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# **Quality and Extent of Partnership Involvement in Climate Science Centers in Alaska, the Northwest, & the Southeast**

**April 2017**  
**HDRU Series No. 17-4**

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## HUMAN DIMENSIONS RESEARCH UNIT PUBLICATION SERIES

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### TO CITE THIS REPORT

Dayer, A.A., Lauber, T.B., & Stedman, R.C. (2017). Quality and Extent of Partnership Involvement in Climate Science Centers in Alaska, the Northwest, & the Southeast. HDRU Publ. 17-4 Department of Natural Resources, College of Agriculture and Life Sciences, Cornell University, Ithaca, NY. 102 pp.

# EXECUTIVE SUMMARY

## Background

A key component of the U.S. Geological Survey regional Climate Science Centers is to work with partners. Two major groupings of partners include: (1) science producers (many federal agencies, universities, scientific societies, and other NGOs), who contribute to the development of science information and tools; and (2) science users, which is a broad category covering those working to apply this science information and tools to conservation (e.g., state and federal natural resources agencies, conservation NGOs). A major indicator of success of each CSC is the degree to which partners are effectively engaged in and benefit from their work. One of the primary benefits expected from the CSCs is the development of “actionable science.” In the climate science literature there is a great deal of discussion and consternation about climate information going unused (Lemos, 2015). Boundary organizations, which CSCs have evolved over the last three years to become (ACCNRS, 2015), can link varied social and organizational sectors, fostering innovation and two-way communications, aiming to align science production with user needs (Feldman & Ingram, 2009). Some refer to this involvement of stakeholders or practitioners as “co-production of knowledge” (e.g., Tribbia & Moser, 2008).

## Research Objectives

We designed a partner survey to measure the quality and extent of partnership involvement at each of the CSCs. We focused on the following questions for each of three regional CSCs (Alaska, the Pacific Northwest [NW], and the Southeast [SE]) for which site reviews were conducted in FY 2016:

- To what extent are science users and producers involved with the CSC?
- What are the benefits of this involvement? What limits involvement?
- To what extent do partners believe the CSC is producing actionable science?
- To what extent are CSC-affiliated science users and producers involved in co-production? What limits this involvement?
- To what extent does the CSC play a role as a boundary organization, facilitating actionable science and co-production? What characterizes that role?

## Methods

A standardized, web-based survey of partners and potential partners of the three CSCs was conducted. An initial sample for the survey was compiled from science producers and science users identified by each CSC, Landscape Conservation Cooperative staff and steering committee members with regions that overlap with the 3 CSC’s regions, and members of the Association of Fish and Wildlife Agencies Climate Science Committee. Six hundred seventy individuals were included in the survey sample. The survey documented the ways in which partners were engaged with the CSCs and the factors affecting their engagement.

## Summary of Results

While results were analyzed by region, key findings and patterns were remarkably similar. Respondents represented science users and science producers. Although a variety of types of partners were engaged with the CSCs, a large majority of them were from universities and federal agencies.

The most common limitations on partners' engagement with the CSC were the time they had available (given their other priorities) and funding. But their level of engagement was also influenced by whether they had been asked to be involved and whether they knew how to be involved. Both of these limitations could be addressed by outreach from the CSCs.

Across the CSCs, the level of interaction partners reported with the USGS CSC staff was comparable (Southeast), slightly higher (Northwest), or moderately higher (Alaska) than with University leads/PIs. Consistently, partners' level of interaction with the CSC Stakeholder Advisory Committee members was less than their level of interaction with USGS CSC staff, University leads/PIs, CSC-affiliated researchers, or CSC graduate or post-doctoral fellows.

Partners' perceptions of the CSCs were generally positive. CSC science was considered high quality and with the potential to be able to contribute to policy and management decisions. Yet, CSC science was perceived to contribute to management plans and actions more than to policy. The CSCs also were valued because they provided connections to science, scientists, professionals capable of communicating science, and resources.

Science producers and science users had different perceptions about the use of climate science. The percentage of science producers who thought their science was used by decision makers was much higher than the percentage of decision makers who say they used CSC science. These perspectives were not necessarily inconsistent. It is possible that a small group of decision makers had access to and made use of the climate science that was produced, while others did not.

Although producers and users had different perceptions about what was limiting the use of CSC science, they agreed in some areas. Both users and producers thought that three of the most important limitations on the use of CSC science were: management issues not being clearly defined, scientists not working closely enough with managers, and science not being communicated in understandable ways. Science producers, however, perceived these factors to be much more limiting than science users found them to be.

Co-production of climate adaptation science research was perceived as valuable by large majorities of producers and users. Users had less experience with co-production, however, than producers. Co-production was generally more common in the early stages (i.e., setting priorities, identifying research questions) and late stages (i.e., interpreting, applying, and communicating results) of research than the middle stages. Users thought co-production was limited by scientists not reaching out to engage them and having different perspectives from scientists on what science was needed.

## **Conclusions**

Although the CSCs produced a number of benefits, several possibilities exist for enhancing those benefits. More diverse types of partners could be engaged beyond the prevalent federal agencies and university scientists. Engaging new partners may require new ways to make it easier for potential partners to become involved and more outreach to invite them to participate. There is also more work to be done to facilitate actionable science and co-production in all of the regions. CSC efforts along these lines may be aided by defining more clearly those management issues that need attention, creating more opportunities for scientists and managers to work together or encouraging it through funding requirements, and improving the ways in which science is communicated.

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## INTRODUCTION

In 2008, Congress authorized the establishment of a National Climate Change and Wildlife Science Center (NCCWSC) within the U.S. Geological Survey (USGS) as part of its ongoing mission to meet the challenges of climate change and its effects on wildlife and aquatic resources. In response to Secretarial Order 3289, “Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources,” on September 14, 2009 (amended February 22, 2010), the NCCWSC established eight regional Department of the Interior (DOI) Climate Science Centers (CSCs) from 2010 through 2012 to provide scientific information and tools to natural and cultural resource managers to conserve these resources in a changing world. The model developed by the NCCWSC for the regional CSCs employed a dual approach of a federal USGS-staffed component (CSC-federal) and a parallel host-university component (CSC-university), established competitively through a five-year cooperative agreement with NCCWSC.

The first three regional CSCs, located in Alaska, the Pacific Northwest (NW), and the Southeast (SE), were established in 2010. These CSCs have completed their initial five-year project cycle and continue into their sixth year through a one-year funding extension. The university hosting agreements for these CSC regions are subject to a re-competition process by USGS. As part of this process, NCCWSC, with the engagement of the American Fisheries Society (AFS) and the Human Dimensions Research Unit of Cornell University (Cornell), coordinated an operational and programmatic review and evaluation of host universities to ensure established goals and obligations under the hosting agreements were met, as well as to identify obstacles and areas of improvement for future agreements. This report presents the results of research conducted as part of these reviews.

### Purpose of Report

The NCCWSC has three basic goals: (1) work in close partnership with the natural resource management communities to understand their highest priority science needs regarding climate change impacts, and determine what is needed to fill those knowledge gaps; (2) work with the scientific community to develop the science information and tools in such a way that they can be readily used to generate management strategies for responding to climate change; and (3) deliver these relevant tools and information in a timely and useful way directly to resource managers.

Consequently, a key component of the CSCs is to work with partners. Two major groupings of partners include: (1) science producers<sup>1</sup> (many federal agencies, universities, scientific societies, and other NGOs), who contribute to the development of science information and tools and, (2) science users<sup>2</sup>, which is a broad category covering those working to apply this science information and tools to conservation (e.g., state and federal natural resources agencies, conservation NGOs). A major indicator of success of each CSC is the degree to which partners are effectively engaged in and benefit from their work.

One of the primary benefits expected from the CSCs is the development of “actionable science.” In the climate science literature there is a great deal of discussion and consternation about climate information going unused (Lemos, 2015). The commonly held belief amongst scientists that “more and better information will improve decision-making” has been found to be a fallacy (Tribbia & Moser, 2008). Instead, more science often does not lead to better decision-making; there are barriers, other than lack of information, that inhibit science-based decisions. This issue is described as a knowledge-action gap (Cash et al., 2003), research-implementation gap (Knight et al., 2008), or a gap between production of science

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<sup>1</sup> Also referred to as “science partners.”

<sup>2</sup> Also referred to as “conservation partners.”

and use of science (Kirchhoff, Lemos, & Dessai, 2013). This gap may be due to a disconnect between “useful” (producers think it can be used) and “usable” (users apply to decision-making) science (Lemos, 2015). Both effective boundary organizations and the co-production of knowledge are touted as solutions to this issue (Lemos, 2015).

Boundary organizations, which CSCs have started evolving over the last three years to become (ACCNRS, 2015), link varied social and organizational sectors, fostering innovation and two-way communications, aiming to align science production with user needs (Feldman & Ingram, 2009). The role of boundary organizations may be thought of as “information brokers” and “participant advocates” (Feldman & Ingram, 2009). As such, their facilitation of communication may be one of their most essential functions, as poor or nonexistent communications are thought to inhibit science informing practice (Vogel, Moser, Kasperson, & Dabelko, 2007).

Likewise, the often-used approach of “loading dock” science where scientists prepare models, products, forecasts for use without consulting users but with the expectation that users will use it is increasingly recognized to be ineffective (Feldman & Ingram, 2009). Research has shown that there is a greater uptake of climate science if there is two-way communications and long-term relationships between users and producers (Kirchhoff et al., 2013). Some refer to this involvement of stakeholders or practitioners as “co-production of knowledge” (e.g., Tribbia & Moser, 2008), while others term it “joint production of knowledge” (Hegger, Lamers, Van Zeijl-Rozema, & Dieperink, 2012) or “cooperative production of knowledge” (Podesta, Natenzon, Hildago, & Toranzo, 2013). Regardless of the term, there is wide-spread acknowledgement that interdisciplinary (defined more broadly than simply academic disciplines) engagement is essential for addressing 21<sup>st</sup> century global challenges such as climate change (Podesta et al., 2013). The ACCNRS report also recognizes the potential for co-production of knowledge by Climate Science Centers, calling for more of it in their recommendations.

We designed a partner survey to measure the quality and extent of partnership involvement at each CSC. We focused on the following questions for each of three regional CSCs for which site reviews were conducted in FY 2016:

- To what extent are science users and producers involved with the CSC?
- What are the benefits of this involvement? What limits involvement?
- To what extent do partners believe the CSC is producing actionable science?
- To what extent are CSC-affiliated science users and producers involved in co-production? What limits this involvement?
- To what extent does the CSC play a role as a boundary organization, facilitating actionable science and co-production? What characterizes that role?

## METHODS

Our partnership evaluation consisted of two components: a series of group interviews and a standardized web-based survey.

### Group Interviews

Two group interviews were conducted with partners of the CSCs during each of the three site visits. The purpose of the group interviews was to understand the range of perspectives and experiences of CSC partners in relation to their work with the CSC. One group at each CSC included science producers and the other included science users.

Participants were recruited by each CSC with guidance from Cornell. We attempted to include participants that represented a diversity of organizations and regions. Participants in the science producers groups included faculty members, graduate students, or postdoctoral associates that had received research funding from the CSC. Participants in the science users groups included representatives of agencies intended to benefit from the science produced by the CSC: Landscape Conservation Cooperatives, federal natural resource agencies, state fish and wildlife agencies, tribal organizations, and nongovernmental conservation organizations. A total of 73 individuals participated in the six group interviews (Table 1).

**Table 1.** Number of group interview participants from each Climate Science Center.

Climate Science Center	Number of science producers	Number of science users
Alaska	10	11
Northwest	13	14
Southeast	14	11

Each interview consisted of a semi-structured conversation guided by a series of open-ended questions (Appendix A) and lasted approximately two hours. The questions were designed to explore how partners contributed to the work of the CSCs and the factors that influenced the ability of the CSCs to work with their partners. The specific question topics focused on: how participants have worked with the CSC, reasons for becoming involved with the CSC, benefits of involvement with the CSC, challenges to involvement, and what the CSC could do to promote even more benefits from involvement. Additionally, we specifically explored how the CSCs contributed to the coproduction of science and the generation of actionable science, with questions about interactions between science producers and science users and the role of the CSC in connecting them. The group interviews were used to inform the development of the survey, and, thus, we do not report separately on their results.

### Web-based Survey

A standardized, web-based survey of partners and potential partners of the three CSCs was conducted. An initial sample for the survey was compiled from science producers and science users identified by each CSC, Landscape Conservation Cooperative staff and steering committee members with regions that overlap with the 3 CSC's regions, and members of the AFWA Climate Science Committee. A total of 670 individuals were included in the survey sample.

The survey documented the ways in which partners were engaged with the CSCs and the factors affecting their engagement. The survey questions (Appendix B - D) were developed based on insights from the group interviews and a review of the scholarly literature. The question topics included:

- Nature of respondents' work
- Perspectives on the importance of addressing climate change
- Extent of involvement with the CSC
- Benefits of involvement with the CSC
- Limitations on involvement with the CSC
- Perceptions of climate adaption science
- For science users:
  - Use of climate adaptation science
  - Limitations on use of climate adaptation science
  - Importance of and engagement in co-production of science
  - Limitations on co-production of science
- For science producers:
  - Use of climate adaption science produced by others



- Limitations on others' use of climate adaptation science
- Importance of and engagement in co-production of science
- Perceptions of the role of the CSC

The survey instrument was reviewed by subject matter experts including staff from the NCCWSC, members of the review teams for the Climate Science Centers, and other researchers. The same survey instrument was used for all the Climate Science Centers, with minor changes to reflect the region referenced.

Individuals were e-mailed at the initiation of the survey and provided with a link to a web-based questionnaire. Individuals who did not respond to the first request received up to five additional requests to complete the questionnaire by e-mail. The web-based survey instrument was programmed and administered using Survey Monkey, which provides a means of soliciting participation in a survey via email and recording responses. Survey Monkey assigns each individual a unique web link to prevent individuals outside our study population from participating in the survey and prevent access to survey data by anyone other than the research team. Implementation of survey began on April 11, 2016 and concluded on May 9, 2016.

### **Non-respondent Telephone Survey**

A short (5 minute) telephone survey of nonrespondents to the web-based survey was conducted by the Cornell University Survey Research Institute from May 13 to 20, 2016. The survey questions (Appendix E) included a sample of questions from the web-based survey to determine whether and how nonrespondents differ from respondents on key criteria. The survey was implemented. Twenty-five nonrespondents each from the Northwest and Southeast CSC's and twenty-six from the Alaska CSC completed the questionnaire.

## **RESULTS**

### **Response Rate**

Response rate to the web-based survey was 42% (n=90) for the Alaska CSC, 39% (n=62) for the Northwest CSC, and 47% (n=142) for the Southeast CSC. Despite similar response rates, the number of completed surveys differs due to size differences of partner databases provided by each CSC. Respondents who reported that their work does not at all involve climate adaptation science, or management or policy related to climate change adaptation (n = 5) were excluded from our analysis as were those who reported that they had never heard of the CSC.

### **Nonresponse Analysis**

Results in this report are based on respondents to the web-based survey, but these respondents differed in some ways from the web survey nonrespondents who were reached subsequently through the phone survey. Respondents and nonrespondents did not differ in the extent to which their work involves climate adaptation science, management, or policy; nor did they differ considerably in their thinking about whether climate change is a threat and the urgency of taking policy action. A greater proportion of respondents had at least some involvement with the CSC and perceived it to be beneficial, as we might expect. Yet, the number of years for those involved was the same for respondents and nonrespondents. The relative proportion of natural resource decision makers was considerably less for respondents than nonrespondents, perhaps because the pool of decision makers that we sampled included more individuals with less direct involvement with the CSCs. Respondents included a greater proportion of individuals from federal agencies and universities. (See Appendix F for complete tables comparing respondents and nonrespondents.)

## Alaska Results

### *Respondents*

Forty-eight percent (n = 38) of the respondents reported that they make decisions about natural resource policy, management, or programs as part of their jobs. We refer to these individuals as science users. Thirty-nine percent (n = 29) reported that they have produced climate adaptation science through an affiliation with the Alaska CSC, while 22% (n = 16) have produced climate adaptation science but never with such an affiliation. We refer to both of these groups as science producers (61%; n = 45). Sixteen of the respondents (20%) were both science users and producers.

Most respondents (89%; n = 64) worked in Alaska. Fifteen percent worked in other states and Canadian provinces all or part of their time, including California, Hawaii, Oregon, Washington, British Columbia, Yukon Territory, and the Northwest Territories.

Most respondents (74%; n = 53) worked at the scale of a state for some or all of their work, while 58% (n = 42) worked at the regional/multi-state scale and 49% (n = 35) at the watershed scale. A smaller percentage conducted all or some of their work at the local (43%; n = 31), international (40%; n = 29), and/or national scales (39%; n = 28).

A majority of respondents were affiliated with federal agencies (58%; n = 42) followed by universities (31%; n = 22). A handful of respondents were affiliated with non-profit organizations (11%; n = 8), state agencies (6%; n = 4), local governments (1%; n = 1), tribal governments (1%; n = 1), or provincial governments (3%, n = 2).

Almost half of respondents (46%; n = 34) held research positions in their agency or organization, while about a quarter (26%; n = 19) held leadership/administration positions. Few held policy (5%; n = 4) or operations (12%; n = 9) positions. Eight respondents wrote in a variety of other types of positions, including education, software engineer, program manager, and partnership coordinator. See Appendix B for tables of results for all survey items.

### *Extent of Involvement with the CSC*

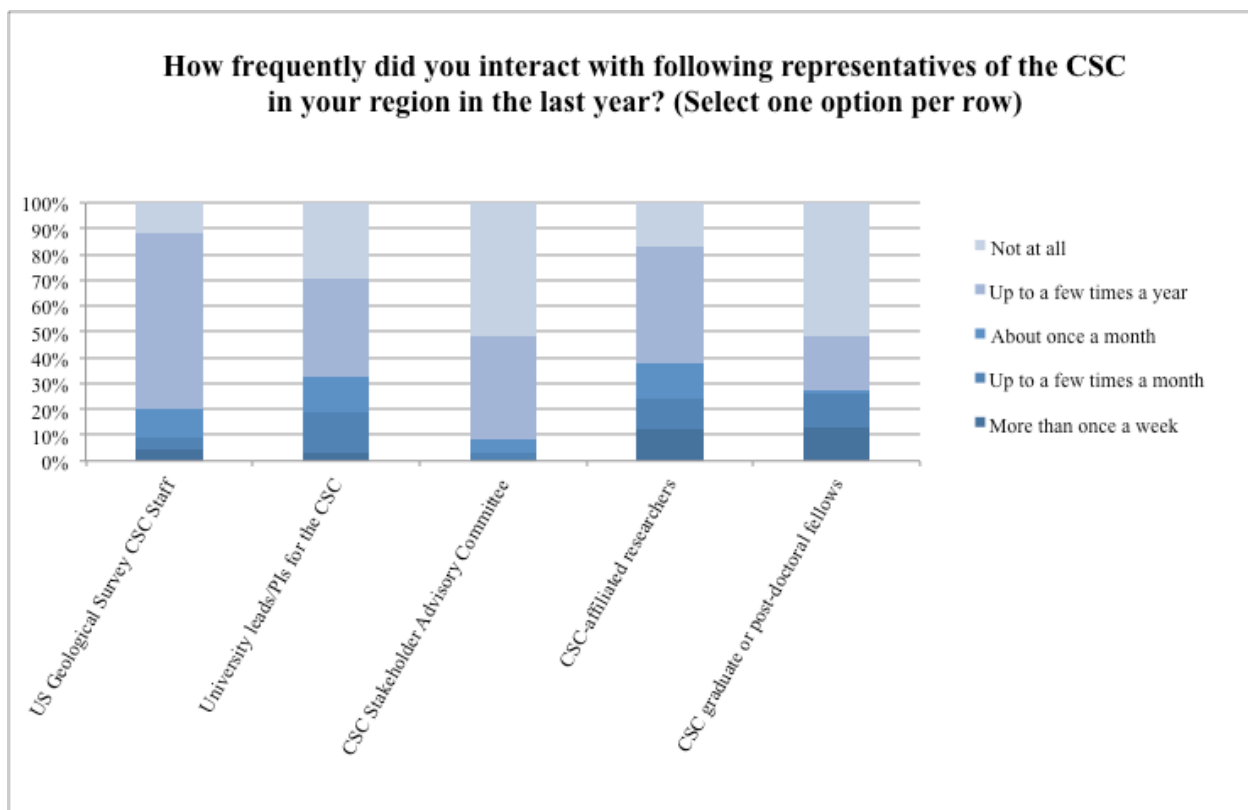
Most respondents (84%; n = 70) reported that they have had at least some interest in or involvement with the Alaska CSC. Just 13% (n = 11) reported that they had no involvement but someone else in their agency or organization did and another 1% (n = 1) had no interest or involvement at all. A very small percentage (1%; n = 1) of the respondents had never heard of the CSC and were not included in additional analysis.

Respondents reported involvement with the CSC in a variety of ways. Most common (33%; n=23) was involvement as a resource manager or decision maker who has used the science produced by the CSC. Participating in a CSC training, webinar, workshop, or conference (29%; n = 20) or a CSC grant recipient, applicant, or partner (20%; n = 14); or a university member affiliated with the CSC (17%; n = 12) were also relatively common.

Only 13% (n = 9) were CSC-funded graduate students or postdoctoral fellows, and 4% (n = 3) were CSC US Geological Survey staff. Only a single (1%) CSC Stakeholder Advisory Committee member responded to the survey. Additionally, a high proportion (62%; n = 43) reported that they were Landscape Conservation Cooperative Steering Committee members, and 4% (n = 3) reported that they were Landscape Conservation Cooperative staff members.

On average respondents have been involved with the Alaska CSC for 3.7 years.

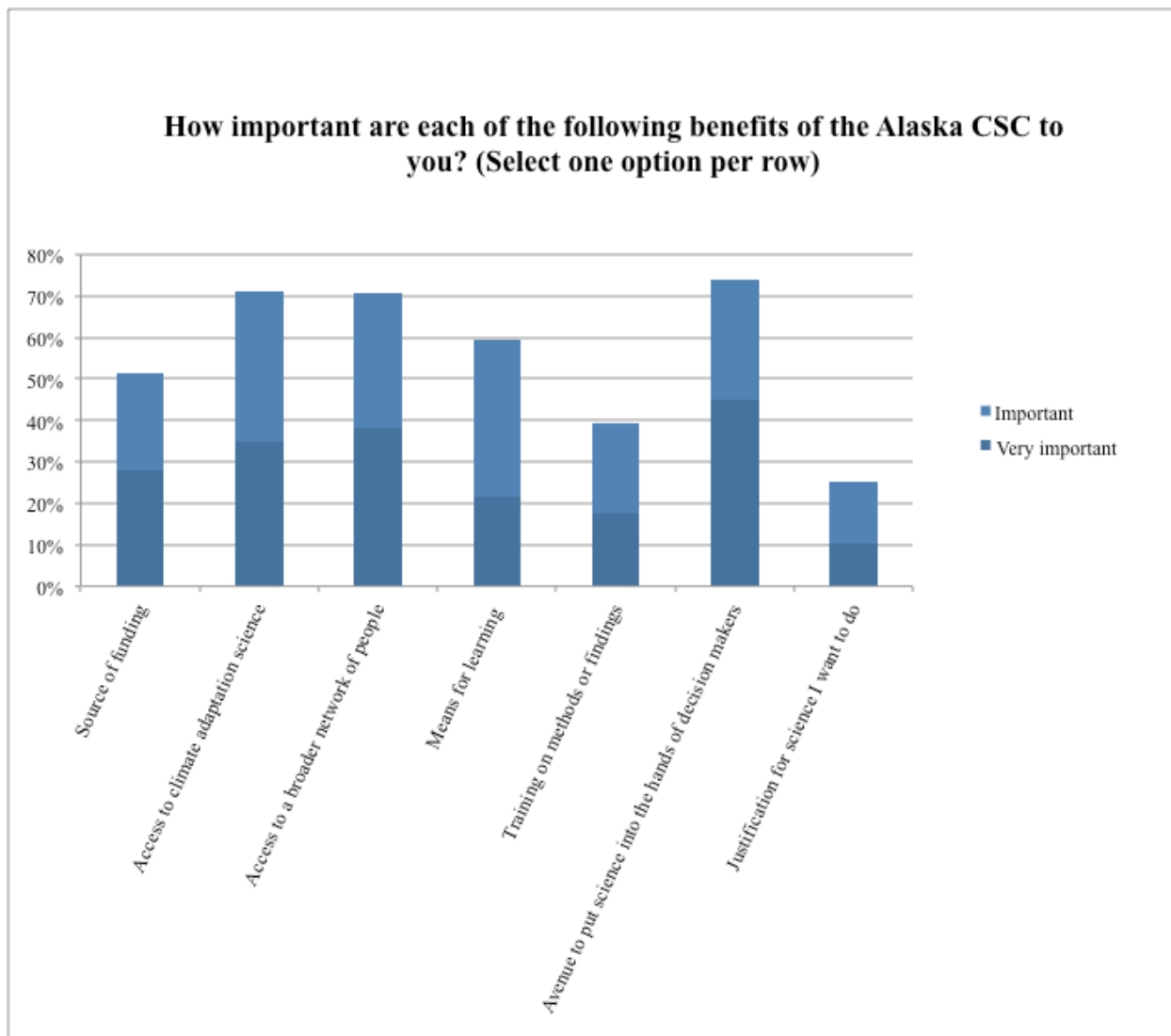
The respondents reported on their frequency of interaction with four types of CSC representatives and with the CSC Stakeholder Advisory Committee (see figure below). For their interactions with three of the types (US Geological Survey CSC staff; University leads/PIs for the CSC; and CSC-affiliated researchers) the modal response was “up to a few times a year.” For their interactions with CSC graduate or post-doctoral fellows, the modal level of interaction was lower: 52% of respondents interacted with them not at all and 21% interacted with them up to a few times a year. For their interactions with CSC Stakeholder Advisory Committee members, the modal level of interaction was lowest: 52% of respondents interacted with them not at all and 42% interacted with them up to a few times a year. The level of interaction respondents had with USGS CSC staff was higher than with University leads/PIs. Thirty percent of respondents had had no interaction with the University leads/PIs in the last year.



Note: Although CSC Stakeholder Advisory Committee members are not “representatives” of the CSC, they were included in this question, too.

### ***Benefits of Involvement***

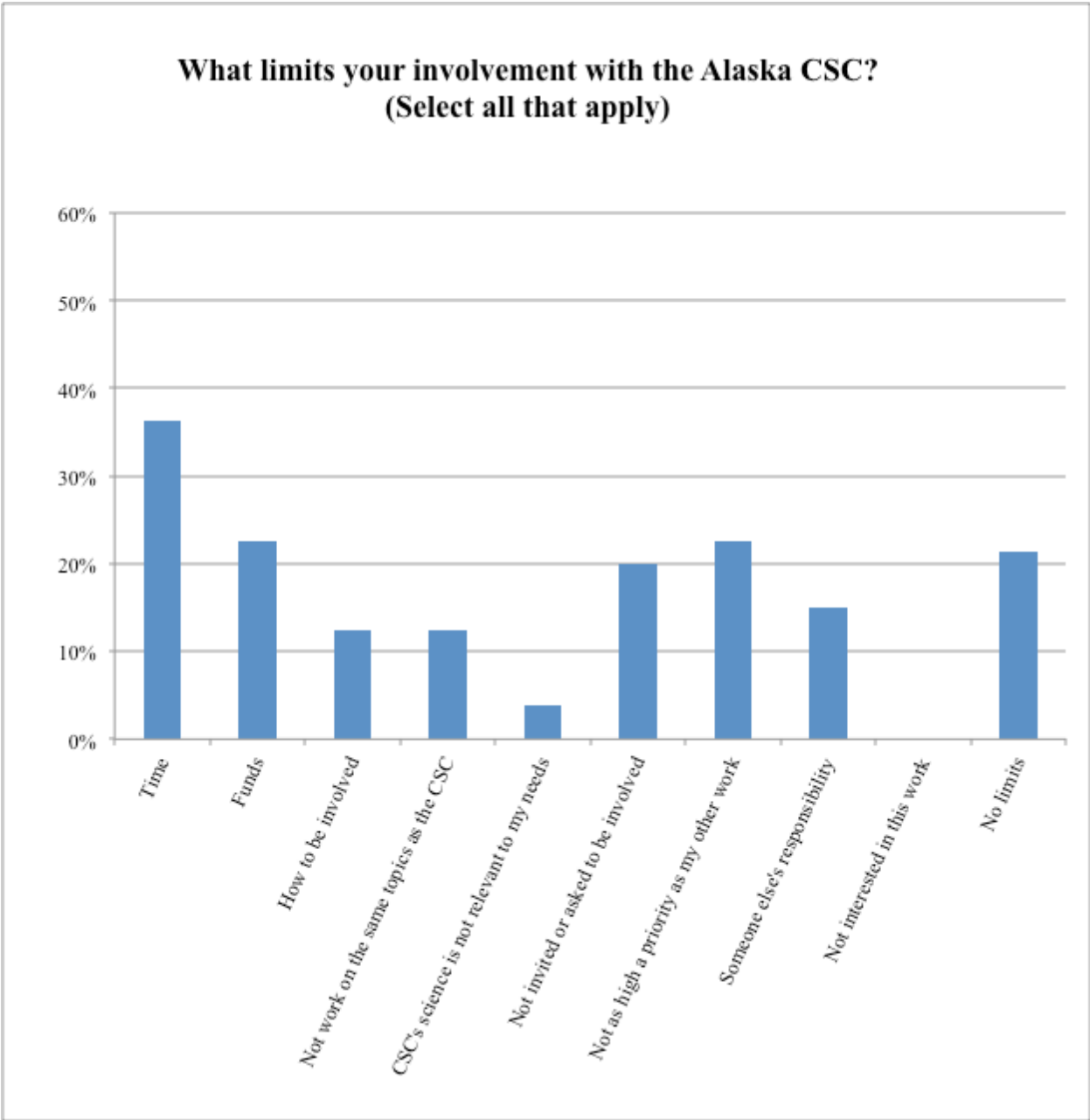
The most important benefits of the CSC were “avenue to put climate adaptation science into the hands of decision makers” (74%; n = 51 describing as “important” or “very important”), “access to climate adaptation science” (71%; n = 49), and “access to a broader network of people interested in climate adaptation science” (71%; n = 48; see figure below). In contrast, “justification for science I want to do” (25%; n = 17) and “training on climate adaptation science methods or findings” (39%; n = 27) were considered least important. Finally, in between the extremes, about half of the respondents found the benefits “source of funding for climate adaptation science” (51%; n = 35) and “means for learning about climate adaptation” (59%; n = 41) to be important or very important.



Note: text in items shortened for presentation in graph, and only “important” or “very important” responses are shown. Full results in table in appendix.

### ***Limitations on Involvement***

Most respondents (79%; n = 63) reported limits to their involvement with the CSC (see figure below). The most common (36%; n = 29) limit was not having enough time, followed by not having enough funds (23%; n = 18) or not being as high of a priority as other work for respondents (23%; n = 18). Fewer reported limits that could be addressed by the CSC, including not being invited/being asked to be involved (20%; n = 16) or not knowing how to be involved (13%; n = 10). Other limits, which may be more challenging to the CSC to address, included not working on the same topics as the CSC (13%; n = 10) or the CSC’s science being perceived as irrelevant to their needs (4%; n = 3). No respondents, however, reported not being interested in this work. Eighteen respondents wrote in additional comments about limitations, including multiple comments about working in a geography that does not always relate to the work of the CSC (e.g., in Canada) or not being able to engage because they were recent graduates looking for a job. A single respondent maintained that the CSC was not working in a participatory fashion, and another argued that the CSC was not interested in partnering unless the partner had funds to bring to the table.

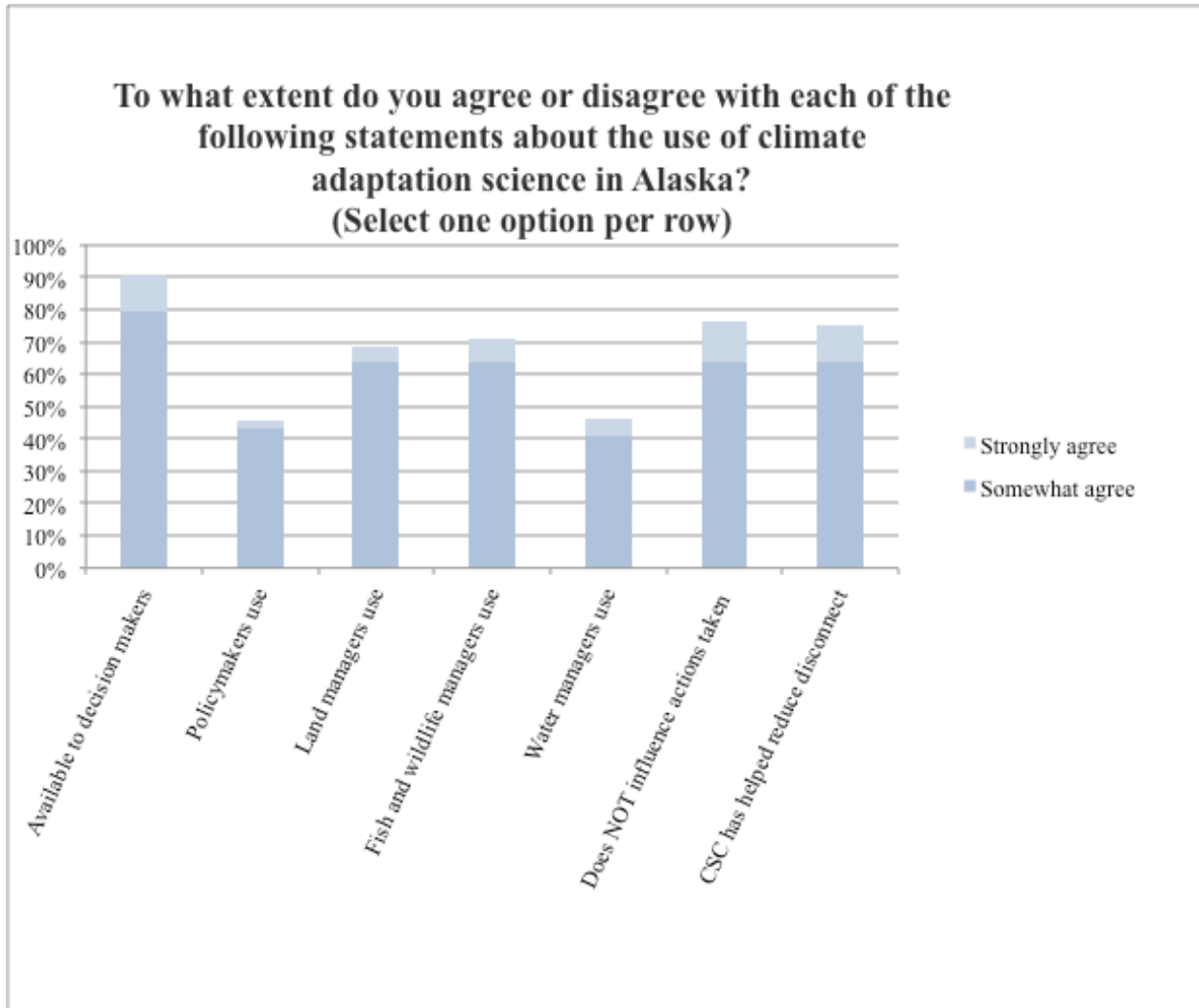


Note: text in items shortened for presentation in graph. Full text in table in appendix.

***Is Climate Adaptation Science Actionable?***

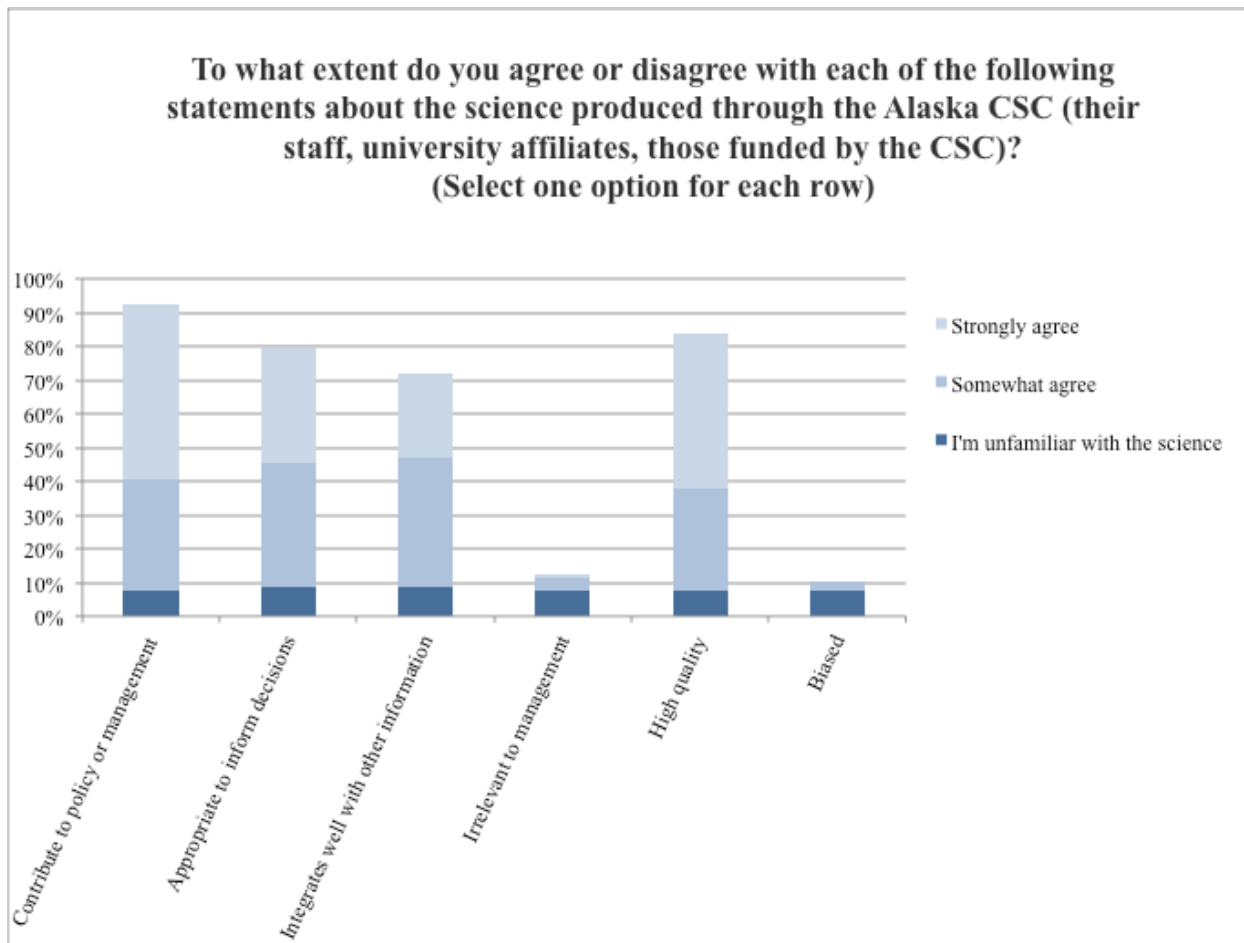
Respondents shared their perceptions both of climate adaptation science, in general, and of the climate adaptation science produced by the CSC. With regard to climate adaptation science in general, more than half of respondents (56%; n = 44) agreed or strongly agreed that climate adaptation science in Alaska is available to decision makers (see figure below), but fewer respondents believed that various types of decision makers used the climate adaptation science to inform policies and management. Many respondents (43%; n = 34) believed that fish and wildlife managers used the science, along with land managers (41%; n = 32), and, to a lesser extent, water managers (28%; n = 22). The fewest number of respondents (27%; n = 21) believed that policymakers used the science. More generally, about half of the

respondents (48%; n = 38) felt that climate adaptation science did not influence actions taken by decision makers. Yet, about the same number of respondents (47%; n = 37) felt the CSC has helped reduce this disconnect between what is known about climate adaptation and the actions taken by decision makers in the region.



Note: text in items shortened for presentation in graph. Full text in table in appendix.

In terms of the Alaska CSC science specifically, respondents (85%; n = 67) strongly or somewhat agreed the CSC science can contribute to policy or management (see figure below). Of those that did not agree, about half reported that they were unfamiliar with the science (8%; n = 6). Respondents were also generally positive about other characteristics of the CSC science, finding it appropriate to inform decisions (71%; n = 56), high quality (76%; n = 60), and able to be integrate well with other information (63%; n = 50). Only two respondents believed the science to be biased, and four believed it was irrelevant to management. For all of these items, 8-9% of the respondents reported they were unfamiliar with the science and did not respond about its characteristics.



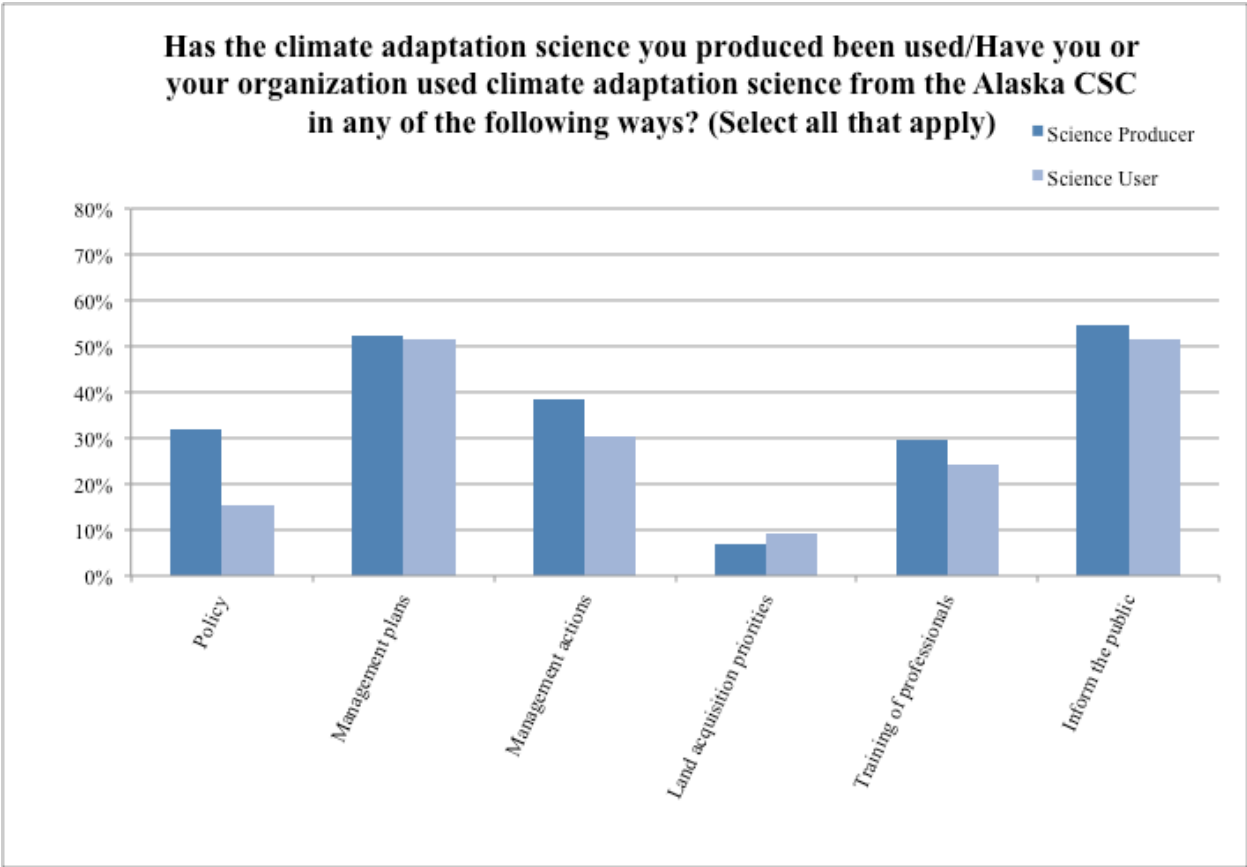
Note: text in items shortened for presentation in graph, and only “strongly agree”, “somewhat agree”, or “I’m unfamiliar with the science” responses are shown. Full results in table in appendix.

### ***Science Users’ and Producers’ Use of Climate Adaptation Science***

Among respondents who reported that they were science users, 63% (n =20) reported that they or someone in their organization used climate adaptation science from sources affiliated with the Alaska CSC. In contrast, 91% (n = 29) reported that they or someone in their organization used climate adaptation science from sources not affiliated with the CSC.

The most common ways science users reported using the Alaska CSC science were to inform management plans (52%; n = 17) or inform the public about climate change and its impacts (52%; n = 17). Less common ways science user respondents reported using CSC science were to inform management actions (30%; n = 10), training of conservation professionals (24%; n=8), policy (15%; n = 5), and land acquisition priorities (9%; n = 3).

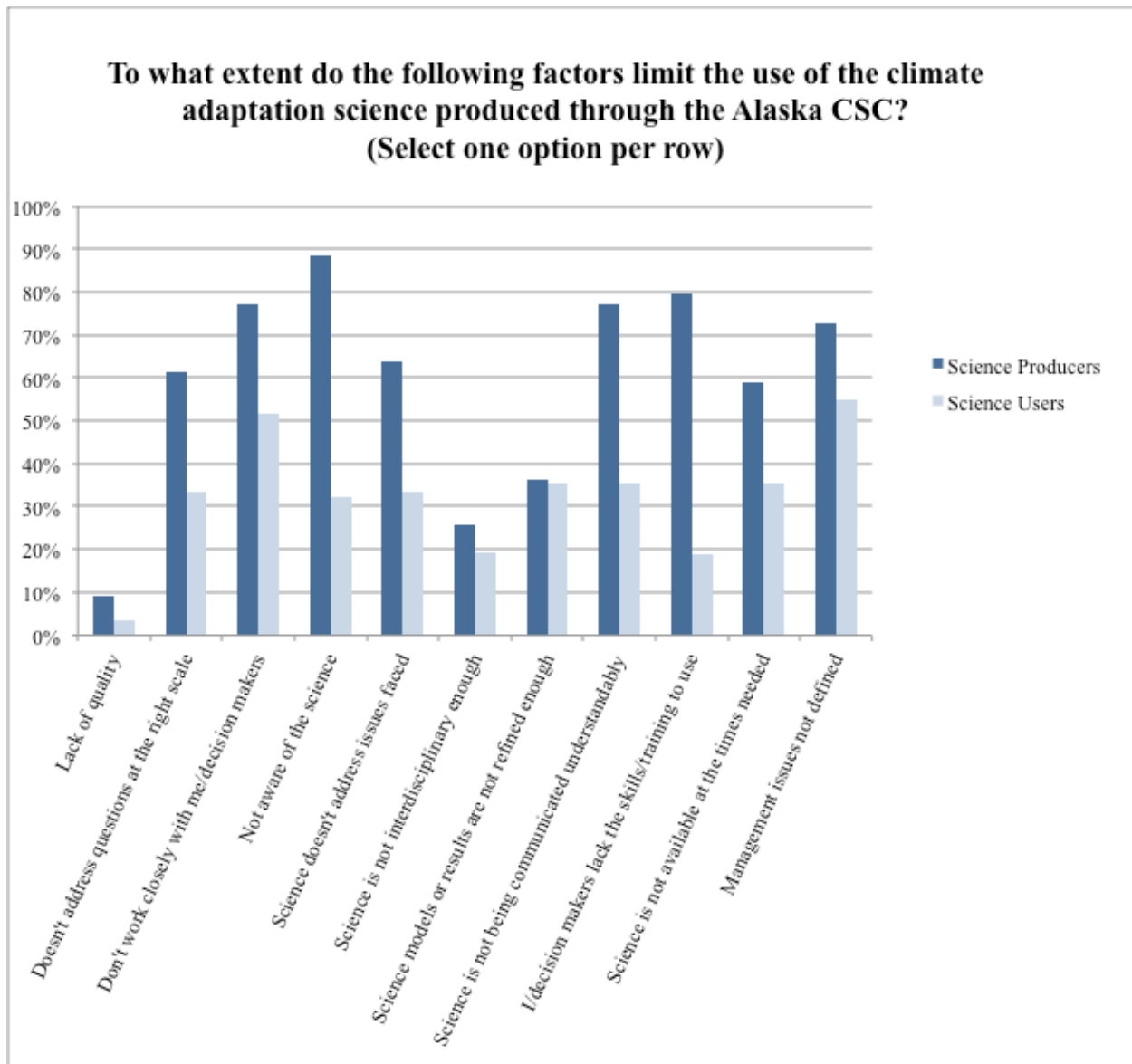
Responses to these same questions posed to science producers yielded a similar pattern of the most common and least common ways science was used, with a similar frequency for most items except related to informing policy (see figure below). The most common ways science producer respondents reported using the science were to inform management plans (52%; n = 23) or the public about climate change and its impacts (55%; n = 24). Less common ways science producer respondents reported using CSC science were to inform management actions (39%; n = 17), train conservation professionals about climate change and its impacts (30%; n = 13), policy (32%; n = 14), and land acquisition priorities (7%; n = 3).



Note: text in items shortened for presentation in graph. Full text in table in appendix.

Science users and producers differed in their perceptions of what factors limit the use of CSC science (see figure below). In nearly all cases, more science producers than science users perceived limits (not specifically to them) to using CSC science to a moderate, large, or very large extent. Two of the most common limitations cited were the same for science users and producers: scientists not working closely with decision makers (science users – 52%; science producers – 77%) and management issues not defined clearly enough (science users – 55%; science producers – 73%). Most science producers (89%) also felt that decision makers not being aware of the science was a limitation, while few science users (32%) agreed. The same pattern was found for decision makers lacking the skills to use the science (science users – 19%; science producers – 80%) and the science not being communicated in ways that is understandable to decision makers (science users – 35%; science producers – 77%). Both groups agreed on the limitations that were least important: lack of quality of the science (science users – 3%; science producers – 9%) and science not interdisciplinary enough (science users – 19%; science producers – 26%).





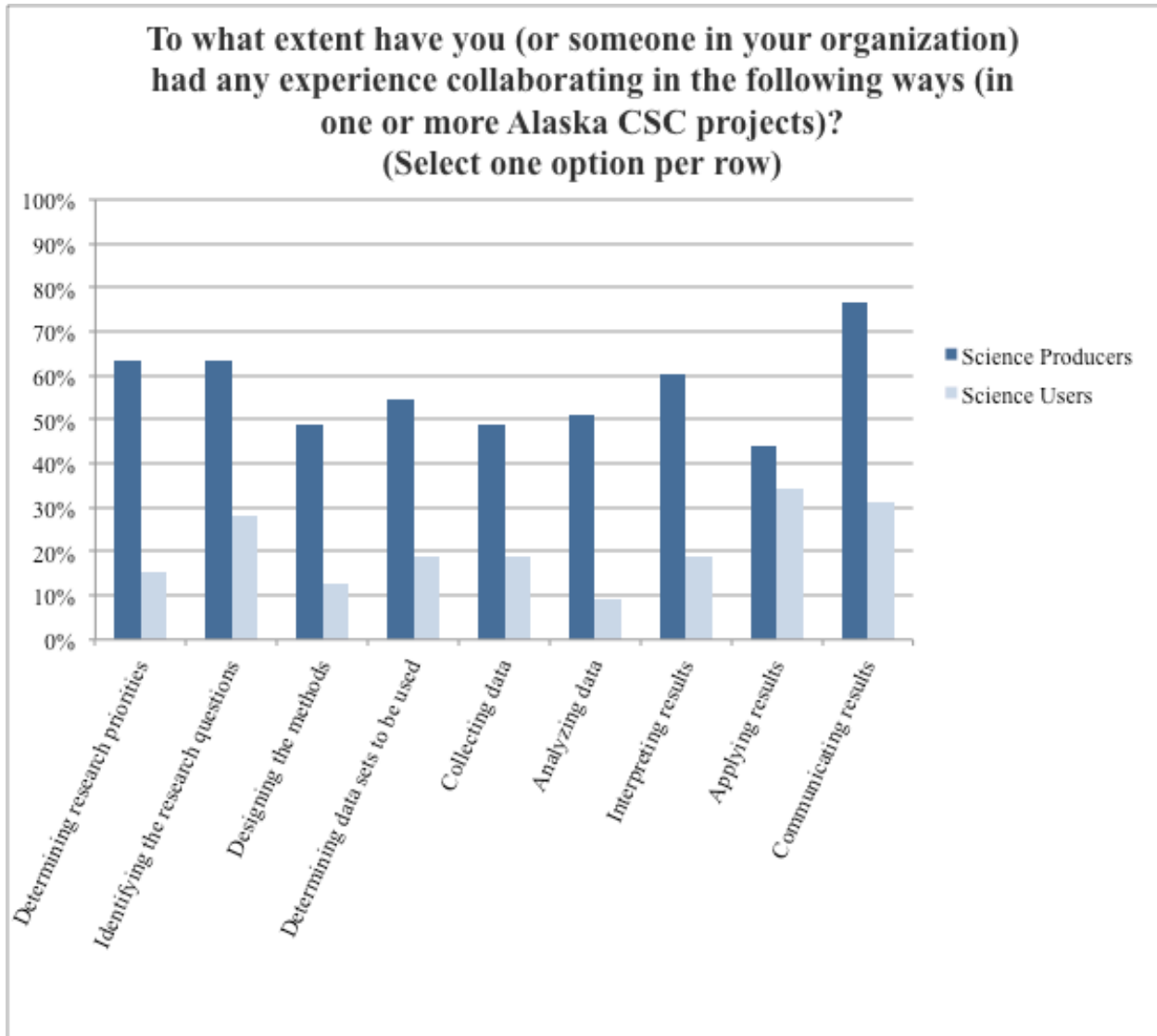
Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Additionally, text varied slightly for science producers and users. Full results and text in tables in appendix.

### ***Science Users’ and Producers’ Engagement in Co-production of Knowledge***

Respondents reported on their beliefs about co-production of knowledge in general. An overwhelming proportion of both science users (91%; n = 30) and producers (91%; n = 40) expressed support for co-production, indicating it was important or very important for climate adaptation scientists and natural resources decision makers to work together to produce science research.

Many science producers indicated experience in co-production in various phases of research projects, more so than did many science users (see figure below). For all phases of research projects, at least half of the science producers collaborated with decision makers to a moderate, large, or very large extent. It should be noted that this question was asked in reference to the CSC specifically for users, but that specification was not made for producers. In contrast, the science users’ experience of collaborating

during all phases ranged from a very low 9% for collaborating on analyzing data to 34% for collaborating on applying results. For both groups, communicating results (science users – 31%; science producers – 77%) and identifying research questions (science users – 28%; science producers – 64%) were two of the most common types of the frequent collaboration. Two of the other phases with a high proportion of science producers reporting experience collaborating had few science users reporting experience collaborating: determining research priorities (science users – 15%; science producers – 64%), and interpreting results (science users – 19%; science producers – 60%).



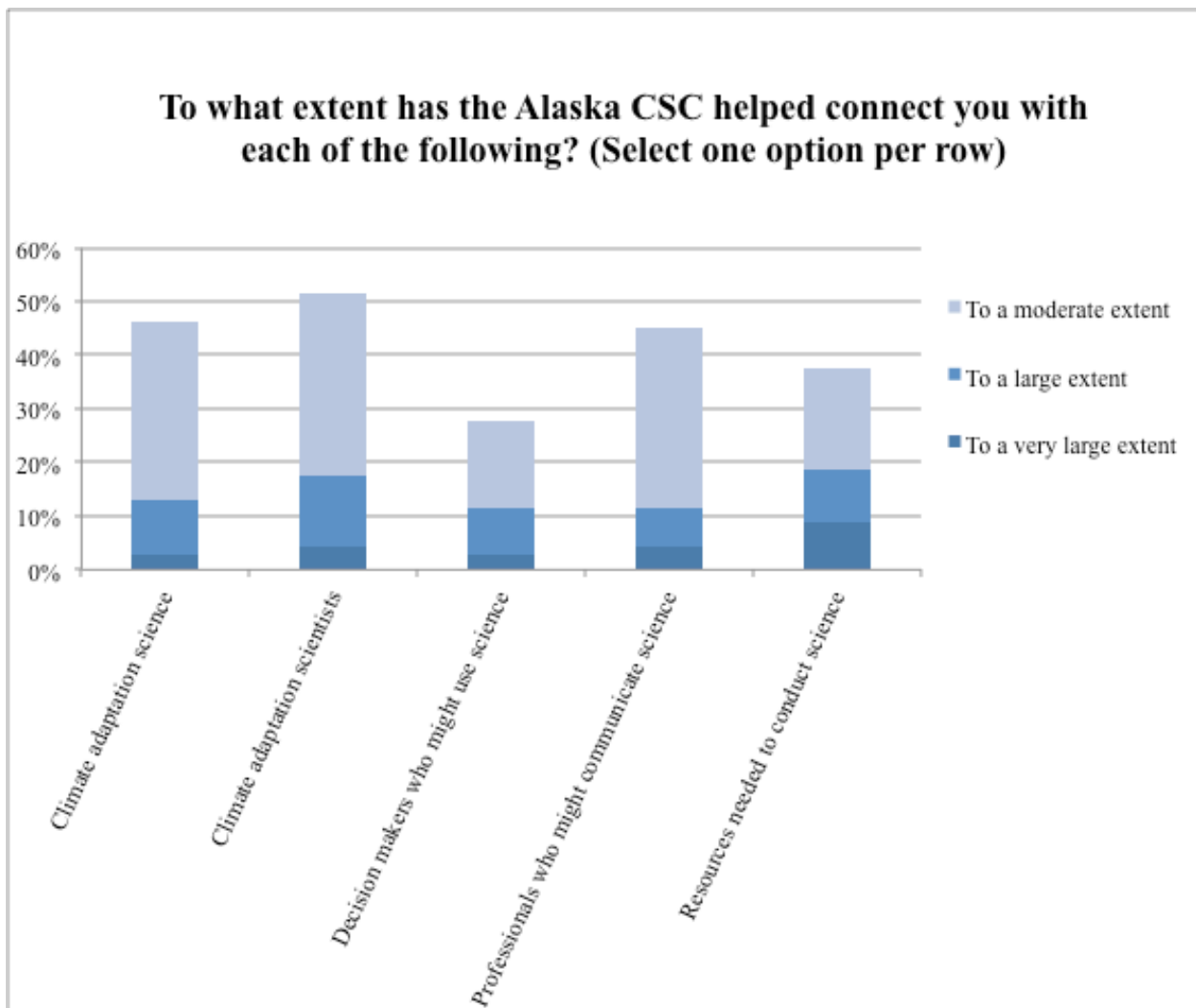
Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Additionally, the text of the question varied slightly for science producers and users (e.g., the users’ version referencing “you or someone in your organization” and specifying a Northwest CSC project). Full results and text in tables in appendix.

The factors most likely to limit science users’ involvement in research projects were scientists not reaching out to them (39% agreed or strongly agreed; n = 13), followed by different perspectives on what science is needed (33%; n = 11). Other factors were perceived to limit the involvement of smaller numbers of respondents: funders not supportive of collaboration between scientists and science users (27%; n = 9), different perspectives on how research projects should be conducted (21%; n = 7), and

scientists not interested in listening to them (21%; n = 7). Notably, not having enough time was a limitation for few science users (15%; n = 5), although it had limited their involvement in the CSC (see above).

**Perceptions of the Role of the CSC**

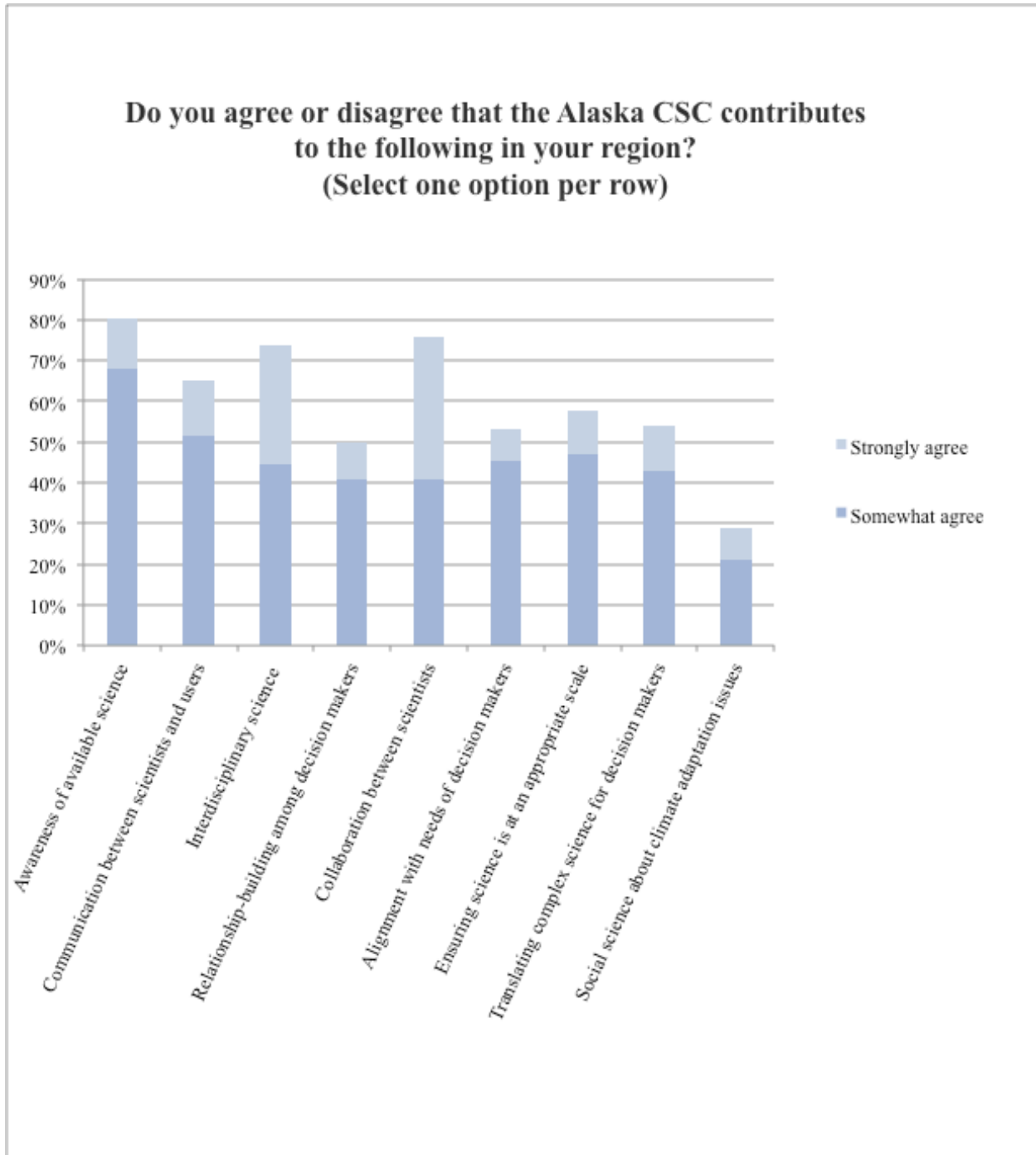
The Alaska CSC has helped facilitate various connections, with most respondents reporting help making connections made “to a moderate extent” (see figure below). The most common connections reported were with climate adaptation scientists (51%; n = 35), climate adaptation science itself (46%; n = 32), professionals who might communicate climate adaptation science (45%; n = 31), and resources needed to conduct science (38%; n = 26). Fewer reported help in connecting with decision makers who might use science (28%; n = 19).



Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Full results and text in tables in appendix.

Most respondents agreed that the Alaska CSC contributed to awareness of available science (80%; n = 53), collaboration between scientists (76%; n = 50), interdisciplinary science (74%; n = 48), and communication between scientists and decision makers (65%; n = 43; see figure below). Although many respondents agreed that the CSC made interdisciplinary science contributions, social sciences is largely not included: only 29% of the respondents (n = 19) felt the CSC contributed to social science about

climate adaptation issues. About half of the respondents indicated that the CSC contributes to relationship building among decision makers, alignment of science with needs of decision makers, translating complex science for decision makers, and ensuring science is at an appropriate scale.



Note: text in items shortened for presentation in graph, and only “strongly agree” or “somewhat agree” responses are shown. Full results in table in appendix.

### ***Summary of Alaska Results***

Respondents included science users and science producers (both those affiliated with the Alaska CSC and those not so affiliated) and a variety of types of organizations and agencies and positions, with federal agencies and universities being most prominent.

Most of the respondents had at least some interest in or involvement with the Alaska CSC. This involvement came in a variety of forms, with the most common forms as science users or participants in a training, webinar, workshop, or conference. The level of interaction respondents had with USGS CSC staff was somewhat higher than they had with University leads/PIs.

The CSC provided many important benefits to partners with the top ones being putting science in the hands of decision makers, providing access to science, and providing access to a network of people interested in climate adaptation science. Respondents reported they were limited in their involvement with the CSC by a variety of factors with the most common ones being time, funds, and other priorities.

About half of the respondents felt that climate adaptation science in Alaska was available to decision makers, but fewer respondents believed that decision makers use the climate adaptation science to inform policies and management. When asked specifically about the science produced through the Alaska CSC, the majority of the respondents agreed it can contribute to policy or management. Respondents were also generally positive about other characteristics of the CSC science, and the majority found it appropriate, high quality, and able to integrate well with other information.

The most common ways science users and producers reported that the Alaska CSC science was used were to inform management plans or inform the public about climate change and its impacts. Science users and producers differed in their perceptions of what limits the use of CSC science. Science producers perceived issues to be more limiting, than science users found them to be.

An overwhelming proportion of both science users and producers expressed support for co-production of knowledge. While many of the science producers indicated experience in co-production in various phases of research projects, many fewer science users reported first-hand experience. Co-production was more common in the early stages (setting priorities and identifying research questions) and late stages (interpreting and communicating results) of research than the middle stages. Science users reported that their involvement in co-produced research projects is most limited by scientists not reaching out to them to collaborate and having different perspectives from scientists on what science is needed.

The majority of respondents noted a variety of contributions of the Alaska CSC, including contributions to awareness of available science, collaboration between scientists, interdisciplinary science, and communication between scientists and decision makers.

## Northwest Results

### *Respondents*

Fifty-three percent (n = 29) of the 62 total respondents (7 skipped or were excluded from this question) reported that they make decisions about natural resource policy, management, or programs as part of their jobs. We refer to them as science users. Forty-three percent (n = 23) reported that they have produced climate adaptation science through an affiliation with the Northwest CSC, while 18% (n = 9) have produced climate adaptation science but never with such an affiliation. We refer to both of these groups as science producers (59%; n = 32). Twelve of the respondents (24%) were both science users and producers.

Respondents worked in one or more western states of the Northwest CSC. Three-quarters of the respondents (n = 38) worked all or part of the time in Oregon, while 60% (n = 31) worked in Washington and 44% (n = 23) worked in Idaho. Only 25% (n = 13) worked in Montana and 19% (n = 10) worked at least part of the time in other states, primarily in the West. One respondent noted that s/he works globally and another reported working in British Columbia.

Most of the respondents (78%; n = 40) worked at the regional scale or across multiple states for some or all of their work, while 59% (n = 30) worked at the watershed scale and 57% (n = 29) at the state scale. A smaller percentage conducted all or some of their work at the local (39%; n = 20), national (27%; n = 14), or international scales (22%; n = 11).

The greatest proportion of respondents was affiliated with federal agencies (40%; n = 21), followed by universities (38%; n = 21). A few respondents were affiliated with state agencies (12%; n = 6), non-profit organizations (10%; n = 5), local governments (2%; n = 1), tribal governments (2%; n = 1), or provincial governments (2%, n = 1).

Forty percent of respondents (n = 21) held research positions in their agency or organization, while somewhat less held leadership/administration positions (33%; n = 17). Few held policy (10%; n = 5) or operations (4%; n = 2) positions. Seven respondents wrote in a variety of other types of positions, including communications/outreach, education, technical support, science advisory, natural resource manager, and chaplain (note: this respondent was excluded from most of the survey questions because s/he reported that none of her work related to climate change). See Appendix C for tables of results for all survey items.

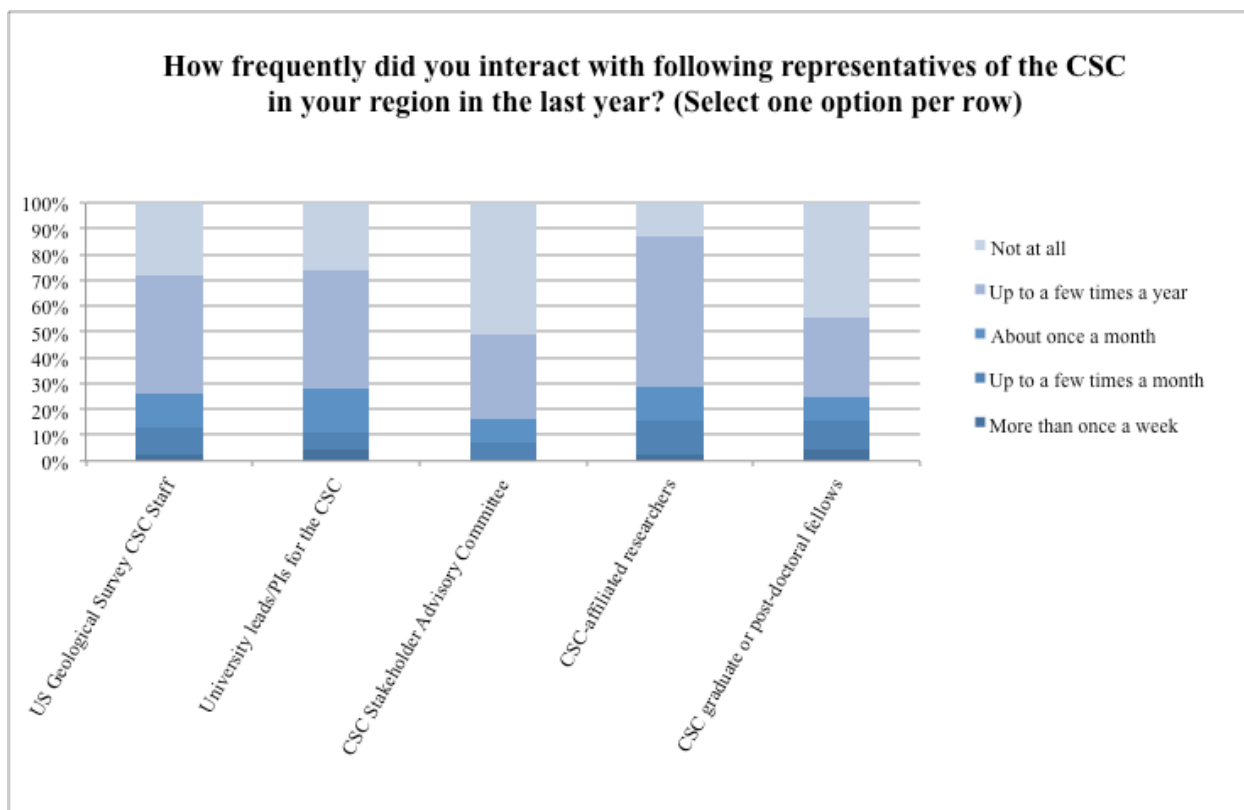
### *Extent of Involvement with the CSC*

Most of the respondents (81%; n = 48) reported that they have had at least some interest in or involvement with the Northwest CSC. Just 10% (n = 6) reported that they had no involvement but someone else in their agency or organization did and another 3% (n = 2) had no interest or involvement. A very small percentage (5%; n = 3) of the respondents had never heard of the CSC.

Respondents reported a variety of forms of involvement with the CSC. The most common form of involvement (42%; n = 20) was being a CSC grant recipient, applicant, or partner on a grant, followed by a participant in a CSC training, webinar, workshop, or conference (35%; n = 17) or a resource manager or decision maker who has used the science produced by the CSC (35%; n = 17). Less commonly, respondents were involved as CSC Stakeholder Advisory Committee members (27%; n = 13) or university members affiliated with the CSC (21%; n = 10). Additionally, 15% (n = 7) reported that they were Landscape Conservation Cooperative Steering Committee members and 10% (n = 5) reported that they were Landscape Conservation Cooperative staff members. Only 6% (n = 3) were CSC-funded graduate students or postdoctoral fellows, and 4% (n = 2) were CSC US Geological Survey staff.

On average respondents have been involved with the Northwest CSC for 3.5 years.

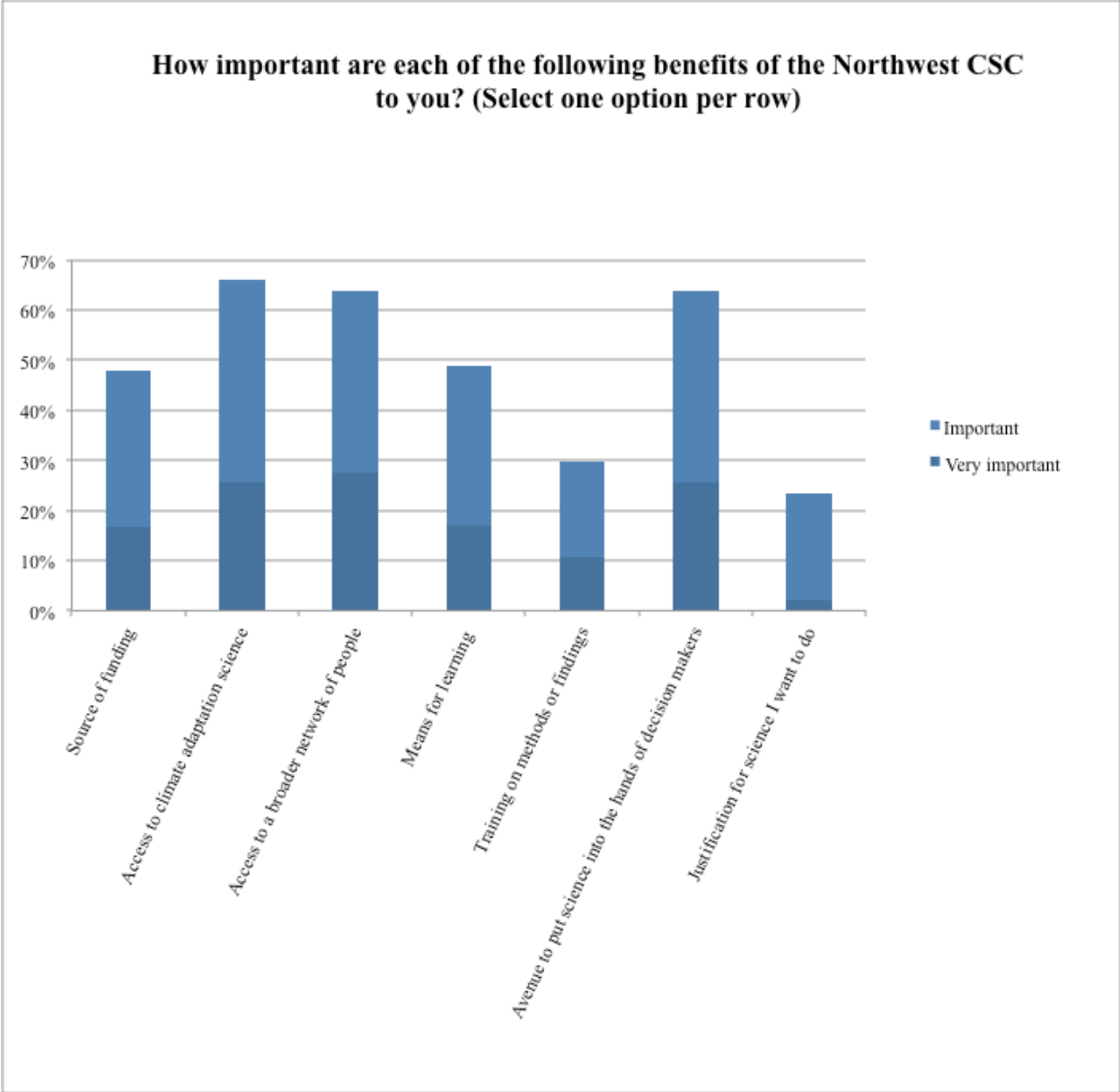
The respondents reported on their frequency of interaction with four types of CSC representatives and with the CSC Stakeholder Advisory Committee (see figure below). For their interactions with three of the types (US Geological Survey CSC staff; University leads/PIs for the CSC; and CSC-affiliated researchers) the modal response was “up to a few times a year.” The level of interaction respondents had with USGS CSC staff and with University leads/PIs was comparable. For their interaction with CSC graduate or post-doctoral fellows, the modal level was lower: 44% of respondents interacted with them not at all and 31% interacted with them up to a few times a year. For their interaction with CSC Stakeholder Advisory Committee members, the modal level of interaction was lowest: 51% of respondents interacted with them not at all and 33% interacted with them up to a few times a year.



Note: Although CSC Stakeholder Advisory Committee members are not “representatives” of the CSC, they were included in this question, too.

### ***Benefits of Involvement***

The most important benefits of the CSC were “access to climate adaptation science” (65%; n = 31 describing as “important” or “very important”; see figure below), “access to a broader network of people interested in climate adaptation science” (63%; n = 30), and “avenue to put climate adaptation science into the hands of decision makers” (63%; n = 30; see figure below). In contrast, the least important benefits were “justification for science I want to do” (important or very important to 23%; n = 11) and “training on climate adaptation science methods or findings” (29%; n = 14). Finally, in between the extremes, about half of the respondents found the benefits “source of funding for climate adaptation science” (48%; n = 23) and “means for learning about climate adaptation” (48%; n = 23) to be important or very important.

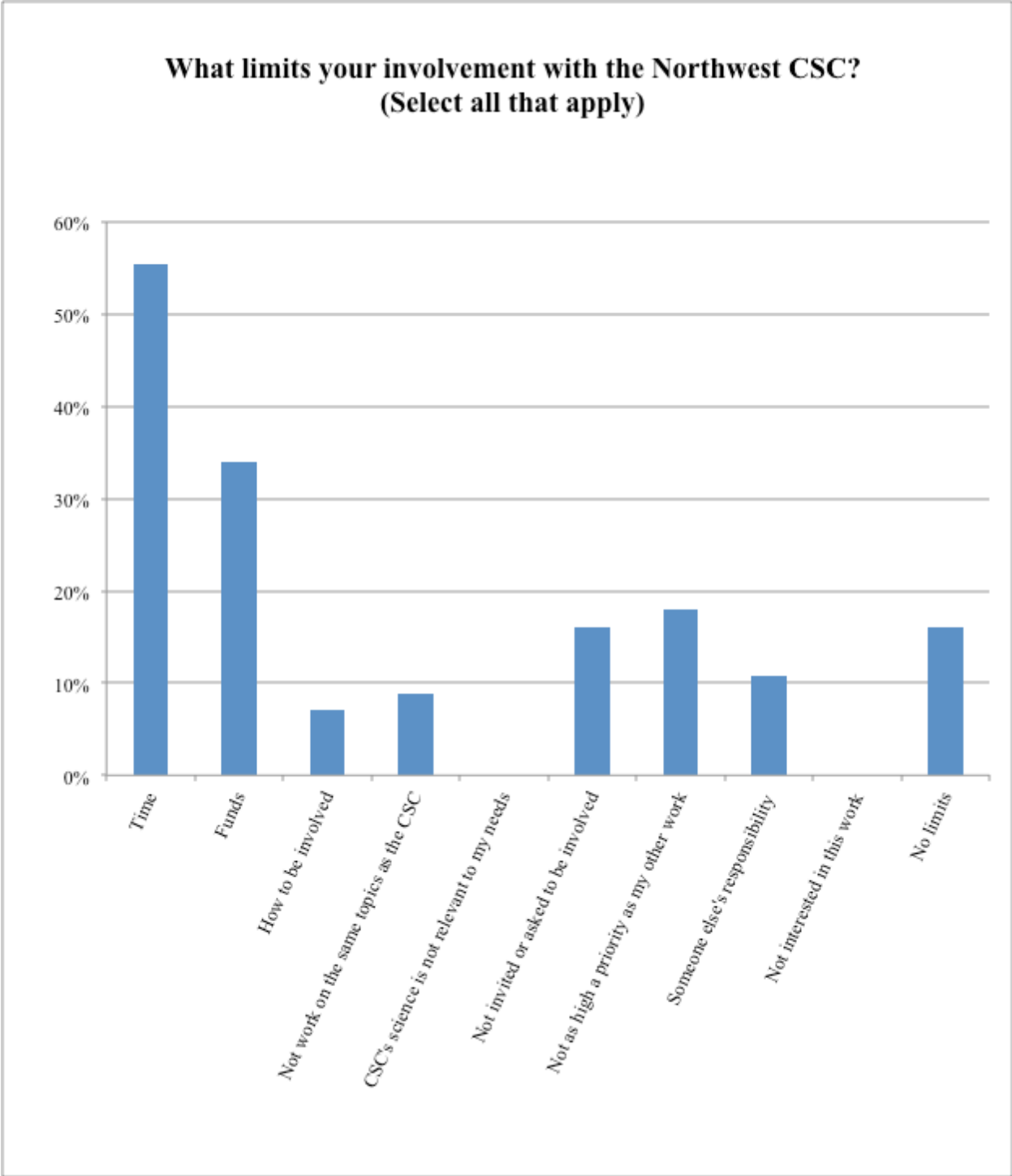


Note: text in items shortened for presentation in graph, and only “important” or “very important” responses are shown. Full results in table in appendix.

***Limitations on Involvement***

Most respondents (84%; n = 47) reported limits to their involvement with the CSC (see figure below). The most common (55%; n = 31) limit was not having enough time, followed by not having enough funds (34%; n = 19). A smaller percentage of respondents reported limits that could be addressed by the CSC, including not being invited/being asked to be involved (16%; n = 9) or not knowing how to be involved (7%; n = 4). Other limits, which would be more of a challenge for the CSC to address, included it not being as high of a priority as other work for respondents (18%; n = 10) and not working on the same topics as the CSC (9%; n = 5). No respondents reported that they were limited by the CSC’s science being irrelevant to their needs or not being interested in this work.



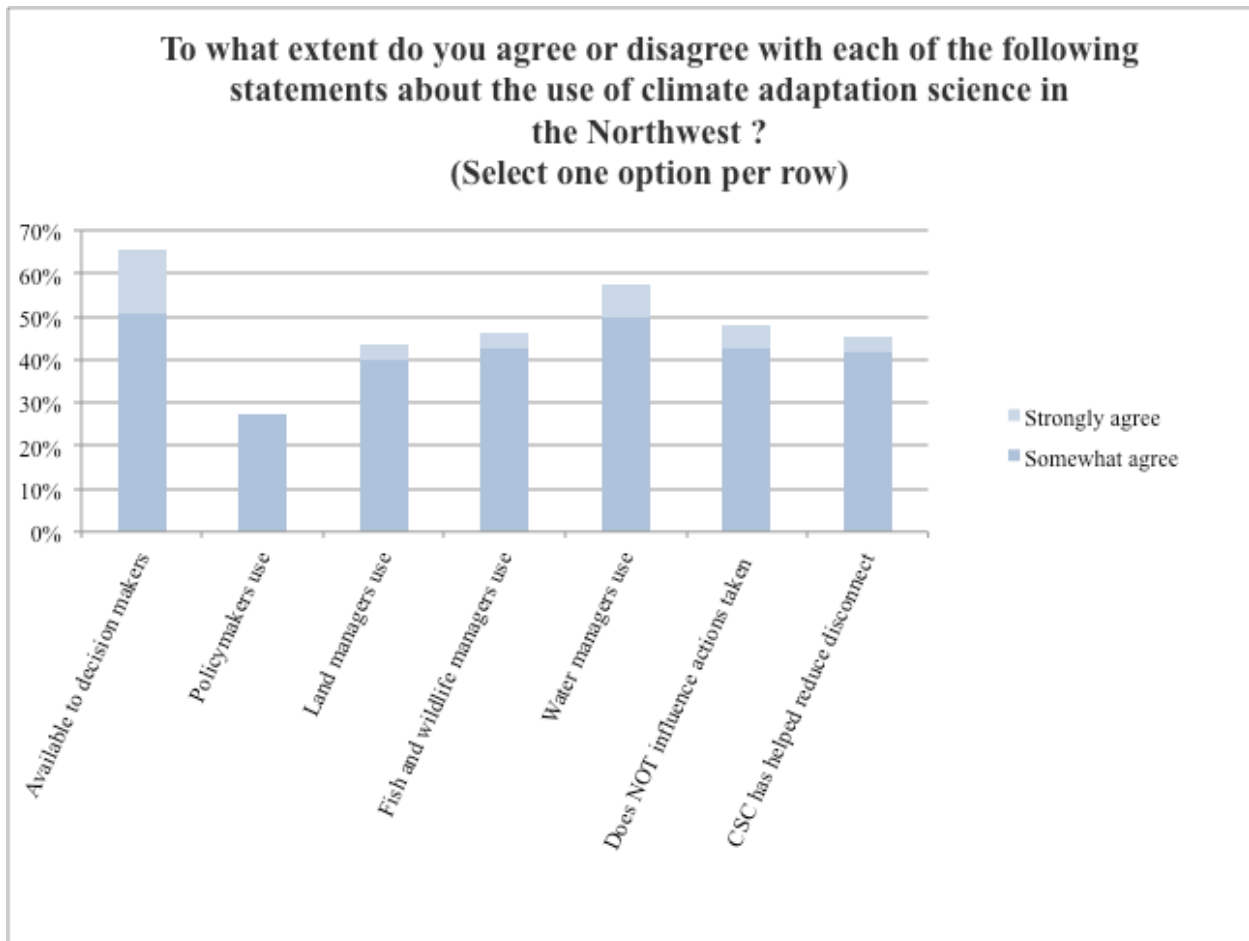


Note: text in items shortened for presentation in graph. Full text in table in appendix.

***Is Climate Adaptation Science Actionable?***

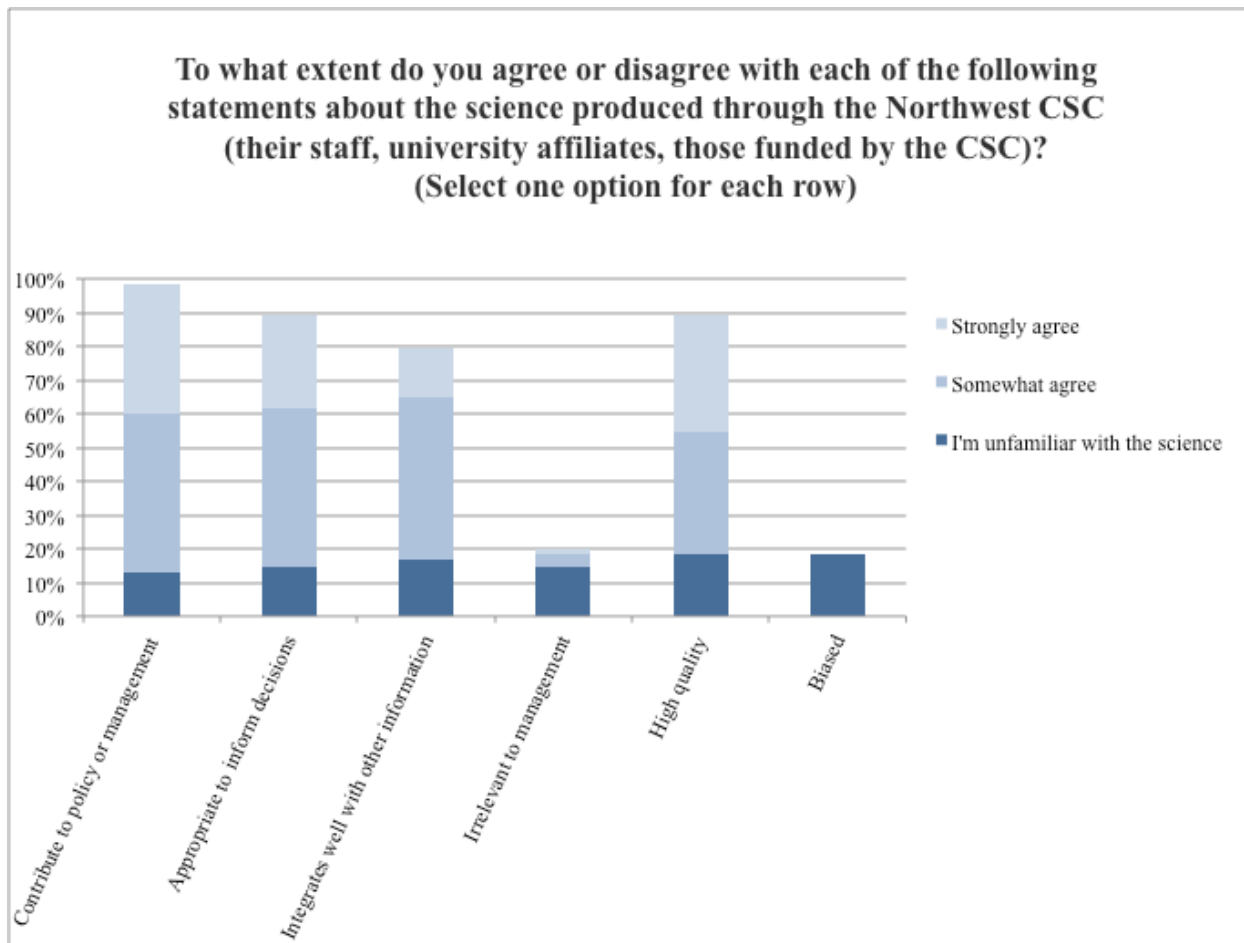
Respondents shared their perceptions both of climate adaptation science, in general, and of the climate adaptation science produced by the CSC. With regard to climate adaptation science in general, more than half of respondents (60%; n = 33) agreed or strongly agreed that climate adaptation science in the Northwest is available to decision makers (see figure below), but fewer respondents believed that various

types of decision makers used the climate adaptation science to inform policies and management. The greatest number of respondents (57%; n = 31) believed that water managers used the science, followed by fish and wildlife managers (46%; n = 25), and land managers (44%; n = 24). The fewest number of respondents (27%; n = 15) believed that policymakers used the science. More generally, about half of the respondents (48%; n = 26) felt that climate adaptation science does not influence actions taken by decision makers. Yet, about the same number of respondents (45%; n = 25) felt the CSC has helped reduce this disconnect between what is known about climate adaptation and the actions taken by decision makers in the region.



Note: text in items shortened for presentation in graph. Full text in table in appendix.

Northwest CSC produced science was perceived by the majority of the respondents (85%; n = 47) as contributing to policy or management (see figure below). Of those that did not agree, most reported that they were unfamiliar with the science (13%; n = 7). Respondents were also generally positive about other characteristics of the CSC science, finding it appropriate to inform decisions (75%; n = 47), high quality (85%; n = 47), and able to integrate well with other information (71%; n = 47). No respondents found the science to be biased, and only 5% (n = 3) respondents strongly or somewhat agreed that it was irrelevant to management. For all of these items, 12-18% of the respondents reported they were unfamiliar with the science and did not respond on its characteristics.



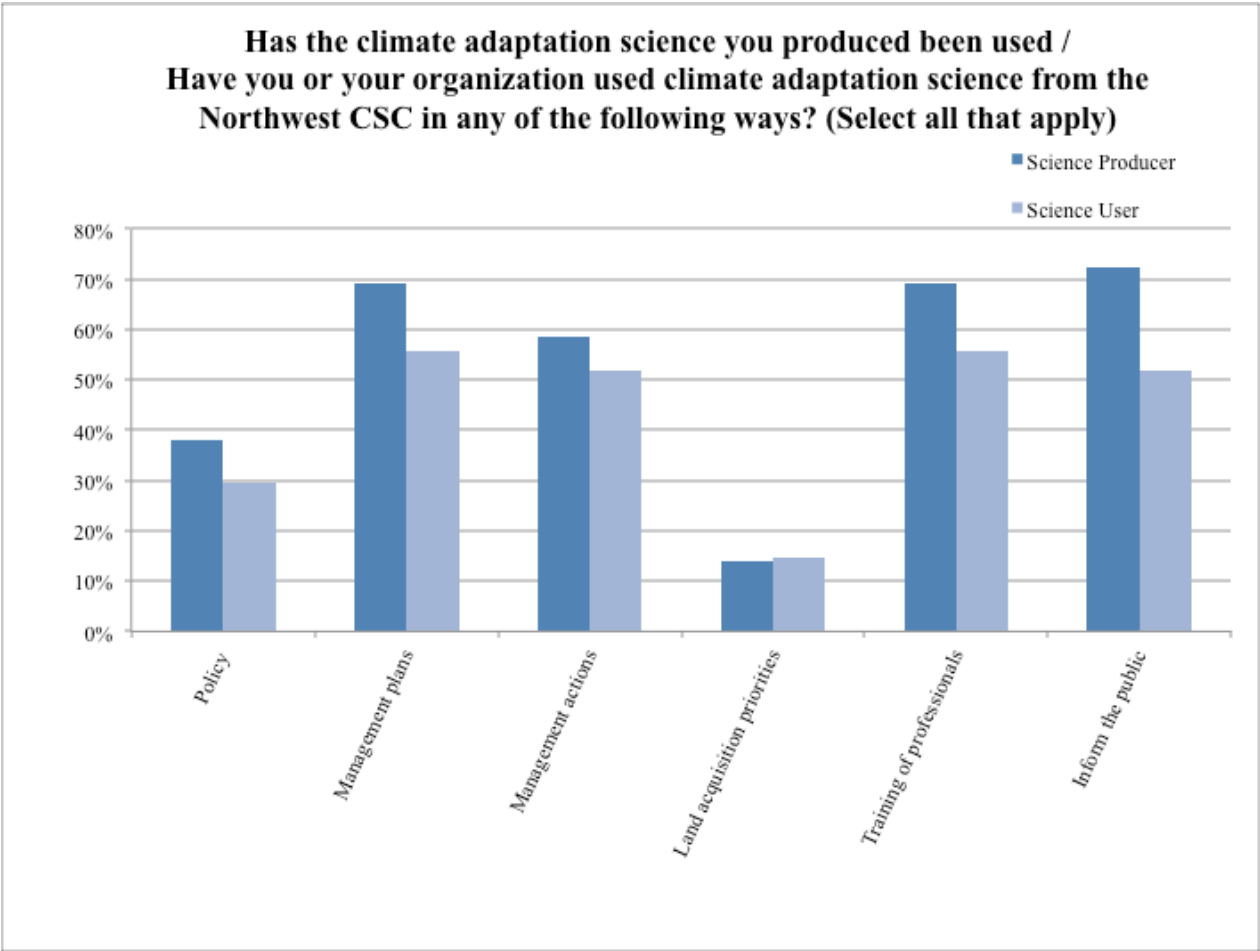
Note: text in items shortened for presentation in graph, and only “strongly agree”, “somewhat agree”, or “I’m unfamiliar with the science” responses are shown. Full results in table in appendix.

### ***Science Users’ and Producers’ Use of Climate Adaptation Science***

Of the 29 respondents who reported that they were science users, 71% (n = 20) reported that they or someone in their organization had used climate adaptation science produced via sources the Northwest CSC. Similarly, 70% (n = 19) reported that they or someone in their organization has used climate adaptation science from sources not affiliated with the CSC.

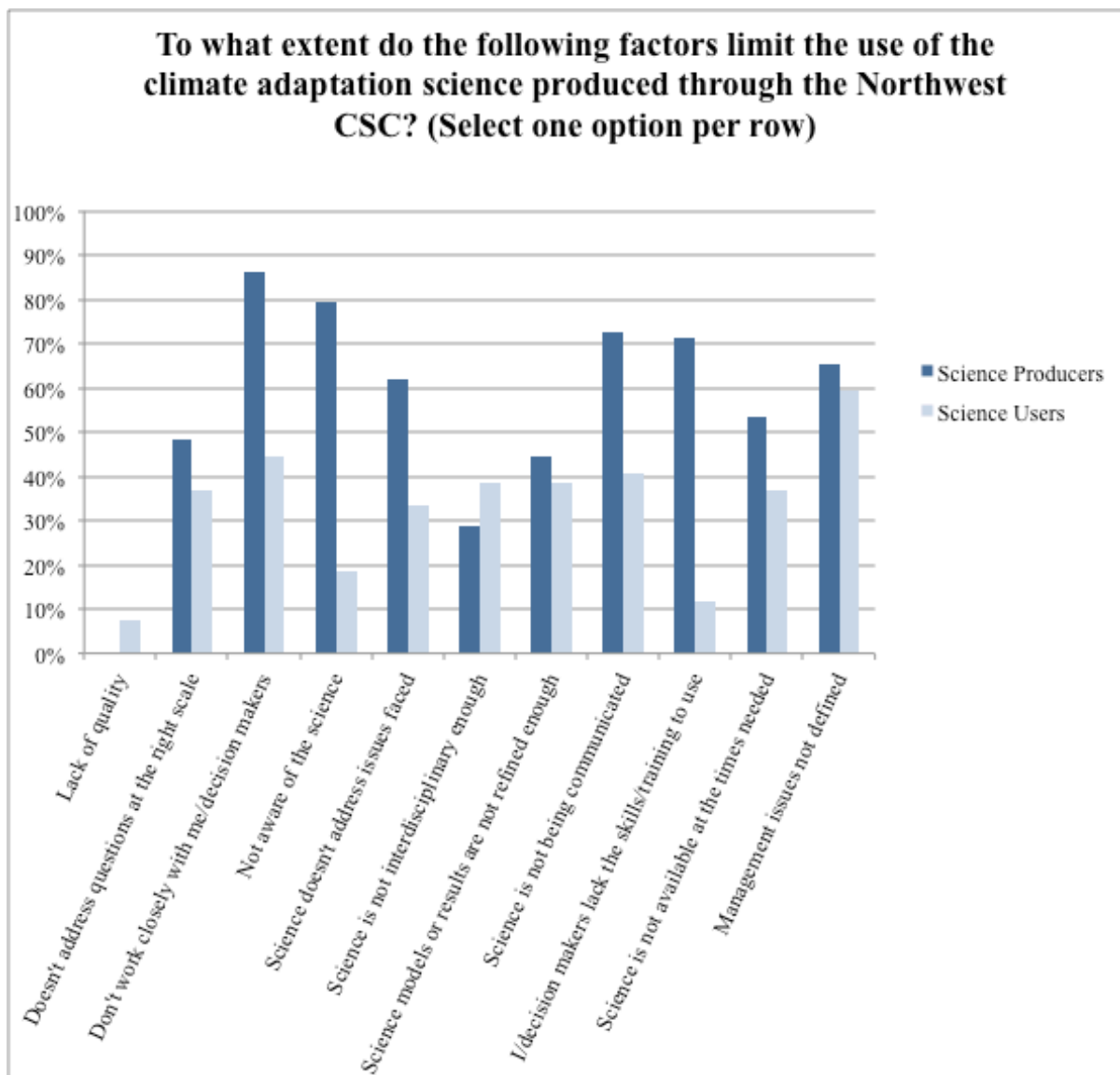
The most common ways science user respondents reported using the Northwest CSC science were to inform: management plans (56%; n = 15); training of conservation professionals about climate change and its impacts (56%; n = 15); management actions (52%; n = 14); or the public about climate change and its impacts (52%; n = 14). Less common ways science users reported using CSC science were to inform policy (30%; n = 8) and land acquisition priorities (15%; n = 4).

Responses to this same question posed to science producers yielded a similar pattern of the most common and least common ways science was used, but with a higher frequency of use reported for most ways science was used (see figure below). The most common ways science producers reported using the science were to inform: management plans (69%; n = 20); training of conservation professionals about climate change and its impacts (69%; n = 20); management actions (59%; n = 17); or the public about climate change and its impacts (72%; n = 21). Less common ways science producers respondents reported using CSC science were to inform policy (38%; n = 11) and land acquisition priorities (14%; n = 4).



Note: text in items shortened for presentation in graph. Additionally, text varied slightly for science producers and users. Full text in table in appendix.

Science users and producers differed in their perceptions of what limits the use of CSC science (see figure below). In nearly all cases, more science producers than science users perceived limits (not specifically to them) to using CSC science to a moderate, large, or very large extent. Interestingly, the two factors which science users thought were bigger limitations on the use of science than did the science producers were lack of quality of the science (science users – 7%; science producers – 0%) and the science not being interdisciplinary enough (science users – 38%; science producers – 29%). Three of the most common limitations cited were the same for science users and producers: scientists not working closely with decision makers (science users – 44%; science producers – 86%); science not being communicated clearly (science users – 41%; science producers – 72%); and management issues not being defined clearly enough (science users – 59%; science producers – 66%). The latter was the most important factor from the perspective of the users. A majority of science producers (79%) also felt that the use of science was limited by decision makers not being aware of the science, while few science users (19%) agreed.



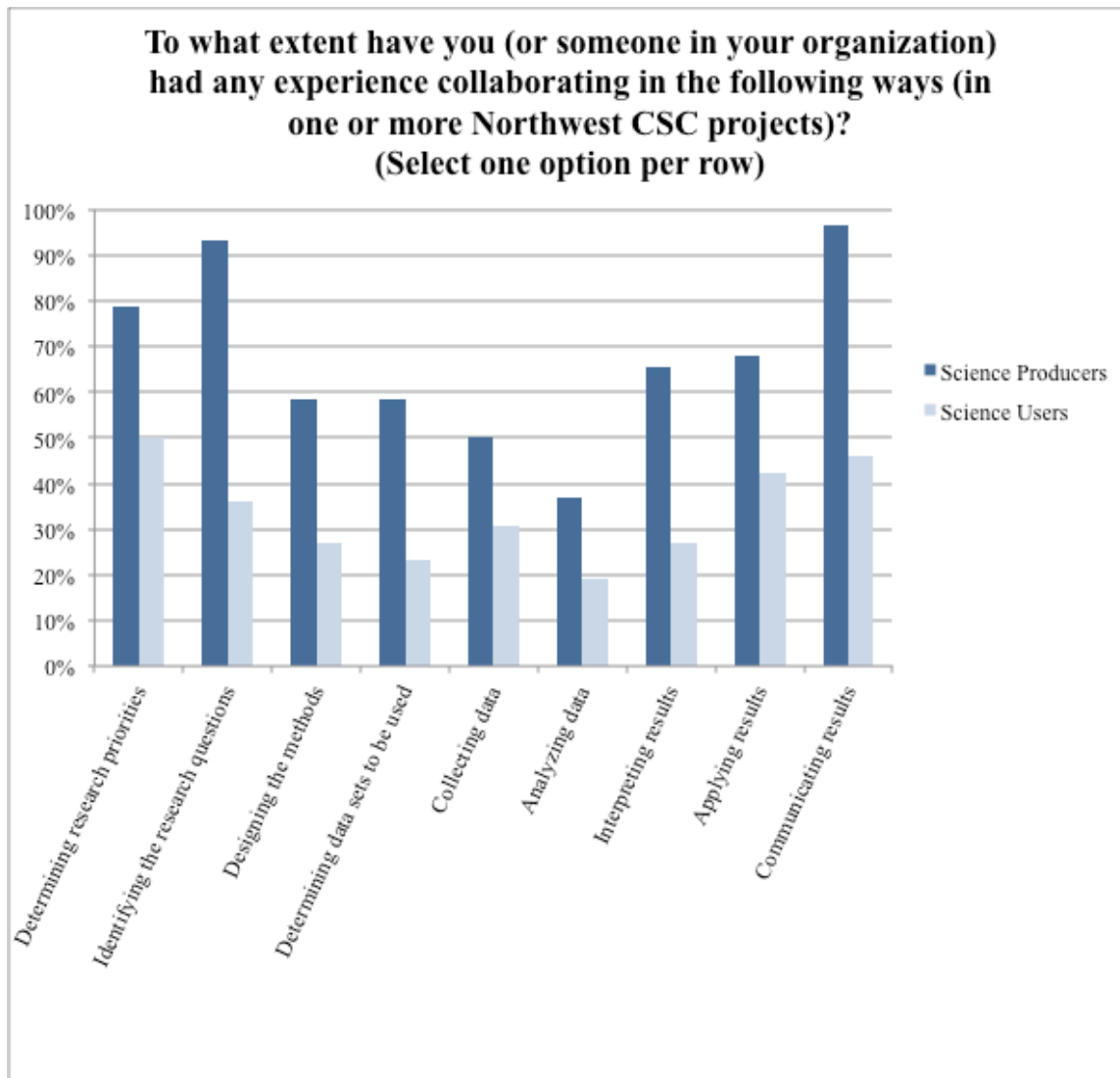
Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Additionally, text varied slightly for science producers and users. Full results and text in tables in appendix.

### ***Science Users’ and Producers’ Engagement in Co-production of Knowledge***

Respondents reported on their beliefs about co-production of knowledge in general. An overwhelming proportion of both science users (96%; n = 27) and producers (90%; n = 26) expressed support for co-production, indicating it was important or very important for climate adaptation scientists and natural resources decision makers to work together to produce science research.

While many of the science producers indicated experience in co-production in various aspects of research projects, far fewer science users reported experience with each aspect (see figure below). It should be noted that this question was asked in reference to the CSC specifically for users, but that specification was not made for producers. For both groups, the aspects with the most individuals reporting experience with co-production were similar: communicating results (science users – 46%; science producers – 97%), identifying research questions (science users – 36%; science producers – 93%), determining research

priorities (science users – 50%; science producers – 79%), and applying results (science users – 42%; science producers – 68%). Both groups had the least experience with working together on analyzing data (science users – 19%; science producers – 37%).

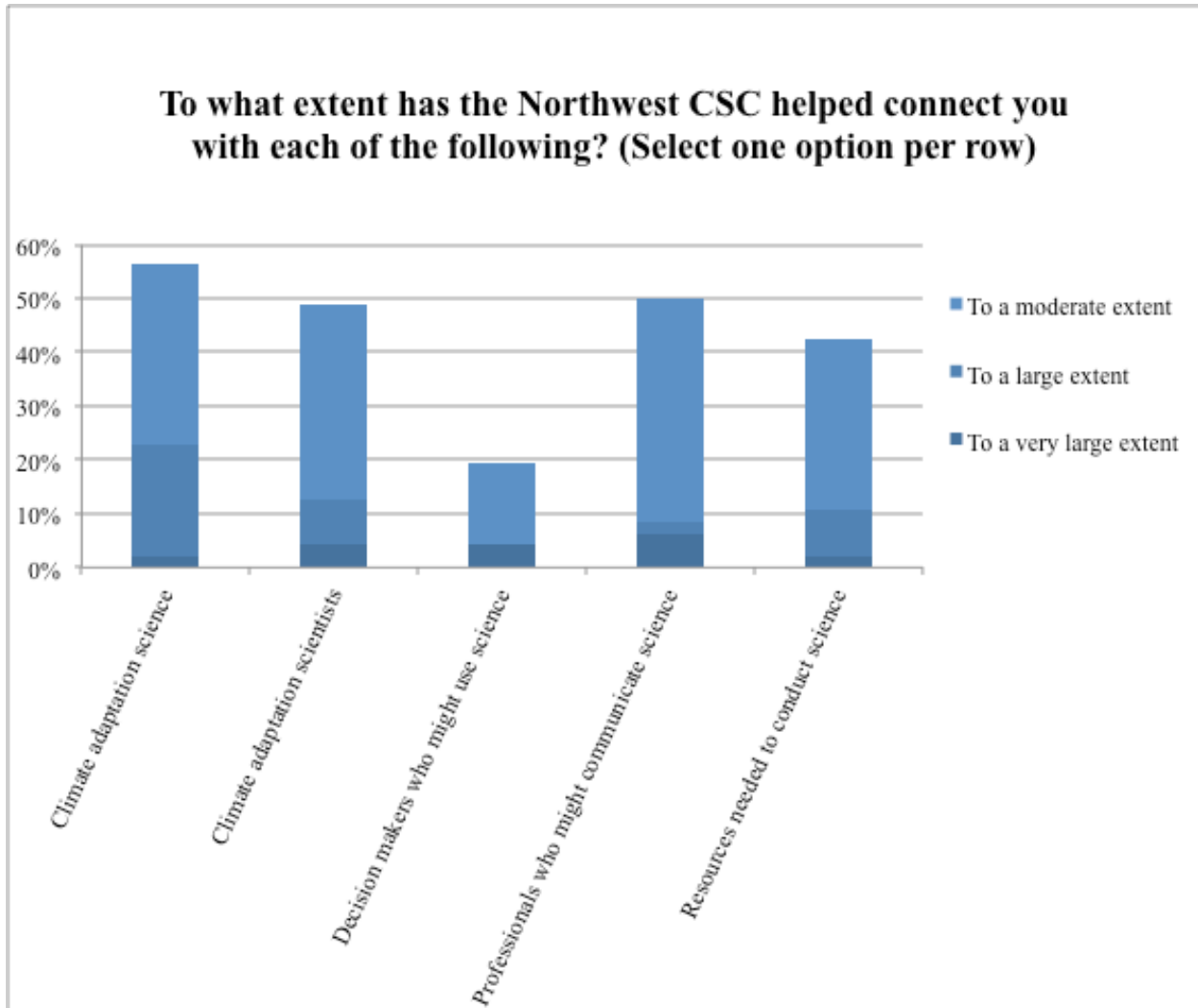


Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Additionally, the text of the question varied slightly for science producers and users (e.g., the users’ version referencing “you or someone in your organization” and specifying a Northwest CSC project). Full results and text in tables in appendix.

Regarding science users’ limitations to involvement in research, having different perspectives from scientists on what science is needed was the most common issue identified (54%; n = 14 agreed or strongly agreed), followed by scientists not reaching out to them to collaborate (42%; n = 11), and having different perspectives from scientists on how research projects should be conducted (35%; n = 9). Other factors were perceived to limit the involvement of smaller numbers of respondents: funders not being supportive of collaboration between scientists and science users (19%; n = 5), and scientists not being interested in listening to them (15%; n = 4). Notably, not having enough time was a limitation for few science users (31%; n = 9), although it had limited their involvement in the CSC (see above).

**Perceptions of the Role of the CSC**

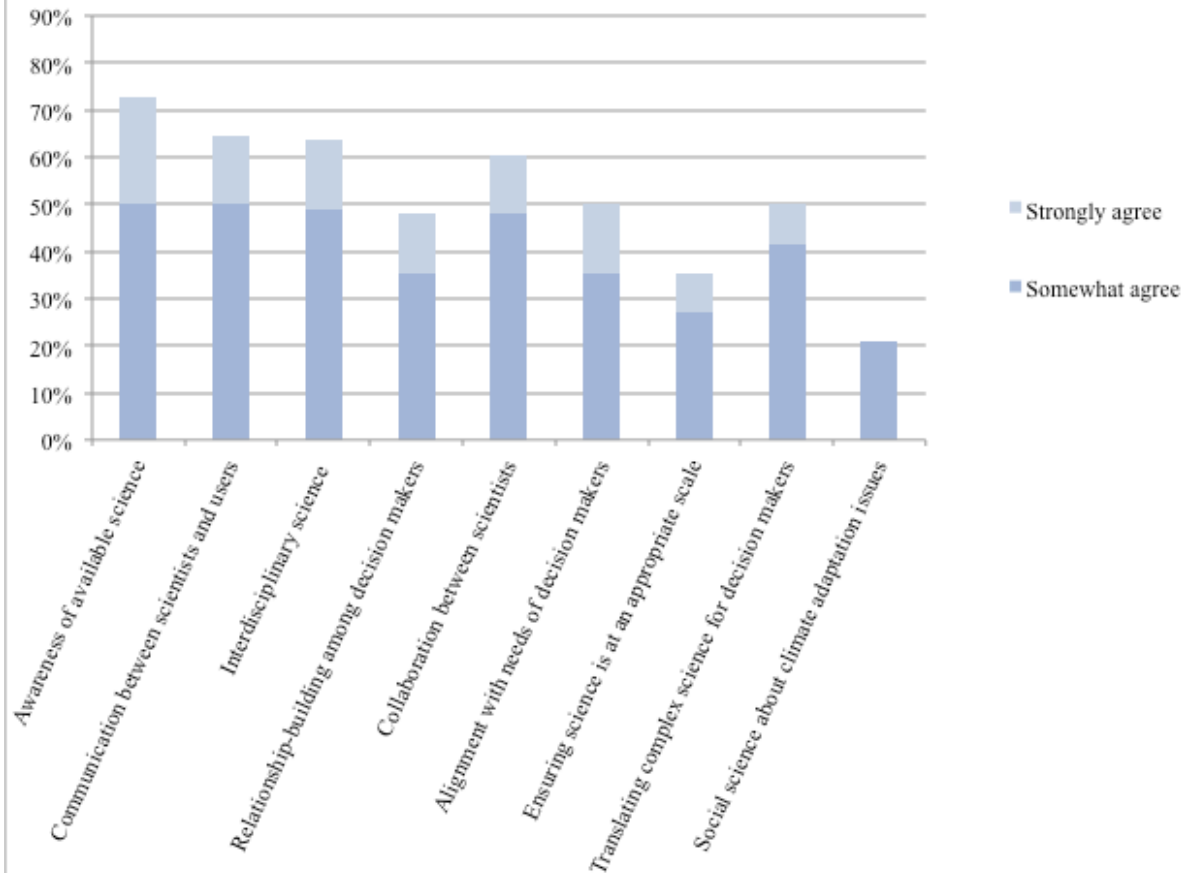
The Northwest CSC has helped facilitate various connections, with most respondents reporting help making connections “to a moderate extent” (see figure below). The most common connections reported were with climate adaptation science itself (56%; n = 27), professionals who might communicate climate adaptation science (50%; n = 24), climate adaptation scientists (49%; n = 23), and resources needed to conduct science (43%; n = 20). Considerably fewer respondents reported help in connecting with decision makers who might use science (20%; n = 9).



Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Full results and text in tables in appendix.

When evaluating the Northwest CSC’s contributions, the greatest number of respondents agreed that it contributed to awareness of available science (73%; n = 35), communication between scientists and decision makers (65%; n = 31), interdisciplinary science (64%; n = 30), and collaboration between scientists (60%; n = 29; see figure below). Although many respondents agreed that the CSC made interdisciplinary science contributions, the disciplines must not include social sciences because only 21% of respondents (n=10) felt the CSC contributed to social science about climate adaptation issues. About half of the respondents indicated that the CSC contributed to relationship building among decision makers and alignment of science with needs of decision makers. Only a third indicated contributions to translating complex science for decision makers.

**Do you agree or disagree that the Northwest CSC contributes to the following in your region?  
(Select one option per row)**



Note: text in items shortened for presentation in graph, and only “strongly agree” or “somewhat agree” responses are shown. Full results in table in appendix.

***Summary of Northwest Results***

Respondents represented science users and science producers (both those affiliated with the CSC and those not so affiliated) and a variety of types of organizations and agencies and positions, with federal agencies and universities being most common.

Most of the respondents had at least some interest in or involvement with the Northwest CSC. This involvement came in a variety of forms, with the most common involvement being as a grant recipient,



science user, or participant in a training, webinar, workshop, or conference. The level of interaction respondents had with USGS CSC staff was comparable to that with University leads/PIs.

The CSC provided many important benefits to partners with the top ones being putting science in the hands of decision makers, providing access to science, and providing access to a network of people interested in climate adaptation science. Respondents reported they are limited in their involvement with the CSC by a variety of factors with the most common ones being time and funds.

More than half of the respondents felt that climate adaptation science in the Northwest is available to decision makers, but fewer of the respondents believed that various types of decision makers use the climate adaptation science to inform policies and management. When asked specifically about the science produced through the Northwest CSC, the majority of the respondents agreed it can contribute to policy or management. When asked specifically about the science produced through the CSC, respondents were also generally positive about other characteristics of the CSC science, and the majority found it appropriate, high quality, and able to integrate well with other information.

The most common ways science users and producers reported that the Northwest CSC science was used were to inform management plans, training of conservation professionals, management actions, and the public about climate change and its impacts. Science users and producers differed in their perceptions of what limits the use of CSC science. Science producers perceived issues to be more limiting, than science users found them to be.

An overwhelming proportion of both science users and producers expressed support for co-production. While many of the science producers indicated experience in co-production in various phases of research projects, many fewer of the science users reported first-hand experience. Co-production was more common in the early stages (setting priorities and identifying research questions) and late stages (interpreting, applying, and communicating results) of research than the middle stages. Science users reported that their involvement in co-produced research projects was most limited by scientists not reaching out to them to collaborate and different perspectives on what science is needed.

The majority of respondents noted a variety of contributions of the Northwest CSC, including contributions to awareness of available science, collaboration between scientists, interdisciplinary science, and communication between scientists and decision makers.

## **Southeast Results**

### ***Respondents***

Forty-six percent (n = 55) of the 142 total respondents reported (22 skipped or were excluded from this question) that they make decisions about natural resource policy, management, or programs as part of their jobs. We refer to them as science users. Thirty-five percent (n = 41) reported that they have produced climate adaptation science through an affiliation with the Southeast CSC, while 23% (n = 27) have produced climate adaptation science but never with such an affiliation. We refer to both of these groups as science producers (57%; n = 68). Twenty-three of the respondents (19%) were both science users and producers.

Respondents to the survey reported working in all twelve of the states and the one territory in the Southeast CSC's region, yet most respondents (47%; n = 51) reported working in North Carolina (where the CSC is located). Florida (27%; n = 29), Louisiana (19%; n=21), and South Carolina (19%; n = 20) were the next most common states reported by respondents. Missouri (4%; n = 4), Arkansas (7%; n = 8), and Kentucky (8%; n = 9) were least common. Additionally, nineteen respondents wrote that they worked in other states in the United States, or nationwide, or in the U.S. Virgin Islands.

Most of the respondents (73%; n = 79) worked at the scale of the state, while 66% (n = 71) worked at the regional/multi-state scale, 47% (n=51) at the local scale, or 45% (n = 49) at the national scale. A smaller percentage conducted all or some of their work at the international (29%; n = 31), or watershed scales (39%; n = 42).

The greatest proportion of respondents was affiliated with federal agencies (34%; n = 37) or universities (34%; n = 37). Fewer respondents were affiliated with state agencies (19%; n = 21) or non-profit organizations (11%; n = 12). One individual was affiliated with tribal governments, and one was affiliated with private industries. No one was affiliated with local governments.

Nearly half of the respondents (47%; n = 51) held research positions in their agency or organization, while about a third (34%; n = 37) held leadership/administration positions. Few held policy (4%; n = 4) or operations (17%; n = 7) positions. Nine respondents wrote in other types of positions, including communications/outreach, education, consultant, and partnership coordinator. See Appendix D for tables of results for all survey items.

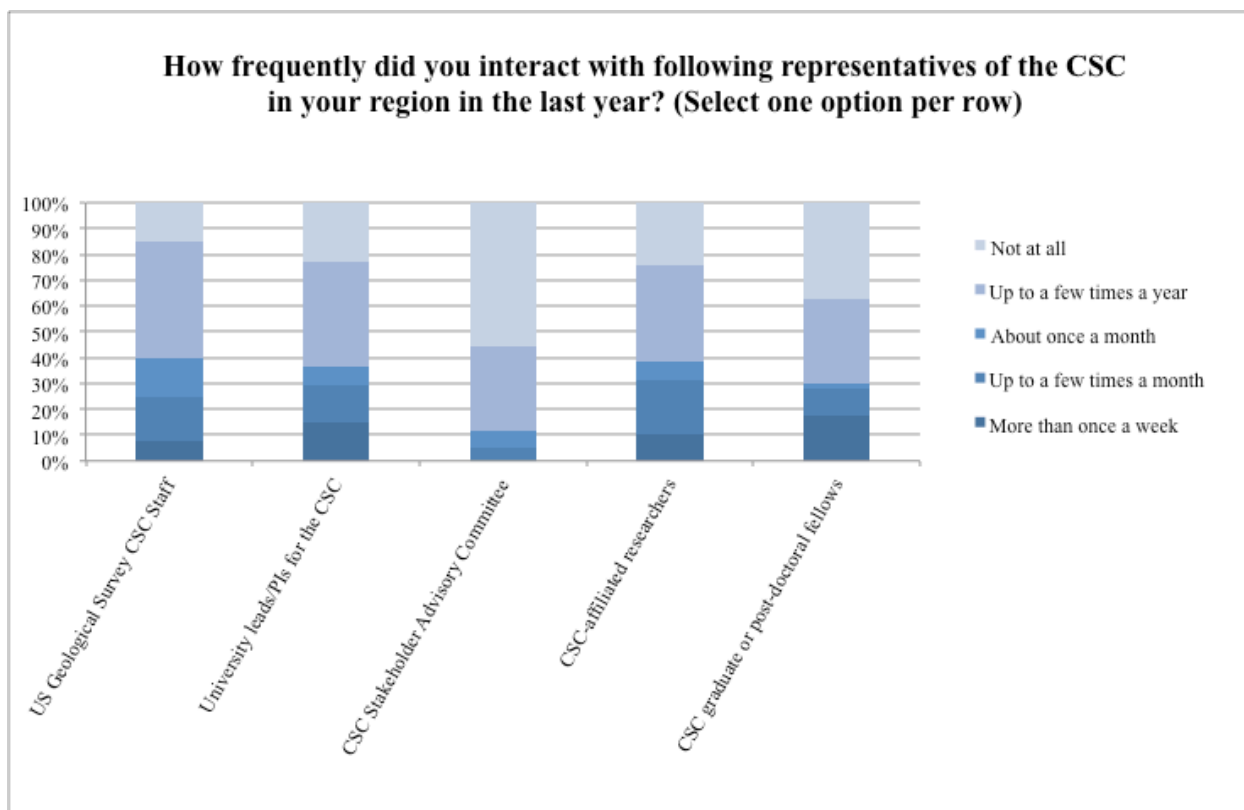
### ***Extent of Involvement with the CSC***

Most of the respondents (77%; n = 102) reported that they have had at least some interest in or involvement with the Southeast CSC. Just 13% (n = 17) reported that they had no involvement but someone else in their agency or organization did and another 8% (n = 10) had no interest or involvement even though they had heard of it. A very small percentage (3%; n = 4) of the respondents had never heard of the CSC.

Respondents reported a variety of forms of involvement with the CSC. Most common (31%; n = 31) was involvement as a participant in a CSC training, webinar, workshop, or conference, followed by CSC-funded graduate student or postdoctoral fellow (26%; n = 26), a university member affiliated with the CSC (23%; n = 23), a CSC grant recipient, applicant, or partner (21%; n = 21), or a resource manager or decision maker who had used the science produced by the CSC (17%; n = 17). Only six (6%) CSC Stakeholder Advisory Committee members responded to the survey, and 1% (n = 1) was a CSC US Geological Survey staff. Additionally, about a quarter (26%; n = 27) were Landscape Conservation Cooperative Steering Committee members, while 10% (n = 10) were Landscape Conservation Cooperative staff members.

On average, respondents have been involved with the Southeast CSC for 3.5 years.

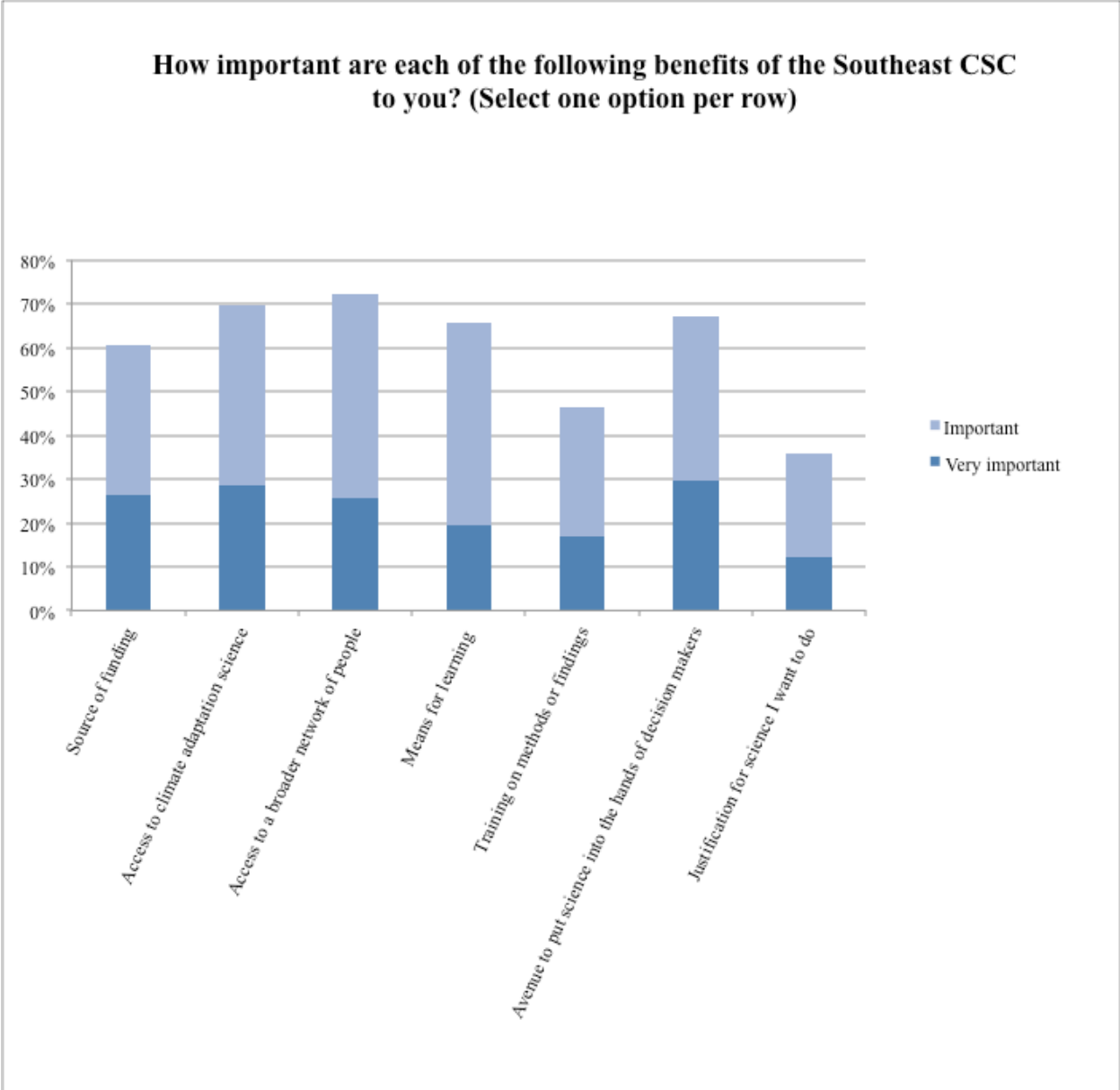
The respondents reported on their frequency of interaction with four types of CSC representatives and with the CSC Stakeholder Advisory Committee (see figure below). For their interactions with three of the types (US Geological Survey CSC staff; University leads/PIs for the CSC; and CSC-affiliated researchers) the modal response was “up to a few times a year.” For their interaction with CSC graduate or post-doctoral fellows, the modal level was lower: 38% of respondents interacted with them not at all and 32% interacted with them up to a few times a year. For their interaction with CSC Stakeholder Advisory Committee members, the interaction was lowest: 56% of respondents interacted with them not at all and 32% interacted with them up to a few times a year. The level of interaction respondents had with USGS CSC staff was slightly higher than with University leads/PIs.



Note: Although CSC Stakeholder Advisory Committee members are not “representatives” of the CSC, they were included in this question, too.

### ***Benefits of Involvement***

The benefits of the CSC that were reported as important or very important to the highest number of respondents were “access to a broader network of people interested in climate adaptation science” (72%; n = 73), “access to climate adaptation science” (70%; n = 71), “avenue to put climate adaptation science into the hands of decision makers” (67%; n = 68), “means for learning about climate adaptation” (66%; n = 67), and “source of funding for climate adaptation science” (61%; n = 60; see figure below). In contrast, the benefits that were important or very important to the least number of respondents were “justification for science I want to do” (36%; n = 35) and, “training on climate adaptation science methods or findings” (47%; n = 47).

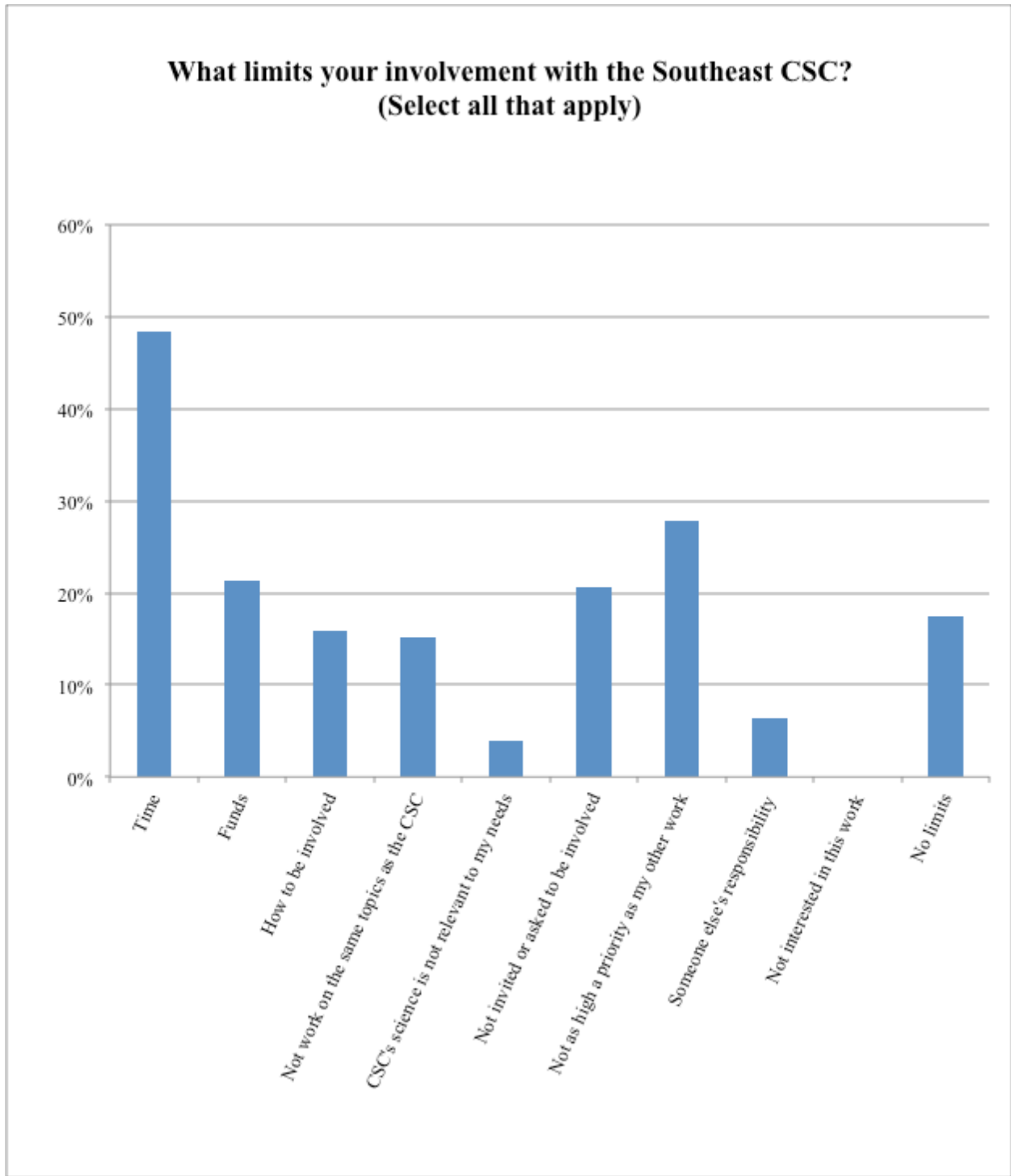


Note: text in items shortened for presentation in graph, and only “important” or “very important” responses are shown. Full results in table in appendix.

***Limitations on Involvement***

Most of the survey respondents (83%; n = 104) reported that there are limits to their involvement with the CSC (see figure below). The most common limit was not having enough time (48%; n = 61), followed by their involvement not being as high of a priority as other work for respondents (28%; n = 35), and not having enough funds (21%; n = 27). A smaller percentage of respondents reported limits that could be addressed by the CSC, including not being invited/being asked to be involved (21%; n = 26), or not knowing how to be involved (16%; n = 20). Other limits, which may be more of a challenge for the CSC to address included not working on the same topics as the CSC (15%; n = 19) and the perception that the CSC’s science was irrelevant to their needs (4%; n = 5). No respondents reported not being interested in the CSC’s work. Sixteen respondents provided additional comments about limitations, including multiple comments about working with another CSC or an LCC instead. Notable concerns respondents had about

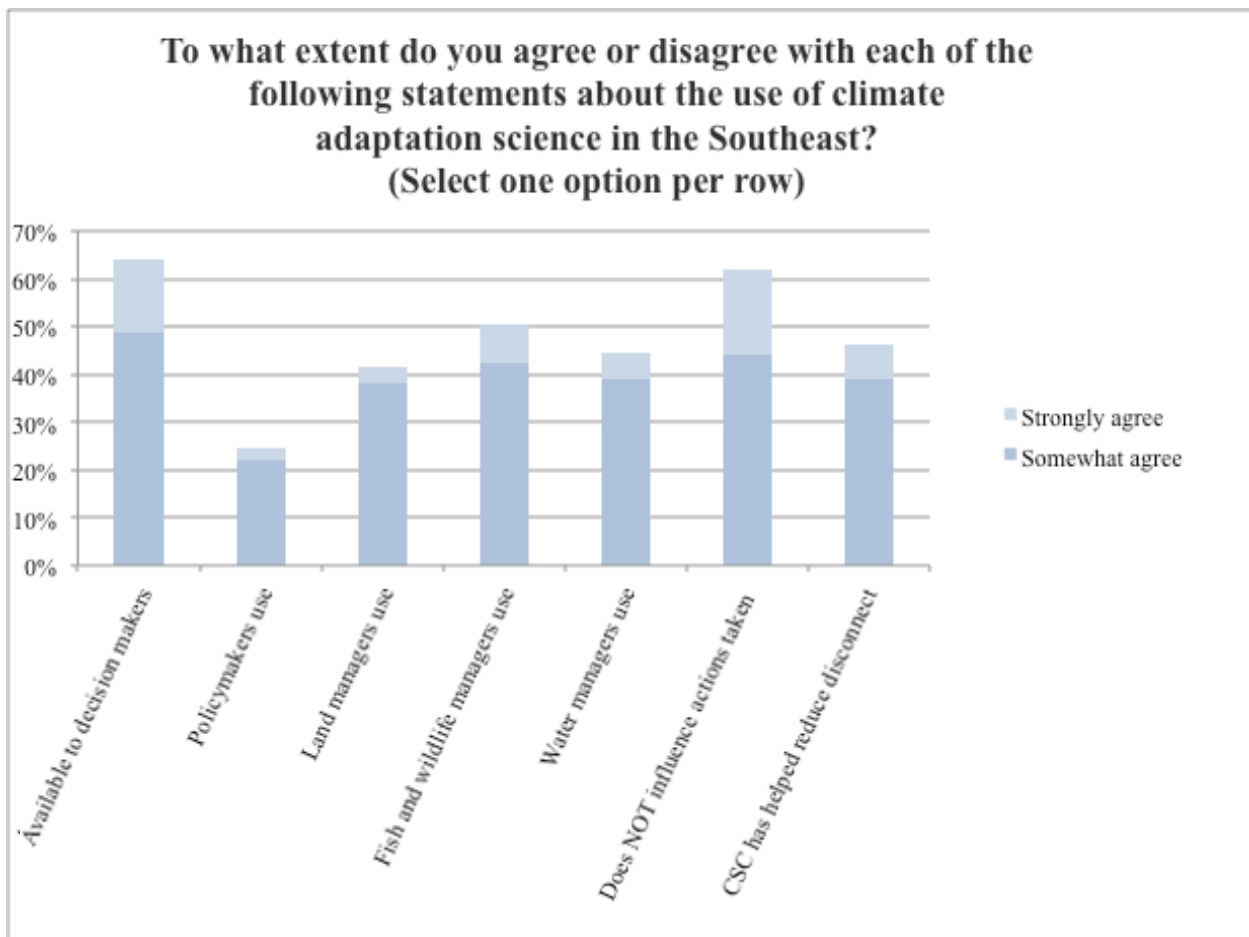
the CSC included the CSC can be insular, only affiliated faculty are competitive for grants, and the CSC USGS staff does not reach out enough to faculty members to develop projects and garner support for projects like USGS Cooperative Unit staff do.



Note: text in items shortened for presentation in graph. Full text in table in appendix.

***Is Climate Adaptation Science Actionable?***

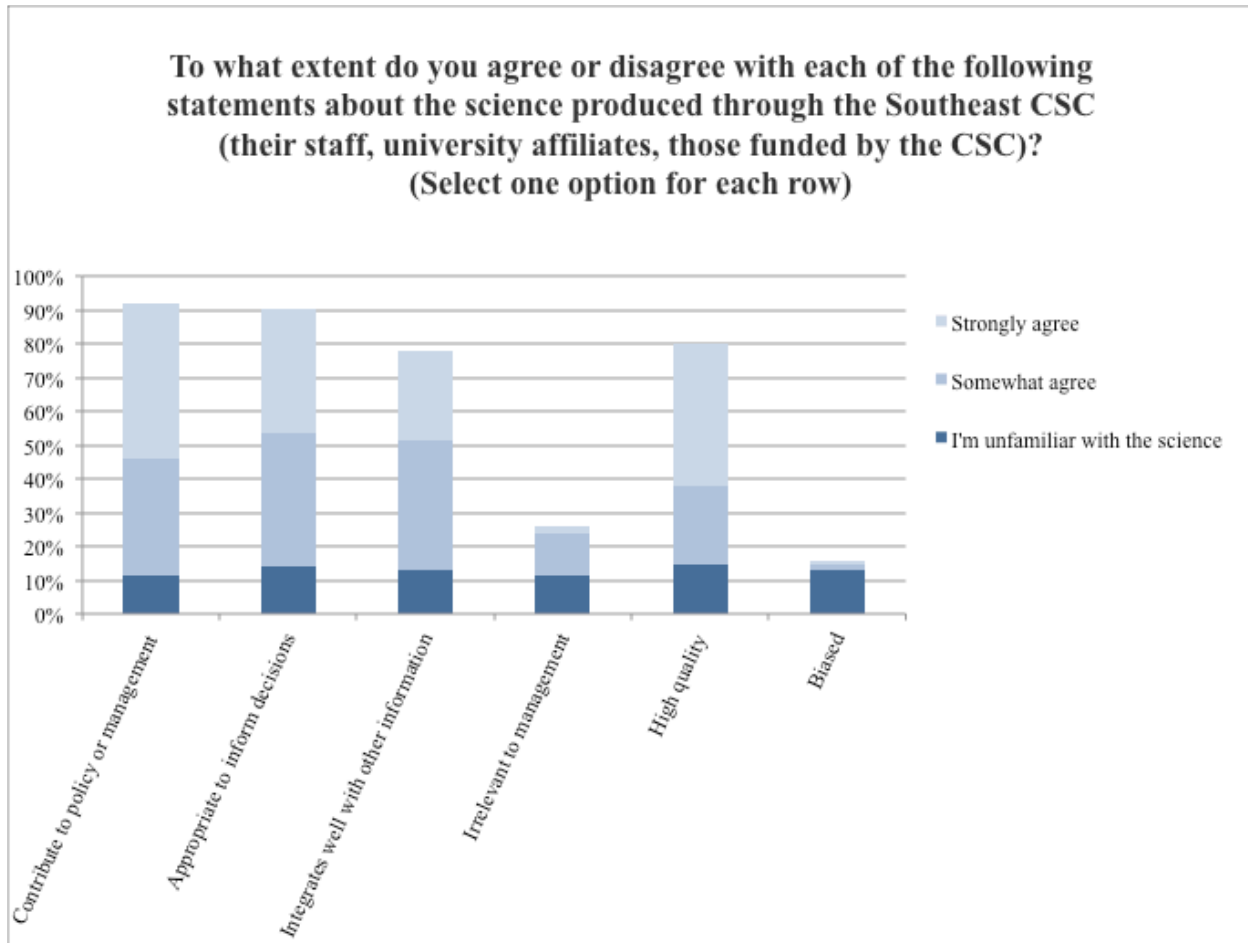
Respondents shared their perceptions both of climate adaptation science, in general, and of the climate adaptation science produced by the CSC. With regard to climate adaptation science in general, about two-thirds of the respondents (64%; n = 79) agreed or strongly agreed that climate adaptation science in the Southeast is available to decision makers (see figure below), but fewer of the respondents believed that various types of decision makers used the climate adaptation science to inform policies and management. Of the types of decision makers, the greatest number of respondents (50%; n = 62) believed that fish and wildlife managers used the science, followed by water managers (45%; n = 55), and land managers (41%; n = 51). The fewest number of respondents (24%; n = 30) believed that policymakers used the science. More generally, about sixty percent (n = 76) of the respondents felt that climate adaptation science did not influence actions taken by decision makers. Yet, about half of the respondents (46%; n = 57) felt the CSC has helped reduce this disconnect between what is known about climate adaptation and the actions taken by decision makers in the region.



Note: text in items shortened for presentation in graph. Full text in table in appendix.

Specific to the science produced through the Southeast CSC (their staff, university affiliates, those by the CSC), the majority of the respondents (81%; n = 100) strongly or somewhat agreed the CSC science can contribute to policy or management (see figure below). Of those that did not agree, most were unfamiliar with the science (11%; n = 14). Respondents were also generally positive about other characteristics of the CSC science, finding it appropriate (76%; n = 94), high quality (65%; n = 81), and able to integrate well with other information (64%; n = 78). Three respondents (2%) believed the science was biased, and

15% (n = 18) of the respondents strongly or somewhat agreed that it was irrelevant to management. For these items, 11-15% of the respondents reported they were unfamiliar with the science and did not respond about its characteristics.



Note: text in items shortened for presentation in graph, and only “strongly agree”, “somewhat agree”, or “I’m unfamiliar with the science” responses are shown. Full results in table in appendix.

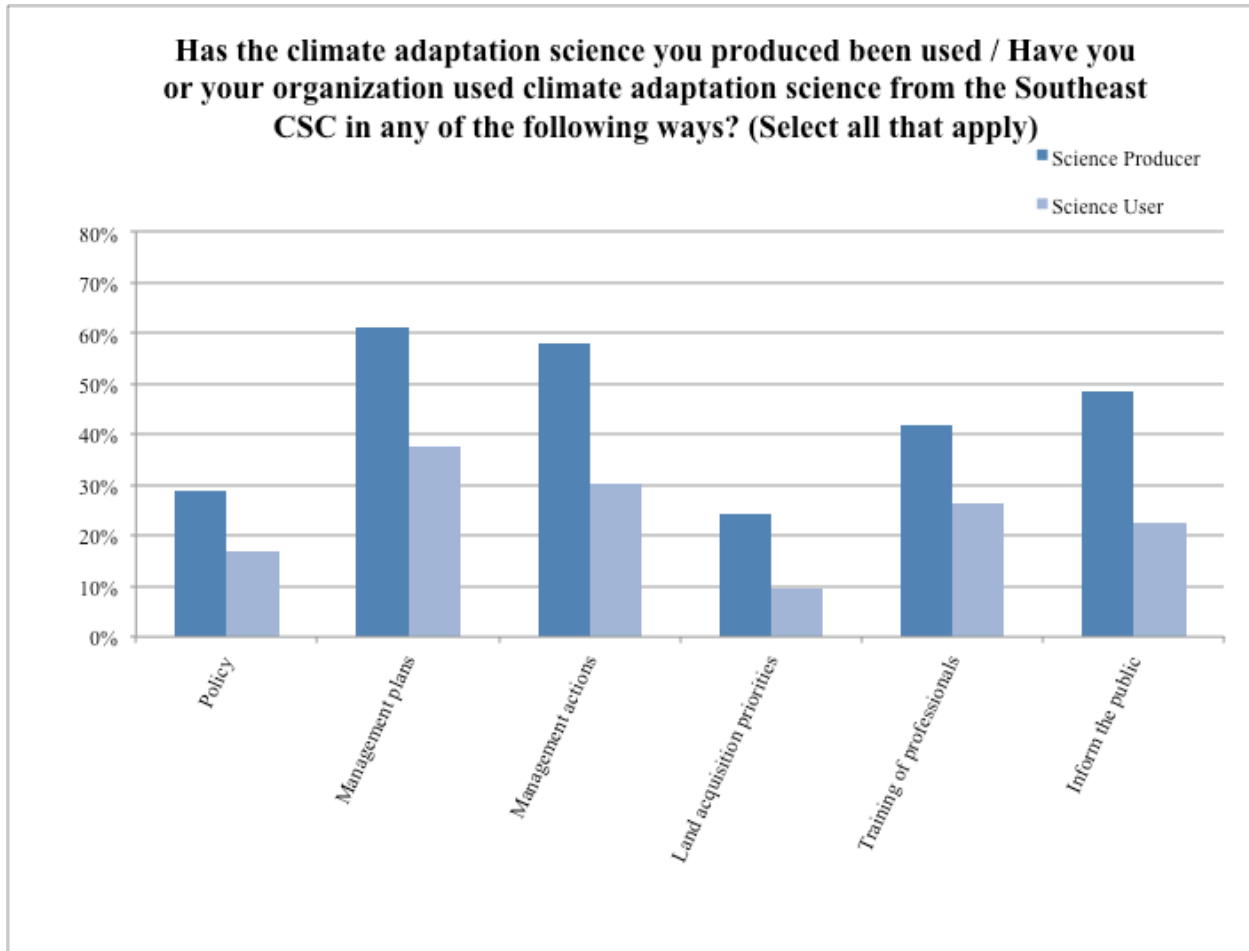
### ***Science Users’ and Producers’ Use of Climate Adaptation Science***

Among respondents who reported that they were science users, 43% (n =23) reported that they or someone in their organization used climate adaptation science from someone affiliated with the Southeast CSC. In contrast, 70% (n = 38) reported that they or someone in their organization has used climate adaptation science from sources not affiliated with the CSC.

The most common ways science users reported using the Southeast CSC science were to inform management plans (38%; n = 20) or management actions (30%; n = 16). Less common ways science users reported using CSC science were to inform: training of conservation professionals (26%; n = 14), the public about climate change and its impacts (23%; n = 12), policy (17%; n = 9), and land acquisition priorities (9%; n = 5).

Responses to this same question posed to science producers yielded a similar pattern of the most common and least common ways science was used, but with a greater frequency for most items – sometimes even double that of users (see figure below). The most common ways science producers reported that their

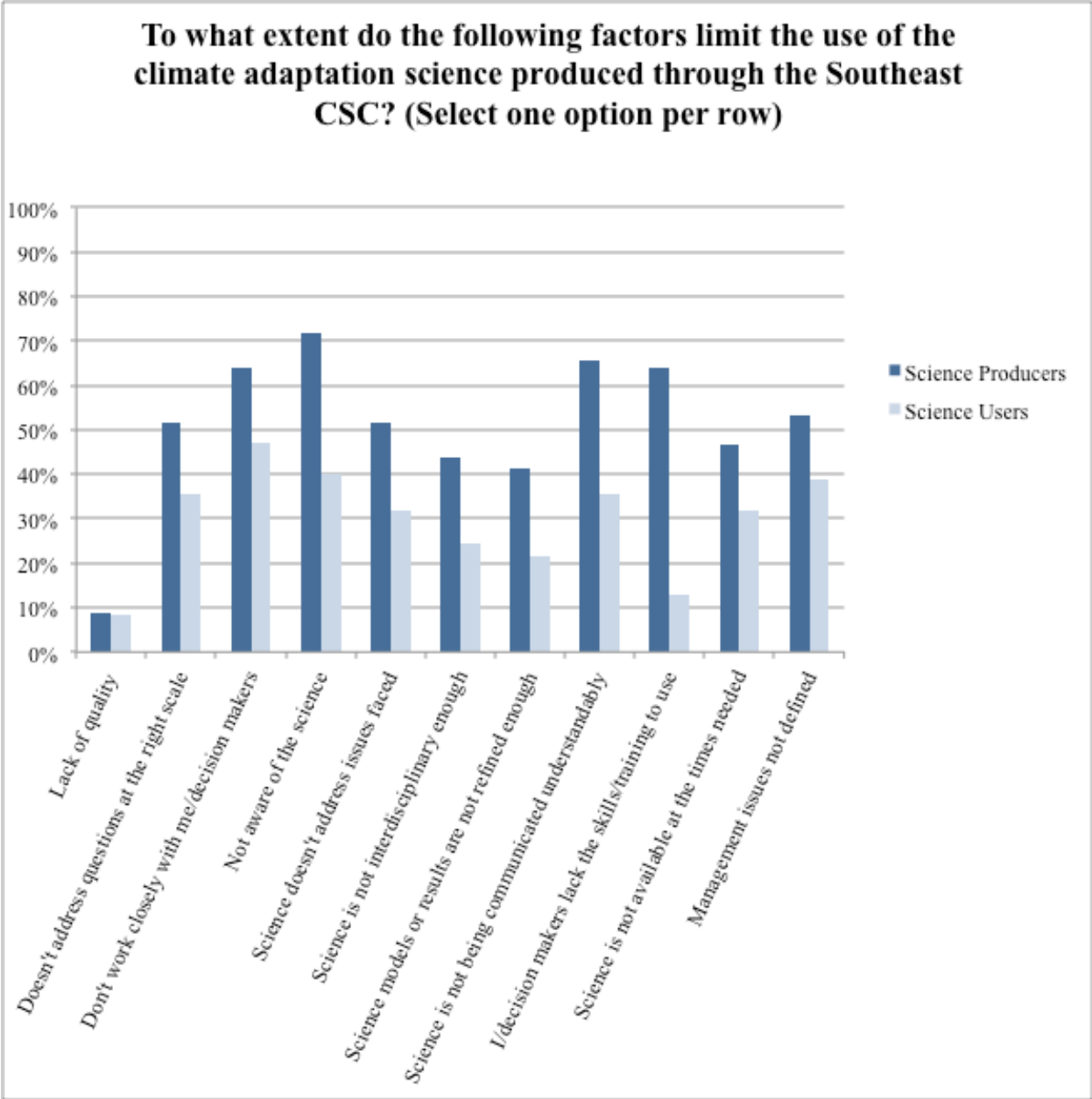
science was used included informing management plans (61%; n = 38) or management actions (58%; n = 36). Less common ways science producers reported using CSC science were to inform training of conservation professionals (42%; n = 26), the public about climate change and its impacts (48%; n = 30), policy (29%; n = 18), and land acquisition priorities (24%; n = 15).



Note: text in items shortened for presentation in graph. Additionally, text varied slightly for science producers and users. Full text in table in appendix.

Science users and producers differed in their perceptions of what factors limit the use of CSC science (see figure below). In nearly all cases, more science producers than science users perceived limits (not specifically to them) to using CSC science to a moderate, large, or very large extent. Two of the most common limitations cited were the same for science users and producers: scientists not working closely with decision makers (science users – 47%; science producers – 64%) and decision makers not being aware of the science (science users – 40%; science producers – 72%). A majority of science producers (66%) also felt that science not being communicated in ways that is understandable to decision makers was a limitation, while it was not a top response among science users (35%). The same pattern was found for decision makers lacking the skills to use the science (science users – 13%; science producers – 64%). Both groups had a similar least common limitation: lack of quality of the science (science users – 8%; science producers – 9%).





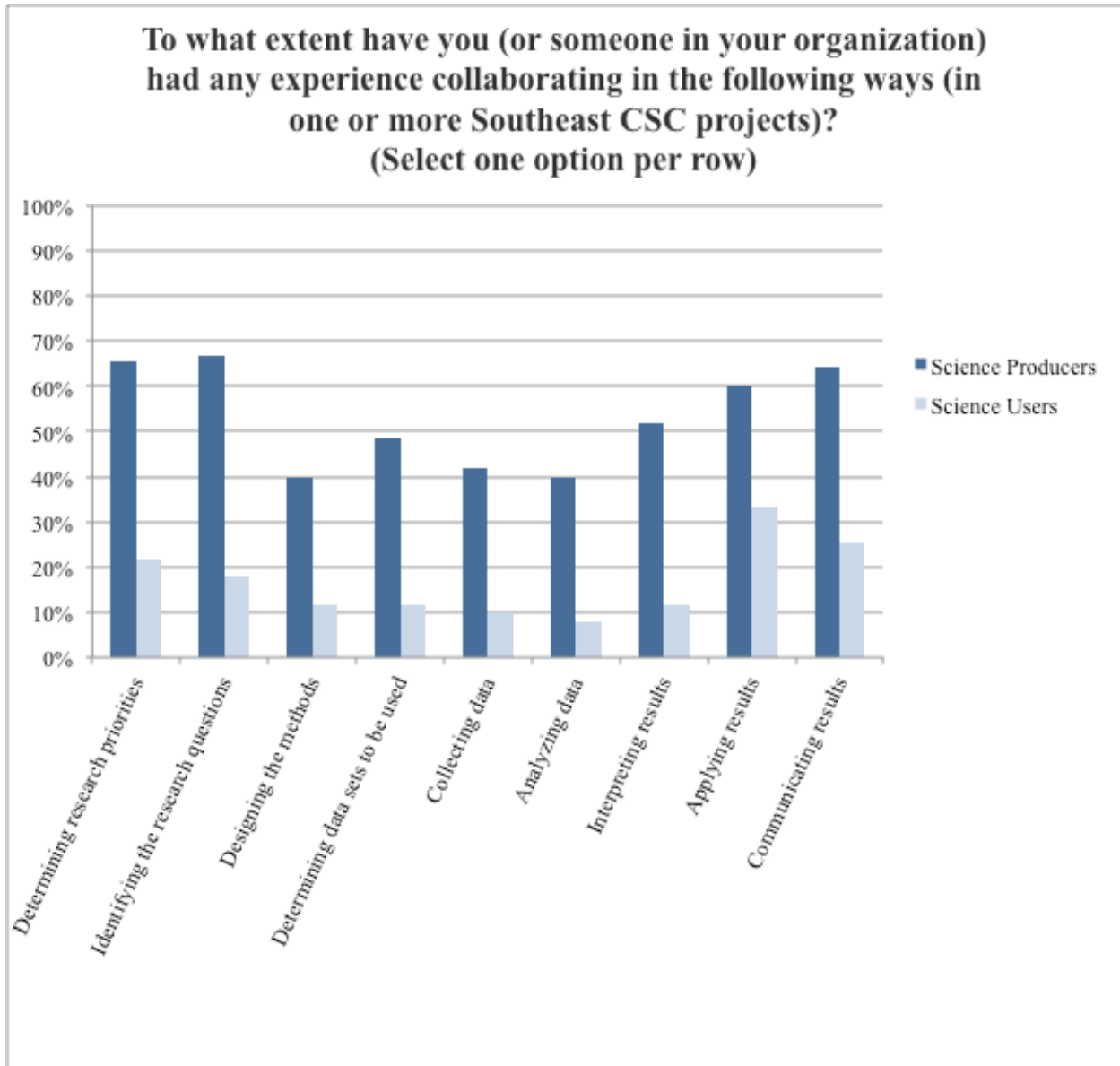
Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Additionally, text varied slightly for science producers and users. Full results and text in tables in appendix.

***Science Users’ and Producers’ Engagement in Co-production of Knowledge***

Respondents reported on their beliefs about co-production of knowledge in general. A similarly high proportion of both science users (80%; n = 41) and producers (84%; n = 51) expressed support for co-production, indicating it was important or very important for climate adaptation scientists and natural resources decision makers to work together to produce science research.

While many science producers indicated experience in co-production in various aspects of research projects, far fewer of the science users reported experience with each aspect (see figure below). It should

be noted that this question was asked in reference to the CSC specifically for users, but that specification was not made for producers. For all aspects of research projects, at least 40% of the science producers reported experience collaborating with decision makers to a moderate, large, or very large extent, while the science users' experience with collaborating on all aspects ranged from a very low 8% with experience (analyzing data) to 33% with experience (applying results). For both groups communicating results (science users – 25%; science producers – 64%) and applying results (science users – 33%; science producers – 60%) were two of the aspects with which respondents reported most collaborative experience. Two of the other aspects with a high proportion of science producers reporting experience were not relatively higher for science users: determining research priorities (science users – 22%; science producers – 66%), and identifying research questions (science users – 18%; science producers – 67%).

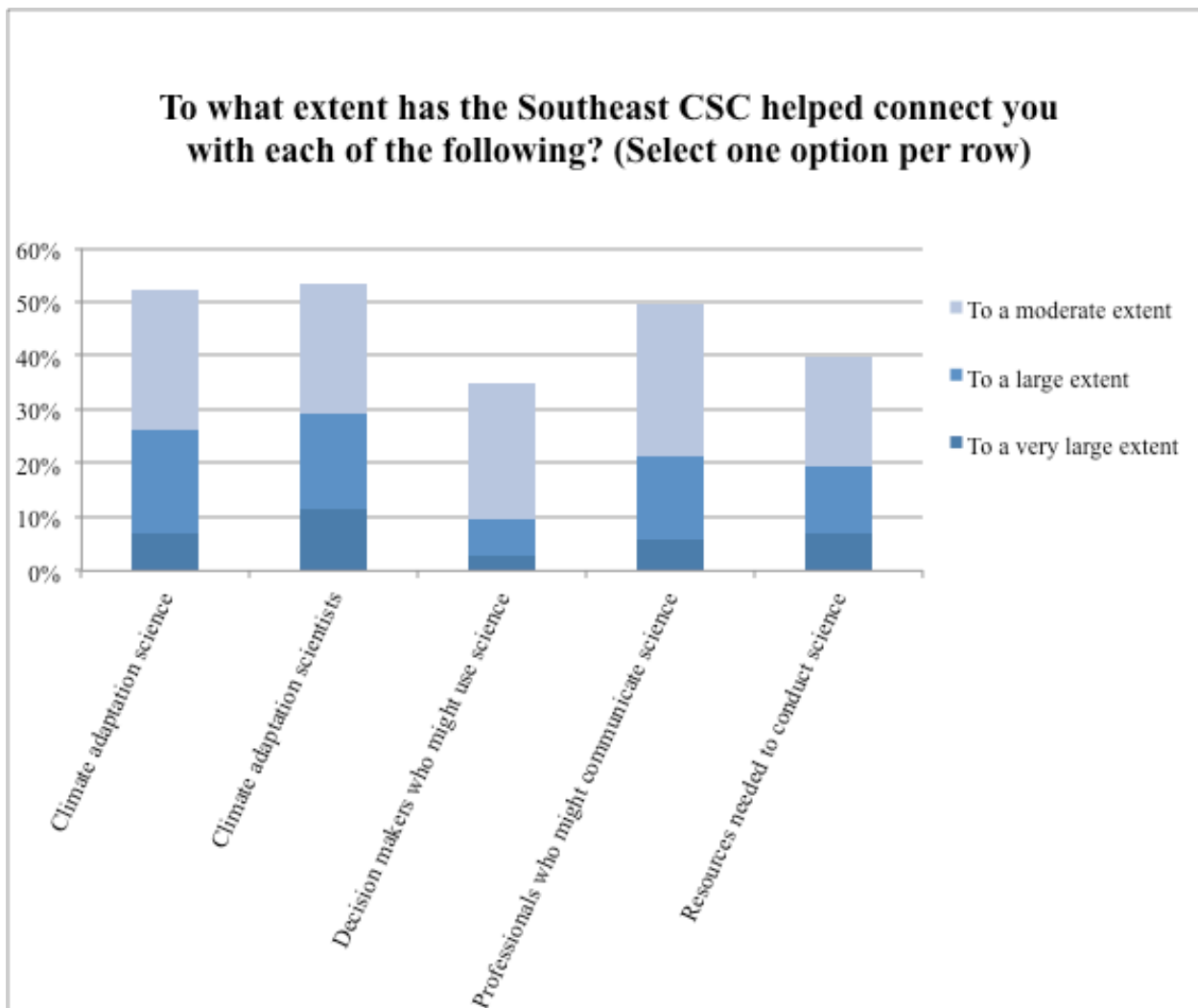


Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Additionally, the text of the question varied slightly for science producers and users (e.g., the users’ version referencing “you or someone in your organization” and specifying a Northwest CSC project). Full results and text in tables in appendix.

Regarding science users' limitations to involvement in research, scientists not reaching out to them to collaborate was the most common issue (56%; n = 29 agreed or strongly agreed), followed by different perspectives on what science is needed (31%; n = 16), and funders don't support collaboration between scientists and decision makers (31%; n = 16). Other factors only limited the involvement of a minority of the respondents: different perspectives on how research projects should be conducted (25%; n = 13), and scientists not being interested in listening to them (13%; n = 7). Notably, not having enough time was a limitation for few science users (21%; n = 11), although it had limited their involvement in the CSC (see above).

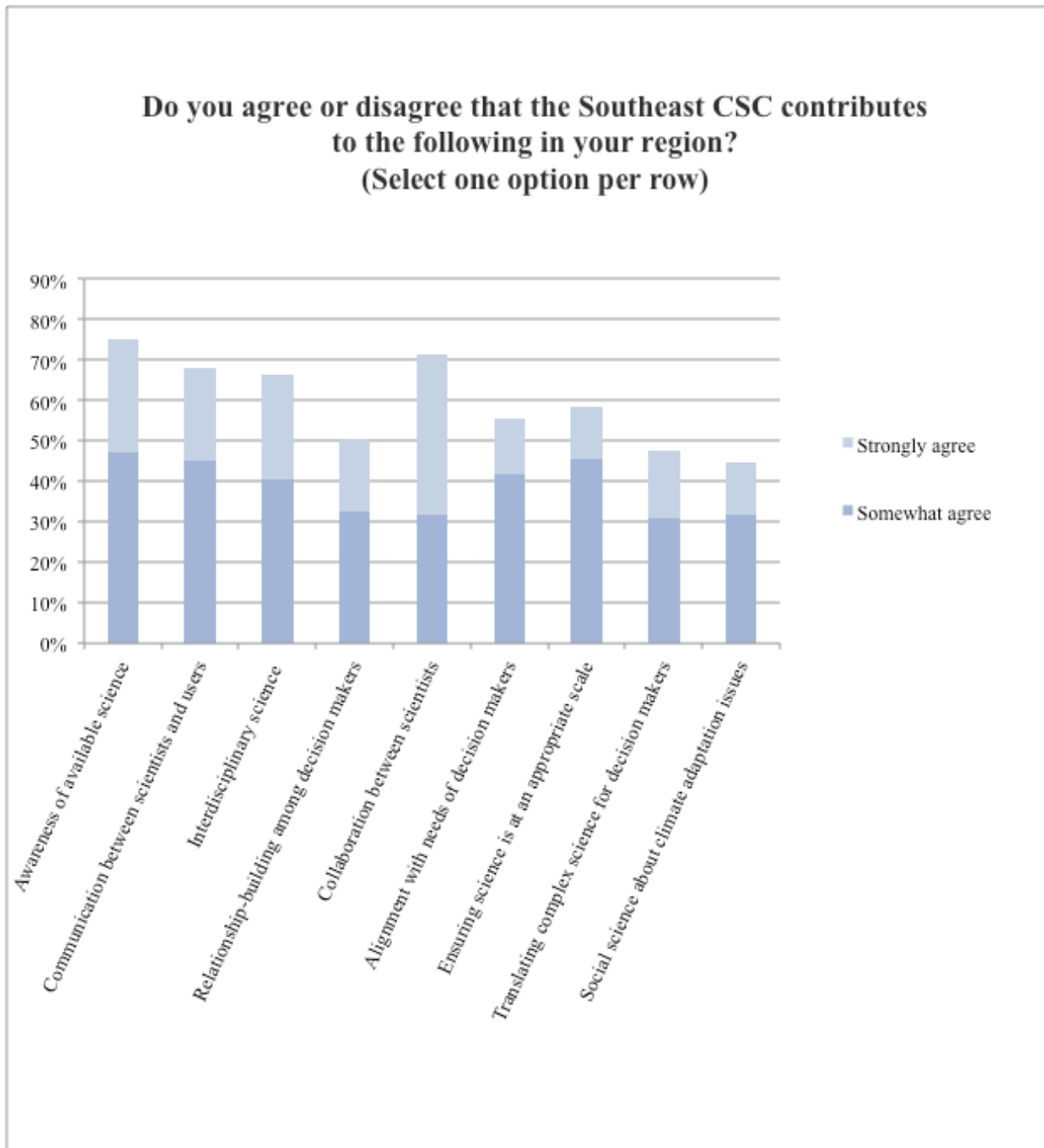
**Perceptions of the Role of the CSC**

The Southeast CSC has helped facilitate various connections, with most respondents reporting help making connections “to a moderate extent” (see figure below). The most common connections reported were with climate adaptation scientists (53%; n = 55), climate adaptation science itself (52%; n = 54), professionals who might communicate climate adaptation science (50%; n = 51), and resources needed to conduct science (40%; n = 41). Fewer respondents reported help in connecting with decision makers who might use science (35%; n = 36).



Note: text in items shortened for presentation in graph, and only “to a moderate extent”, “to a large extent”, or “to a very large extent” responses are shown. Full results and text in tables in appendix.

When evaluating the Southeast CSC’s contributions, the greatest number of respondents agreed that it contributed to awareness of available science (75%; n = 75), collaboration between scientists (71%; n = 72), interdisciplinary science (66%; n = 67), and communication between scientists and decision makers (68%; n = 68; see figure below). About half of the respondents indicated that the CSC contributes to relationship building among decision makers, alignment of science with needs of decision makers, translating complex science for decision makers, social science about climate adaptation issues, and ensuring science is at an appropriate scale.



Note: text in items shortened for presentation in graph, and only “strongly agree” or “somewhat agree” responses are shown. Full results in table in appendix.

### ***Summary of Southeast Results***

Respondents represented science users and science producers (both those affiliated with the CSC and those not so affiliated) and a variety of types of organizations and agencies and types of positions, with federal agencies and universities being most prominent.

Most of the respondents had at least some interest in or involvement with the Southeast CSC. This involvement came in a variety of forms, with the most common involvement being as a CSC-funded graduate student or postdoctoral fellow, university member affiliated with the CSC, or participant in a training, webinar, workshop, or conference. The level of interaction respondents had with USGS CSC staff was slightly higher than with University leads/PIs.

The CSC provided many important benefits to partners with the top ones being putting science in the hands of decision makers, providing access to science, providing access to a network of people interested in climate adaptation science, and as a means for learning about climate adaptation. Respondents reported they were limited in their involvement with the CSC by a variety of factors with the most common ones being time, other priorities, and funds.

About two-thirds of the respondents felt that climate adaptation science in the Southeast is available to decision makers, but relatively fewer respondents believed that various types of decision makers use the climate adaptation science to inform policies and management. Specific to the science produced through the Southeast CSC, the majority of the respondents agreed it can contribute to policy or management. Respondents were also generally positive about other characteristics of the CSC science, and the majority found it appropriate, high quality, and to integrate well with other information.

The most common ways science users and producers reported using the Southeast CSC science were to inform management plans or management actions. But, science users and producers differed in their perceptions of what limits the use of CSC science. Science producers perceived the limitations on the use of CSC science to be greater than science users found them to be.

Both science users and producers expressed support for co-production of science. While many of the science producers had experience in co-production in various phases of research projects, much fewer of the science users reported first-hand experience. Co-production was more common in the early stages (setting priorities and identifying research questions) and late stages (interpreting, applying, and communicating results) of research than the middle stages. Science users reported that their involvement in co-produced research projects was most limited by scientists not reaching out to them, having different perspectives from scientists on what science is needed, and the lack of support for collaboration by funders.

The majority of respondents noted a variety of contributions of the Southeast CSC, including contributions to awareness of available science, collaboration between scientists, interdisciplinary science, and communication between scientists and decision makers.

## Summary of All CSC Results

While results were analyzed by region, key findings and patterns were remarkably similar. Respondents represented science users and science producers. Although a variety of types of partners were engaged with the CSCs, a large majority of them were from universities and federal agencies.

The most common limitations on partners' engagement with the CSC were the time they had available (given their other priorities) and funding. But their level of engagement was also influenced by whether they had been asked to be involved and whether they knew how to be involved. Both of these limitations could be addressed by outreach from the CSCs.

Across the CSCs, the level of interaction partners reported with the USGS CSC staff was comparable (Southeast), slightly higher (Northwest), or moderately higher (Alaska) than with University leads/PIs. Consistently, partners' level of interaction with the CSC Stakeholder Advisory Committee members was lower than it was with representatives of the CSC.

Partners' perceptions of the CSCs were generally positive. CSC science was considered high quality and with the potential to be able to contribute to policy and management decisions. Yet, CSC science was perceived to contribute to management plans and actions more than to policy. The CSCs also were valued because they provided connections to science, scientists, professionals capable of communicating science, and resources.

Science producers and science users had different perceptions about the use of climate science. The percentage of science producers who thought their science was used by decision makers was much higher than the percentage of decision makers who say they used CSC science. These perspectives were not necessarily inconsistent. It is possible that a small group of decision makers had access to and made use of the climate science that was produced, while others did not.

Although producers and users had different perceptions about what was limiting the use of CSC science, they agreed in some areas. Both users and producers thought that three of the most important limitations on the use of CSC science were: management issues not being clearly defined, scientists not working closely enough with managers, and science not being communicated in understandable ways. Science producers, however, perceived these factors to be much more limiting than science users found them to be.

Co-production of climate adaptation science research was perceived as valuable by large majorities of producers and users. Users had less experience with co-production, however, than producers. Co-production was generally more common in the early stages (i.e., setting priorities, identifying research questions) and late stages (i.e., interpreting, applying, and communicating results) of research than the middle stages. Users thought co-production was limited by scientists not reaching out to engage them and having different perspectives from scientists on what science was needed.

Although the CSCs produced a number of benefits, several possibilities exist for enhancing those benefits. More diverse types of partners could be engaged beyond the prevalent federal agencies and university scientists. Engaging new partners may require new ways to make it easier for potential partners to become involved and more outreach to invite them to participate. There is also more work to be done to facilitate actionable science and co-production in all of the regions. CSC efforts along these lines may be aided by defining more clearly those management issues that need attention, creating more opportunities for scientists and managers to work together or encouraging it through funding requirements, and improving the ways in which science is communicated.

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## **APPENDICES**

- A. Group Interview Scripts
- B. Survey Instrument with Tables of Results – Alaska
- C. Survey Instrument with Tables of Results – Northwest
- D. Survey Instrument with Tables of Results – Southeast
- E. Phone Survey Instrument
- F. Comparison of Respondent (Web-based) and Nonrespondent (Phone) Surveys



## Appendix A. Group Interview Scripts

### Science Producers

(0-5 minutes) Introduction:

- Welcome.
- Introduction of focus group leaders
- Thanks for coming to our session today.
- Purpose: to develop an understanding of the range of perspectives of [insert region name] Climate Science Center partners, which will be used to inform a survey of CSC partners.
- We are hosting two group interviews. One with those who tend to produce climate science and those who tend to use climate science. This focus group is focused on the former.
- We have included a diverse set of partners in the group interviews. Some of the participants have been funded by... [insert the participant categories based on each of the regional recruitment documents].
- In the process of the interview we will ask some open-ended questions. As we mentioned in our email earlier this month, we will use an audio-recorder, so that we can listen to the discussion and transcribe the full details later.
- Your participation in this interview is voluntary.
- Your responses will be kept anonymous in any reporting of the group interviews.
- Timing: The session today will last for about an hour and 45 minutes.
- Guidelines: Before we begin, let's discuss our approach for today's session.
  - There are no right or wrong answers. We want to know your opinions.
  - Please feel free to share any ideas you have and be honest.
  - Please be respectful of the thoughts and opinions of others.
  - Please silence your cell phones.

(5-15 minutes) 1) We'd like to start with everyone introducing themselves. We will go around the room. Please tell us your name, your affiliation, and in what ways you interact with the Climate Science Center and with whom. [Have these 3 items written on a flipchart].

(15-25 minutes) 2) Why did you become involved with the Climate Science Center?

(25-40 minutes) 3) What are the benefits of your involvement with the Climate Science Center? (probe for benefits to them as individuals, to scientific knowledge, to people who are in need of scientific information, to professional development of others)

(40-55 minutes) 4) What are the challenges you face in your involvement with the Climate Science Center?

(55-60 minutes) 5) To what degree have you worked with the intended "users" of your climate science produced with/for the Climate Science Center?

(60-70 minutes) 6) Tell us more about your efforts to work with these potential climate science users. Why and how have you worked with them?

(70-80 minutes) 7) What challenges have you faced in working with or reaching out to science users?

(80-95 minutes) 8) How have you overcome (or tried to overcome) barriers to working with or reaching out to climate science users? [or to ensuring that the science you produce is used]? (probe for whether and how the CSC staff has played a role in overcoming barriers)

(95-105 minutes) 9) Generally speaking, what could generate more benefits from your involvement with the CSC – whether to you individually, to scientific knowledge, to people who use currently or could use climate scientific information, etc.?

## Science Users

(0-5 minutes) Introduction:

- Welcome.
- Introduction of focus group leaders
- Thanks for coming to our session today.
- Purpose: to develop an understanding of the range of perspectives of [insert region name] Climate Science Center partners, which will be used to inform a survey of CSC partners.
- We are hosting two group interviews. One with those who tend to produce climate science and those who tend to use climate science. This focus group is focused on the latter.
- We have included a diverse set of partners in the group interviews. Some of the participants are members of the ... [insert the participant categories based on each of the regional recruitment documents].
- In the process of the interview we will ask some open-ended questions. As we mentioned in our email earlier this month, we will use an audio-recorder, so that we can listen to the discussion and transcribe the full details later.
- Your participation in this interview is voluntary.
- Your responses will be kept anonymous in any reporting of the group interviews.
- Timing: The session today will last for about an hour and 45 minutes.
- Guidelines: Before we begin, let's discuss our approach for today's session.
  - There are no right or wrong answers. We want to know your opinions.
  - Please feel free to share any ideas you have and be honest.
  - Please be respectful of the thoughts and opinions of others.
  - Please silence your cell phones.

(5-15 minutes) 1) We'd like to start with everyone introducing themselves. We will go around the room. Please tell us your name, your affiliation, and in what ways you interact with the Climate Science Center and with whom. [Have these 3 items written on a flipchart].

(15-25 minutes) 2) Why did you become involved with the Climate Science Center?

(25-40 minutes) 3) What are the benefits of your involvement with the Climate Science Center? (probe for benefits to them as individuals, to scientific knowledge, to people who are in need of scientific information, to professional development)

(40-55 minutes) 4) What are the challenges you face in your involvement with the Climate Science Center?

(55-60 minutes) 5) To what degree have you worked with climate scientists or used the science produced in association with the Climate Science Center?

(60-70 minutes) 6) Tell us more about your impressions of this climate science. Has it be useful? How have you used it?

(70-80 minutes) 7) What challenges have you faced in using the science as part of the CSC? (probe for challenges in working with scientists in using science)

(80-95 minutes) 8) How have you overcome (or tried to overcome) barriers to using climate science? (probe for whether and how the CSC staff has played a role in overcoming barriers)

(95-105 minutes) 9) Generally speaking, what could generate more benefits from your involvement with the CSC – whether to you individually, to scientific knowledge, to people who use currently or could use climate scientific information, etc.?

**Appendix B. Survey Instrument with Tables of Results - Alaska**

1. To what extent does your work involve climate adaptation science, or management or policy related to climate change adaptation? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all	2.3%	2
To a small extent	18.2%	16
To a moderate extent	38.6%	34
To a large extent	25.0%	22
To a very large extent	15.9%	14
<b><i>Answered question</i></b>		<b>88</b>
<b><i>Skipped question</i></b>		<b>2</b>

2. How serious of a threat do you believe that climate change is to natural resources, relative to other stressors? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Much lesser threat	0.0%	0
Lesser threat	3.6%	3
Similar threat	20.5%	17
Greater threat	53.0%	44
Much greater threat	22.9%	19
<b><i>Answered question</i></b>		<b>83</b>
<b><i>Skipped question</i></b>		<b>7</b>

3. How important do you believe it is that managers or policy makers take action now in Alaska to address climate change threats? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	0.0%	0
Slightly important	3.7%	3
Moderately important	8.5%	7
Important	36.6%	30
Very important	51.2%	42
<b><i>Answered question</i></b>		<b>82</b>
<b><i>Skipped question</i></b>		<b>8</b>

4. How important do you believe it is that climate adaptation science informs decisions about natural resource management in Alaska? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	0.0%	0
Slightly important	0.0%	0
Moderately important	10.8%	9
Important	22.9%	19
Very important	66.3%	55
<b><i>Answered question</i></b>		<b>83</b>
<b><i>Skipped question</i></b>		<b>7</b>

5. Which statement best characterizes your relationship with the Alaska Climate Science Center (CSC)? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I have never heard of the Alaska CSC.	1.2%	1
I have heard of the Alaska CSC, but have no interest in or involvement with it.	1.2%	1
I have had no involvement with the Alaska CSC, but someone else in my agency or organization has.	13.3%	11
I have had at least some interest in or involvement with the Alaska CSC.	84.3%	70
<b><i>Answered question</i></b>		<b>83</b>
<b><i>Skipped question</i></b>		<b>7</b>

6. In what ways have you been involved with the Alaska Climate Science Center (CSC) in the last five years? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
CSC Stakeholder Advisory Committee member	1.4%	1
University member affiliated with the CSC	17.4%	12
CSC-funded graduate student or postdoctoral fellow	13.0%	9
CSC US Geological Survey staff	4.3%	3
Landscape Conservation Cooperative Steering Committee member	62.3%	43
Landscape Conservation Cooperative staff member	4.3%	3
CSC grant recipient, applicant, or partner on a grant	20.3%	14
Participant in a CSC training, webinar, workshop, or conference	29.0%	20
Resource manager or decision maker who has used the science produced by the CSC	33.3%	23
None of the above	0.0%	0
Other (please specify)	10.1%	7
<b><i>Answered question</i></b>		<b>69</b>
<b><i>Skipped question</i></b>		<b>21</b>

7. How long (in years) have you been involved with the CSC? (Fill in number of years, or zero, if none)

<b>Answer Options</b>	<b>Average number of years involved with CSC</b>	<b>Response Count</b>
	3.7	99
<b><i>Answered question</i></b>		<b>69</b>
<b><i>Skipped question</i></b>		<b>21</b>

8. How frequently did you interact with following representatives of the CSC in your region in the last year? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>Up to a few times a year</b>	<b>About once a month</b>	<b>Up to a few times a month</b>	<b>More than once a week</b>	<b>Response Count</b>
US Geological Survey CSC Staff	8	47	8	3	3	69
University leads/PIs for the CSC	19	24	9	10	2	64
CSC Stakeholder Advisory Committee members	32	25	3	2	0	62
CSC-affiliated researchers	11	30	9	8	8	66
CSC graduate or post-doctoral fellows	32	13	1	8	8	62
<b>Answered question</b>						<b>70</b>
<b>Skipped question</b>						<b>20</b>

9. How important are each of the following benefits of the Alaska CSC to you? (Select one option per row)

<b>Answer Options</b>	<b>Not at all important</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Important</b>	<b>Very important</b>	<b>Response Count</b>
Source of funding for climate adaptation science	21	10	2	16	19	68
Access to climate adaptation science	1	7	12	25	24	69
Access to a broader network of people interested in climate adaptation science	1	5	14	22	26	68
Means for learning about climate adaptation	2	12	14	26	15	69
Training on climate adaptation science methods or findings	2	20	20	15	12	69
Avenue to put climate adaptation science into the hands of decision makers	2	6	10	20	31	69
Justification for climate adaptation science I want to do	29	10	11	10	7	67
Other (please specify)						4
<b>Answered question</b>						<b>69</b>
<b>Skipped question</b>						<b>21</b>



10. What limits your involvement with the Alaska CSC? (Select all that apply)

Answer Options	Response Percent	Response Count
I don't have enough time	36.3%	29
I don't have the funds	22.5%	18
I don't know how to be involved	12.5%	10
I don't work on the same topics as the CSC	12.5%	10
The CSC's science is not relevant to my needs	3.8%	3
I haven't been invited or asked to be involved	20.0%	16
It's not as high a priority as my other work	22.5%	18
It's someone else's responsibility in my organization	15.0%	12
I'm not interested in this work	0.0%	0
I don't have any limits on the extent to which I am involved.	21.3%	17
Other (please specify)	22.5%	18
<b>Answered question</b>		<b>80</b>
<b>Skipped question</b>		<b>10</b>

11. To what extent do you agree or disagree with each of the following statements about the use of climate adaptation science in Alaska? (Select one option per row)

Answer Options	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	I don't know	Response Count
Climate adaptation science is available to decision makers.	9	35	13	12	1	9	79
Policy makers use climate adaptation science to inform policies.	2	19	15	20	11	12	79
Land managers use climate adaptation science to inform management.	4	28	16	15	6	9	78
Fish and wildlife managers use climate adaptation science to inform management.	6	28	14	16	4	11	79
Water managers use climate adaptation science to inform management.	4	18	17	11	4	24	78
What is known about climate adaptation does not necessarily influence actions taken by decision makers in the region.	10	28	16	14	2	9	79
The CSC has helped reduce the disconnect between what is known about climate adaptation and the actions taken by decision makers in the region.	9	28	15	8	1	18	79
<b>Answered question</b>							<b>79</b>
<b>Skipped question</b>							<b>21</b>

12. To what extent do you agree or disagree with each of the following statements about the science produced through the Alaska CSC (their staff, university affiliates, those funded by the CSC)? (Select one option for each row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>I'm unfamiliar with the science</b>	<b>Response Count</b>
It can contribute to policy or management.	41	26	5	1	0	6	79
It is appropriate to inform the type of decisions being made.	27	29	11	5	0	7	79
It integrates well with other information.	20	30	19	3	0	7	79
It is irrelevant to management.	1	3	8	16	45	6	79
It is high quality.	36	24	13	0	0	6	79
It is biased.	0	2	13	12	46	6	79
<b><i>Answered question</i></b>							<b>79</b>
<b><i>Skipped question</i></b>							<b>11</b>

13. Is making decisions about natural resource policy, management, or programs part of your job?

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	48.1%	38
No. I do NOT make decisions about natural resource policy, management, or programs.	51.9%	41
<b><i>Answered question</i></b>		<b>79</b>
<b><i>Skipped question</i></b>		<b>11</b>

14. Have you or your organization used climate adaptation science produced by the following sources to inform decisions about natural resource policy, management, or programs? (Select one option per row)

<b>Answer Options</b>	<b>Yes</b>	<b>No</b>	<b>I don't know</b>	<b>Response Count</b>
Alaska CSC (e.g., from CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC)	20	8	4	32
Organizations or scientists who are NOT affiliated with the Alaska CSC	29	1	2	32
<b><i>Answered question</i></b>				<b>32</b>
<b><i>Skipped question</i></b>				<b>58</b>

15. How have you used the climate adaptation science produced by the Alaska CSC, if at all? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
To inform policy	15.2%	5
To inform management plans	51.5%	17
To inform management actions	30.3%	10
To inform land acquisition priorities	9.1%	3
To inform training of conservation professionals about climate change and its impacts	24.2%	8
To inform the public about climate change and its impacts	51.5%	17
None of the above	21.2%	7
I don't know	9.1%	3
Other (please specify)	6.1%	2
<b><i>Answered question</i></b>		<b>33</b>
<b><i>Skipped question</i></b>		<b>57</b>

16. To what extent do the following factors limit your use of the climate adaptation science and tools produced through the Alaska CSC? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a large extent</b>	<b>To a very large extent</b>	<b>Response Count</b>
Lack of quality of the science	26	3	1	0	0	30
The science doesn't address questions at the right scale	8	12	5	3	2	30
The scientists don't work closely enough with me	10	5	9	4	3	31
I'm not aware of the science	11	10	5	3	2	31
The science does not address issues I face	9	11	6	3	1	30
The science is not interdisciplinary enough	16	9	4	0	2	31
The science models or results are not refined enough	15	5	7	3	1	31
The science is not being communicated in ways that are understandable	8	12	7	2	2	31
I lack the skills or training to make use of the science	19	7	5	0	1	32
The science is not available at the times at which it is needed for decision making	8	12	7	3	1	31
The management issues for which science is needed have not been clearly defined	7	7	12	1	4	31
<b><i>Answered question</i></b>						<b>32</b>
<b><i>Skipped question</i></b>						<b>58</b>

17. In your opinion as a natural resource decision maker, how important is it that climate adaptation scientists and natural resource decision makers work together to produce science? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	0.0%	0
Slightly important	3.0%	1
Moderately important	6.1%	2
Important	36.4%	12
Very important	54.5%	18
<b><i>Answered question</i></b>		<b>33</b>
<b><i>Skipped question</i></b>		<b>57</b>

18. Some climate adaptation scientists collaborate with the end-users of their science in various stages of the research process. We are interested in whether you, as a natural resource decision maker, have any experience collaborating with climate adaptation scientists. To what extent have you or someone in your organization been involved in the following stages of research in one or more Alaska CSC projects (led by others)? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a large extent</b>	<b>To a very large extent</b>	<b>Response Count</b>
Determining research priorities for the CSC as a whole	13	15	5	0	0	33
Identifying the research questions for a research project	12	11	9	0	0	32
Designing a research project's methods	20	7	3	1	0	31
Determining data sets to be used for a research project	17	9	6	0	0	32
Collecting data for a research project	20	6	6	0	0	32
Analyzing data for a research project	24	5	2	1	0	32
Interpreting results of a research project	20	6	5	1	0	32
Applying results of a research project	10	11	8	3	0	32
Communicating results of a research project	10	12	4	5	1	32
<b><i>Answered question</i></b>						<b>33</b>
<b><i>Skipped question</i></b>						<b>57</b>

19. To what extent do you, as a natural resource decision maker, agree or disagree that the following items limit your involvement in research projects? (Select one option per row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>Response Count</b>
Scientists have different perspectives than me on what science is needed.	1	10	8	6	8	33
Scientists have different perspectives from me on how research projects should be conducted.	1	6	14	4	8	33
Scientists don't reach out to me to collaborate.	1	12	4	11	5	33
Scientists aren't interested in listening to me.	4	3	7	9	10	33
I don't have time to collaborate with scientists.	0	5	12	5	11	33
Funders don't support collaboration between scientists and science users.	3	6	7	8	9	33
<b><i>Answered question</i></b>						<b>33</b>
<b><i>Skipped question</i></b>						<b>57</b>

20. Have you produced climate adaptation science through an affiliation with the Alaska CSC (e.g., as CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC) or otherwise? (Select one option) As a reminder, by “climate adaptation science,” we mean “science that helps fish, wildlife, ecosystems, and the communities they support adapt to climate change.”

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I have produced climate adaptation science through an affiliation with the Alaska CSC	39.2%	29
I have produced climate adaptation science but never through an affiliation with the Alaska CSC	21.6%	16
No, I have not produced climate adaptation science	39.2%	29
<b><i>Answered question</i></b>		<b>74</b>
<b><i>Skipped question</i></b>		<b>16</b>

21. Has the climate adaptation science you produced been used in any of the following ways? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
To inform policy	31.8%	14
To inform management plans	52.3%	23
To inform management actions	38.6%	17
To inform land acquisition priorities	6.8%	3
To inform training of conservation professionals about climate change and its impacts	29.5%	13
To inform the public about climate change and its impacts	54.5%	24
None of the above	9.1%	4
I don't know	22.7%	10
<b><i>Answered question</i></b>		<b>44</b>
<b><i>Skipped question</i></b>		<b>46</b>

22. In other settings, various factors have been found to limit decision makers' use of science. From your perspective as a scientist, to what extent do the following factors limit the use of the climate adaptation science produced (not specifically by you) through the Alaska CSC? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Lack of quality of the science	29	11	3	1	0	44
The science doesn't address questions at the right scale	3	14	15	11	1	44
The scientists don't work closely enough with decision makers	2	8	14	17	3	44
Decision makers are not aware of the science	2	3	14	20	5	44
The science does not address issues decision makers face	1	15	19	8	1	44
The science is not interdisciplinary enough	10	22	4	6	1	43
The science models or results are not refined enough	9	19	9	5	2	44
The science is not being communicated in ways that is understandable to decision makers	3	7	12	13	9	44
Decision makers lack the skills or training to make use of the science	2	7	12	18	5	44
The science is not available at the times at which it is needed for decision making	6	12	13	12	1	44
The management issues for which science is needed have not been clearly defined	2	10	18	10	4	44
<b>Answered question</b>						<b>44</b>
<b>Skipped question</b>						<b>46</b>

23. In your opinion as a scientist, how important is it that climate adaptation scientists and natural resource decision makers work together to produce science research? (Select one option)

Answer Options	Response Percent	Response Count
Not at all important	0.0%	0
Slightly important	2.3%	1
Moderately important	6.8%	3
Important	34.1%	15
Very important	56.8%	25
<b>Answered question</b>		<b>44</b>
<b>Skipped question</b>		<b>46</b>



24. Some climate adaptation scientists collaborate with the end-users of their science in various stages of the research process. To what extent have you, as a climate adaptation scientist, had any experience collaborating with natural resource decision makers in the following ways? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a large extent</b>	<b>To a very large extent</b>	<b>Response Count</b>
Determining research priorities	6	10	17	6	5	44
Identifying the research questions for a research project	3	13	12	13	3	44
Designing a research project's methods	10	12	12	5	4	43
Determining data sets to be used for a research project	6	13	14	4	5	42
Collecting data for a research project	9	13	8	3	10	43
Analyzing data for a research project	10	11	11	2	9	43
Interpreting results of a research project	4	13	13	4	9	43
Applying results of a research project	11	13	8	6	5	43
Communicating results of a research project	5	5	10	14	9	43
<b><i>Answered question</i></b>						<b>44</b>
<b><i>Skipped question</i></b>						<b>46</b>

25. To what extent has the Alaska CSC helped connect you with each of the following? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a large extent</b>	<b>To a very large extent</b>	<b>Response Count</b>
Climate adaptation science	13	24	23	7	2	69
Climate adaptation scientists	16	17	23	9	3	68
Decision makers who might use climate adaptation science	28	22	11	6	2	69
Professionals who might communicate climate adaptation science	19	19	23	5	3	69
Resources needed to conduct climate adaptation science	23	20	13	7	6	69
<b><i>Answered question</i></b>						<b>69</b>
<b><i>Skipped question</i></b>						<b>21</b>

26. Do you agree or disagree that the Alaska CSC contributes to the following in your region? (Select one option per row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>Response Count</b>
Awareness of available science	8	45	7	6	0	66
Communication between scientists and those who might use science	9	34	15	7	1	66
Interdisciplinary science	19	29	13	4	0	65
Relationship-building among decision makers who might be interested in science	6	27	22	8	3	66
Collaboration between scientists	23	27	14	1	1	66
Alignment of science with needs of decision makers	5	30	18	12	1	66
Ensuring science is at an appropriate scale	7	31	21	6	1	66
Translating complex science for decision makers	7	28	18	11	1	65
Social science about climate adaptation issues	5	14	37	7	3	66
Other ways the Alaska CSC has contributed to climate adaptation science and its use:						4
<b><i>Answered question</i></b>						<b>66</b>
<b><i>Skipped question</i></b>						<b>24</b>

27. What state(s) do you work in? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Alaska	88.9%	64
Other state(s)	9.7%	7
Other (please specify)	15.3%	11
<b><i>Answered question</i></b>		<b>72</b>
<b><i>Skipped question</i></b>		<b>18</b>

28. What scale(s) do you address in your work? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
International	40.3%	29
National	38.9%	28
Regional/multi-state	58.3%	42
State	73.6%	53
Watershed	48.6%	35
Local	43.1%	31
<b><i>Answered question</i></b>		<b>72</b>
<b><i>Skipped question</i></b>		<b>18</b>

29. What is your affiliation? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Federal agency	58.3%	42
Tribal government	1.4%	1
State agency	5.6%	4
Local government	1.4%	1
University	30.6%	22
Non-profit organization	11.1%	8
Private Industry	0.0%	0
Other (please specify)	5.6%	4
<b><i>Answered question</i></b>		<b>72</b>
<b><i>Skipped question</i></b>		<b>18</b>

30. What type of position do you hold in your agency, university, or organization? (Select one option that best describes your type of work)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Leadership/administration	25.7%	19
Policy	5.4%	4
Research	45.9%	34
Operations	12.2%	9
Other (please specify)	10.8%	8
<b><i>Answered question</i></b>		<b>74</b>
<b><i>Skipped question</i></b>		<b>16</b>

## Appendix C. Survey Instrument with Tables of Results - Northwest

1. To what extent does your work involve climate adaptation science, or management or policy related to climate change adaptation? (Select one option)

Answer Options	Response Percent	Response Count
Not at all	1.6%	1
To a small extent	9.7%	6
To a moderate extent	27.4%	17
To a large extent	38.7%	24
To a very large extent	22.6%	14
<b><i>Answered question</i></b>		<b>62</b>
<b><i>Skipped question</i></b>		<b>0</b>

2. How serious of a threat do you believe that climate change is to natural resources, relative to other stressors? (Select one option)

Answer Options	Response Percent	Response Count
Much lesser threat	1.6%	1
Lesser threat	9.7%	6
Similar threat	27.4%	17
Greater threat	38.7%	24
Much greater threat	22.6%	14
<b><i>Answered question</i></b>		<b>62</b>
<b><i>Skipped question</i></b>		<b>0</b>

3. How important do you believe it is that managers or policy makers take action now in the Northwest to address climate change threats? (Select one option)

Answer Options	Response Percent	Response Count
Not at all important	0.0%	0
Slightly important	1.7%	1
Moderately important	6.8%	4
Important	39.0%	23
Very important	52.5%	31
<b><i>Answered question</i></b>		<b>59</b>
<b><i>Skipped question</i></b>		<b>3</b>

4. How important do you believe it is that climate adaptation science inform decisions about natural

resource management in the Northwest? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	0.0%	0
Slightly important	1.7%	1
Moderately important	5.1%	3
Important	23.7%	14
Very important	69.5%	41
<b><i>Answered question</i></b>		<b>59</b>
<b><i>Skipped question</i></b>		<b>3</b>

5. Which statement best characterizes your relationship with the Northwest Climate Science Center (CSC)? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I have never heard of the Northwest CSC.	5.1%	3
I have heard of the Northwest CSC, but have no interest in or involvement with it.	3.4%	2
I have had no involvement with the Northwest CSC, but someone else in my agency or organization has.	10.2%	6
I have had at least some interest in or involvement with the Northwest CSC.	81.4%	48
<b><i>Answered question</i></b>		<b>59</b>
<b><i>Skipped question</i></b>		<b>3</b>

6. In what ways have you been involved with the Northwest Climate Science Center (CSC) in the last five years? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
CSC Stakeholder Advisory Committee member	27.1%	13
University member affiliated with the CSC	20.8%	10
CSC-funded graduate student or postdoctoral fellow	6.3%	3
CSC US Geological Survey staff	4.2%	2
Landscape Conservation Cooperative Steering Committee member	14.6%	7
Landscape Conservation Cooperative staff member	10.4%	5
CSC grant recipient, applicant, or partner on a grant	41.7%	20
Participant in a CSC training, webinar, workshop, or conference	35.4%	17
Resource manager or decision maker who has used the science produced by the CSC	35.4%	17
None of the above	0.0%	0
Other (please specify)	8.3%	4
<b><i>Answered question</i></b>		<b>48</b>
<b><i>Skipped question</i></b>		<b>14</b>

7. How long (in years) have you been involved with the CSC? (Fill in number of years, or zero, if none)

<b>Answer Options</b>	<b>Average number of years involved with CSC</b>	<b>Response Count</b>
	3.5	48
<b><i>Answered question</i></b>		<b>48</b>
<b><i>Skipped question</i></b>		<b>14</b>

8. How frequently did you interact with following representatives of the CSC in your region in the last year? (Select one option per row)

Answer Options	Not at all	Up to a few times a year	About once a month	Up to a few times a month	More than once a week	Response Count
US Geological Survey CSC Staff	13	21	6	5	1	46
University leads/PIs for the CSC	12	21	8	3	2	46
CSC Stakeholder Advisory Committee members	22	14	4	3	0	43
CSC-affiliated researchers	6	26	6	6	1	45
CSC graduate or post-doctoral fellows	20	14	4	5	2	45
<b>Answered question</b>						<b>48</b>
<b>Skipped question</b>						<b>14</b>

9. How important are each of the following benefits of the Northwest CSC to you? (Select one option per row)

Answer Options	Not at all important	Slightly important	Moderately important	Important	Very important	Response Count
Source of funding for climate adaptation science	6	8	11	15	8	48
Access to climate adaptation science	3	4	9	19	12	47
Access to a broader network of people interested in climate adaptation science	1	4	12	17	13	47
Means for learning about climate adaptation	3	5	16	15	8	47
Training on climate adaptation science methods or findings	9	12	12	9	5	47
Avenue to put climate adaptation science into the hands of decision makers	2	9	6	18	12	47
Justification for climate adaptation science I want to do	16	9	11	10	1	47
Other (please specify)						3
<b>Answered question</b>						<b>48</b>
<b>Skipped question</b>						<b>14</b>

10. What limits your involvement with the Northwest CSC? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I don't have enough time	55.4%	31
I don't have the funds	33.9%	19
I don't know how to be involved	7.1%	4
I don't work on the same topics as the CSC	8.9%	5
The CSC's science is not relevant to my needs	0.0%	0
I haven't been invited or asked to be involved	16.1%	9
It's not as high a priority as my other work	17.9%	10
It's someone else's responsibility in my organization	10.7%	6
I'm not interested in this work	0.0%	0
I don't have any limits on the extent to which I am involved.	16.1%	9
Other (please specify)	12.5%	7
<b><i>Answered question</i></b>		<b>56</b>
<b><i>Skipped question</i></b>		<b>6</b>



11. To what extent do you agree or disagree with each of the following statements about the use of climate adaptation science in the Northwest? (Select one option per row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>I don't know</b>	<b>Response Count</b>
Climate adaptation science is available to decision makers.	8	28	8	6	2	3	55
Policy makers use climate adaptation science to inform policies.	0	15	14	18	4	4	55
Land managers use climate adaptation science to inform management.	2	22	12	14	3	2	55
Fish and wildlife managers use climate adaptation science to inform management.	2	23	11	9	3	6	54
Water managers use climate adaptation science to inform management.	4	27	9	7	0	7	54
What is known about climate adaptation does not necessarily influence actions taken by decision makers in the region.	3	23	11	10	3	4	54
The CSC has helped reduce the disconnect between what is known about climate adaptation and the actions taken by decision makers in the region.	2	23	15	4	0	11	55
<b><i>Answered question</i></b>							<b>55</b>
<b><i>Skipped question</i></b>							<b>7</b>

12. To what extent do you agree or disagree with each of the following statements about the science produced through the Northwest CSC (their staff, university affiliates, those funded by the CSC)?  
(Select one option for each row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>I'm unfamiliar with the science</b>	<b>Response Count</b>
It can contribute to policy or management.	21	26	1	0	0	7	55
It is appropriate to inform the type of decisions being made.	15	26	4	2	0	8	55
It integrates well with other information.	8	26	8	3	0	9	54
It is irrelevant to management.	1	2	4	7	33	8	55
It is high quality.	19	20	5	1	0	10	55
It is biased.	0	0	5	9	31	10	55
<b><i>Answered question</i></b>							<b>55</b>
<b><i>Skipped question</i></b>							<b>7</b>

13. Is making decisions about natural resource policy, management, or programs part of your job?

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	52.7%	29
No. I do NOT make decisions about natural resource policy, management, or programs.	47.3%	26
<b><i>Answered question</i></b>		<b>55</b>
<b><i>Skipped question</i></b>		<b>7</b>

14. Have you or your organization used climate adaptation science produced by the following sources to inform decisions about natural resource policy, management, or programs? (Select one option per row)

<b>Answer Options</b>	<b>Yes</b>	<b>No</b>	<b>I don't know</b>	<b>Response Count</b>
Northwest CSC (e.g., from CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC)	20	5	3	28
Organizations or scientists who are NOT affiliated with the Northwest CSC	19	2	6	27
<b><i>Answered question</i></b>				<b>28</b>
<b><i>Skipped question</i></b>				<b>34</b>

15. How have you used the climate adaptation science produced by the Northwest CSC, if at all? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
To inform policy	29.6%	8
To inform management plans	55.6%	15
To inform management actions	51.9%	14
To inform land acquisition priorities	14.8%	4
To inform training of conservation professionals about climate change and its impacts	55.6%	15
To inform the public about climate change and its impacts	51.9%	14
None of the above	7.4%	2
I don't know	3.7%	1
Other (please specify)	3.7%	1
<b><i>Answered question</i></b>		<b>27</b>
<b><i>Skipped question</i></b>		<b>35</b>

16. To what extent do the following factors limit your use of the climate adaptation science and tools produced through the Northwest CSC? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Lack of quality of the science	22	3	1	1	0	27
The science doesn't address questions at the right scale	6	11	4	5	1	27
The scientists don't work closely enough with me	7	8	8	4	0	27
I'm not aware of the science	12	10	3	2	0	27
The science does not address issues I face	13	5	6	3	0	27
The science is not interdisciplinary enough	10	6	8	2	0	26
The science models or results are not refined enough	10	6	6	4	0	26
The science is not being communicated in ways that are understandable	13	3	7	4	0	27
I lack the skills or training to make use of the science	11	12	3	0	0	26
The science is not available at the times at which it is needed for decision making	9	8	7	3	0	27
The management issues for which science is needed have not been clearly defined	8	3	10	6	0	27
<b>Answered question</b>						<b>27</b>
<b>Skipped question</b>						<b>35</b>

17. In your opinion as a natural resource decision maker, how important is it that climate adaptation scientists and natural resource decision makers work together to produce science? (Select one option)

Answer Options	Response Percent	Response Count
Not at all important	0.0%	0
Slightly important	0.0%	0
Moderately important	3.6%	1
Important	25.0%	7
Very important	71.4%	20
<b>Answered question</b>		<b>28</b>
<b>Skipped question</b>		<b>34</b>

18. Some climate adaptation scientists collaborate with the end-users of their science in various stages of the research process. We are interested in whether you, as a natural resource decision maker, have any experience collaborating with climate adaptation scientists. To what extent have you or someone in your organization been involved in the following stages of research in one or more Northwest CSC projects (led by others)? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Determining research priorities for the CSC as a whole	11	2	5	6	2	26
Identifying the research questions for a research project	9	7	3	5	1	25
Designing a research project's methods	14	5	4	3	0	26
Determining data sets to be used for a research project	14	6	4	2	0	26
Collecting data for a research project	15	3	6	2	0	26
Analyzing data for a research project	16	5	3	2	0	26
Interpreting results of a research project	10	9	4	3	0	26
Applying results of a research project	6	9	6	5	0	26
Communicating results of a research project	5	9	6	5	1	26
<b>Answered question</b>						<b>26</b>
<b>Skipped question</b>						<b>36</b>

19. To what extent do you, as a natural resource decision maker, agree or disagree that the following items limit your involvement in research projects? (Select one option per row)

Answer Options	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Response Count
Scientists have different perspectives than me on what science is needed.	1	13	6	1	5	26
Scientists have different perspectives from me on how research projects should be conducted.	1	8	8	3	6	26
Scientists don't reach out to me to collaborate.	3	8	8	4	3	26
Scientists aren't interested in listening to me.	1	3	11	6	5	26
I don't have time to collaborate with scientists.	2	6	7	6	5	26
Funders don't support collaboration between scientists and science users.	1	4	10	7	4	26
<b>Answered question</b>						<b>26</b>
<b>Skipped question</b>						<b>36</b>

20. Have you produced climate adaptation science through an affiliation with the Northwest CSC (e.g., as CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC) or otherwise? (Select one option)As a reminder, by “climate adaptation science,” we mean “science that helps fish, wildlife, ecosystems, and the communities they support adapt to climate change.”

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I have produced climate adaptation science through an affiliation with the Northwest CSC	42.6%	23
I have produced climate adaptation science but never through an affiliation with the Northwest CSC	16.7%	9
No, I have not produced climate adaptation science	40.7%	22
<b><i>Answered question</i></b>		<b>54</b>
<b><i>Skipped question</i></b>		<b>8</b>

21. Has the climate adaptation science you produced been used in any of the following ways? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
To inform policy	37.9%	11
To inform management plans	69.0%	20
To inform management actions	58.6%	17
To inform land acquisition priorities	13.8%	4
To inform training of conservation professionals about climate change and its impacts	69.0%	20
To inform the public about climate change and its impacts	72.4%	21
None of the above	0.0%	0
I don't know	6.9%	2
<b><i>Answered question</i></b>		<b>29</b>
<b><i>Skipped question</i></b>		<b>33</b>

22. In other settings, various factors have been found to limit decision makers’ use of science. From your perspective as a scientist, to what extent do the following factors limit the use of the climate

adaptation science produced (not specifically by you) through the Northwest CSC? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a large extent</b>	<b>To a very large extent</b>	<b>Response Count</b>
Lack of quality of the science	23	6	0	0	0	29
The science doesn't address questions at the right scale	4	11	8	5	1	29
The scientists don't work closely enough with decision makers	3	1	14	9	2	29
Decision makers are not aware of the science	2	4	12	7	4	29
The science does not address issues decision makers face	4	7	14	2	2	29
The science is not interdisciplinary enough	7	13	5	3	0	28
The science models or results are not refined enough	7	8	10	2	0	27
The science is not being communicated in ways that is understandable to decision makers	1	7	11	7	3	29
Decision makers lack the skills or training to make use of the science	3	5	12	7	1	28
The science is not available at the times at which it is needed for decision making	8	5	9	4	2	28
The management issues for which science is needed have not been clearly defined	2	8	10	5	4	29
<b><i>Answered question</i></b>						<b>29</b>
<b><i>Skipped question</i></b>						<b>33</b>

23. In your opinion as a scientist, how important is it that climate adaptation scientists and natural resource decision makers work together to produce science research? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	0.0%	0
Slightly important	0.0%	0
Moderately important	10.3%	3
Important	17.2%	5
Very important	72.4%	21
<b><i>Answered question</i></b>		<b>29</b>
<b><i>Skipped question</i></b>		<b>33</b>

24. Some climate adaptation scientists collaborate with the end-users of their science in various stages of the research process. To what extent have you, as a climate adaptation scientist, had any experience collaborating with natural resource decision makers in the following ways? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Determining research priorities	1	5	6	10	6	28
Identifying the research questions for a research project	1	1	11	13	3	29
Designing a research project's methods	6	6	10	6	1	29
Determining data sets to be used for a research project	6	6	8	7	2	29
Collecting data for a research project	8	6	6	6	2	28
Analyzing data for a research project	9	8	5	4	1	27
Interpreting results of a research project	4	6	9	8	2	29
Applying results of a research project	3	6	6	7	6	28
Communicating results of a research project	1	0	10	10	8	29
<b><i>Answered question</i></b>						<b>29</b>
<b><i>Skipped question</i></b>						<b>33</b>

25. To what extent has the Northwest CSC helped connect you with each of the following? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Climate adaptation science	5	16	16	10	1	48
Climate adaptation scientists	8	16	17	4	2	47
Decision makers who might use climate adaptation science	20	17	7	0	2	46
Professionals who might communicate climate adaptation science	14	10	20	1	3	48
Resources needed to conduct climate adaptation science	9	18	15	4	1	47
<b><i>Answered question</i></b>						<b>48</b>
<b><i>Skipped question</i></b>						<b>14</b>



26. Do you agree or disagree that the Northwest CSC contributes to the following in your region? (Select one option per row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>Response Count</b>
Awareness of available science	11	24	11	2	0	48
Communication between scientists and those who might use science	7	24	13	4	0	48
Interdisciplinary science	7	23	14	3	0	47
Relationship-building among decision makers who might be interested in science	6	17	20	5	0	48
Collaboration between scientists	6	23	16	2	1	48
Alignment of science with needs of decision makers	7	17	20	4	0	48
Ensuring science is at an appropriate scale	4	13	27	4	0	48
Translating complex science for decision makers	4	20	19	5	0	48
Social science about climate adaptation issues	0	10	27	8	3	48
Other ways the Northwest CSC has contributed to climate adaptation science and its use:						2
<b><i>Answered question</i></b>						<b>48</b>
<b><i>Skipped question</i></b>						<b>14</b>

27. What state(s) do you work in? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Washington	59.6%	31
Oregon	73.1%	38
Idaho	44.2%	23
Montana	25.0%	13
Other state(s)	17.3%	9
Other (please specify)	19.2%	10
<b><i>Answered question</i></b>		<b>52</b>
<b><i>Skipped question</i></b>		<b>10</b>

28. What scale(s) do you address in your work? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
International	21.6%	11
National	27.5%	14
Regional/multi-state	78.4%	40
State	56.9%	29
Watershed	58.8%	30
Local	39.2%	20
<b><i>Answered question</i></b>		<b>51</b>
<b><i>Skipped question</i></b>		<b>11</b>

29. What is your affiliation? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Federal agency	40.4%	21
Tribal government	1.9%	1
State agency	11.5%	6
Local government	1.9%	1
University	36.5%	19
Non-profit organization	9.6%	5
Private Industry	0.0%	0
Other (please specify)	9.6%	5
<b><i>Answered question</i></b>		<b>52</b>
<b><i>Skipped question</i></b>		<b>10</b>

30. What type of position do you hold in your agency, university, or organization? (Select one option that best describes your type of work)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Leadership/administration	32.7%	17
Policy	9.6%	5
Research	40.4%	21
Operations	3.8%	2
Other (please specify)	13.5%	7
<b><i>Answered question</i></b>		<b>52</b>
<b><i>Skipped question</i></b>		<b>10</b>

## Appendix D. Survey Instrument with Tables of Results - Southeast

1. To what extent does your work involve climate adaptation science, or management or policy related to climate change adaptation? (Select one option)

Answer Options	Response Percent	Response Count
Not at all	1.4%	2
To a small extent	23.9%	34
To a moderate extent	34.5%	49
To a large extent	25.4%	36
To a very large extent	14.8%	21
<b><i>Answered question</i></b>		<b>142</b>
<b><i>Skipped question</i></b>		<b>0</b>

2. How serious of a threat do you believe that climate change is to natural resources, relative to other stressors? (Select one option)

Answer Options	Response Percent	Response Count
Much lesser threat	3.1%	4
Lesser threat	9.2%	12
Similar threat	37.4%	49
Greater threat	38.9%	51
Much greater threat	11.5%	15
<b><i>Answered question</i></b>		<b>131</b>
<b><i>Skipped question</i></b>		<b>11</b>

3. How important do you believe it is that managers or policy makers take action now in the Southeast to address climate change threats? (Select one option)

Answer Options	Response Percent	Response Count
Not at all important	1.5%	2
Slightly important	8.3%	11
Moderately important	12.9%	17
Important	27.3%	36
Very important	50.0%	66
<b><i>Answered question</i></b>		<b>132</b>
<b><i>Skipped question</i></b>		<b>10</b>

4. How important do you believe it is that climate adaptation science inform decisions about natural

resource management in the Southeast? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	0.8%	1
Slightly important	6.8%	9
Moderately important	11.4%	15
Important	34.1%	45
Very important	47.0%	62
<b><i>Answered question</i></b>		<b>132</b>
<b><i>Skipped question</i></b>		<b>10</b>

5. Which statement best characterizes your relationship with the Southeast Climate Science Center (CSC)? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I have never heard of the Southeast CSC.	3.0%	4
I have heard of the Southeast CSC, but have no interest in or involvement with it.	7.5%	10
I have had no involvement with the Southeast CSC, but someone else in my agency or organization has.	12.8%	17
I have had at least some interest in or involvement with the Southeast CSC.	76.7%	102
<b><i>Answered question</i></b>		<b>133</b>
<b><i>Skipped question</i></b>		<b>9</b>

6. In what ways have you been involved with the Southeast Climate Science Center (CSC) in the last five years? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
CSC Stakeholder Advisory Committee member	5.9%	6
University member affiliated with the CSC	22.8%	23
CSC-funded graduate student or postdoctoral fellow	25.7%	26
CSC US Geological Survey staff	1.0%	1
Landscape Conservation Cooperative Steering Committee member	26.7%	27
Landscape Conservation Cooperative staff member	9.9%	10
CSC grant recipient, applicant, or partner on a grant	20.8%	21
Participant in a CSC training, webinar, workshop, or conference	30.7%	31
Resource manager or decision maker who has used the science produced by the CSC	16.8%	17
None of the above	0.0%	0
Other (please specify)	7.9%	8
<b><i>Answered question</i></b>		<b>101</b>
<b><i>Skipped question</i></b>		<b>41</b>

7. How long (in years) have you been involved with the CSC? (Fill in number of years, or zero, if none)

<b>Answer Options</b>	<b>Average number of years involved with CSC</b>	<b>Response Count</b>
	3.5	99
<b><i>Answered question</i></b>		<b>99</b>
<b><i>Skipped question</i></b>		<b>43</b>

8. How frequently did you interact with following representatives of the CSC in your region in the last year? (Select one option per row)

Answer Options	Not at all	Up to a few times a year	About once a month	Up to a few times a month	More than once a week	Response Count
US Geological Survey CSC Staff	15	45	15	17	8	100
University leads/PIs for the CSC	22	39	7	14	14	96
CSC Stakeholder Advisory Committee members	52	30	6	5	0	93
CSC-affiliated researchers	23	36	7	20	10	96
CSC graduate or post-doctoral fellows	36	31	2	10	17	96
<b>Answered question</b>						<b>102</b>
<b>Skipped question</b>						<b>40</b>

9. How important are each of the following benefits of the Southeast CSC to you? (Select one option per row)

Answer Options	Not at all important	Slightly important	Moderately important	Important	Very important	Response Count
Source of funding for climate adaptation science	14	12	13	34	26	99
Access to climate adaptation science	3	10	18	42	29	102
Access to a broader network of people interested in climate adaptation science	5	9	14	47	26	101
Means for learning about climate adaptation	7	14	14	47	20	102
Training on climate adaptation science methods or findings	9	17	28	30	17	101
Avenue to put climate adaptation science into the hands of decision makers	8	13	12	38	30	101
Justification for climate adaptation science I want to do	31	18	14	23	12	98
Other (please specify)						2
<b>Answered question</b>						<b>102</b>
<b>Skipped question</b>						<b>40</b>

10. What limits your involvement with the Southeast CSC? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I don't have enough time	48.4%	61
I don't have the funds	21.4%	27
I don't know how to be involved	15.9%	20
I don't work on the same topics as the CSC	15.1%	19
The CSC's science is not relevant to my needs	4.0%	5
I haven't been invited or asked to be involved	20.6%	26
It's not as high a priority as my other work	27.8%	35
It's someone else's responsibility in my organization	6.3%	8
I'm not interested in this work	0.0%	0
I don't have any limits on the extent to which I am involved.	17.5%	22
Other (please specify)	15.9%	20
<b><i>Answered question</i></b>		<b>126</b>
<b><i>Skipped question</i></b>		<b>16</b>

11. To what extent do you agree or disagree with each of the following statements about the use of climate adaptation science in the Southeast? (Select one option per row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>I don't know</b>	<b>Response Count</b>
Climate adaptation science is available to decision makers.	19	60	12	20	2	10	123
Policy makers use climate adaptation science to inform policies.	3	27	18	40	25	10	123
Land managers use climate adaptation science to inform management.	4	47	27	23	9	13	123
Fish and wildlife managers use climate adaptation science to inform management.	10	52	30	15	8	8	123
Water managers use climate adaptation science to inform management.	7	48	24	20	8	16	123
What is known about climate adaptation does not necessarily influence actions taken by decision makers in the region.	22	54	20	15	3	9	123
The CSC has helped reduce the disconnect between what is known about climate adaptation and the actions taken by decision makers in the region.	9	48	28	10	3	25	123
<b><i>Answered question</i></b>							<b>123</b>
<b><i>Skipped question</i></b>							<b>19</b>



12. To what extent do you agree or disagree with each of the following statements about the science produced through the Southeast CSC (their staff, university affiliates, those funded by the CSC)? (Select one option for each row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>I'm unfamiliar with the science</b>	<b>Response Count</b>
It can contribute to policy or management.	57	43	8	1	1	14	124
It is appropriate to inform the type of decisions being made.	45	49	9	1	2	17	123
It integrates well with other information.	32	46	20	7	0	16	121
It is irrelevant to management.	3	15	11	19	61	14	123
It is high quality.	52	29	22	2	1	18	124
It is biased.	1	2	25	16	63	16	123
<b><i>Answered question</i></b>							<b>124</b>
<b><i>Skipped question</i></b>							<b>18</b>

13. Is making decisions about natural resource policy, management, or programs part of your job?

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	45.8%	55
No. I do NOT make decisions about natural resource policy, management, or programs.	54.2%	65
<b><i>Answered question</i></b>		<b>120</b>
<b><i>Skipped question</i></b>		<b>22</b>

14. Have you or your organization used climate adaptation science produced by the following sources to inform decisions about natural resource policy, management, or programs? (Select one option per row)

<b>Answer Options</b>	<b>Yes</b>	<b>No</b>	<b>I don't know</b>	<b>Response Count</b>
Southeast CSC (e.g., from CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC)	23	20	11	54
Organizations or scientists who are NOT affiliated with the Southeast CSC	38	9	7	54
<b><i>Answered question</i></b>				<b>55</b>
<b><i>Skipped question</i></b>				<b>87</b>

15. How have you used the climate adaptation science produced by the Southeast CSC, if at all? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
To inform policy	17.0%	9
To inform management plans	37.7%	20
To inform management actions	30.2%	16
To inform land acquisition priorities	9.4%	5
To inform training of conservation professionals about climate change and its impacts	26.4%	14
To inform the public about climate change and its impacts	22.6%	12
None of the above	30.2%	16
I don't know	13.2%	7
Other (please specify)	3.8%	2
<b><i>Answered question</i></b>		<b>59</b>
<b><i>Skipped question</i></b>		<b>89</b>

16. To what extent do the following factors limit your use of the climate adaptation science and tools produced through the Southeast CSC? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a large extent</b>	<b>To a very large extent</b>	<b>Response Count</b>
Lack of quality of the science	41	3	3	1	0	48
The science doesn't address questions at the right scale	23	8	12	2	3	48
The scientists don't work closely enough with me	17	9	16	3	4	49
I'm not aware of the science	19	11	12	2	6	50
The science does not address issues I face	18	14	5	7	3	47
The science is not interdisciplinary enough	24	10	5	6	0	45
The science models or results are not refined enough	22	14	3	5	2	46
The science is not being communicated in ways that are understandable	19	12	8	4	5	48
I lack the skills or training to make use of the science	28	12	4	1	1	46
The science is not available at the times at which it is needed for decision making	20	12	8	6	1	47
The management issues for which science is needed have not been clearly defined	18	12	9	7	3	49
<b>Answered question</b>						<b>51</b>
<b>Skipped question</b>						<b>91</b>

17. In your opinion as a natural resource decision maker, how important is it that climate adaptation scientists and natural resource decision makers work together to produce science? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	2.0%	1
Slightly important	7.8%	4
Moderately important	9.8%	5
Important	21.6%	11
Very important	58.8%	30
<b>Answered question</b>		<b>51</b>
<b>Skipped question</b>		<b>91</b>

18. Some climate adaptation scientists collaborate with the end-users of their science in various stages of the research process. We are interested in whether you, as a natural resource decision maker, have any experience collaborating with climate adaptation scientists. To what extent have you or someone in your organization been involved in the following stages of research in one or more Southeast CSC projects (led by others)? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Determining research priorities for the CSC as a whole	27	13	7	3	1	51
Identifying the research questions for a research project	28	14	6	2	1	51
Designing a research project's methods	40	5	2	4	0	51
Determining data sets to be used for a research project	37	8	4	2	0	51
Collecting data for a research project	41	5	4	1	0	51
Analyzing data for a research project	43	4	1	2	1	51
Interpreting results of a research project	36	9	4	2	0	51
Applying results of a research project	25	9	11	5	1	51
Communicating results of a research project	27	11	3	5	5	51
<b>Answered question</b>						<b>51</b>
<b>Skipped question</b>						<b>91</b>

19. To what extent do you, as a natural resource decision maker, agree or disagree that the following items limit your involvement in research projects? (Select one option per row)

Answer Options	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree	Response Count
Scientists have different perspectives than me on what science is needed.	5	11	22	9	5	52
Scientists have different perspectives from me on how research projects should be conducted.	2	11	25	7	6	51
Scientists don't reach out to me to collaborate.	7	22	14	8	1	52
Scientists aren't interested in listening to me.	0	7	27	12	6	52
I don't have time to collaborate with scientists.	2	9	17	14	10	52
Funders don't support collaboration between scientists and science users.	1	15	18	13	4	51
<b>Answered question</b>						<b>52</b>
<b>Skipped question</b>						<b>90</b>

20. Have you produced climate adaptation science through an affiliation with the Southeast CSC (e.g., as CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC) or otherwise? (Select one option)As a reminder, by “climate adaptation science,” we mean “science that helps fish, wildlife, ecosystems, and the communities they support adapt to climate change.”

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
I have produced climate adaptation science through an affiliation with the Southeast CSC	34.5%	41
I have produced climate adaptation science but never through an affiliation with the Southeast CSC	22.7%	27
No, I have not produced climate adaptation science	42.9%	51
<b><i>Answered question</i></b>		<b>119</b>
<b><i>Skipped question</i></b>		<b>23</b>

21. Has the climate adaptation science you produced been used in any of the following ways? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
To inform policy	29.0%	18
To inform management plans	61.3%	38
To inform management actions	58.1%	36
To inform land acquisition priorities	24.2%	15
To inform training of conservation professionals about climate change and its impacts	41.9%	26
To inform the public about climate change and its impacts	48.4%	30
None of the above	6.5%	4
I don't know	8.1%	5
<b><i>Answered question</i></b>		<b>62</b>
<b><i>Skipped question</i></b>		<b>80</b>

22. In other settings, various factors have been found to limit decision makers’ use of science. From your perspective as a scientist, to what extent do the following factors limit the use of the climate

adaptation science produced (not specifically by you) through the Southeast CSC? (Select one option per row)

<b>Answer Options</b>	<b>Not at all</b>	<b>To a small extent</b>	<b>To a moderate extent</b>	<b>To a large extent</b>	<b>To a very large extent</b>	<b>Response Count</b>
Lack of quality of the science	39	14	2	3	0	58
The science doesn't address questions at the right scale	13	15	15	12	3	58
The scientists don't work closely enough with decision makers	8	13	13	18	6	58
Decision makers are not aware of the science	4	12	17	16	8	57
The science does not address issues decision makers face	15	13	16	12	2	58
The science is not interdisciplinary enough	13	18	15	9	0	55
The science models or results are not refined enough	18	16	10	10	4	58
The science is not being communicated in ways that is understandable to decision makers	7	13	16	15	7	58
Decision makers lack the skills or training to make use of the science	6	15	17	12	8	58
The science is not available at the times at which it is needed for decision making	10	21	9	13	5	58
The management issues for which science is needed have not been clearly defined	10	17	13	13	5	58
<b><i>Answered question</i></b>						<b>59</b>
<b><i>Skipped question</i></b>						<b>83</b>

23. In your opinion as a scientist, how important is it that climate adaptation scientists and natural resource decision makers work together to produce science research? (Select one option)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Not at all important	0.0%	0
Slightly important	3.3%	2
Moderately important	13.1%	8
Important	13.1%	8
Very important	70.5%	43
<b><i>Answered question</i></b>		<b>61</b>
<b><i>Skipped question</i></b>		<b>81</b>

24. Some climate adaptation scientists collaborate with the end-users of their science in various stages of the research process. To what extent have you, as a climate adaptation scientist, had any experience collaborating with natural resource decision makers in the following ways? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Determining research priorities	9	12	24	9	7	61
Identifying the research questions for a research project	7	13	23	9	8	60
Designing a research project's methods	22	14	12	8	4	60
Determining data sets to be used for a research project	19	12	15	7	7	60
Collecting data for a research project	19	16	9	9	7	60
Analyzing data for a research project	27	9	10	9	5	60
Interpreting results of a research project	19	10	10	14	7	60
Applying results of a research project	12	12	14	12	10	60
Communicating results of a research project	9	12	14	11	13	59
<b>Answered question</b>						<b>61</b>
<b>Skipped question</b>						<b>81</b>

25. To what extent has the Southeast CSC helped connect you with each of the following? (Select one option per row)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent	Response Count
Climate adaptation science	22	27	27	20	7	103
Climate adaptation scientists	23	25	25	18	12	103
Decision makers who might use climate adaptation science	44	23	26	7	3	103
Professionals who might communicate climate adaptation science	28	24	29	16	6	103
Resources needed to conduct climate adaptation science	39	23	21	13	7	103
<b>Answered question</b>						<b>103</b>
<b>Skipped question</b>						<b>39</b>

26. Do you agree or disagree that the Southeast CSC contributes to the following in your region? (Select one option per row)

<b>Answer Options</b>	<b>Strongly agree</b>	<b>Somewhat agree</b>	<b>Neither agree nor disagree</b>	<b>Somewhat disagree</b>	<b>Strongly disagree</b>	<b>Response Count</b>
Awareness of available science	28	47	16	6	3	100
Communication between scientists and those who might use science	23	45	20	8	4	100
Interdisciplinary science	26	41	24	9	1	101
Relationship-building among decision makers who might be interested in science	18	33	34	12	4	101
Collaboration between scientists	40	32	23	3	3	101
Alignment of science with needs of decision makers	14	42	30	10	5	101
Ensuring science is at an appropriate scale	13	46	34	6	2	101
Translating complex science for decision makers	17	31	32	15	6	101
Social science about climate adaptation issues	13	32	36	15	5	101
Other ways the Southeast CSC has contributed to climate adaptation science and its use:						9
<b><i>Answered question</i></b>						<b>101</b>
<b><i>Skipped question</i></b>						<b>41</b>

27. What state(s) do you work in? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Alabama	13.0%	14
Arkansas	7.4%	8
Florida	26.9%	29
Georgia	15.7%	17
Kentucky	8.3%	9
Louisiana	19.4%	21
Mississippi	13.9%	15
Missouri	3.7%	4
North Carolina	47.2%	51
Puerto Rico	12.0%	13
South Carolina	18.5%	20
Tennessee	15.7%	17
Virginia	14.8%	16
Other state(s)	11.1%	12
Other (please specify)	17.6%	19
<b><i>Answered question</i></b>		<b>108</b>
<b><i>Skipped question</i></b>		<b>34</b>



28. What scale(s) do you address in your work? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
International	28.7%	31
National	45.4%	49
Regional/multi-state	65.7%	71
State	73.1%	79
Watershed	38.9%	42
Local	47.2%	51
<b><i>Answered question</i></b>		<b>108</b>
<b><i>Skipped question</i></b>		<b>34</b>

29. What is your affiliation? (Select all that apply)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Federal agency	34.3%	37
Tribal government	0.9%	1
State agency	19.4%	21
Local government	0.0%	0
University	34.3%	37
Non-profit organization	11.1%	12
Private Industry	0.9%	1
Other (please specify)	3.7%	4
<b><i>Answered question</i></b>		<b>108</b>
<b><i>Skipped question</i></b>		<b>34</b>

30. What type of position do you hold in your agency, university, or organization? (Select one option that best describes your type of work)

<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Leadership/administration	34.3%	37
Policy	3.7%	4
Research	47.2%	51
Operations	6.5%	7
Other (please specify)	8.3%	9
<b><i>Answered question</i></b>		<b>108</b>
<b><i>Skipped question</i></b>		<b>34</b>

## Appendix E. Phone Survey Instrument

The purpose of this survey is to learn more about the experiences of scientists, managers, and decision makers who may have interacted with the [INSERT REGION] Climate Science Center. Even if you haven't had much interaction with the Climate Science Center, your responses are important. Information about the needs and perspectives of scientists and potential users of science that is relevant to climate change adaptation will help the U.S. Geological Survey and the [INSERT REGION] Climate Science Center better serve their partners.

This survey is a cooperative effort of the Cornell University Department of Natural Resources, the U.S. Geological Survey, and the American Fisheries Society.

Your participation in this survey is voluntary, but we encourage you to respond. We estimate that it will take less than 5 minutes to complete the survey. Hearing back from as many people as possible will help ensure that the results of the survey are valid and adequately represent the perspectives of scientists and potential users of science in the region. Please be assured that your identity will be kept strictly confidential, and your responses will never be associated with your name.

Throughout the survey, we will be asking you questions about climate change and climate adaptation science. By “climate adaptation science”, we mean “science that helps fish, wildlife, ecosystems, and the communities they support adapt to climate change.”

1. To what extent does your work involve climate adaptation science, or management or policy related to climate change adaptation? (Select one option)

Not at all (If selected, respond: Thanks for your participation in the survey. We have no further questions.)

To a small extent

To a moderate extent

To a large extent

To a very large extent

Even among professionals who work on climate adaptation science, management, or policy, perspectives differ on the importance of climate change relative to other environmental problems.

2. How serious of a threat do you believe that climate change is to natural resources, relative to other stressors? (Select one option)

Much lesser threat

Lesser threat

Similar threat

Greater threat

Much greater threat

3. How important do you believe it is that managers or policy makers take action now in the [INSERT REGION] to address climate change threats? (Select one option)

Not at all important

Slightly important

Moderately important

Important

Very important

4. Which statement best characterizes your relationship with the [INSERT REGION] Climate Science Center (CSC)? (Select one option)

I have never heard of the [INSERT REGION] CSC. (If selected, skip to question 8)

I have heard of the [INSERT REGION] CSC, but have no interest in or involvement with it. (If selected, skip to question 8)

I have had no involvement with the [INSERT REGION] CSC, but someone else in my agency or organization has. (If selected, skip to question 8)

I have had at least some interest in or involvement with the [INSERT REGION] CSC.

5. How long (in years) have you been involved with the CSC? (Fill in number of years, or zero, if none)

6. How frequently did you interact with following representatives of the CSC in your region in the last year?

(Select one option for each – Not at all; Up to a few times a year; About once a month; Up to a few times a month, More than once a week).

US Geological Survey CSC staff

University leads or PIs for the CSC

7. How important are each of the following benefits of the [INSERT REGION] CSC to you? (Select one option for each – Not at all important, Slightly important, Moderately important, Important, Very important)

Source of funding for climate adaptation science

Access to climate adaptation science

Means for learning about climate adaptation

8. Is making decisions about natural resource policy, management, or programs part of your job?

Yes

No. I do NOT make decisions about natural resource policy, management, or programs.

9. Have you produced climate adaptation science through an affiliation with the [INSERT REGION] CSC (e.g., as CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC) or otherwise? As a reminder, by “climate adaptation science,” we mean “science that helps fish, wildlife, ecosystems, and the communities they support adapt to climate change.” (Select one option)

I have produced climate adaptation science through an affiliation with the [INSERT REGION] CSC

I have produced climate adaptation science but never through an affiliation with the [INSERT REGION] CSC

No, I have not produced climate adaptation science

10. What is your affiliation? (Select all that apply)

Federal agency

Tribal government

State agency

University

Non-profit organization

Other

## Appendix F. Comparison of Respondent (Web-based) and Nonrespondent (Phone) Surveys

1. To what extent does your work involve climate adaptation science, or management or policy related to climate change adaptation? (Select one option)

Answer Options	Not at all	To a small extent	To a moderate extent	To a large extent	To a very large extent
Phone respondents	5.0%	17.5%	32.5%	30.0%	15.0%
Alaska web-based respondents	2.3%	18.2%	38.6%	25.0%	15.9%
Northwest web-based respondents	1.6%	9.7%	27.4%	38.7%	22.6%
Southeast web-based respondents	1.4%	23.9%	34.5%	25.4%	14.8%
Average of three regions' web-based respondents	1.8%	17.3%	33.5%	29.7%	17.8%

2. How serious of a threat do you believe that climate change is to natural resources, relative to other stressors? (Select one option)

Answer Options	Much lesser threat	Lesser threat	Similar threat	Greater threat	Much greater threat
Phone respondents	0.0%	2.6%	35.5%	50.0%	11.8%
Alaska web-based respondents	0.0%	3.6%	20.5%	53.0%	22.9%
Northwest web-based respondents	1.6%	9.7%	27.4%	38.7%	22.6%
Southeast web-based respondents	3.1%	9.2%	37.4%	38.9%	11.5%
Average of three regions' web-based respondents	1.6%	7.5%	28.4%	43.5%	19.0%

3. How important do you believe it is that managers or policy makers take action now in the [INSERT REGION] to address climate change threats? (Select one option)

Answer Options	Not at all important	Slightly important	Moderately important	Important	Very important
Phone respondents	0.0%	2.6%	10.5%	15.8%	71.1%
Alaska web-based respondents	0.0%	3.7%	8.5%	36.6%	51.2%
Northwest web-based respondents	0.0%	1.7%	6.8%	39%	52.5%
Southeast web-based respondents	1.5%	8.3%	12.9%	27.3%	50.0%
Average of three regions' web-based respondents	0.5%	4.6%	9.4%	34.3%	51.2%

4. Which statement best characterizes your relationship with the [INSERT REGION] Climate Science Center (CSC)? (Select one option)

I have never heard of the [INSERT REGION] CSC. (If selected, skip to question 8)

I have heard of the [INSERT REGION] CSC, but have no interest in or involvement with it. (If selected, skip to question 8)

I have had no involvement with the [INSERT REGION] CSC, but someone else in my agency or organization has. (If selected, skip to question 8)

I have had at least some interest in or involvement with the [INSERT REGION] CSC.

Answer Options	Haven't heard	No interest/ involvement	Someone else involved	Some involvement/ interest
Phone respondents	9.2%	10.1%	21.7%	68.1%
Alaska web-based respondents	1.2%	1.2%	13.3%	84.3%
Northwest web-based respondents	5.1%	3.4%	10.2%	81.4%
Southeast web-based respondents	3.0%	7.5%	12.8%	76.7%
Average of three regions' web-based respondents	3.1%	4.0%	12.1%	80.8%

5. How long (in years) have you been involved with the CSC? (Fill in number of years, or zero, if none)

<b>Answer Options</b>	<b>Years</b>
Phone respondents	3.6
Alaska web-based respondents	3.7
Northwest web-based respondents	3.5
Southeast web-based respondents	3.5
Average of three regions' web-based respondents	3.6

6. How frequently did you interact with following representatives of the CSC in your region in the last year?

6a. US Geological Survey CSC staff

<b>Answer Options</b>	<b>Not at all</b>	<b>Up to a few times a year</b>	<b>About once a month</b>	<b>Up to a few times a month</b>	<b>More than once a week</b>
Phone respondents	12.8%	55.3%	8.5%	19.1%	4.3%
Alaska web-based respondents	11.6%	68.1%	11.6%	4.3%	4.3%
Northwest web-based respondents	28.3%	45.7%	13.0%	10.9%	2.2%
Southeast web-based respondents	15.0%	45.0%	15.0%	17.0%	8.0%
Average of three regions' web-based respondents	18.3%	52.9%	13.2%	10.7%	4.8%

6b. How frequently did you interact with following representatives of the CSC in your region in the last year? University leads or PIs for the CSC

<b>Answer Options</b>	<b>Not at all</b>	<b>Up to a few times a year</b>	<b>About once a month</b>	<b>Up to a few times a month</b>	<b>More than once a week</b>
Phone respondents	12.8%	53.2%	21.3%	4.3%	8.5%
Alaska web-based respondents	29.7%	37.5%	14.1%	15.6%	3.1%
Northwest web-based respondents	26.1%	45.7%	17.4%	6.5%	4.3%
Southeast web-based respondents	22.9%	40.6%	7.3%	14.6%	14.6%
Average of three regions' web-based respondents	26.2%	41.3%	12.9%	12.2%	7.4%

7. How important are each of the following benefits of the [INSERT REGION] CSC to you?

7a. Source of funding for climate adaptation science. (Select one option for each – Not at all important, Slightly important, Moderately important, Important, Very important)

<b>Answer Options</b>	<b>Not at all important</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Important</b>	<b>Very important</b>
Phone respondents	40.4%	10.6%	12.8%	14.9%	21.3%
Alaska web-based respondents	30.9%	14.7%	2.9%	23.5%	27.9%
Northwest web-based respondents	12.5%	16.7%	22.9%	31.3%	16.7%
Southeast web-based respondents	14.1%	12.1%	13.1%	34.3%	26.3%
Average of three regions' web-based respondents	19.2%	14.5%	13.0%	29.7%	23.6%

7b. How important are each of the following benefits of the [INSERT REGION] CSC to you? Access to climate adaptation science. (Select one option for each – Not at all important, Slightly important, Moderately important, Important, Very important)

<b>Answer Options</b>	<b>Not at all important</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Important</b>	<b>Very important</b>
Phone respondents	10.6%	6.4%	34.0%	14.9%	34.0%
Alaska web-based respondents	1.4%	10.1%	17.4%	36.2%	34.8%
Northwest web-based respondents	6.4%	8.5%	19.1%	40.4%	25.5%
Southeast web-based respondents	2.9%	9.8%	17.6%	41.2%	28.4%
Average of three regions' web-based respondents	3.6%	9.5%	18.1%	39.3%	29.6%

7c. How important are each of the following benefits of the [INSERT REGION] CSC to you? Means for learning about climate adaptation (Select one option for each – Not at all important, Slightly important, Moderately important, Important, Very important)

<b>Answer Options</b>	<b>Not at all important</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Important</b>	<b>Very important</b>
Phone respondents	8.5%	10.6%	36.2%	19.1%	25.5%
Alaska web-based respondents	2.9%	17.4%	20.3%	37.7%	21.7%
Northwest web-based respondents	6.4%	10.6%	34.0%	31.9%	17.0%
Southeast web-based respondents	6.9%	13.7%	13.7%	46.1%	19.6%
Average of three regions' web-based respondents	5.4%	13.9%	22.7%	38.6%	19.5%



8. Is making decisions about natural resource policy, management, or programs part of your job?  
 Yes  
 No. I do NOT make decisions about natural resource policy, management, or programs.

Answer Options	Yes	No
Phone respondents	71.1%	28.9%
Alaska web-based respondents	48.1%	51.9%
Northwest web-based respondents	52.7%	47.3%
Southeast web-based respondents	45.8%	54.2%
Average of three regions' web-based respondents	48.9%	51.1%

9. Have you produced climate adaptation science through an affiliation with the [INSERT REGION] CSC (e.g., as CSC staff; university faculty, staff or students funded by or affiliated with the CSC; others funded by the CSC) or otherwise? As a reminder, by “climate adaptation science,” we mean “science that helps fish, wildlife, ecosystems, and the communities they support adapt to climate change.” (Select one option)

I have produced climate adaptation science through an affiliation with the [INSERT REGION] CSC

I have produced climate adaptation science but never through an affiliation with the [INSERT REGION] CSC

No, I have not produced climate adaptation science

Answer Options	Yes through CSC	Yes, not through CSC	No
Phone respondents	27.6%	25.0%	47.4%
Alaska web-based respondents	39.2%	21.6%	39.2%
Northwest web-based respondents	42.6%	16.7%	40.7%
Southeast web-based respondents	34.5%	22.7%	42.9%
Average of three regions' web-based respondents	38.8%	20.3%	40.9%

10. What is your affiliation?

10a. Federal agency (Select all that apply)

<b>Answer Options</b>	<b>Yes, Federal agency</b>
Phone respondents	31.6%
Alaska web-based respondents	58.3%
Northwest web-based respondents	40.4%
Southeast web-based respondents	34.3%
Average of three regions' web-based respondents	44.3%

10b. What is your affiliation? Tribal government (Select all that apply)

<b>Answer Options</b>	<b>Yes, Tribal government</b>
Phone respondents	7.9%
Alaska web-based respondents	1.4%
Northwest web-based respondents	1.9%
Southeast web-based respondents	0.9%
Average of three regions' web-based respondents	1.4%

10c. What is your affiliation? State agency (Select all that apply)

<b>Answer Options</b>	<b>Yes, State agency</b>
Phone respondents	15.8%
Alaska web-based respondents	5.6%
Northwest web-based respondents	11.5%
Southeast web-based respondents	19.4%
Average of three regions' web-based respondents	12.2%

10d. What is your affiliation? University (Select all that apply)

<b>Answer Options</b>	<b>Yes, University</b>
Phone respondents	25.0%
Alaska web-based respondents	30.6%
Northwest web-based respondents	36.5%
Southeast web-based respondents	34.3%
Average of three regions' web-based respondents	33.8%

10e. What is your affiliation? Non-profit organization (Select all that apply)

<b>Answer Options</b>	<b>Yes, Non-profit organization</b>
Phone respondents	14.5%
Alaska web-based respondents	11.1%
Northwest web-based respondents	9.6%
Southeast web-based respondents	11.1%
Average of three regions' web-based respondents	10.6%