by stakeholders in policy formulation, decision-making, and management, where feasible.

2) Evaluate Work with Partners to Assess Value Added for All Participants

- a. Clarify the value Consortium members get from engagement with the Host (other than being able to compete for science funding). Additionally, identify the return on investment from funding WGs.

3) Highlight Global Change Fellows (GCFs) Involvement with and Contribution to Science

- a. Clarify how GCFs' work aligns with the over-arching CASC priorities, as they are a key component to science achievement and capacity-building.

4) SE CASC: Clarify Role and Processes of Scientific Advisory Committee

- a. Work with your USGS partner to help clarify who is on the Regional Science Advisory Committee, what its role is, and how active it is with the SE CASC. Also note whether there is any effort to encourage partnering between the University members and USGS Science Centers (not at a University) so that capabilities may be woven into USGS/DOI.

5) General Suggestions

Consider the unique political, social, and economic factors influencing the region. These may include health, national security, personal employment, economy, real estate, parks, and recreation. Translate the existing science to meet these values so local populations can digest what we know about climate and the need to adapt.

Findings of the ERT – Collaborative Efforts



Collaborative Efforts

Collaborate with stakeholders to develop and deliver adaptation products applicable to priority decision-making

The RCASC Host-University is engaged in impressive collaborative work, and many of these collaborations appear to have led to leveraging additional funding and support of graduate students. The Host and its consortium partners have strived to use a mix of fora for engaging stakeholders and others interested in climate adaptation science. Time was a factor that limited overall partnership development, in turn limiting co-produced research. The Host reported that it receives more offers to collaborate than can be accepted. The ERT finds that actual collaborations that were completed seem to have been effective at science delivery. WGs, symposia, and workshop hosting appear to be very effective collaborative efforts, and provide enough value to be considered a major contribution. The level of participation from consortium

members in WGs, and the ability of those PIs and departments to engage partners directly, also is a substantial boost to capacity building.

The ERT heard from several collaborators, including Kathie Dello, the State Climatologist, Jerry Pardilla, Research Director of the United South & Eastern Tribes (USET), and Mitch Eaton, a research ecologist with SE CASC who has worked with a variety of partners on decision analysis. The work is all excellent and worthwhile. The ERT notes that Consortium members stood out most when they have more resources and /or bring a real specialty to bear, such as NCSU's presentation regarding communication research. Because it is not entirely clear how the consortium members' benefit from their participation in the Host consortium, other than being able to answer RFPs, an accurate evaluation of the nature of collaboration beyond the participation in WGs is not currently feasible. The ERT found it difficult to determine the overall effectiveness of the collaborations, or that of the Host in engaging collaborators, because they heard from so few directly, and only in the presence of Host staff. This last point will be noted in the overall review process report as a place for improvement in the future.

Tribal partnerships through USET appear to be strong and the Host is building bridges between Traditional (and cultural) Ecological Knowledge (TEK) and SE CASC projects. Work included a focus on building relationships and hosting and co-hosting workshops/trainings. The USET Director emphasized that the Climate Summit was a large benefit to the Tribes, and that the SE CASC has good working relationships with Tribes. He emphasized the good work they have done together with the Host, highlighting the focus on TEK. The ERT finds this work to be notable and encourages continued development as a potential opportunity for building an important body of knowledge for climate science in the future.

COVID-19 made in-person meetings problematic during the latter portion of the review period. These efforts need to be sustained over long periods, particularly if the partners are skeptical of the value of the partnership. The Host appears to have mitigated the COVID-19 limitation by successfully transitioning their work to online or safe outdoor activities that engaged partners and the GCFs.

The working collaborative relationships and capacity building are additive; and thus, the ERT believes the effectiveness and/or value to multiple decision-making levels will likely grow. The consortium is an obvious way to grow this, as well as the engagement with the Southeastern Association of Fish and Wildlife Agencies (SEAFWA). The Host's connections with state, Tribal, and regional partners appear only to be growing. That said, the ERT found that the number of WGs and active consortium members signals effectiveness, yet noted the difficulty judging the extent to which decision-makers have been influenced by this work. ERT members also wondered if Host/Consortium researchers directly engaged with Tribes to understand their needs and collaborated with them as equal, co-production partners in the research.

RECOMMENDATIONS: Collaborative Efforts

1) Clarify the Overall Program Goals to Aid Assessment of Effectiveness

- a. Look at the way you designed your GCF program and duplicate that design with regards to your collaborative efforts ‘program’(e.g. with a clear goal and strategy). Include your goals for working with consortium members, other scientists, Tribes, local, state, and federal partners.
- b. Include your goals for engaging decision-makers and then sharing information derived from these collaborative efforts with those decision-makers.

2) Track your Collaborative Work to Show Effectiveness and Contribution in this Area

- a. Create a master list of projects to track and assess the impact of the CASC across all metrics. Focus on:
 - i. Collaborations at all levels (e.g. policy level, local level, and horizontally with your academic partners) and consider the gaps you can fill.
 - ii. Clarify who are priority stakeholders, what collaboration with them entails, how you collaborate with them, how often, and to what end.
 - iii. Track metrics of return on investment, success, and impact related to the amount of new funding and the numbers of people involved, or students supported. Show where you leveraged USGS/CASC funding.

3) Build durable relationships with local communities

- a. Clarify and articulate the goal of your work with local communities, and include the scale/definition you use for describing “local”; in particular, focus on clarifying SE CASC’s work with Tribes. Most importantly, clarify Tribal goals for working with the SE CASC.
- b. Develop communication and outreach plans that can support and maintain durable relationships with local communities over multiple projects and with students.
- c. One specific example might be working with the military commanders of the 75 DoD bases located in the SE CASC states to help them incorporate climate science into their ongoing environmental impact activities. <https://militarybases.com/by-state/>

4) Scale up Lessons-Learned and Articulate Best-Practices with TEK

- a. Ensure the SE CASC lessons learned and best practices with TEK are shared and scaled with other regional CASCs, USGS, DOI and associated bureaus and departments.

Findings of the ERT – Capacity Building



Capacity Building

Educate and train to build capacity of early career professionals and others

The ERT finds that Capacity Building was one of the Host's strongest areas of focus with the clearest outcomes. These included the GCF program, the Tribal Climate Camp, and the Tribal Climate Summit, among other highlights. The Host also spends the largest share of their budget on capacity building.

The Host (and SE CASC) is building the next generation of scientists through the GCF program, and this is the primary focus of their Capacity Building activities and efforts. The original program goals were clearly presented, including what kind of students the program wanted to produce, and how the structure of the program and curriculum would help them meet their goals. Fellows who presented on Day 3 reported that they felt they received training and experiences that helped them meet those intended goals, and that they received a different educational experience than students not in the program. Students have done great science and reviewed the program favorably. Tracking of graduates shows that GCFs are taking positions consistent with the goals of the program.

The GCF program provides one-year fellowships to graduate students at the RCASC Host-University. Fellows appear to be well supported by the Host and they expressed appreciation for the experience and opportunities, including training, individual mentoring, and introduction to different professional development opportunities and networks. The ERT was impressed by the high level and thought that goes into student support, including post-fellowship support and tracking where GCFs land professionally. The capacity building of collaboration, digital, and presentation skills, and special labs – are things that should continue to draw new, and more diverse students into the program. The GCF program is inherently constrained by funding in terms of the number of students that can be supported and mentored. The ERT finds that finding ways to leverage other funding sources to supplement Fellows is a necessity for growing and supporting this important program.

The Host remains engaged with former program Fellows and has noted their success in pursuing subsequent professional opportunities, many of which - but not all - involve careers in disciplines engaged in climate change adaptation science. The ERT found that NCSU has done a solid job of designing and implementing a program that was meaningful for the GCFs, considering they are likely to encounter public attitudes both receptive of and antagonistic to climate science. The GCF alumni who presented on Day 3 had good things to say about their experience.

COVID-19 provided challenges to Capacity Building efforts, yet the Host's ability to host meetings and symposia virtually mitigated the challenges presented. It appeared GCFs are effective at symposia and workshops; developing students' capacities in partnerships via effective communication skills and approaches, as well as their recognition and value of the human dimensions, will only make this program grow. The Host is considering having Consortium

members host GCFs. The ERT suggests that the Host and USGS consider how Fellows might be funded by other sources, and whether there would be benefit to include undergraduates by applying for a National Science Foundation 'Research Experiences for Undergraduates' program.

RECOMMENDATIONS: Capacity Building

1) Global Change Program

- a. The program is so good, consider providing more opportunities for GCFs to engage more and at lower levels within DOI to help GCFs and the agencies broaden their understanding (and knowledge about the program).
- b. For future reviews, engage qualitative analysis, including quotes from Fellows, about how GCFs viewed and went about their research as a change into the future.
- c. Track GCFs who get dissertation committee members as a result of being a Fellow or modify their planned research as a metric.
- d. Assess the differences between Fellows' and other science students' experiences to identify the pros and cons, future investment, adaptation, or expansion of the program. Track movement (frequency and percentage) of Fellows into other-funded student positions during and post fellowship.
- e. Find new and/or different ways to both fund and support more Fellows...for their entire Masters or PhD. This might include additional funds and funding sources, introduction to and work experience with federal resource managers, or other creative ideas.
- f. Consider training GCFs in policy as it relates to the mission of USGS in the context of climate change, land use, and/or biodiversity loss. Policy is one of the main levers of effecting change; as such, it would be helpful for GCFs to understand the policy process and how policymakers use science in their decision-making.
 - i. The Biden Administration's approach to climate change could be used as an open door. Have GCFs look at policy-level restrictions to climate science (in conjunction with someone from DOJ for EO 13990 or international relations for EO 14008). Utilize the two Executive Orders to immediately review and, as appropriate and consistent with applicable law, take action to address existing Federal regulations and other actions that conflict with these important national objectives, and to commence work immediately to confront the climate crisis.
- g. Seek ways to expand the GCF program. Continue to pursue diversity, including diversity in tenure-track faculty and in all necessary efforts, to help both faculty and students feel supported.

2) Future Host Opportunities to Build Even Broader Capacity

- a. Write a paper that describes the SE CASC Model of co-production and/or of the Global Fellows Program. The ERT saw both approaches to be novel and, as such, might be producing new kinds of science or training. If so, that is worthy of being shared. Collect, synthesize, and write up CASC-wide data to share with other institutions.
- b. Conduct research associated with underserved communities as a means of building capacity. Use NSF definition of Under-Represented and consider gender fluidity, veterans, and first students in family (2020 Focus on Living and Working in communities is likely to be impacted).
- c. Consider developing a USGS certified “Climate Adaptation Planner” certificate for military personnel assigned to implement the DoD’s new climate adaptation plan. (<https://www.sustainability.gov/pdfs/dod-2021-cap.pdf>). 70% common with all other regional CASCs, 30% specific to regional, state, local needs. The concept would be for the USGS to develop federal USG standards for implementing climate science through the military base sustainability. If tied with BRAC (Base Realignment and Closure), the course would likely get the immediate attention of all the State Senators and Representatives.

3) Measure the Effectiveness and Impacts of Your Capacity Building

- a. In addition to focusing on GCFs, broaden the scope to also measure the effectiveness (such as measures of reach, information uptake, or other measures the Host could design) of building the capacity of land and other resource managers.
- b. The ERT realizes the biggest challenge is designing a tool which can evaluate impact or effectiveness of that capacity building. Yet, if the mission of the SE CASC is to “deliver science to help fish, wildlife, water, land, and people adapt to a changing climate”, is there a process the SE CASC (Host, Consortium, and USGS) could design which would help determine in what the Host’s capacity building efforts begin to make a difference in changing the minds and lives of those living in the SE CASC states?
 - i. Consider asking land and resource managers: “Was the information we supplied useful? Was it supplied in the appropriate manner? Did your management action improve based on what we provided? Can you cite an example of what you did differently as a result of our information?”.

Findings of the ERT – Outreach and Communications



Outreach & Communications

Manage and transfer information and data related to research activities

The ERT found that outreach and communications was another of the Host's strongest work efforts that has led to tangible outcomes. The student-led public interest seminars, the Tribal Climate Summit, the Regional Science Summit, the webpage, communication training, and data analytics relating to outreach were among noted ERT highlights.

The Host has established a very talented and active communications team. They are using a variety of tools, techniques, and technologies to deliver scientific information to a wide range of interested audiences. Their presentations to the ERT were impressive. All seems to be working well, and if there are indications that some methods are not working, the team seems nimble enough to modify approaches. There is an abundance of good information on the websites and new platforms, including tracking time spent on each webpage; the number of hits and other specific information; and the availability of tools on the well-designed CASC site. The ERT finds that all information products, workshops, and materials produced by the Host would be findable relatively quickly by most users, which is really saying something for such a complex operation.

The Host's prioritization of training in this area shows the importance of this activity as part of the necessary capacity for the next generation of climate scientists. As such, communication training for students is both a capacity-building effort and an outreach and communications mechanism. Direct involvement of communications faculty helps; one GCF's description of the tools and types of skills, and how she used them to help run Black Birders Week, were great examples. The communication of outcomes by the Host staff is also thorough and very well organized, including the website and data analytics. A pattern noted includes GCF fellows graduating with much better and more modern communication skills than many of their peers and predecessors.

The ERT finds the Host and associated academic Consortium is very effective in their Outreach & Communications Activities. The ERT can see that Science Communication is a strong benefit to this group and to those making hires. The professional training in communication and the products that emerged all provide evidence of the effectiveness of outreach and communication activities. COVID-19 was the primary identified limiting-factor affecting the Host's Outreach & Communication results. The Host's demonstrated ability to switch communication modes between in-person and virtual is a strength. A relatively minor limiting factor, at least for the ERT evaluation, was aligning some of the information and outcomes back to the primary science goals of the SE CASC.

RECOMMENDATIONS: Outreach and Communications

- 1) Continue to utilize quality Communications faculty involvement for engaging students' learning in outreach and communications.**
 - i. Students told the ERT they were inspired by the engagement they had with the communications faculty. Keep up the good work!
- 2) Develop a strategic plan to focus and prioritize communications, actions, and activities so messages and information reach the intended audience, then track effectiveness.**
 - i. Clarify program goals for each strategy and activity (including intended audience) as a means for measuring and assessing effectiveness. This approach would support development of more efforts to share science with various publics and highlight details on quantitative metrics (e.g., number of downloads, clicks etc.).
 - ii. While impressive and commendable, current analytics do not support demonstrating if and how all that effort has moved the dial on climate adaptation in the SE USA. For example, how have the Host's efforts influenced policy at the state, regional, or national level? Has the CASC influenced how agencies determine research priorities or address climate change issues? If so how? Does a bill or policy cite a CASC research paper? Has the CASC published Op-eds?
 - iii. Consider targeting specific audiences in your communications and track usage as an effectiveness measure. For example, add to the main page links that clearly note they are of direct interest to, e.g., Federal land managers, State fish and wildlife managers, Tribal cultural managers, and/or students. Are the intended audiences visiting those pages?
- 3) Take advantage of all potential outlets in the region**
 - i. Outreach to and include high schools as a place for delivering your program overview, science and achievements. Inspire them.
 - ii. Outreach and set up information at the National Science Museums to broaden the accessibility and reach of the science and information (if you haven't already).
- 4) Broaden the Outreach Scope**
 - i. Use the Host's talented communications group to consider how the Host (and CASC Network) could reach and engage groups not looking specifically for climate science information.

Findings of the ERT – Overall Effectiveness Towards Host Agreement

The ERT agrees that the Host and consortium were more than effective meeting the goals set out in their Proposal to USGS. The Host and its academic consortium members presented a very impressive overview of all elements of the program. As one ERT member wrote,

“It is difficult to imagine a program funded at an equivalent level as this being more successful over this time frame. It was most encouraging to see the enthusiasm and excitement of both the SE CASC staff and graduate fellow program participants”.

In addition, while the funding period was punctuated by administrative challenges beyond the Host’s control, they ended up leading and convening groups and students to do admirable science and other projects, which are still underway.

As noted in the report above, the Host’s most notable strengths are its GCF program and communication training work. The emphasis on transdisciplinary science and developing enhanced fluency for students, academics, and agencies regarding TEK are both urgent needs that ERT members noted to be a valuable contribution the Host is leading for the field. The ERT believes the host is well poised to co-produce and deliver first-rate science. Given this, “All the ingredients are there for a powerful engine to produce the next generation of scientists and professionals to produce actionable science”.

OVERALL ERT RECOMMENDATIONS

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

1) Develop and Present Metrics of Success:

- a) To assess how the Host has met their objectives, an ERT needs to know what the goal was, what they did, and what the metrics were. The presentations and reports were not designed to show the steps in this process or the outcomes or deliverables very clearly.

2) Enhance Assessments with Structure:

- a) For each CASC, and the CASC Network - Create a strategy that includes clear statement of goals, a plan to reach those goals, and metrics of success to know if/when those goals are achieved (i.e., via assessment).
 - Include a targeted explanation of what the CASC Network (and this CASC) is trying to accomplish in the context of Climate Change Adaptation, why that is important to USGS & cultural/natural resource managers, what the plan is for this work (a plan or strategy), and how to know if you have succeeded (assessment).

An ERT-member suggested example follows:

SCIENCE & RESEARCH:

GOALS: Our goals were to conduct research on climate adaptation that would be useful to USGS and other cultural/natural resource managers. Our specific focus would be on developing tools, models, applications, and/or original research that would assist USGS et al in addressing climate change threats in the SE USA.

PLAN: We would do this by working with USGS, USFWS and others to identify priorities, and develop working groups, or funding opportunities that would bring together people with the scientific expertise with the end user (USGS), and provide them with the funding and resources (and students? Data?) needed for the project. (Include a flow chart that shows how the various components contribute to the issue and what the outcomes/products/deliverables are.)

ASSESSMENT: We said we wanted to do research on XYZ, and here are the Working Groups that are addressing those research needs. They are working with stakeholders ABC in areas 123 because these are priority areas/topics in the SE USA for CC adaptation strategy. We have successfully completed XXX studies/surveys/projects that have resulted in XX tools/applications/models, which have been used by 3 different agencies. Moving forward, we plan to continue/modify/end this project because...

REGARDING THE EXTERNAL REVIEW PROCESS

- The ERT finds that this virtual setup was very well organized and managed – it was not too exhausting, it had clear start/stop points, and getting materials ahead of time and the daily summaries was very helpful to learn about and then keep track of the information needed for the review.
- For future ERT reviews, the ERT recommends:
 - Begin the sessions by asking the CASC to create and present a 30-60 min conceptual framework presentation that provides an overview of the framework the Host used to plan the activities. Include specific goals of both the scientific and training activities. This would help the ERT evaluate whether the center is meeting its goals, to what degree, and suggest where the ERT might provide recommendations for improvement.
 - Have separate closed-door sessions that include a cultural/natural Resource Manager, Consortium Member, and Other Partners/Stakeholders with the ERT so that the ERT can hear and assess how communication and science is working between the Host and others. How do they feel about what they are getting from the relationship? How and how often have they been engaged? How they have

applied the delivered “science” to their decision making? Will this keep them engaged in the long-term?

NCASC Review Clarifications:

- Be clear about the problem/need the Network is trying to solve, then define how each CASC could/does help with that.
- Clarify “effective” in advance of the review. The ERT suggests focusing on outcomes such as: change in knowledge, perception, behaviors that did/did not change management decisions or actions.
- Actively measure whether the results of science and other activities lead to better-informed decisions; was the science instrumental to those who sought it?
- Clarify if/how the annual reports feed into the 5-year reviews, as well as if/how the annual reports provide the right information to know what is going on between the reviews. If the picture these reports paints is not clear, supplement the information for ERT members.
- Consider ways to review and align the programmatic micro goals to the CASC Network macro goals and objectives; for this, consider the connections from student training & co-produced science to Host Program to RCASC Goals to NCASC Goals to Executive Orders/Goals. Once established, this could then be tracked at the regional CASC level to show overall progress towards meeting those goals (by linking work to enumerated goals and/or objectives).

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 enthusiastically support having their names listed (and cited) as authors of this Final ERT Review Report.

APPENDIX & ATTACHMENTS

Appendix 1 – Attendees

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

- ERT Members: Danny Lee (USDA), Karen Lips (UMD), Gregg Nakano (Infinitum Humanitarian Systems), Robert Newman (UND), Allison Shipp (USGS), Mark Wimer (USGS).
- Consortium and CASC Presenters: Derek Aday (NCSU), Paul Armsworth, Consortium (UTK), Ryan Boyles (USGS), Greg Cope (NCSU), Harry Daniels (NCSU), Kathie Dello (NCSCO/NOAA RISA), Mitch Eaton (USGS/NPS engagement), Steve Frank (Consortium (NCSU/co-PI), Cari Furiness (NCSU), Amy Grunden (NCSU), Laurie Hamon (NCSU), Peter Harries (NCSU), Courtney Hotchkiss (NCSU), Rebecca Irwin (NCSU), Michelle Jewell (NCSU), Megan Johnson (NCSU), Aranzazu Lascurain (NCSU), Holly Lipkovich (NCSU), Karen McNeal (Consortium, Auburn), Hilary Morris (USFWS SE Blueprint), Natalie Nelson (Consortium, NCSU/Faculty Affiliate), Dawn Newkirk (NCSU), Lydia Olander (Consortium, Duke); Jerry Pardilla (USET), Shirley Patterson (NCSU), Melissa Pasquinelli (NCSU), Deja Perkins (NCSU), Nils Peterson (SEAFWA engagement & Consortium, NCSU/co-PI), Stefanie Saunders (NCSU), Marie Schaefer (ORISE Tribal Engagement), Erin Seekamp (Consortium, NCSU/co-PI), Ashlyn Shore (NCSU), Katherine Smith (USGS), Paul Taillie (UF, Formerly NCSU), Mladen Vouk (NCSU), and Martha Wanas (NCSU), Katie Warnell (Consortium, Duke).
- Observers: Doug Beard (USGS), Gustavo Bisbal (USGS), Ryan Boyles (USGS), Isabella Caltabiano (USGS), Janet Cushing (USGS), Steve Gray (USGS), Nicole DiCrappeo (USGS), and Emily Fort (USGS).
- Facilitation Team: Michelle Helman, Colby Mills, Tina Patterson, and Donna Silverberg (DSC).

Appendix 2 – Daily Review Session Agendas and Session Summaries

Day 1 – Administrative & Fiscal Management

Southeast Climate Adaptation Science Center – 2022 External Review

January 10-13, 2022; 1 - 5 pm EST daily

Meetings were held remotely and virtually on the web-based platform, Zoom.

DAY 1	January 10, 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	Activity	Participants and Affiliation
1:00-1:15	External Review Team - closed door: Get settled and focused on task for the week and the day	ERT Members and Facilitation Team
1:15-1:30	Welcome, Introductions, & Role Clarification Brief welcome, round of introductions of ERT members, SE CASC team, and USGS team, and clarify roles	Donna Silverberg, ERT Manager/facilitator, DS Consulting
1:30-2:30	<i>Institutional Development: Staffing, Leadership, and Consortium Members</i> - Overview of the SE CASC's administration, structure, host institution, & consortium - Introduction and brief CASC history highlighting federal-university partnership - NC State University as a research institution committed to climate change research, training, and engagement - Understanding the Host-University component of the SE CASC and consortium partners	Rebecca Irwin, NCSU Director, SE CASC Katherine Smith, USGS Dir, SE/NE CASC & Ryan Boyles, USGS Dep. Dir, SE CASC Mladen Vouk, NCSU Vice Chancellor for Research Rebecca Irwin, NCSU Director, SE CASC
2:30-2:45	Break To avoid zoom fatigue: Please turn off and step away from your computer screen if AT ALL possible!	

External Review Team Final Report
Southeast Climate Adaptation Science Center

2:45-3:15	Additional comments from administrators focused on administrative competencies, efficiencies, challenges and/or areas for improvement of the SE CASC Host-University. Facilitated discussion with ERT, and Q & A regarding Administration, Leadership and the SE CASC Consortium Structure	Harry Daniels (CALS Senior Assoc. Dean) Derek Aday (Dean & Director, VIMS) Greg Cope (Applied Ecology Head) Peter Harries (Dean of Graduate Studies) Amy Grunden (Asst. Dir, NC Ag Res Service) Melissa Pasquinelli (CNR Assoc. Dean Academic Affairs) SE CASC Team ERT members
3:15-3:30	Break To avoid zoom fatigue: Please turn off and step away from your computer screen if AT ALL possible!	
3:30-4:30	<i>Review of Fiscal Management: Budgets, awards, & grant management</i> - Fiscal Management Team: Overview and Flow - Dialogue and discussion with ERT regarding Financial Management: What are the host's Competencies, Efficiencies, Challenges, and Areas for Improvement?	Cari Furiness (Program Manager, SE CASC) and Fiscal team: Holly Lipkovich (Director, CALS Research Administration); Shirley Patterson & Martha Wanas (CALS Post-award); Stefanie Saunders (Assoc Director, Sponsored Programs); Brad Priser (Contracts and Grants, Compliance Specialist); Dawn Newkirk (Applied Ecology Accounting Technician) ERT members
4:30-5:00	External Review Team - closed door: Initial reflections on the day. Questions, concerns, and insights	Facilitation Team and ERT

DAY 1: Facilitator's Summary
January 10, 2022, 1:00p – 5:00p EST
Topic: Administrative & Fiscal Management

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: Danny Lee (USDA), Karen Lips (UMD), Gregg Nakano, (UHI), Robert Newman (UND), Allison Shipp (USGS), and Mark Wimer (USGS).

SE CASC Presenters and discussion members: Derek Aday (NCSU), Ryan Boyles (USGS), Greg Cope (NCSU), Harry Daniels (NCSU), Cari Furiness (NCSU), Amy Grunden (NCSU), Peter Harries (NCSU), Rebecca Irwin (NCSU), Aranzazu Lascrain (NCSU), Holly Lipkovich (NCSU), Dawn Newkirk (NCSU), Shirley Patterson (NCSU), Melissa Pasquinelli (NCSU), Stefanie Saunders (NCSU), Katherine Smith (USGS), Mladen Vouk (NCSU), and Martha Wanas (NCSU).

Observers: Doug Beard (USGS), Gustavo Bisbal (USGS), Isabella Caltabiano (USGS), Nicole DiCrappeo (USGS), and Emily Fort (USGS).

DS Consulting Team: Facilitator: Donna Silverberg; Daily Summary Support: Tina Patterson, Colby Mills; and ERT Reporter: Michelle Helman.

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 and Introductions

Facilitator Donna Silverberg welcomed the group and conducted a round of introductions that included SE CASC ERT Members, USGS and SE CASC staff, and session observers. She noted that the Host University, North Carolina State University (NCSU)'s, goal was to help the ERT understand the Federal/Host University partnership, provide an overview of how NCSU administers the program, and manages the fiscal components of the Host University's side of the SE CASC.

Institutional Development: Staffing, Leadership, and Consortium Members

SE CASC Host University Director, Dr. Becky Irwin (NCSU), welcomed the group with a presentation that introduced the SE CASC staff (Federal and University) and the overall National CASC system (this presentation can be viewed [here](#)). Included in the overview was the social, ecological, and climate context for the SE region, the CASC network mission, and the structure of the federal-university partnership.

NCSU's Vice Chancellor for Research, Dr. Mladen Vouk, spoke about NCSU as a research institution committed to climate change research, training, and engagement (this presentation can be viewed [here](#)). He emphasized that NCSU has a culture of engaged science and service via a "think and do" philosophy. He noted the NCSU has become a 'hub of hubs' for a wide range of science with a number of active entities concerned with climate and the environment. As a result, they have developed a hub for climate-environment research which have many synergies with USGS and the CASC network. He stressed that the University is fully committed to the SE CASC and seeks to ensure that the Center receives the full support it needs from NCSU to have a national impact.

USGS Deputy Director of the SE CASC, Ryan Boyles, provided further background and history of the SE CASC. He provided context about the federal-university partnership regarding the current Host Agreement and noted the need for refinement of future RFPs and collaborations (this presentation can be viewed [here](#)). Ryan explained that Host Agreements often last longer than federal administrations, and flexibility is key as federal needs and priorities change over time.

Included in Ryan's overview was: a brief history of the broader CASC network and its initial work to support Landscape Conservation Cooperatives (LCCs), the community of University and USGS scientists, operational principles and challenges of the 2018 Science Plan, the transition into the University Consortia model for hosting, the shift away from LCCs, a national Federal Advisory Committee to support management decisions & co-produce science, new organizational partnerships, and student training and working groups. The current Science Plan focuses on the themes of exposure, impacts and adaptation.

SE CASC Director, Katherine Smith (USGS), provided context surrounding the CASC system's budget for Centers and land change science. She described the process used to set science priorities which stem from the CASC Network Strategic Plan, and then are refined by a local Science Advisory Committee (SAC) which leads to a regional Strategic Science Plan and an Annual plan from which projects are funded. She sees future opportunities coming from new people, vision, and energy that will help to evaluate and refine the SE CASC science efforts and strategies.

Becky Irwin provided an administrative overview, highlighting the SE CASC as an "adaptive learning organization" that has had to be nimble enough to shift priorities when faced with federal administration changes and a global pandemic (this presentation can be viewed [here](#)). Included in the overview were the SE CASC goals for Phase 2 (the current Host Agreement period), the governance structure, the administrative home base within the NCSU Department of Applied Ecology and its physical location on campus, NCSU investments into the SE CASC, and challenges the organization has faced. Challenges have included high turnover in SE CASC University Directors, the transition from being a single host university to a consortium, a lack of process flexibility for adding consortium members during the project period, and how to manage increasing demand for SE CASC work. Becky noted that communication within the SE CASC consortium team has been a key to success and, while director turnover has been high, the strong and diverse staff and faculty that have been working in the overall cluster has made this issue more manageable. She also noted the importance of good working relationships with USGS during this time.

Dialogue and Discussion: Administrative Competencies, Efficiencies, Challenges, and Areas of Improvement

Questions and comments from ERT Members led to the following clarifications and comments from the SE CASC Host University administrators:

- Regarding the challenge related to being unable to expand the consortium membership during the agreement period - Giving the Center flexibility to reconfigure the consortium membership during the life of the agreement would be helpful, if possible. There have been consortium discussions about ways to expand in the future in order to include more Tribal liaisons, expand DEI activities, and include an HBCU.
- As an "Adaptive Learning Organization," how might you want to expand? The SE CASC could expand the populations it's trying to reach and its partnership-based leadership through deeper Tribal engagement. DEI activities could include new consortium partners and minority-serving institutions.
- How are Global Change Fellows supported? In addition to funds from the CASC grant, Global Change Fellows are also supported through the College of Natural Resources, being physically located and integrated in the Department Head's office.
- Challenge: due to the federal constraint on competed contracts, new partnerships or consortium members can't be addressed in the middle of an existing host agreement,
- USGS creates the RFP scope and determines the allocation/division of funding. If additional funds were made available, would you keep the footprint the same size or expand to include, for

example, Arkansas? USGS would prefer to keep the footprint the same and increase the investment within the existing framework.

- How engaged and involved is the consortium? The consortium has been very engaged, even virtually throughout COVID-19. A number of members will be coming to speak to the ERT.
- How do you interact with the multiple tribes in your region? We have been building Tribal relationships over many years. The Tribes have been engaged with us, have shown their commitment, and work has been supported through co-PI partnerships. While there are many Tribes in the region, there are only 6 federally recognized Tribes in the region with which the CASC may work closely.
- NCSU Dean of Graduate Students noted that, given the location and integration into the Applied Ecology department, the SE CASC at NCSU represents an important opportunity for Grad students to be engaged with science that has a purpose. In turn, this has become a resource for the University. The Center is regarded very highly on campus. NCSU helps students transition from Graduate school to post-Bac programs, as well as faculty seeking complex grants.

Further Questions from the ERT regarding Administration, Leadership, and the SE CASC Consortium

- Clarify and define what “co-production” means to the SE CASC. (*To be addressed on Day 2*)
- What are the different roles for the consortium and Host University? How does the Host engage and involve consortium members? How does the Host administer the science program (process etc). (*To be addressed on Day 2*)
- Clarify DEI initiatives (and whether those are consortium-wide or just NCSU).

Review of Fiscal Management: Budgets, Awards & Grant Management

NCSU’s SE CASC Program Manager, Cari Furiness, provided an overview of the Host’s fiscal management and processes, including budget, awards, and grant management (this presentation can be viewed [here](#)). NCSU manages two different funding streams, a Host Award to NCSU and awards for university science projects. USGS provides funding to support the program on an annual basis, based on a 5-year plan and agreement. The College of Agriculture & Life Sciences (CALS) is steeped in this type of fiscal management having processed an average of \$54 billion in funding per year over this project phase.

CALS Research Director, Holly Lipkovich (NCSU), reviewed elements of NCSU’s fiscal management support and processes including the NCSU offices, electronic systems, USGS non-competitive assistance projects for regional consortium sites and at NCSU CALS, the SE CASC NCSU Prime Award, and the successes and challenges they have faced regarding fiscal management.

Successes included resolving earlier challenges with partial/late funding, assistance of SE CASC Directors and NCASC staff, recent relationship stability with the Office of Acquisition and Grants (OAG) staff, and diminishing roadblocks for funding approval. Challenges include a lack of standard budget templates for carry-over and extension requests, difficulty in tracking re-budget thresholds over the course of projects, and that annual increments must be monitored separately.

Dialogue and Discussion: Host University’s Competencies, Efficiencies, Challenges, and Areas of Improvement

Based on questions and comments from ERT Members, SE CASC administrators added the following clarifications and comments:

- The Prime award is a cooperative agreement which requires no matching funds. Instead, USGS cooperative agreements require substantial involvement from USGS. Grants, on the other hand, do not require substantial federal involvement.
- OAG manages USGS's financial assistance, contracts, etc.
- Challenge faced: changing administrations caused interruption to Grad students' funding.
- Challenge: waiting on congressional approval of funding while aligning the academic calendar and creating plans with other partners.
- The Host award isn't as effective as other directed and competitive projects.
 - Awards come through in 1 budget period (12 months). Each year is tracked separately, but can have overlapping projects. Awards may be extended and carried-over when budget year 2 arrives, as long as a request to do so is made and approved on time.
- Challenge: USGS funding cannot be spent in advance of receipt; if known/certain funding is coming, then the university would grow the obligation; otherwise NCSU must absorb the funds.
- The award and funding begin on August 1st, however, departments make their grad student appointments no later than July each year. Certain appointments are contingent on funding, and how terms and conditions are written can have a positive (or negative) impact.
- SE CASC and its staff are USGS-funded; researchers and grad students also receive funding from other sources of funding.
- USGS can take reimbursable funding. However, it is not in spirit of CASC (which was established to provide climate science and research to support management needs and decisions of federal agencies) to take contributions from outside sources.
- SE CASC did receive funds from the Seminole Tribe of FL (treated as a sponsor) which is separate from the Host Agreement. In essence, it represents the relationships with Tribal Nations to the Host and a link to the USGS work and Host Agreement.
- There is an interagency agreement/investment from the EPA for research and development (jointly sponsor scientific work) regarding systems and climate change. The award went out as a CESU, and could theoretically could go outside Host consortium.
- Once funding comes in, it can be processed based on grant agreement.
- Distinctions between the Host Agreement and research grants (new starts) are based on OAG's interpretation of rules. USGS financial assistance is less than it once was and has become stricter.
- Although there is some common overlap and a mechanism for getting input on scientific issues to be addressed, there currently is no partnership between SE CASC and US DOD.

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

ERT Reflections on the Day

After reflecting as a group on the material presented on NCSU's administrative and fiscal management of the SE CASC, ERT Members thought that the fiscal processes look to be in good shape, the consortium looks to have enhanced the overall capacity of the CASC, and staff and student involvement seems to be high and engaged. ERT Members expressed an interest in hearing more about how NCSU defines, views and approaches co-production and its work with stakeholders. In particular, ERT Members would like the following areas addressed further in the coming days:

What difference is NCSU making regarding...

- Co-production of climate science?

- What is the process for involving others outside of NCSU?
- Stakeholder involvement in that co-production (including land management agencies filling the important space that the LCCs previously addressed)?
 - What is the process for engaging others and assuring that all who need/want to be included are?
- The lives and finances of grad students
 - How did you impact their knowledge capacity and support adequate funding to assure your DEI goals?
 - How many students applied and what was the acceptance rate?
 - Are you supporting students for the entirety of their experience or just a portion?
- How you track the improvements and differences you are making from year 1-5?
- And, regarding DEI, what is the URM and does it apply to all consortium members?
 - Are Global Fellows moving in the same or increased rate for all of your consortium partners (or just NCSU)?
 - If your DEI initiative is just at NCSU, how could you spread that more broadly to have a bigger impact on DEI and climate science?

This session summary was submitted by the DS Consulting Facilitation Team and reviewed by the ERT and Host for accuracy. Day 1 Scribe: Colby Mills (colby@dsconsult.co).

Day 2 – Scientific Achievements & Collaborative Efforts

DAY 2	January 11, 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	Activity	Participants and Affiliation
1:00-1:15	External Review Team - closed door	Facilitation Team and ERT
1:15-2:35	<i>Scientific Achievements on climate impacts, vulnerability, and adaptation science</i> - Presentation and Review of Scientific Achievements • Research portfolio overview (10 min) • 4 Selected Scientist Presentations (10 min each) • Clarifying questions about presentations (20 min)	Rebecca Irwin, University Director, SE CASC Paul Armsworth, Consortium, UTK Lydia Olander, Consortium, Duke Nils Peterson, Consortium, NCSU/co-PI Karen McNeal, Consortium, Auburn ERT members
2:35-2:45	Break To avoid zoom fatigue: Please turn off and step away from your computer screen if AT ALL possible!	
2:45-3:30	Dialogue and discussion with ERT regarding Scientific Achievements, including • 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?	Paul Armsworth, Consortium, UTK Lydia Olander, Consortium, Duke Nils Peterson, Consortium, NCSU/co-PI Karen McNeal, Consortium, Auburn Erin Seekamp, Consortium, NCSU/co-PI Steve Frank, Consortium, NCSU/co-PI Natalie Nelson, Consortium, NCSU/Fac Affil SE CASC Team ERT members
3:30-3:45	Break To avoid zoom fatigue: Please turn off and step away from your computer screen if AT ALL possible!	
3:45-4:45	<i>Collaborate with stakeholders to develop and deliver adaptation products applicable to priority decision-making</i> – Context and introduction <u>Panel Discussion</u>	Aranzazu Lascurain, Asst Univ Director, SE CASC Jerry Pardilla, USET

	Each panelist will give a short 5-min overview of their collaborative engagement relating to the SE CASC 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?	Marie Schaefer, ORISE Tribal Engagement Kathie Dello, NCSCO/NOAA RISA Hilary Morris, USFWS SE Blueprint Nils Peterson, SEAFWA engagement Mitch Eaton, USGS/NPS engagement ERT members
4:45-5:00	External Review Team closed door	Facilitation Team and ERT

DAY 2: Facilitator's Summary

January 11, 2022, 1:00p – 5:00p EST

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: First Last (Org); Danny Lee (USFS), Karen Lips (UMD); Gregg Nakano (UHI); Robert Newman (UND), Allison Shipp (USGS); and Mark Wimer (USGS).

Consortium and CASC Presenters: Paul Armsworth, Consortium (UTK); Ryan Boyles (USGS), Kathie Dello (NCSCO/NOAA RISA); Mitch Eaton (USGS/NPS engagement); Steve Frank (Consortium (NCSU/co-PI); Cari Furiness (SE CASC NCSU) Rebecca Irwin (University Director, SE CASC); Aranzazu Lascurain (Asst Univ Director, SE CASC); Karen McNeal (Consortium, Auburn); Hilary Morris (USFWS SE Blueprint); Natalie Nelson (Consortium, NCSU/Fac Affil); Lydia Olander (Consortium, Duke); Jerry Pardilla (USET); Nils Peterson (SEAFWA engagement & Consortium, NCSU/co-PI); Marie Schaefer (ORISE Tribal Engagement); Erin Seekamp (Consortium, NCSU/co-PI), Katherine Smith (USGS); Katie Warnell (Duke).

Observers: Doug Beard (USGS); Gustavo Bisbal (USGS); Isabella Caltabiano (USGS); Janet Cushing (USGS); Nicole DiCrappeo (USGS), Emily Fort (USGS)

DS Consulting Team: Facilitator: Donna Silverberg; Daily Summary Support: Tina Patterson, Colby Mills; and ERT Reporter: Michelle Helman.

Purpose: Reflect on the host-university and associated academic consortium's contributions with respect to: Scientific Achievement and Collaborative Efforts.

Scientific Achievements on climate impacts, vulnerability, and adaptation science

Becky Irwin introduced the first group of presenters. She explained that today's focus is to look at host university and consortiums effort to support the SE CASC science mission of actionable science. This

mission is a response to the climate context in the region which includes being a biodiversity hotspot, the highest rates of land cover changes in the nation, and 22% of the US population residing in the region. Becky stated the DEI efforts would be discussed on Day 4. In response to the ERT's request, Becky also provided Paul Beier's definition of coproduction in her presentation. Briefly stated, they view coproduction as engaging end-users and scientists to jointly develop science that can help people make decisions about their lives and how lands and species are managed. The presentation can be found [here](#).

Summary of Presentations

Four selected scientist presentations were delivered:

Dr. Nils Peterson, Consortium, NCSU/co-PI discussed the work of the Southeast Conservation Adaptation Strategy (SECAS) Workgroup. He discussed two of the four projects in his presentation, focusing on state and federal wildlife and land management issues and research to help effective communication regarding climate change and science. The presentation can be found [here](#).

Paul Armsworth presented research related to accounting for climate change in State Wildfire Action Plans. The presentation can be found here. The presentation can be found [here](#).

Karen McNeal discussed best practices for project design based on the Phase 1 research: effectively addressing national management. The presentation covered three projects: National Capital Accounting, National and Working Lands Contributions to Climate Resilience Planning, and Coastal Habitats and Blue Carbon. The presentation can be found [here](#).

Lydia Olander and Katie Warnell presented research on Ecosystem Service Mapping to support natural resource management via an accounting of natural capital, similar to the Green GDP. The presentation can be found [here](#).

Katie Warnell presented on her research on North Carolina Natural and Working Lands Climate and Resilience Planning. The presentation can be found [here](#).

Dialogue and discussion with ERT regarding Scientific Achievements

Additional NCSU researchers joined for this section:

Steve Frank's background is Entomology. His specialty is urban systems and with a focus on urban forests. Erin Seekamp's background is park recreation and trails management. She has led projects with SECASC funding. Natalie Nelson is a Faculty Affiliate. Her specialty is predictive modeling and water quality in fresh and estuary zones.

Questions and Comments from the ERT

In terms of SE CASC, what have you seen in terms of projects that you would like to do but have not yet done? Why not?

Answers: Collaboration with Northeast – taking advantage of the network, a latitudinal comparison would be of value for many issues; the regional delineation is somewhat arbitrary. A network approach would be helpful. Others noted that coordination across the CASC network would help for projects such as the accounting work in Lydia's project

How are working groups (WG) funded? What is funded and how does work get done? And, who decides who is in a working group?

Answers: The model varies by working group. For example, the consortium agreement provided funding for Pauls' working group and some undergraduates. Directed projects, those funded by USGS, usually lead to 'tapping' partners for engagement; other working groups are self-selected volunteers. In all cases, all are welcome. For example, SECAS emerged in a vacuum; Vital Future came about after the LCC transition that provided an opportunity to form a working group.

Who decides who participates in Working Groups?

It's a combination of approaches. Paul has spoken to SE CASC, especially when representation is needed. They encourage a wide net whenever possible, asking all stakeholders whether they would like to join and whether they know others who might want to join. At times, it is like "managing a rolling, snowball"!

How do students engage? Are all the students Fellows? How do they and the assignments get divvied up? Do all working groups get a Fellow? Or just some?

NC State provides the students/Fellows. Consortium students don't get to participate in SE CASC. Students can participate in summer training programs or programs such as the National Science Foundation training. Everyone in SE CASC is trying to support students wherever they can.

There is one angle about students it helps to understand: how they benefit. But the other angle is how does host funding flow? How do student fellows contribute to the SE CASC activities? Do they contribute to working groups, studies, and so on? It's the outcomes that are still not clear; hope to hear more tomorrow.

This will be addressed more tomorrow. For now, we try whenever possible to connect fellows to applied projects, our science symposium, our science advisory committee, and we also supported fellows into structured decision-making projects

Funding seems to be a cross-cutting issue. Is there a process for sharing funding solutions with members? Are there other pockets of money you would like to see in the future?

Most researchers use Center-supported funds and people to leverage other funds. It is additive. There is no formalized mechanism for this at this time. SECASC does an amazing job of harvesting and blasting other opportunities. Dovetailed opportunities tend to be between students and the Center. Potential sources for additional funding include USDA, DOD, and DOE. We also could mention the WG enhancement opportunities and other mini-RFP opportunities through the host award.

Is the applied research driven and determined by affiliates? Working groups? Stakeholders? Trying to see how this can be supported to the end of time? How do they fit back into the body of work?

Answer: This will be addressed on Day 3

What's the science delivery side look like? Once the analysis is done, how do you then deliver it to decision makers? How do you make sure the information is being seen?

The work is driven by questions that stakeholders/decision makers have. Once completed, it is shared back to the agencies who needed or prioritized it. Many of the people who requested the science are working with us on the Working Groups and they help carry the information to their agencies. Additional communication mechanisms will be discussed more on Day 3.

Allison shared an example of how project evaluation and a point system was previously built into the Request for Proposal (RFP). She asked if that had been lost in the process after the LCCs transitioned out and asked if anyone knew how it was used before?

Ryan is the SE CASC historian. He was not in the session at the time and will be asked offline. Nils noted that those who had been on their local LCC group were engaged in the SECAS working group, and the system still operates in FWS science applications. Paul remarked that, with the loss of the LCCs, the work SE CASC has done through the WGs at bringing people together became more important.

What is the role of external science advisory groups? Is there any higher-level oversight and projection of how useful that might be at the regional level?

Answer: At the last external review, NCSU was told to find expertise beyond NCSU and area working groups were identified as part of their second bid (*i.e., the current period of review*). They sought information from people like Paul, Nils and other universities in the region and together selected the working group titles. Working groups were conceived in lieu of the LCCs. It was thought the university would have their pulse on what's going on in the science world and gaps. Karen noted that their group strongly relies upon an advisory board. They meet quarterly and help with future actions of the WG to make sure the product is most useful. The advisory group helped develop the survey questions in the project she presented. She also noted it means they have to be responsive when decision-makers say they can or cannot do evaluation work, for example. The managers/advisory groups are responsible for saying when it is cost effective and needed, not the scientists.

Collaborate with stakeholders to develop and deliver adaptation products applicable to priority decision-making.

Aranzazu introduced five speakers who shared their experiences of their collaborative engagement with the SE CASC.

Kathie Dello, Director, North Carolina State Climate Office & co-Director Carolinas Collaborative for Climate, Health, and Equity highlighted collaboration her organization has had with SE CASC: applied research mentorship, leveraging federal resources, knowledge transfer, and cross promotion of events with SE CASC. This presentation can be viewed [here](#)).

Jerry Pardilla, United South and Eastern Tribes, Inc (USET) shared that USET and SE CASC have worked together for several years. USET initially worked with the Bureau of Indian Affairs to address the needs of two regional climate adaptation science centers. The framework, which described the co-leadership and supervisory roles, was described in a Memorandum of Understanding (MOU). A Tribal liaison was placed at the University of Massachusetts (currently Casey Thornbrugh) and works with both the SE and NE CASCs.

Jerry incorporates traditional knowledge in his work. He worked with the NE CASC to develop a camp experience in Maine. Due to COVID-19 that camp experience has been delivered virtually and Jerry is currently working to develop a hybrid experience. The Climate Summit held in the Oneida Indian Nation also focused on traditional knowledge, looking at traditional foods and how their preparation and travel impacted the carbon footprint and climate more broadly. Jerry also shared examples of comprehensive science—a blending of traditional knowledge and Western science addressing vulnerability assessments, climate adaptation planning and scientific guidance. He has set up writing retreats in SE CASC and NE CASC, to address Traditional and Western approaches for developing climate adaptation plans, impacts,

assessment, and evaluation of climate; sea coastline changes impact on tribal lands and adapted submerged or flooded lands.

Hillary Morris, USFWS-SECAS Blueprint User Support & Communications, presented examples of collaboration among the SE CASC, South Atlantic LCC, and Southeast Conservation Adaptation Strategy (SECAS) including monthly climate and conservation coffees that have taken place since 2012. Their goal is to help decision makers understand and apply data sets. They jointly hosted the 2020 webinar series: “SECAS & South Atlantic Science Series”, and they serve on each other’s teams, panels, and assist with speaking engagements. This presentation can be viewed [here](#)

Nils Peterson discussed SEAFWA’s collaborative projects specifically Vital Forces. SE CASC agreed to support more students in their publication and chapter writing, working group collaboration to put together “30 by 30”. This presentation can be viewed [here](#)

Mitch Eaton, Research Ecologist, was hired by the SE CASC because of his background in stakeholder management. His presentation included an overview of the decision framework and examples of National Park Service and USGS collaboration, and a myriad of other stakeholders for whom he has provided climate adaptation analysis, modeling, and decision-making framework assistance. This presentation can be viewed [here](#)).

Questions and Comments from the ERT

Questions for Jerry:

Given how big of an area USET covers, are there still gaps or needs that still have yet to be met?

Jerry: NE and SE CASCs are working well. South Central could be improved, especially for those people who were removed, such as the Delaware moved to Oklahoma. The mapping may not take into account knowledge from about Nations that were relocated. There are 36 recognized Tribes in USET. Thirty-three of the Tribes are federally recognized. Three are not. Also, there state recognized Nations and unrecognized Nations.

What has been done with SE CASC and Tribes to take traditional knowledge and quantify it? What are you looking at 5 to 10 years from now?

Jerry: Work is underway to recognize traditional and cultural knowledge (TEK) and to incorporate into science. The Wabanaki program at the University of Maine integrates elders’ knowledge with training youth to pursue careers in STEAM. Other examples: Traditional stories describing isostatic rebound. So, in the future, reassessing traditional stories to allow for corroboration can help us integrate for more robust understanding about clues from the past that can help us for the future.

Aranzazu noted there are also new taxonomic opportunities for using indigenous naming histories, especially in Hawaii. Bob noted that he has seen Aboriginal stories in Australia that are just now being corroborated by western science. Mark remarked that “isostatic rebound and megafauna stories – this is powerful information about how we perceive the current conditions (which many of us take for granted)”. Jerry - thank you so much for thinking about how we can use that in understanding what’s ahead. We need more tools like that. I wish I could articulate what that means as well as you’re saying it. The latest AGU magazine describe progress in citing TEK in scientific literature. No excuses...

Question for Hillary: How do you pull all those folks together? How do you decide what the topics are? Who do you get input from?

Hillary: It's been somewhat opportunistic. The topic depends on who shows up. It's usually a round robin. Webinars are based on picking a topic that would be of mutual interest to participants. Topics are broad and wide and then developed together.

You collectively have a lot of convening power with your stakeholder engagement. Do you see a way to bring that information back to the CASC? Are you seeing patterns? Recurring needs?

Mitch: You're asking a scale question and it's not that easy to discern patterns. The project with Erin Seekamp is probably the best example: The NPSA provided national guidelines but had not provided guidelines at the local level (this national seashore project). Could go back to CCRP to give examples of what could be done top down versus bottom up.

Have you thought of any way to capture these lessons learned to teach the grad or undergrad students about how to do collaborative science, the next generation of science?

Aranzazu: The field intensives are one way we try to integrate all the aspects mentioned today. Presentations are another way. Mitch Eaton has been able to share lessons learned; Casey Thornbrugh has been able to share. We will discuss more about this tomorrow. Paul Armsworth and Nils Peterson have shared their on-the-ground experiences. This is something we definitely want to grow into.

Hilary: I was going to mention Erin Seekamp as well--her class on collaboration in natural resources was probably the best class I took in grad school at NCSU, and she's had the LCC/SECAS staff present to the students on just those sorts of lessons.

How can we see the latest project of SE CASC. Where I can I point others to look at your work?

Aranzazu: Cari will hit on that on Day 3. The website is the main source. The site links out to projects.

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

First, the ERT expressed kudos for doing all the SE CASC has done with the funding it receives. The group was impressed with the body of work done so far and the engagement NCSU has led with its consortium partners and stakeholders.

Questions that emerged today that the ERT hopes will be addressed by day's end on Thursday (Day 4):

- How do the university scientists view the role and value of the CASC? Do they/you view the CASC to be the primary funder or a leveraging point for projects?
- The research you have been leading looks to be a great seed for the future. Do you see this work as sustainable over time? How resilient is the work to the possible changing of administrations in the future, given funding issues?
- What do you see as the jointly developed products emerging from the work you all are doing? Is there a loop back to the SAC, who set your science goals? If so, how satisfied are they with the results? Is the science helping them to make the management decisions they sought information to support?

- How has NCSU's curriculum changed as a result of your efforts on both the PROCESS and SCIENCE work thus far?
- Are you producing written reports about the co-production work you are doing with your partners and stakeholders? If not, they encourage it! If so, where can that be found?

This session summary was submitted by the DS Consulting Facilitation Team and reviewed by the ERT and Host for accuracy. Day 2 scribe: Tina Patterson (tina@jadeitesolutions.com)

Day 3 – Capacity Building & Outreach and Communications

DAY 3	January 12, 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	Activity	Participants and Affiliation
1:00-1:15	External Review Team - closed door	Facilitation Team and ERT
1:15-2:00	<i>Educate and train to build capacity of early career professionals and others</i> - Overview of Efforts • Global Change Fellows Program (20 min) • Screen GCF Promo Video: https://youtu.be/DevrzVmxxRM • Clarifying questions regarding Q&A (20min)	Aranzazu Lascurain, Asst Univ Director, SE CASC SE CASC Team
2:00-2:15	Break To avoid zoom fatigue: Please turn off and step away from your computer screen if AT ALL possible!	
2:15-3:00	Selected Global Change Fellows' Presentations • 4 Fellows will give 10 min presentations about their research, what they found and the implications of their findings.	Laurie Hamon, CALS PhD Student Courtney Hotchkiss, CNR PhD Student (PRTM) Megan Johnson, COE PhD Student Paul Taillie, Finished CNR PhD Student (FER)(now a postdoc at UF)
3:15-3:45	Dialogue, discussion and Q&A related to Capacity Building • ERT members will have an opportunity to question the SE CASC team and Fellows about their experiences, the opportunities they see flowing from these experiences, and ideas they might have for the future.	Laurie Hamon, CALS PhD Student Courtney Hotchkiss, CNR PhD Student Megan Johnson, COE PhD Student Paul Taillie, Finished CNR PhD Student (now a postdoc at UF) Karen McNeal, Consortium, Auburn SE CASC Team ERT members
3:45-3:55	Break: Please turn off and step away from your computer screen if AT ALL possible!	
3:55-4:45	<i>Manage and transfer information and data related to research activities</i> - Overview of Communications and Regional Science Symposium	Cari Furiness, Program Manager, SE CASC

	- Website, Science & Global Change Seminars, Glossy and annual reports, Monthly newsletter and social media/twitter, Regional Science Symposium, Blogs/videos/YouTube channel/metrics, Connections across NCASC network - Discussion and Q&A	Deja Perkins, CNR PhD Student & Sci Comm intern Ashlyn Shore, Sci Comm Specialist Michelle Jewell, Applied Ecology Chief Science Communicator SE CASC Team ERT members
4:45-5:00	External Review Team - closed door	Facilitation Team and ERT

DAY 3: Facilitator's Summary

January 12, 2022, 1:00p – 5:00p EST

Topic: Capacity Building & Outreach and 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: Danny Lee (USDA), Karen Lips (UMD), Gregg Nakano, (UHI), Robert Newman (UND), Allison Shipp (USGS), and Mark Wimer (USGS).

SE CASC Presenters and discussion members: Cari Furiness (NCSU), Laurie Hamon (NCSU), Courtney Hotchkiss (NCSU), Rebecca Irwin (NCSU), Michelle Jewell (NCSU), Megan Johnson (NCSU), Aranzazu Lascrain (NCSU), Karen McNeal (Auburn), Deja Perkins (NCSU), Ashlyn Shore (NCSU), Katherine Smith (USGS), and Paul Taillie (UF, Formerly NCSU).

Observers: Doug Beard (USGS), Gustavo Bisbal (USGS), Ryan Boyles (USGS), Isabella Caltabiano (USGS), Janet Cushing (USGS), Emily Fort (USGS), and Stephen Gray (USGS).

DS Consulting Team: Facilitator: Donna Silverberg; Daily Summary Support: Colby Mills, Tina Patterson; and ERT Reporter: Michelle Helman.

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

Building Capacity of Early Career Professionals and Others through Education and Training

SE CASC Host University Assistant Director, Aranzazu Lascrain (NCSU), welcomed the group with an overview of the NCSU Global Change Fellows (GCF) Program, a 1-year funded opportunity for NCSU students, that celebrated its 10-year Anniversary in 2020 (presentation can be viewed [here](#)). Included in the presentation was the SE CASC-created GCF promotional video (<https://youtu.be/DevrzVmxxRM>).

Aranzazu noted that the initial goal and inspiration for the GCF Program was to train students across disciplines in a common set of skills, while allowing them to connect with other students and departments (presentation can be viewed [here](#)). Community and mentorship are key priorities, followed

by societal impact and engagement, and scientific rigor and excellence. She reviewed how the Program is marketed across NCSU and throughout the country, Program objectives and elements, and metrics for addressing Program improvements.

Highlights of the program include a week-long field intensive, public interest seminars, Tribal engagement and co-production, recently reconsidered recruitment of Underrepresented Minority (URM) students, and professional skills development. The 2020-2021 GCF Program had 64 fellows, who competed for appointment on the national level. One area the NCSU is specifically looking to expand upon in the future is a tracking method to analyze how effectively the SE CASC's science plan intersects with GCFs' research.

Dialogue and Discussion: GCF Program

Questions and comments from ERT Members led to the following clarifications and comments from the SE CASC Host University administrators:

- The GCF Program accepts all levels of PhD students (80%), and some Masters students; it has a 25% acceptance rate.
- Is there an effort to track how GCF (and post-GCF) research and productions are used by land managers and science organizations? SE CASC Annual Reports include anecdotes and quotations from Fellows. NCSU emphasizes training the next generation of professionals and therefore takes a more skill-building approach for students to prepare for a new workforce environment. NCSU is interested in further capacity for tracking this issue.
- In regard to the relationship between the SE CASC mission and GCF research, Fellows must connect with the mission of the SE CASC. The Program is 1-year only to maximize the number of students going through the Program. Students have the added benefit of cross-departmental influence on their research and dissertations, as well as introductions to numbers of stakeholders through their work. It was noted that it would be beneficial to track how the process and substance of Fellows' research changes under the influence of the Program.
- There is no formal tracking system for how many students participate in Working Groups, although a few have in the past; this is another tracking metric for the future.

Global Change Fellow Presentations

4 GCFs (current and past) presented their GCF research.

Laurie Hamon (NCSU, CALS PhD Candidate), presented research on Venus flytraps, which are endemic to the coastal plains of North and South Carolina. Included were research methods, key findings, management implications and engagement with interested stakeholders (presentation can be viewed [here](#).)

Megan Johnson (NCSU, COE PhD Candidate), presented research on the impacts of wildland fire smoke on Southeastern populations, and how the public in the region perceive and react to communications about smoke exposure and diminishing air quality. She noted that the GCF Program helped shape her last research project and as a result also her dissertation (presentation can be viewed [here](#)).

Courtney Hotchkiss (NCSU, CNR PhD Candidate), presented research on climate adaptation planning for archeological sites at National Parks, and more specifically, how NPS could prioritize archeological sites for climate adaptation. Research methods included site visits, literature reviews, and interviews. Also discussed were implications for managers and research regarding to collaboration and co-production (presentation can be viewed [here](#)).

Paul Taillie (NCSU, CNR PhD), presented his research project that looked at the effects of saltwater intrusion in eastern South Carolina; specifically, the shifting negative perceptions of forest loss and potential changes to management approaches when considering rising sea level and climate change more broadly. He had the opportunity to work with land and wildlife managers, and provided applications for management (presentation can be viewed [here](#)).

Dialogue and Discussion regarding GCF Research

- How do current and former GCFs see and market themselves on their resumes? Fellows view themselves as interdisciplinary, and blend resume or CV information into various roles depending on audience and context; this can be tricky when self-promoting to the job market.
- Some GCF research has had interest from stakeholder agencies (such as EPA).
- How involved are Tribal representatives/liaisons in deciding which archeological sites to prioritize? Courtney has been trying to put together a Tribal IRB, but that has proved challenging for a variety of reasons. Park managers have built relationships with some tribes, but those can change with staff turnover. Instead, they have been working with the Tribal Historic Preservation Office.

Dialogue and Discussion: Programmatic Questions Regarding Capacity Building

- How did SE CASC empower GCFs to meet its mission? By developing professional development training and skills related to directly engaging with land and wildlife managers and other scientists. This was done through building confident science communicators, doing public science and scenario planning, constructing research proposals for usable science, linking climate science and awareness into their dissertation research.
- Can GCFs leverage the 1-year Program to continue developing their research in the future? Skills and tools learned in the Program have added valuable experience and influenced future research of the GCFs. Continued connection to other Fellows and SE CASC has helped them to maintain research momentum while also providing leverage to create new connections and partnerships.
- How connected are GCFs to the NCASC and CASC network? Some, but not all, Fellows have direct engagement with other CASCs and NCASC. Although there are national connection opportunities, there is not a formal connection program. Early Career Workshop and Post-Doc programs have national cohorts. Every CASC has a different Fellows Program model, and comparing lessons learned and best practices among CASCs could be beneficial.
- Are there opportunities for GCFs to engage with other USGS science centers and land management organizations to hear their issues / needs and long-term concerns? An initial week-long intensive provides opportunities to meet agency representatives and learn about the variety of research needs and projects, not as much opportunity for this on site-level.
- How/when did the presenter GCFs first discover their spark of interest in science education? How could the SE CASC support this sparked interest for other, younger audiences? The interest was early for many, high school for most. They did not perceive it as a career path until undergrad or grad school. They see youth engagement as an opportunity for the SE CASC, and perhaps the current virtual-world could be an asset for wider accessibility. When working to engage youth (or anyone), it is important to frame climate adaptation-based science with optimism and solutions so as to avoid depression and overwhelm.
- GCF-specific benefits include: the size of the interdisciplinary cohort unified under climate adaptation provides unique networking opportunities and new research ideas, connections with

NCSU faculty and USGS staff, networking opportunities with federal, state, and Tribal conservation staff and leaders.

Dialogue and Discussion: GCF Ideas for Program Improvements & Effectiveness

- Although financial support was helpful, it may be more efficient to support fewer students in a more substantial way.
- In a virtual COVID-19-world, it was challenging to get to know cohort well, especially new NCSU students. Some resources were lost in the transition to a virtual setting.
- Refine and develop tracking for how GCF Program skills are used by Fellows in their continuing education, research, and career paths.
- Explore opportunities for creating hiring preferences for GCFs.
- Expand duration of Program past 1 year to allow more time to develop skills. Fellows could benefit from extended support over multiple years. That said, it was noted that funding is subjective depending on every situation; some students are already funded via outside grants.
- A longer program would likely improve skills development and information retention.
- Being able to network across the many disciplines in the cohort is very helpful for interest, excitement, and encouragement amongst the cohort Fellows.
- Access to and deeper understanding of the Structured Decision Making method and tools is a highlight that sets the GCFs learning apart from other science students they knew.

Overview of Communications, Outreach and the Regional Science Symposium

NCSU's SE CASC Program Manager, Cari Furiness (NCSU), provided an overview of the SE CASC's Science Communication at NCSU, more specifically how the SE CASC Communications Team manages and transfers information and data related to research activities, as well as an overview of the Regional Science Symposium (this presentation can be viewed [here](#)). Also on the presentation panel was Deja Perkins (NCSU CNR PhD Candidate & SciComm Intern), Ashlyn Shore (SciComm Specialist), and Michelle Jewell (Applied Ecology Chief Science Communicator).

NCSU/Applied Ecology's SciComm support includes 4 pillars:

- Digital Media
 - Overview on how SciComm promotes SE CASC research through news outlets (internal and NCASC), with a focus on partner-related publications and outlets.
 - Working with in-house (NCSU and SE CASC) communications team, journalists, newsletters & calendars.
 - Deja, a former GCF using learned media-training skills, has broadcast her research to gain project volunteers for a citizen science project, conduct applied research, and has developed her science communication skills through SE CASC training.
 - Overview of communication initiatives, including a recent website redesign which has proven to be very successful, an intentional amplification of SE CASC and consortium work to engage partners and the broader community, and Tribal resources.
 - Successful Newsletter and social media platforms using multiple media forms/formats.
- Capacity Building
 - SciComm training and opportunities have an emphasis on video production (via digital media lab studio) and public speaking about climate science.
 - The hands-on training helps with developing communication products and assists with career exposure as an interviewer.
 - 2022 HBCU Pilot SciComm Intern Program will begin.

- Event Facilitation led by GCFs
 - Field Intensives and Global Change Seminars (in-person & hybrid).
 - Science seminars to promote key findings from relevant chapters.
 - Regional Science Symposium where scientists, managers, tribal liaisons, and students gathered to share resources and tools, identify gaps, and created opportunities for collaboration.
 - Presentations and special sessions at partner meetings for further outreach.
- Communications Strategy
 - NCSU is creating long-term program recognition, with a spotlight strategy, and social media strategies with an emphasis on data analytics and tracking.
 - Analytics provide insight into areas of improvement and where to invest more resources on functioning aspects and success of the communication efforts.
 - Overview of future communications opportunities.

Dialogue and Discussion: Science Communication

- First, this is an impressive use of all communication modes! What would happen to all the good communications and data you have developed if USGS were no longer supporting SE CASC at NCSU? This effort is hosted by the SE CASC, but NCSU directly supports the website. While the important leadership of the SE CASC position would go away, the information likely would stay on the NCSU website.
- Are there efforts to continue or expand communications in other languages, such as the Spanish translation shown? Whenever there is an opportunity (e.g., a student who speaks another language fluently), we could do the translation. Have only done so the once.
- Have students/Fellows been able to capture this communications work activity as a way of highlighting ‘flexibility of capabilities and interest’ on resumes and CVs? Is the program helping with this? The program encourages Fellows to link their research from the website on to their resumes and CVs. There also are ways to highlight “Event Planning” on resumes or CV. Also, the GCFs have so many interviews that they conduct and do during their program, they are great at job interviews!
- How easily can GCFs use and continue refining communication skills outside of SE CASC SciComm? The amount of support within the SE CASC allows for strong confidence and skill building upon exiting. Communication avenues are much more accessible now, and being able to build partnerships with field professionals and network via communication and collaboration is key. These skills promote the formation of new partnerships for continued mentorship. Once you’re a part of the SE CASC team, you are always connected and included in the network. Students also work on independent projects and are comfortable serving as researchers.

Donna thanked the ERT, Global Change Fellows, CASC members, and Observers for their participation, engagement, and attendance at the session. And with that, the main session was adjourned.

ERT Reflections on the Day

After reflecting as a group on the material presented on NCSU’s capacity building and outreach and communications, ERT Members again expressed how impressed they were with all they heard during the session. In addition to what is planned (or as part of what is planned) the ERT would like the following areas addressed further tomorrow:

- So far, the review has focused on what the team has ‘been doing’. How nimble do you feel to address fast changes in climate, should they occur? How responsive can your program be going forward?
- How, specifically, is the SE CASC, NCSU and the consortium connecting to land managers? Since the funds come from DOI, who drives the content and focus of the science? Land managers or PIs? Is there a loop back to those land managers? How does that work?
 - Is it possible to get a cameo tomorrow (or some written communication in the next week or so) from a/some land manager(s) who can say: “we asked for this science to be done, we got it and we use it like this...”
- What is the overarching science strategy for the SE CASC? How and by whom is it developed?

This session summary was submitted by the DS Consulting Facilitation Team and reviewed by the ERT and Host for accuracy. Day 3 Scribe: Colby Mills (colby@dsconsult.co).

Day 4 – Overall Effectiveness Towards Host Agreement

DAY 4	January 13, 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 - What recommendations do you think the ERT should have for cross-CASC & NCASC learning from this Host?	
Time	Activity	Participants and Affiliation
1:00-1:30	External Review Team - closed door	Facilitation Team and ERT
1:30-2:20	Review and Recap of Administrative Management & All Activities, Host-University Director Irwin • What we did, what were our challenges, what were our solutions? • Where we are ready to lead in the future? • DEI activities and initiatives • Future plans (given that we have 1.5 years left) Clarifying questions and answers with ERT members	SE CASC Team ERT and SE CASC Team
2:20-2:30	Break	
2:30-3:35	“Future of Climate Change Research at the Host-University and in the Region” • Q&A with Rob Open dialogue and discussion between ERT and SE CASC team regarding the Overall Effectiveness and any questions left over from prior days	Rob Dunn, Consortium, NCSU/co-PI ERT & SE CASC Team
3:35-3:45	Wrap up and Goodbyes from the Host, Consortium and Observers	SE CASC Team
3:45-4:00	Break for External Review Team	

4:00-5:00	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 thoughts about the overall effectiveness of this Host with regards to its work in all areas? Clarify next steps in the process: - What is due and when? - Follow-up Zoom on January 19, 10-11:30 am PST	ERT and Facilitation Team
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DAY 4: Facilitator's Summary

January 13, 2022, 1:00p – 5:00p EST

Topic: Overall Effectiveness Towards Host Agreement

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: First Last (Org); Danny Lee (USFS), Karen Lips (UMD); Gregg Nakano (UHI), Robert Newman (UND), Allison Shipp (USGS); and Mark Wimer (USGS).

Consortium and CASC Presenters: Ryan Boyles (USGS), Cari Furiness (NCSU), Rebecca Irwin (University Director, SE CASC), Aranzazu Lascrain (NCSU) Katherine Smith (USGS),

Observers: Doug Beard (USGS), Gustavo Bisbal (USGS), Nicole DiCrappeo (USGS), and Emily Fort (USGS).

DS Consulting Team: Facilitator: Donna Silverberg; Daily Summary Support: Tina Patterson, Colby Mills; and ERT Reporter: Michelle Helman.

Purpose for Day 4: Review the overall effectiveness 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. Begin to consider ERT recommendations for cross-CASC & NCASC learning from this Host.

ERT Dialogue with NCASC Director

Before Director Irwin began her overview, the ERT asked Doug Beard, NCASC Director, USGS, what opportunities exist for host universities and for NCSU to bring in other external funds. Is there any way for the host to make to make changes mid-agreement?

There are limitations about how USGS funding can be used. The Federal funding can only be used as spelled out in the host agreement. On the federal side, external funding can be brought in from other agencies. For example, other CASCs have used external funding from NSF to support NSF's Established Program to Stimulate Competitive Research (EPSCoR) and the SC CASC has used external funding from NASA and NOAA grants. There are some examples of private funding too,

all of which goes directly to the university. The only way to make changes to the host agreement would be to re-compete the agreement.

Review and Recap of Administrative Management & All Activities, Host University Director Irwin

Summary of Presentation - SE CASC Host University Director, Dr. Becky Irwin (NCSU) provided an overview of topics the SE CASC team would address: DEI activities, Next 1.5 years of Phase 2, Evolution of SE CASC, Address ERT questions from the previous daily summaries, and conclude with open dialogue and discussion. The presentation may be viewed here (presentation can be viewed [here](#)).

DEI Activities and Activities

The SE CASC shared examples of DEI activities and initiatives such as hosting a 2022 Historically Black College or University (HBCU) Science Communication Intern, consortium members Auburn, in collaboration with Louisiana State University (LSU), were selected for the 'Climate Adaptation Scientists of Tomorrow' (CAST) Program Undergraduate Research program, and working to deepen their connection with the Deep South Center for Environmental Justice as a great capacity building opportunity. Cari Furiness noted that the SE CASC also had some information at the HBCU conference about their Global Change Fellows (GCF) program from which they hope to encourage recruitment of graduate students. In addition, because of the CASC-wide Urban Ecology WG, a white paper about Urban Ecology was developed which is linked to the SE CASC's overall DEI work.

Questions and Comments from the ERT

Is travel support available to support DEI for regional or national conferences?

NCSU has supported tribal representation at the '[Keeping History Above Water' Conference](#) and the climate adaptation conference. Southeastern Association of Fish and Wildlife Agencies (SEAFWA) money has been set aside for travel. SE CASC is planning to support travel for the Plants of Cultural Significance conference and the upcoming [science symposium](#) targeted for March 2022.

Next 1.5 Years of Phase 2

The SE CASC team outlined its current plan for the next 1.5 years of Phase 2. They plan to continue to grow what they have started with regards to the GCF program, partnerships, communications, and the Tribal Engagement Strategy. Planned activities, in the short-run, include: a formal evaluation of the GCF Program, new post docs on the NCASC-wide 'Future of Fire' and the 'Future of Aquatic Flows' work groups, forming a new invasive species WG led by University of Florida, establishing a partnership with the new NOAA RISA, actively engaging with the Open Climate Data Science Workshop, and convening the SE CASC Regional Science Symposium. Cari reminded the audience that some of these topics are the subject/goals of the Evaluation project described yesterday. Aranzazu added that the invasive species network is modeled after the NE CASCs successful network. Emily provided a link for more information about the [Climate Adaptation Postdoctoral Program](#). And Aranzazu shared a link to all of NCSU/SE CASC's [Annual Reports](#)

Questions and Comments from the ERT

How often do working groups meet?

Most working groups meet once month. SE CASC also meets monthly with consortium PIs, independently of working group.

What is NCA5?

Fifth National Climate Assessment

Evolution of SE CASC

Becky explained that they see the Evolution of the SE CASC involving several areas:

- Expanding and evolving the GCF Program to include students from consortium partners, not just NCSU;
- Continuing WGs that inform management decisions;
- Beginning new WGs for emerging topics that have regional or national relevance such as:
 - climate linked urban ecology, climate adaptation for native plants and pollinator health, human dimensions of climate adaptation (environmental justice, cultural resources);
- Building engagement and communication plans into WGs and USGS Science Awards;
- Developing more detailed tracking of students and scientific impacts flowing from SE CASCs work; and
- Managing the demand for SE CASC work with new initiatives

Questions and Comments from the ERT

Are there some WGs that you know won't continue? Are you evaluating the efficacy of all WGs?

All the WGs want to continue. Some feel they've reached their pinnacle and are considering 'what next' and ideas are just emerging. All WG members have expressed interest in staying involved in a WG, which says something about their relevance (if not efficacy).

How much guidance have you gotten from USGS/DOI regarding evolving the program?

Of the three emerging areas presented, the climate-linked Urban Ecology has been developed to meet the [Justice40](#) goals and SE CASC will be looking at this more. Native plants work fits into this and is opportunistic. It's an area for which SE CASC has been a little underfunded. SE CASC has invited consortium members to participate in providing input.

Addressing ERT Questions

The SE CASC Team compiled a list of ERT questions from previous day's daily summaries and addressed them. The ERT was encouraged to ask additional questions.

Katherine shared that the ERT review is setup strictly for the Host Agreement, yet so much of the actionable science comes from the consortium. The ERT/Host agreement focuses on funding for the GCFs program, convening climate science adaptation working groups, and developing effective climate science communications. Ryan added that NCASC is in discussion about a broader program-wide review. Below are ERT questions and Host/USGS responses to them.

Questions from the ERT

- What is the overarching science strategy for SE CASC? How and by whom is it developed?
Katherine shared details about the SE CASC strategy, the planning process, and how SE CASC works with federal managers and the advisory committee:

The SE CASC science strategy and science planning process is described in detail on our website:
<https://secasc.ncsu.edu/home/about/science-planning-and-implementation/>

Please scroll to the middle of the page “2018-2023 Science Priorities and Principles of Operation” (this section provides a lot more detail on the science strategy that Ryan briefly covered in his presentation on Day 1).

How We Partner | U.S. Geological Survey (usgs.gov) is a NCASC document that describes how we work with managers (including the advisory committee terms of reference, which can be found if you scroll down toward the bottom of the page [here](#)).

Our Science Advisory Committee (SAC) membership is listed below

- Land managers
- Cakir, Janet (NPS regional climate coordinator)
- Leitz, Chelsea (USFS R8 IMA & Climate)
- Garcia-Bermudez, Miguel A (FWS Science apps, former LCC coordinator)
- Hopkins, Todd (FWS Science apps, former LCC coordinator)
- Uihlein, Bill (FWS science applications director)
- Todd Jones-Farrand (FWS science applications at risk species)
- John Tirpack (FWS, ecological services)
- Martin, Mallory G; (FWS, SE CAS lead)
- Michael Bolt (USET, Cherokee Natural Resources Director)
- Allison Fowler (SWAP coordinator; State of Arkansas)
- Cindy Simpson (NC Wildlife Resources Commission and SWAP coordinator)
- One state spot vacant (former Beth Sys of Florida)

Invited but not currently participating

- Cynthia Jester USACE
- Jackie Keiser USACE

Other research organizations

- Bill Gould USDA Caribbean Hub
- Steve McNulty USDA SE Climate Hub
- NOAA (pending)

USGS Center directors

- Grand, James B
- Rice, Kenneth G
- Engel, Victor C
- Plant, Nathaniel G
- Sumner, David M
- Knight, Rodney R

- Who drives the content and focus of the science? Who sets the strategy and prioritizes and how? Land managers or Pls? Is there a loop back to those land managers? How does that work?

While the Federal CASC director writes the strategy and 5-year plan with input from staff, SAC, the Science Symposium and one on one discussions with SAC members. The Director works to coordinate with other agencies, so the work is complimentary. From this, the Science Agenda is developed (to which the Host is invited to attend) at which annual priorities are established which are meant to be incremental steps towards the 5-year plan and goals.

There are quarterly SAC meetings during which the SAC actively participates in discussions about project themes and direction, and the Science Symposium Steering Committee also is very active helping with overarching themes and content. The SAC members also participate on proposal peer review teams. Co PIs present letters of commitment. Once established, each project has a review team which includes a technical reviewer and a manager. Some projects setup a steering committee. Project managers who help steer projects hold quarterly check ins to be sure the science is meeting needs of managers.

- How do you track whether the WGs' efforts and your research is informing management decisions? Do you close the loop to find if it was useful? What about projects that come thru USGS' competitive funding? The topic of 'outcomes' would be difficult to understand.
Yes, in most cases, there is a loop back to managers. Their responses are often included as part of SE CASCs final annual report regarding the value of projects to decisions managers must make that is based on the requested science. That said, some projects are done after the time frame of the agreement and may not be included.
- One thought – the ERT hears that the mission is 'actionable science', which might divert our attention to that question. I'm not 100% clear on the ERT role of evaluating science aspects, given that Day 2 was about scientific achievements by host and consortium, and specifically mentions actionable science. We were told on Day 1 that the mission was actionable science. That seems to be a universal aspect. Is there any documentation as to how information developed through research is influencing the final reports?
In the final report there are management application and communication outreach sections that provide project details and SE CASC tries to call out impact statements and utility in reports. On an as needed basis, SE CASC will provide project specific information to talk to senators. However, there is not an annual or synthesized document that captures all projects as clearly as you are asking. The SE CASC continues to grapple with this and tries to address it through the public facing [annual reports](#) and is happy to hear suggestions from the ERT about this.
- WHAT happens if a student doesn't have other funding beyond the GCF program?
NCSU asks that faculty provide funding for the rest of the student's career. GCF participant funding amounts vary by student when they not on their GCF fellowship. NCSU requires students to TA; often students have a combination of TA fellowship or RA fellowship funds.
- How nimble do you feel to address fast changes in climate, should they occur? How responsive can your program be going forward?
To a certain extent the university has the ability to be flexible. The university would want to talk with the consortium first Making changes mid academic year is not possible.

- The research you have been leading looks to be a great seed for the future. Do you see this work as sustainable over time? How resilient is the work to the possible changing of administrations in the future, given funding issues?

We make sure we work within administration guidelines, but we do have flexibility.

- There's been a lot of evaluation on the website. Are there ways to reach people who would benefit from the information, but shut down when they see the words "climate change"?

We include a lot of information about addressing shared values and the impact of a changing climate on those values. We feature Katherine Hayhoe's podcast on the site and have brought her to speak to Fellows. We also work with Fellows when communicating with the public.

Questions for ERT

The SE CASC Team had questions that it wanted to ask the ERT:

- Is the Center Report synthesis more of what the ERT would like to see? Feedback would be appreciated. Cari also shared that some of these topics are the subject/goals of the Evaluation project described yesterday

It would be helpful to see what was done and how the components fit together. Seeing what the project investment is, and what's the return on that investment would be helpful. For example, a land manager asked for this, here is what they received, here's how it impacted their management decision. This would allow to distinguish between the esoteric versus the 'applicable right now'.

In terms of how the information is being used, that is not the in annual reports – ERT members are looking for something more concrete. CASC staff noted that often the feedback from managers helps them and their partners to rethink/reframe how we do the research. The general question is, how can we make science more useful?

- From the ERTs perspective, would more years of training and more communication be helpful in reporting?

There isn't a priority on the length of funding. Instead, the length of time depends on the Center's goals and priorities. What is the SE CASC is trying to achieve? Does this structure get YOU where you want to be? If a goal is building capacity, you might look to see whether your students have enough to get the jobs they are seeking. The same questions would apply to the communications work you are doing: what were the goals? Are you meeting them?

Questions from the ERT

- One year of funding is a good starting point. Do you have a safety net? Are you continuing to assess student needs down the line?

Yes, the SE CASC looks at whether we are placing students where they want to be.

- About how much does it cost to fund a single Global Change Fellow for 1 year? Roughly.

On average, SE CASC pays a stipend of \$28k/year (range \$24-32K), tuition (\$12/year in-state and about \$20K out of state) and health (about \$2K). Also, ~\$15K for indirect costs + a little bit of travel support

- Tracking is important. After the GCF year is there any support for students?

One criterion is the Fellows' faculty must provide funding for subsequent years. It varies from college to college what the safety net is. There's a CALS Assistant fund as well. It's rare for a student to just be floating. Cari added that NCSU has engaged alums to work with current Fellows for peer-learning and inspiration.

- How much does SE CASC interface with the Department of Defense (DOD) and military installations such as Ft Bragg and Special Operations Command (SOCOM)? Do you recruit disabled or veteran students? Do you consider students who have their own funding, e.g., GI bill? As an example, UHI has a standing MOU to reach out to academia, Tribes, and other organizations.

One current student is a veteran and NCSU has deep military connections across faculty and agencies. Through our Advisory Committee, we have overlap with Southeast Regional Partnership for Planning and Sustainability ([SERPPAS](#)) that convenes state, fed, and military agencies in the SE around natural resources and sustainable working lands, focusing on common issues faced regarding land and coastal zone management. The SE CASC's work on marsh systems, prescribed fire, and endangered species gets fed out to SERPPAS and individual installations. USGS's SE CASC Regional Director is a principal member of SERPPAS. Also, NCSU is applying for an NSF grant to provide training workshops to military via the Fellows' program across the country.

ERT Reflections on the Day

As a wrap up to the four days, the ERT congratulated the SE CASC team for their 'tremendous work'. All six ERT members expressed 'kudos' for the overall effort and the time that went into planning and preparing for the review. They noted that the GCF, in particular, seems to have all the right elements and they can see huge long-term benefits from the training given and received.

The ERT members also commended the Working Groups, liking that they are topic-focused to drive the inter-disciplinary group towards common goals. This (likely) will lead to better outcomes. Four to six of these working groups at one time seems to be a good amount; more might be too much.

ERT members urged the SE CASC to share lessons-learned from their program design and development so that other institutions might learn from and use their model. Included in these lessons learned should be 'how to survive in a hostile socio-economic-political and pandemic environment'. How might others learn from you so we can scale up in other areas?

A suggestion was made that the Raleigh Science Museum (and affiliates around the state) might be another way to attract the 'even younger generation' to the good work the Center and University is doing, if the SE CASC information isn't already there.

The four days concluded with a round of thanks and mutual, deep appreciation for all that was shared, the time each person gave getting ready for, attending, and participating in the four days, and the good work that EVERYONE is doing. With that, the joint meeting was adjourned and the ERT went into a closed

External Review Team Final Report
Southeast Climate Adaptation Science Center

session to begin consideration of their report. Ideas and discussion from that session will be found in the 2022 SE CASC External Review Team Final Report (due in February).

This session summary was submitted by the DS Consulting Facilitation Team and reviewed by the ERT and Host for accuracy. Day 4 scribe: Tina Patterson (tina@jadeitesolutions.com)

END OF DOCUMENT