FUNDING OPPORTUNITY - FISCAL YEAR 2020

U.S. Department of the Interior

U.S. Geological Survey

North Central Climate Adaptation Science Center

Information in this document can also be found online at:
https://www.usgs.gov/land-resources/climate-adaptation-science-centers/casc-research-funding-opportunities

IN THIS DOCUMENT:

North Central CASC Contacts:	Aparna Bamzai-Dodson, USGS Deputy Director, abamzai@usgs.gov Dr. Alisa Wade, USGS Research Coordinator, awade@usgs.gov
Background information on the North Central CASC:	https://nccasc.colorado.edu/

Funding Opportunity Schedule and Details

This document invites proposals for projects to be initiated in **Fiscal Year (FY) 2020** for the **North Central Climate Adaptation Science Center (NC CASC)** that inform high-priority natural or cultural resource management issues that can benefit from climate-informed planning and adaptation management**.** The remaining CASCs are not participating in this funding opportunity.

Submission Deadlines and General Schedule	Deadline for Statements of Interest	January 14, 2020, 3:00 PM Mountain Time
	Full Proposals Invited (Planned)	February 4, 2020
	Deadline for Invited Full Proposals	March 31, 2020, 3:00 PM Mountain Time
	Notification of Intent to Award* (Planned)	May 15, 2020

Informational Webinar	The NC CASC will host an informational webinar / question and answer session pertaining to this solicitation. This webinar will be recorded and made available for online viewing afterwards. Topic: NC CASC FY20 RFP Webinar Date and Time: Dec 17, 2019 11:00 AM Mountain Time (US and Canada) Join Zoom Meeting: https://cuboulder.zoom.us/j/781384409 Dial by your location +1 669 900 6833 US (San Jose) +1 646 558 8656 US (New York) Find your local number: https://cuboulder.zoom.us/u/abAXOAW8xa Meeting ID: 781 384 409

Eligible Applicants	**Only the following may submit (as the lead Principal Investigator) proposals in response to this Funding Opportunity:** ● Members of the NC CASC University Consortium: University of Colorado (CU), Conservation Science Partners (CSP), Great Plains Tribal Water Alliance (GPTWA), South Dakota State University (SDSU), University of Montana (UM), Wildlife Conservation Society (WCS), and ● USGS centers, field stations, laboratories, Cooperative Research Units, etc. Each proposal must have a Principal Investigator (PI) from an eligible institution. **Parties from other organizations (Federal, State, Tribal, or other) can participate and receive funds via subaward from the PI, but the proposal submitter and PI must be from an eligible organization, as described above.** Non-eligible applicants are encouraged to establish working partnerships with one of the recognized eligible applicants to seek participation as part of a project led by a CASC/university consortium member or USGS facility.

Estimated Available Funds	We anticipate that approximately $375,000 to $450,000 may be available to support the CASC's science priorities in Fiscal Year 2020. See the science needs section in this document for additional details regarding project topic areas, funding amounts, and duration. **Final funding is subject to the availability of funds and passage of a full Fiscal Year 2020 budget.**
Project Funding Amount	Individual project awards are not expected to exceed $250,000 for the life of the project (inclusive of all indirect costs and overhead charges applied by all institutions involved). Investigators should contact the NC CASC if larger amounts are required. Proposers are encouraged to consider proposal structures that enable segmentation, in the event that limited funding is available.
Project Duration	Negotiable, but generally not expected to exceed 24 months. Projects longer than two years must have approval from the NC CASC prior to proposal submission. Funding past the first year is contingent on Congressional budget action, and projects longer than one year are strongly encouraged to include interim deliverables.
Project Start	USGS Projects: Changes of Allocation should be expected no sooner than a minimum of 60 days after passage of a full year budget. Consortium Projects: Grants or cooperative agreements should be expected no sooner than January 2021. Substantial delays may occur due to delays in Congressional budget action and/or due to internal agency legal and administrative review processes.
***Funding Note**	"Intent to Award" means the CASC has selected the project for funding, pending completion of all administrative reviews and processing to complete formal awards. Final funding actions will not occur until Congressional action is taken to put a full year FY 2020 budget in place (either with appropriation bills or a year-long continuing resolution). **Delays in Congressional budget action have in the past, and may again, delay receipt of funds.**

Application Process

1. Submission of Statements of Interest. All parties interested in responding to this Funding Opportunity must first submit a Statement of Interest (SOI). A SOI application template is available in **Appendix A**. SOIs must be submitted via the Online Proposal Management System, RFPManager (access information below). The applicant will receive a confirmation email once the SOI has been submitted. Failure to follow the guidelines will result in an SOI being removed from consideration by the CASC.

2. Evaluation of Statements of Interest. SOIs will be reviewed by the CASC, with input from regional partners. Applicants may be contacted to provide additional or clarifying information. Please see the science needs section for specific criteria weightings and additional details. Applicants will also be evaluated based on past performance on USGS funded projects, if applicable. Individuals or institutions with problems in timely or effective completion of projects will be eliminated from further consideration until the issues are addressed to the satisfaction of the CASC.

3. Request for and Submission of Full Proposal. Selected applicants will be invited by the CASC to develop full proposals (including a budget and data management plan). **Proposals will not be accepted from investigators other than those invited as part of this process.** Proposal format information is found in **Appendix B.**

NOTE: This is a two-stage proposal process.
1. All *initial* full proposals will be submitted via RFPManager.
2. If selected for funding, *final* proposals will be submitted:
   - **CONSORTIUM** *final* proposals will be submitted through Grants.gov, following (1) informal discussions with the CASC, and (2) formal invitation from the USGS Office of Acquisitions and Grants to submit.
   - **USGS** *final* proposals will be requested by the CASC only if significant changes are made to the initial full proposal during the review phase. If requested, revised, final proposals will be submitted via RFPManager.

USGS requires CASC Consortium proposers to work with their respective "sponsored research" support staff to ensure appropriate budget detail, formatting, overhead/indirect rate calculations, etc. Sponsored research support staff will be able to provide justifiable budget modifications (such as updates to rate agreements) during the period between proposal submission and selection for funding, but investigators are most strongly encouraged to conduct this consultation prior to submission.

The CASC reserves the right to contact applicants for clarification of technical elements of a proposal. Neither an invitation to submit a proposal, nor a contact from the CASC concerning proposal details, implies the project will be funded.

4. Evaluation of Full Proposals. External proposal reviews will be solicited by the CASC from scientists or resource managers with relevant subject matter expertise. Please see the science needs section for specific criteria weightings and additional details.

5. Review and Selection Process for Full Proposals. Proposals will be reviewed and selected as follows:

- Submissions will be screened by the CASC upon receipt for eligibility and for conformance to the announcement provisions.
- Screened proposals will be reviewed against the evaluation criteria (listed below) by individuals with relevant technical expertise and selected by the CASC. Confidential information will be restricted to these reviewers, and they will be bound by confidentiality assurances. Further, reviewers will follow standard conflict of interest approaches and will be excused from ranking proposals with which they are associated. The constituent members of the review team will be held anonymous; general information on agency or other representation may be shared.
- The CASC will develop a final list of candidate projects, based on the review rankings, modified as appropriate to ensure an overall portfolio of science activities at the CASC that is balanced with respect to the following: geographic distribution, project cost and duration, applicant type (USGS or consortium), subject matter and focus, need for scientific continuity versus establishing new work, funds management, and related factors. Reviewer rankings, comments, and feedback for proposals may be released to lead proposers at the discretion of the CASC.
- The CASC will review all proposed projects to identify opportunities for cross-CASC and cross-agency leveraging opportunities. As noted, this may involve consultations with the applicant and proposal revision.
- Selected applicants will be initially notified of USGS intent to award. This is an informal notification, provided to applicants as a courtesy.

6. Funding Process. Final awards to CASC consortium members are contingent upon all appropriate legal and administrative reviews and processing through the USGS Office of Acquisition and Grants (OAG). Final discretion on funding decisions for specific projects remains with the CASC. **If your proposal is selected to receive funds/award,** all funds will be transferred from the CASC to either:

- A USGS entity through a change of allocation or
- The NC CASC host institution, CU, through a grant or cooperative agreement.

USGS PROPOSALS: funds will be transferred to your Center/Program/Unit via USGS Change of Allocation Procedures. Project activities should not be initiated prior to receipt of funding by your organizational unit.

CONSORTIUM PROPOSALS: CU will be contacted by the USGS Office of Acquisition and Grants Contracting Officer to submit the official final application through Grants.gov on your behalf. Submittal of the Grants.gov application shall be coordinated with the University's Office of Sponsored Programs or equivalent. This office shall serve as the official point of contact for the USGS Contracting Officer.

These entities may then provide subawards to members of the NC CASC consortium or other parties. (Determinations as to whether a grant or a cooperative agreement will be utilized are made by USGS.)

Additional Considerations and Information

NOTE ON PASS-THROUGH INDIRECT COSTS: Applicants at academic institutions and non-governmental organizations other than the University of Colorado - Boulder must include an amount to cover pass-

through costs at CU. Please contact University Director or Deputy Director (Dr. Jennifer Balch, jennifer.balch@colorado.edu; Dr. Brian Johnson, brjo7959@colorado.edu) for the latest rates and any additional information. Appropriate pass-through charges must be included on the budget sheets for your proposal.

Multiple Project Submissions: Proposers may submit multiple proposals for *different* projects. Please refer to RFPManager for instructions on multiple submissions.

Multi-year Funding (relevant especially to USGS proposers)**:** To address issues related to carry-over of federal funds between fiscal years, and to deal with the fact that this solicitation can only provide funds for the first fiscal year of the project, the CASCs will work with successful applicants to plan funding for multi-year projects in the fiscal years needed by the project, within the uncertainty about out-year funding.

Annual and Final Project Reports: In addition to the Federal Financial Report required for external agreement administration, Form SF-425, all funded projects are required to submit annual progress reports and a final project report according to the formats provided in **Appendix D** and **Appendix E**. Annual progress reports are due sixty (60) days prior to the end of the budget period, and final reports are due ninety (90) days after the project completion date. Additional / more frequent reporting may be required by individual CASCs.

Manuscripts Intended for Publication: All funded researchers are required to provide *advanced* notification to the CASC of all anticipated manuscripts intended for publication that have been produced through the CASC -funded project (or where staff received funding through a CASC graduate fellowship). All manuscripts should also include appropriate funding acknowledgements. Acknowledgements for funding support from a CASC should follow the guidelines in **Appendix F**.

CASC Communications Guidelines: Communications products developed by the CASCs for projects or initiatives funded through the U.S. Geological Survey are required to follow a set of Communications Guidelines, developed by the USGS National Climate Adaptation Science Center. The guidelines include information on the use of USGS and DOI logos, funding acknowledgements for products, publications and press releases, and the use of images for USGS products. The guidelines can be found at: https://www.usgs.gov/media/files/casc-communication-guidelines-v15

Images: Images are an important means for promoting and communicating about our work. A good photo, video, or infographic can entice people (like a stakeholder or a congressional representative) to read more about your work. PIs chosen for funding by a CASC are strongly encouraged to provide images of their study area or subject and field work to provide to the CASCs for use on public websites and in outreach materials. Non-federal photographers will be asked to sign a photo permission form. Please contact casc@usgs.gov to submit photos or obtain the permissions form.

Access to RFPManager

Online Proposal Management System for Submitting SOIs and Initial Invited Full Proposals

Access RFPManager via:

https://sciencebase.usgs.gov/rfp

Please do not use Internet Explorer to access RFPManager. Supported browsers: Chrome, Firefox, Edge, Safari

For additional help or to report problems, please contact: casc@usgs.gov

If planning to apply, please create an account and log in to the system as early as possible to avoid last minute authentication problems.

Department of Interior Employees: Click "Log in with Bisonconnect"

External (Non-DOI) Users: Please use the following process to create an account / log in:

- To log in, use your myUSGS Sciencebase username and password in the "Other Sciencebase Accounts" section.
- To create an account, go to https://my.usgs.gov/resources and click "Sign Up". Follow the steps. **For the sponsor email, please enter hchandler@usgs.gov.** There may be delays in the email verifications. Please allow extra time for this process.

In mid-December, we will stop supporting login.gov to access this system. Please do not create an account with login.gov for RFPManager.

RFPManager system is a work in progress. If you have any feedback on how we could do things better or if you run into any problems, please let us know: casc@usgs.gov

Science Approach, Science Priorities, and Contact Information

Science Approach

The NC CASC invites proposals for FY 2020 science projects that inform high-priority land, water, fish and wildlife, or cultural heritage resource management issues that can benefit from climate-informed planning and adaptation management. Proposals can be within any one of four science priority topics, listed below. It is unlikely that the NC CASC will select more than one project for funding per priority topic, and there is no guarantee the NC CASC will select a project from all four priority topics.

For all science priority topics, to ensure that science outputs are useful and actionable, proposed projects must consider the needs of science end users, specifically natural resource managers or decision makers, from Federal (particularly DOI bureaus) or State governments or Tribes or tribal entities. Actionable science is best achieved through proactive identification of the science end users (e.g., "stakeholders") and how they may best be engaged in the project. Stakeholder engagement falls along a continuum ranging from communication of results, to consulting with stakeholders during the project, to collaboratively engaging stakeholders for project "co-development," to complete "co-production of knowledge" whereby stakeholders are fully engaged in the scientific process from start to finish:

Communicate	Consult	Collaborate/Co-Develop	Co-Produce
● Few engagements ● Little extra time	● Several engagements	● On-going engagement	● Long-term & on-going engagement ● Intensive time commitment
Example: Give a webinar or make a fact sheet about project results	*Example:* Consult with stakeholders regarding key species for which to run a model and later ask which are most useful variables from model outputs to summarize	*Example:* Stakeholders help refine research questions and provide input at regular points during research process	*Example:* Stakeholders are an integral part of science team and help define research questions and approach

Proposers seeking more information should watch the 5-minute video found at https://youtu.be/5_OW0kAJIzk detailing the spectrum of stakeholder engagement. Beier et al. (2016) provide a guide for actionable science, and we urge proposers to consider other frameworks to incorporate climate science into a management decision process (see Glick, et al. 2011; Cross et al, 2012; NPS, 2013; Stein et al, 2014; or Dilling et al, 2018). Also see guidance in Appendix B, Section 1G, "Letters of Support." Proposers should contact the NC CASC with any additional questions or concerns regarding stakeholder engagement.

Proposals are also encouraged to include a framework for how to evaluate the engagement of stakeholders in the science creation process, stakeholder use of project information and products, and the building of the relationship between the stakeholders and the investigator team. This framework should be informed by literature on evaluation of stakeholder-informed science, and Wall, Meadow, and Horangic (2017) provide an example theoretical basis for evaluation indicators.

Stakeholder engagement literature

Beier, P., Hansen, Lara J., Helbrecht, L., Behar, D. (2017). A how-to guide for coproduction of actionable science. Conservation Letters, 10(3), 288-296. Available at doi: 10.1111/conl.12300.

Cross, M. S., Zavaleta, E. S., Bachelet, D., Brooks, M. L., Enquist, C. A. F., Fleishman, E., Graumlich, L. J., et al (2012). The Adaptation for Conservation Targets (ACT) framework: a tool for incorporating climate change into natural resource management. Environmental management, 50(3), 341–51. Available at doi: 10.1007/s00267-012-9893-7.

Dilling, L., Clifford, K., McNie, E., Lukas, J., and U. Rick, 2018. Making research more usable at CU Boulder. Available online at: http://wwa.colorado.edu/publications/reports.

Glick, P., Stein, B.A., and Edelson, N.A., eds. (2011). Scanning the conservation horizon: A guide to climate change vulnerability assessment: Washington, D.C., National Wildlife Federation, 176 p. Available from NWF.

National Park Service, 2013. Using Scenarios to Explore Climate Change: A Handbook for Practitioners. National Park Service Climate Change Response Program. Fort Collins, Colorado. Available from NPS.

Stein, B.A., P. Glick, N.A. Edelson, and Staudt, A., eds. (2014). Climate-Smart Conservation: Putting Adaptation Principles into Practice: Washington, D.C., National Wildlife Federation, 272 p. Available from NWF.

Evaluation literature

Wall, T.U., A.M. Meadow, and A. Horangic. (2017). Developing evaluation indicators to improve the process of coproducing usable climate science. Weather Climate and Society, 9, 95–107. Available at doi: 10.1175/WCAS-D-16-0008.1.

Science Priorities

Science Priority Topic A: Typology of climate vulnerability and adaptation for under-studied species

Resource managers are challenged to proactively consider climate implications and adaptation for under-studied or otherwise cryptic species (e.g., pollinators or other insects, non-game or reclusive species, endemic plants, etc.). Investigations into species-specific sensitivity or capacity to adapt to climate change continue, but general understanding of likely vulnerability for many of these species - and ultimately adaptation management guidance - is needed now.

The NC CASC seeks proposals to develop and pilot a typology for identifying climate sensitivity and adaptive capacity (two primary components of climate vulnerability) for an investigator-chosen community, guild, or other grouping of species. The typology should build off or leverage existing work synthesizing two of the main factors in species climate change vulnerability assessments: (1) sensitivity to climate change (i.e., degree of impact from a change in temperature, moisture, or disturbance; e.g., habitat and ecosystem niche, rarity, life history) and (2) species adaptive capacity (i.e., inherent ability to successfully adapt to changing conditions; e.g., physiological tolerance, genetic diversity or evolvability, phenotypic plasticity, dispersal ability). The typology would serve as a foundation or decision-tree for identifying the most appropriate climate adaptation management actions for species about which little is known given their likely vulnerability (a function of the projected exposure to climate change in a given location and the typology for sensitivity and adaptive capacity).

Proposals should demonstrate that the project will focus on specific species (or group) about which little is known but of critical importance to - and challenging for - resource managers in the region. Proposals should discuss how the approach may serve as a potential framework for broader application to other cryptic species and guilds.

Science Priority Topic B: Projections of future flows and temperature in streams in the NC CASC region

Natural resource managers, especially those in state agencies in the eastern portion of the NC CASC domain, have expressed interest in (improved *or* initial) information on future stream flows and stream temperatures under future climate change. These managers represent agencies with a wide range of management responsibilities, including recreational fishing, invasive species management and control, water diversion and use, forest planning and revisions, listing and habitat designation, and the like. Multiple organizations, including the USGS, have developed models that could be, and in some cases have been, applied to create management-relevant projections. This project will require engaging with an array of stakeholders (Federal, State, Tribal) throughout the project to identify and synthesize the best-available data, models, or methods for projecting future flows and temperatures. Proposals should clearly convey the investigator's interest in and ability to conduct active end-user engagement.

Key objectives for this project will be:

1. assessment and articulation of resource managers' planned uses for flow and temperature data and the specific parameters such as output variables, temporal and spatial scale, etc. required of projections;
2. identification of the state of the science for projecting future stream flow and temperature and assessment of the ability of leading methods and models to meet the articulated management needs. This will involve determining whether only appropriate *methods* exist (without having been applied to the NC domain) or whether actual *projections* exist for the region; and
3. identification of technically feasible next steps for increasing usability and accessibility of stream temperature and flow projections, on the part of resource managers, decision makers, NC CASC, USGS, or others.

Note: Proposers who are also *producers* of the type of projections outlined here are welcome to propose, with the understanding that end-users' needs and abilities to access, use, and interpret the data should be the controlling factors, especially in regards to any recommendations. All products should be evaluated using consistent and unbiased criteria.

Science Priority Topic C: Scientific support for DOI bureaus or state fish and wildlife agencies

Projects must support and inform either (1) an important (e.g., urgent) or high-profile/publicly-sensitive management plan or decision-making process (as determined by the management partner) or (2) a management plan or decision-making process that can demonstrably serve as a framework or case-study example of how solutions can be applied generally to other similar planning processes serving either Department of the Interior Bureaus or state fish and wildlife agencies. Investigators should place their projects in the context of the management and science priorities described in pages 9-20 of the draft NC CASC Strategic Science Plan: https://drive.google.com/open?id=1el8mRuDRSfLZhMTuji6xKEfVVBlvYWuu.

There are three types of potential projects under this priority:

- **Scientific synthesis projects** to include a State of the Science Report: A targeted literature review

and analysis of existing datasets. The report should be readable and understandable to resource managers and serve as a technical "deep dive." This report should provide the scientific grounding for a shorter Resource Brief, which provides a summary of findings for a general audience in a 2-4 page format. As part of their proposal, investigators should, at a minimum, identify audiences and venues for communication, training, and extension activities to share their synthesis findings.

- **Projects to generate novel science**. Proposals must illustrate proactive participation from the resource management partner. If the planning/decision process will extend more than one year, project timelines should include concrete deliverables for each year of work as funding past the first year is contingent on Congressional budget action.
- **Science integration workshops to bring together scientists and decision makers** to incorporate existing scientific information into a specific management question or decision-making process. This can include planning projects to build relationships with decision makers or other stakeholders to identify their scientific needs which may result in the co-development of projects, white papers, or proposals for future submission (to the NC CASC or another funding agency).

Science Priority Topic D: Scientific support for Tribes or other tribal entities

As outlined in Priority Topic C, projects can propose to conduct scientific synthesis, generate novel science, or integrate scientific information into specific management planning or related decision-making processes. Proposers are strongly encouraged to engage in conversations with the NC CASC Tribal Resilience Liaison (Stefan Tangen; stefan.g.tangen@gmail.com) and/or the NC CASC Consortium co-PI for the Great Plains Tribal Water Alliance (James Rattling Leaf, Sr.; jamesrl413@gmail.com) prior to submitting their Statements of Interest.

Proposals must explicitly ensure tribal sovereign management of resources by including at least one Tribe or tribal entity as full investigators on the project, articulating a framework for bringing in input from tribal members, and ensuring that this input is incorporated into the project. Topics should be of import to the Tribe; topics of interest to the NC CASC include, but are not limited to, culturally important keystone species (e.g. bison, medicinal plants), fishing, gathering, and first food resources.

Contact Information

Prospective investigators can contact the NC CASC Deputy Director or Research Coordinator (Aparna Bamzai-Dodson; abamzai@usgs.gov; Dr. Alisa Wade, awade@usgs.gov) for additional information regarding science needs and priorities. Please contact the University Director or Deputy Director (Dr. Jennifer Balch, jennifer.balch@colorado.edu; Dr. Brian Johnson, brjo7959@colorado.edu) with any questions regarding University of Colorado - Boulder policies and overhead. Consortium lead contacts:

Institution	Name	Email
Conservation Science Partners	Dr. Shelley Crausbay	shelley@csp-inc.org
Great Plains Tribal Water Alliance	James Rattlingleaf, Sr.	jamesrl413@gmail.com
South Dakota State University	Dr. Laura Edwards	laura.edwards@sdstate.edu
University of Montana	Dr. Phil Higuera	philip.higuera@umontana.edu
Wildlife Conservation Society	Dr. Molly Cross	mcross@wcs.org

SOI and Proposal Evaluation Criteria

The NC CASC will employ project review procedures as detailed earlier in this document. Evaluation criteria for review of SOI and invited proposals, and the weighting of those criteria, as well as additional project evaluation details follow.

SOI Evaluation Criteria

Climate-informed management significance (30%): The project identified in the SOI should directly address a science priority identified in the section above. The proposed project should inform high priority land, water, fish and wildlife, or cultural heritage resource management issues that can benefit from climate-informed planning and adaptation management, as identified by regional management partners, including Federal, State, or Tribal resource management organizations. The SOI should clearly articulate the resource management decision being considered and how the project will bring value added to the decision-making or planning process.

Engagement of stakeholders and science beneficiaries for actionable science (30%): Intended end users of the scientific output of the project (i.e., resource managers or decision makers; "stakeholders") should be appropriately and proactively engaged in the proposed project in order to create actionable, usable science. The SOI should identify the project stakeholders and how and to what level they will likely be engaged in project planning and development of science outputs. Proposed projects that build upon existing stakeholder partnerships are encouraged, and where possible, investigators should leverage additional partner resources to carry out the proposed project.

Scientific merit and quality of the project (20%): Proposed project objectives should be robust and clearly defined. The SOI should demonstrate sound scientific methodology. The SOI should indicate how the proposed project will have a broad, generalizable scientific relevance or geographic scope.

Study team qualifications (20%): The SOI should indicate that the research team has appropriate interest, training, and qualifications for the proposed research. Where possible, the proposed team should demonstrate evidence of successfully completing similar work in the past. The SOI should also indicate if and how the project will contribute to the development of early career scientists or managers (within 5 years of a Masters or Doctoral degree or Assistant Faculty status) or the training of new scientists through funding of graduate students or post-docs.

Proposal Evaluation Criteria

Scientific merit, quality, and relevance of the proposed project (30%): Project study objectives and desired outcomes should be robust and clearly defined. Projects should use a credible scientific approach that reflects the current state of the science and has overall strategy, study design, methodology, and analyses that are well-reasoned and appropriate to accomplish the specific scientific objectives of the project. Anticipated project outcomes and results should have broad scientific relevance or geographic scope. Proposals should include a credible data management plan (see below)

that indicates the type of data to be collected and any special data service needs.

Climate-informed management significance (25%): Project should inform high priority land, water, fish and wildlife, or cultural heritage resource management issues that can benefit from climate-informed planning and adaptation management, as identified by stakeholder partners, including Federal, State, or Tribal resource management organizations.

Engagement of stakeholders for actionable science (20%): Intended end users of the scientific output of the project (i.e., resource managers or decision makers; "stakeholders") should be appropriately and proactively engaged in the proposed project in order to create actionable, usable science, allow investigators to learn from stakeholder experience and on-the-ground observations, and build stakeholder understanding of climate change as it relates to resource conservation planning and adaptation.

Study team qualifications (15%): The proposing team should have appropriate interest, high-level training, and qualifications for the proposed research. The CASC will evaluate applied and relevant past work, breadth of skill/knowledge to successfully perform the proposed research, and the integration, leadership, governance, and organizational approach of the investigator / study team. Collaborative projects (multi-PI) should include clear delineation of project responsibility across the team. Where possible, the proposed team should demonstrate evidence of successfully completing similar work in the past. As noted previously, applicants with significant issues regarding timely or effective completion of projects will be eliminated from further consideration until the issues are addressed to the satisfaction of the CASC. Proposals that contribute to the development of early career scientists or managers (within 5 years of a Masters or Doctoral degree or Assistant Faculty status) or the training of new scientists through funding of graduate students or post-docs are encouraged.

Budget/work plan (10%): The CASC will evaluate the project budget and work plan in relation to the proposed level of work, expected benefits, complexity and/or scope of effort, and practicality and achievability of the proposed project. Work plans should present a detailed schedule of project milestones and planned outreach and stakeholder collaboration and/or engagement. Proposals should clearly indicate how they build upon or complement existing work and capacity and/or leverage additional funding or resources to carry out the proposed project.

Data management: USGS policies concerning data management and public access should be followed. All proposals must include a credible data management plan and comply with NCASC requirements regarding data management, as specified in the NCASC/CASC Science Data Sharing Policy found at https://www.usgs.gov/land-resources/climate-adaptation-science-centers/data-policy-and-guidance.

APPENDIX A: Format and Guidelines for Statements of Interest

Statements of Interest (SOIs) must be submitted to RFPManager (see access information, above). In addition to submitting the PDF document, please also complete any questions that appear within RFPManager. An SOI template can be downloaded in word document format from RFPManager.

1. PROJECT ADMINISTRATIVE INFORMATION (1⁄2 page)

- Project title written for a non-technical, non-scientific audience. An example of a good title is: The Impact of Drought on Waterbirds and Their Wetland Habitats in California's Central Valley (straight forward, avoids scientific jargon, compelling, and easy to understand)
- Science Priority Topic to which this SOI responds
- Name of Lead agency/institution/organization requesting funding
- Project Lead Contact or Principal Investigator
- Lead contact information: Mailing Address, City, State, Zip, Telephone, Fax, and E-mail
- Names and affiliations of project Co-PIs

2. COLLABORATOR and STAKEHOLDER PARTNERS (1⁄2 page)

- Description of any project collaborators (individuals or agencies that are not Co-PIs but will provide data, expertise, or other resources) that will contribute to the proposed project's success
- Likely stakeholders (science end users, primarily natural and cultural resource managers or decision makers) and how the project links to a specific strategic science need(s) of those stakeholders

3. PROJECT SUMMARY (1 page)

Please provide a brief narrative summary of the project based on the RFP science priority and the evaluation criteria described earlier in this document.

4. ESTIMATED BUDGET

Provide an estimated budget, including relevant indirect costs (including pass through costs, if any, at the CASC host institution). Use the following format for an estimated budget table, and include it as the last page in the SOI PDF document (does not count towards the two-page maximum limit). In addition, please also enter budget totals directly into the RFPManager registration page where asked. The Budget Template "years" are budget years – the years of funding within which you propose to accomplish your work.

Institution Name	Budget Year 1	Budget Year 2	Budget Year 3	Total
Institution 1				
Institution 2				
ADD ADDITIONAL LINES AS NEEDED				
Total				

APPENDIX B: Format and Guidelines for Invited Proposals

Initial Invited Full Proposals must be submitted through RFPManager. If selected, official final proposals

- **from Consortium investigators** will be submitted via Grants.gov after formal request from the USGS Office of Acquisitions and Grants.
- **from USGS investigators** will be submitted again via RFPManager ONLY if there have been significant changes to the budget or work program from the initial full proposal.

Proposal Structure:

Proposers must submit three separate items (*see additional guidance below for each item*):

1. **Proposal body** - single PDF document with:
    a. Proposal cover page and project summary (max. 1 page)
    b. Plain Language Public Summary (not to exceed 300 words)
    c. Project detail (max. 7 pages)
    d. Budget justification (max. 2 pages)
    e. Curriculum vitae (max. 2 pages per investigator)
    f. Literature cited (no page limit)
    g. Letters of support (optional, as needed)
2. **Budget** form using the Excel template available in RFPManager
3. **Data Management Plan** submitted via a web-form in RFPManager

Proposals with involvement from multiple institutions should be submitted as a single proposal in RFPManager.

In addition to submitting the three proposal items, please also complete any questions that appear within RFPManager. Please follow instructions within the system and below.

1. Proposal Body

SINGLE PDF DOCUMENT WITH:

A. Proposal Cover Page and Project Summary (max. 1 page)

PROJECT ADMINISTRATIVE INFORMATION (1⁄2 page)

Project title: Brief but descriptive title of proposed project.
* Note: Project titles should be written for a non-technical, non-scientific audience. An example of a good title is: The Impact of Drought on Waterbirds and Their Wetland Habitats in California's Central Valley (straightforward, avoids scientific jargon, compelling, and easy to understand).

Principal investigator (PI): List the name of the PI. All communications and notifications will be directed to this individual and to the Administrative Contact (see below). Other participants should be listed below.

Phone number and email of PI:

Name and number of PI's cost center (only if USGS PI): Project Administrative Contact:

- *Consortium Proposals:* provide **name, title, and email** of a "sponsored research office" (e.g. Sponsored Programs Office) contact -- the individual who can legally bind the University. All contractual and fiscal communications and notifications will be directed to this individual.
- *USGS Proposals:* provide **name, title, and email** of the person in your Center/program who handles changes of allocation.

Names/Affiliations of Co-PIs: List other members of primary project team; no contact information required

- Also list names/affiliations of graduate students or post-docs to be funded by this project if already known.

Proposed start date and estimated duration of the project period (e.g., Start Date: 1 January 2021, 12 months): Please note that official project start date is determined by the effective date specified in the Grant or Cooperative Agreement Award executed by the USGS Contracting Officer (for University Consortium Proposals) or the date of the Change of Allocation (for USGS Proposals). Researchers should not start work on a project until the Award document (for University Consortium proposals, through FedConnect) or Change of Allocation (USGS) has been received by the recipient institution.

Note for planning purposes: Official start dates are determined by the date of funding. Final funding actions will not occur until Congressional action is taken to put a FY2020 budget in place, either with appropriation bills or a year-long continuing resolution. Delays in Congressional budget action have in the past and may again this year delay receipt of funds.

Total project funding requested from the CASC:

Funding from other sources to be applied to this project: List additional funding sources and note any additional in-kind support.

Keywords: (list three *general* keywords that best characterize the proposed project; it is unnecessary to include climate or climate change as a keyword).

Project Summary: The project summary should provide a synopsis of the overall proposal. Key sections from the full proposal that *must* be summarized are: (1) Objectives/Justification, (2) Background, (3) Climate-Informed Management Application and Stakeholder Engagement Approach, (4) Procedures/Methods, (5) Expected Products and Information/Technology Transfer, and (6) Personnel and Cooperators. The project summary should be included in the proposal PDF and should also be submitted separately in RFPManager. *NOTE: this summary does not replace the required "plain language public summary", as described in **Appendix C** and below.*

B. Plain Language Public Summary (max. 300 words)

The Plain Language Public Summary should provide a synopsis of the overall project and should be suitable for sharing on public websites and through other outreach methods. The Plain Language Public Summary should be submitted on a separate page within the proposal PDF document and should also be submitted separately in RFPManager. See **Appendix C** for detailed guidelines for the Summary.

C. Project detail (max. 7 pages)

The project detail must be limited to seven pages, single-spaced with one-inch margins and 12-point font, and formatted for standard 8.5x11-inch paper.

Required sections for all proposals

Objectives/Justification: Explain the objective of the proposed project (or need for continuation of existing project). Summarize the significance and priority of the issue to be addressed and explain how the project relates to that issue. Identify instances in which the issue or question has been cited as a national or regional conservation priority.

Geographic Scope: Describe the scope of the project. Unless otherwise noted, proposals should address information needs of the CASC region they are applying to.

Background: Describe the scientific or technical issues that underlie the proposed activity, including available relevant findings, related ongoing activities, problems to be addressed, and scientific value of anticipated results. The results of related projects supported by other funders should be described, including their relation to the currently proposed work.

Climate-Informed Management Application / Stakeholder Relevance: Proposals should: (1) identify the resource managers or decision makers ("stakeholders") that will benefit from the project, (2) list the planning, management, or decision making information gap or needs, (3) justify the critical need for new or additional information in relation to the management question, and (4) outline how the products will be used in climate-informed resource management planning or decisions.

Stakeholder Engagement Approach and Outreach Products: Proposals should (1) explicitly state the intended level of engagement of the stakeholders listed above (see the section on "Science Approach" for levels of engagement), (2) provide an overview of the express intended strategies for, and the intended sequence of, stakeholder engagement (e.g., fact sheets, webinars, workshops, colliders), which should then be reflected in the project work plan (see below), and (3) justify the appropriateness of the planned approach for the project goals and for ensuring that expected products will meet the needs of stakeholders. Identify the anticipated stakeholder engagement or outreach products (e.g., fact sheets, webinars, trainings, etc.). Specifically identify products to be developed within a period of one to three years and key milestones for producing those products.

Procedures/Methods: Describe the procedures and methods to be followed in sufficient detail to permit evaluation by peer reviewers of likely success. If applicable, the following topics should be addressed: hypotheses to be tested; modeling approach to be used; model or research validation procedures; acceptance and rejection criteria; statistical analysis approaches; other methods used in research efforts, sampling, or surveying. If standard methods are used, a reference for the methods is sufficient.

Expected Results and Products: Describe expected science results and products to be generated from the project (e.g., models, data sets, associated products and metadata, written reports, scientific publications, maps, software, etc.). Specifically identify products to be developed within a period of one to three years and key milestones for producing those products.

Qualifications of Project Personnel: Summarize briefly the qualifications of each principal investigator, co- investigator, and any other personnel with primary responsibilities and making significant contributions to the success of the proposed project (such as known postdocs or students). Refer to CVs as appropriate. The proposal should also indicate if and how the project will contribute to the development of early career scientists or managers (within 5 years of a Masters or Doctoral degree or Assistant Faculty status) or the training of new scientists through funding of graduate students or post-docs.

Cooperators: Indicate all cooperators making significant contributions to the success of the proposed project. Provide brief summaries of the respective roles and types of contributions (e.g., financial, in-kind, technical expertise, data) to the achievement of the project objectives. Include names, addresses, affiliations, phone, and email addresses. Indicate arrangements and mechanisms for establishment and execution of partnerships. Where possible, the project should be coordinated or leverage existing partnerships and programs.

Work and Reporting Schedule: Provide a timetable for achievement of milestones, other accomplishments, and completion of the project.

Technology/Information Transfer: Describe how scientific results or products will be made available for application by science end users or decision makers (e.g., DOI resource- and land- management agencies, other federal agencies, Tribes, state and local governments, universities, and non- government organizations). Describe plans for digital integration and dissemination of data and products resulting from the project.

Optional sections as relevant

Facilities/Equipment/Study Area(s): Describe facilities, major equipment, computing infrastructure and field- study areas utilized in the project.

Legal and Policy-Sensitive Aspects: Address any issues related to legal or policy mandates. Include any necessity for state or federal permits (e.g., the need for permits to collect or hold wild animals, to access federal or private lands, or any restrictions on the dissemination of data or products). If field work will be completed on federal lands, identify and indicate whether arrangements have already been made for access to the land.

Animal Use or Human Subjects: Any research on animals must go through the investigators' Institutional Animal Care and Use Committee (IACUC) and get formal approval by their Institutional Review Board or similar entity. Any research working with human subjects must go through the investigators' institutional Human Subjects Review process and get formal approval by their Institutional Review Board or similar entity.

Tables and Figures: Tables and figures may be included in the proposal body, as necessary, but they must be within the seven-page limit.

D. Budget Justification (max. 2 pages)

A budget narrative and justification must be included to explain project costs in the budget categories.

Detail should be sufficient to allow evaluation by reviewers of the costs proposed. The categories below align with categories required in the Excel Budget Form (see section 2, below). Multi-institution proposals should include each *subaward* as a separate section in their justification. Explain requests in each category:

1. **Salaries and Wages:** Identify individuals (e.g. the PI) or categories (e.g. graduate student) and for each include salaries and wages, estimated hours or percent of time, and the rate of compensation proposed. Include an explanation of the amounts included for projected increases if the rate of pay shown is higher than the current rate of pay. Identify each person with a task in the project.
2. **Fringe Benefits/Labor Overhead:** Indicate the rates/amounts in conformance with normal accounting procedures. Explain what costs are covered in this category and the basis of the rate computations. Indicate whether rates are used for proposal purposes only or whether they are also fixed or provisional rates for billing purposes.
3. **Tuition for Graduate and Undergraduate Students:** Tuition remission and other forms of compensation paid as, or in lieu of, wages to students performing necessary work are allowable; provided that the tuition or other payments are reasonable compensation for the work performed and are conditioned explicitly upon the performance of the work.
4. **Supplies:** Enter the cost for all tangible property, including a breakdown of costs for each item. Include the cost of office, laboratory, computing, and field supplies separately. Provide details on any specific item, which represents a significant portion of the proposed amount. If fabrication of equipment is proposed, list parts and materials required for each and show costs separately from the other items.
5. **Equipment:** Show the cost of all special purpose equipment necessary for achieving the objectives of the project. "Special purpose equipment" means scientific equipment having a useful life of more than 1 year and having an acquisition cost of $5,000 or more per item. Each item should be itemized and include a full justification and a dealer or manufacturer quote, if available. General purpose equipment must be purchased from the applicant's operating funds. Title to non-expendable personal property shall be vested solely with the Recipient. Under no circumstances shall property title be vested in a sub-tier recipient.
6. **Services or Consultants:** Identify the tasks or problems for which such services would be used. List the contemplated sub-recipients by name (including consultants), the estimated amount of time required, and the quoted rate per day or hour. If known, state whether the consultant's rate is the same as she/he has received for similar services or under Government contracts or assistance awards.
7. **Travel:** State the purpose of the trip and itemize the estimated travel costs to show the number of trips required, the destinations, the number of people traveling, the per diem rates, the cost of transportation, and any miscellaneous expenses for each trip. Include the breakdown of travel costs – airfare, per diem, hotel, mileage, number of days and number of travelers. For travel requested to meetings or conferences, include a description of the benefit to the proposed project. Failure to provide this information may result in a determination of the cost as unallowable. Calculations of other special transportation costs (such as charges for use of applicant owned vehicles or vehicle rental costs) should also be shown.
8. **Other direct costs:** Itemize the different types of costs not included elsewhere; such as, publication, shipping, computing, equipment use charges, or other services. Provide breakdowns showing how the cost was estimated; for example, computer time should show the type of computer, estimated

time of use, and the established rates. For publication costs, we need a breakdown of cost per page.

9. **Indirect Costs/General and Administrative (G&A) Costs**: Show the proposed rate, cost base, and proposed amount for allowable indirect costs based on the cost principles for the Applicant's organization. G&A should not be calculated for any tuition remission. If the Applicant has separate rates for recovery of labor overhead and G&A costs, each charge should be shown. Explain the distinction between items included in the two cost pools. The Applicant should propose rates for evaluation purposes, which they are also willing to establish as fixed or ceiling rates in any resulting award.

NOTE: A copy of the indirect negotiated cost agreement with the Federal Government will be requested from all applicants recommended for an award. This request will be made at the time of recommendation notification. In the absence of a negotiated cost agreement or CPA certification, the applicant will be required to provide financial documentation to support the calculation of the proposed rates. If no documentation to support the calculation of indirect cost rates is provided, no award will be made.

10. **Collaborator or Partner Contributions:** Provide a summary of any financial contributions from partners or match from your institution. Any contributions from partners should be documented in a letter of support. Summarize how this project will rely upon, build upon, or otherwise leverage either (1) existing USGS funding or projects or (2) the funding and resources of partners and collaborators.

E. Curriculum Vitae (max. 2 pages per investigator)

F. Literature Cited (no page limit)

Include full citations at the end of the proposal body.

G. Letters of Support (optional as needed, max. 1 page each)

Letters of Support from stakeholders are very important, as they demonstrate commitment by these partners to actively engage in the study and intent to apply study results to climate-related issues faced by their management organization or Tribe. We ask that partners that provide letters of support for a given proposal include the following elements:

1. Demonstration that the partner has an adequate understanding of the proposed study, including the anticipated outcomes and products,
2. Explicit pronouncement of how the anticipated project outcomes and products will be used to address a specific management priority, help meet a specific conservation/restoration goal, inform a management decision, or improve a planning document, and
3. Commitment from the partner to meaningfully and regularly engage with the project team throughout the life of the project, from planning to completion.

General statements such as, “This study will provide valuable information to help us better manage our resources,” do not convey the above elements. We seek more specific statements such as, “The proposed climate change vulnerability assessment tool will allow my agency to visualize how the range of Species X may change over time and help us decide where to dedicate monetary resources to enhance conservation. This project is important to us, and I intend to help the project team tailor the

tool to meet my management agency's specific needs."

2. Budget Form

Proposers are required to use the Budget Form Template (Excel) provided in RFPManager. Additional information about costs should be provided in the Budget Justification within the proposal PDF (see Section D. Budget Justification above).

Please note that the level of detail described above is also needed for *all subawards.*

Below is a listing of the categories of budget information that will be required in the template. This information will be broken out by institution and by fiscal year. Insert additional lines or columns as needed. **Please include separate "institution" columns for:**

- The CASC Host institution (if the project has a university component)
- Any CASC Consortium institutions – including the name of other organizations.
- Any USGS units receiving funding. Thus, a project involving two consortium universities and a USGS lab would have THREE "institution" columns.
- Any other participant (e.g. a non-consortium university) whose activities are "major" in terms of the project budget or responsibility for completion. (As noted below, smaller partners and minor contracts, e.g. sample analysis, should be included under Contractual or Consultant Services)

Budget Information:

A. Salaries and Wages
B. Fringe Benefits
C. Tuition
D. Supplies
E. Equipment
F. Services or Consultants
G. Travel
H. Other Direct Costs (i.e. Publication costs, IT services, Facilities, Lab Fees)
I. Total Direct Charges (*automatically calculated in template*)
J. Indirect Charges Collected by Recipient Institution (overhead/burden)
K. Indirect Charges Collected by HOST institution (Project Total Costs)
L. Total Indirect Charges *(automatically calculated in template)*
M. GRAND TOTAL REQUESTED FUNDS (Total Direct + Host Indirect + Recipient Indirect Costs) (*automatically calculated in template*)

NOTE RE: NON-FEDERAL FUNDING CONTRIBUTIONS: For the categories described above, please total all additional NON-FEDERAL funding sources in COLUMN B of the Budget Form Template (Excel). This column will not be added to the "GRAND TOTAL REQUESTED FUNDS" for the project but is necessary information for USGS.

NOTE RE: INDIRECT COSTS COLLECTED BY HOST INSTITUTION – FOR CONSORTIUM PROPOSALS ONLY: All proposals by the CASC Consortium must be submitted through a CASC Host University. Applicants at

other consortium institutions may be required to include an amount to cover indirect costs at the Host University for this pass-through process. Please include the appropriate indirect charges on the budget sheet for your proposal. Please review carefully the specific CASC sections earlier in this document describing required indirect charges that must be included in such proposals. Proposers are strongly encouraged (and in some cases required by the CASC or Host institution) to consult with the CASC University Director concerning indirect cost policies for funds passed through the host institution.

3. Data Management Plan

Please see (https://www.usgs.gov/land-resources/climate-adaptation-science-centers/data-policy-and-guidance) for guidance and instructions on how to develop the required Data Management Plan (DMP). The Data Management Plan will be submitted via a web- form in RFPManager. (*PDF documents will not be accepted for the DMP. Please insert information directly into the web-form.*)

If the proposal is selected for funding, the Data Management Plan *must* be updated within one month of project initiation and reviewed periodically until project completion. A CASC Data Steward will work with research teams to answer any questions and assist in the development and review of the Data Management Plan for funded projects. If there are any questions, please contact Emily Fort (efort@usgs.gov), the Data and Information Coordinator for the National Climate Adaptation Science Center.

APPENDIX C: Guidelines for Plain Language Summaries

Plain Language Public Summaries are a required component for all invited full proposals. The summary must be submitted in the proposal PDF document to RFPManager (see Appendix B for proposal requirements). If your project is selected for funding, the public summary will be displayed on a public webpage. Edits to the summary may be requested by the CASC before posting.

Public Summaries should not exceed 300 words, should provide a synopsis of the overall project, and should be suitable for sharing on public websites and through other outreach methods and should include these main elements:

- Why is the project important and interesting to stakeholders (including Capitol Hill), the public, and society? What is the value of this work and why should society care about this project?
- Why is the project timely and needed now? Who needs the results from this work and why?
- What are the main goals of the project? What will be accomplished? What will be the primary outcomes?
- How will the results of the project improve aspects of climate-informed resource management and adaptation, economics, or other issues that resonate with stakeholders?

Write the summaries in a way that is compelling, non-technical, and understandable to a non-scientist. *If your congressional representative wouldn't understand the project after one read-through of the summary… it's too technical.*

Example of a good plain language public summary:

Fighting Drought with Fire: Can Managers Increase Forest Resistance to Drought using Prescribed Fire?

Drought is one of the biggest threats facing our forests today. In the western U.S., severe drought and rising temperatures have caused increased tree mortality and complete forest diebacks. Forests are changing rapidly, and while land managers are working to develop long-term climate change adaptation plans, they require tools that can enhance forest resistance to drought now. To address this immediate need, researchers are examining whether a common forest management tool, prescribed fire, can be implemented to help forests better survive drought.

Prescribed fire is commonly used in the western U.S. to remove potential wildfire fuel, such as small trees and shrubs. It is also thought that this act of selectively removing some trees helps the remaining trees better survive drought events, because there is less competition for water. However, the proposition that prescribed burning could improve forest resistance to drought has never been formally tested. By comparing the survivorship of trees in burned and unburned forest monitoring plots in drought-impacted areas, researchers will determine (a) whether prescribed fire is an effective tool for improving forest resistance to drought, and (b) whether factors such as time since fire and tree species and size influence a forest's degree of resistance.

In the face of ongoing climate change and projected future drought conditions in the West, this study will help land managers make informed decisions on how to best allocate limited climate change adaptation funds. The results will help managers make cost-benefit analyses of dollars spent using prescribed fire and determine whether this method can be used to prepare forests for a drier future.

APPENDIX D: Annual Report Instructions for CASC Funded Projects

Annual reports are due sixty (60) days prior to the end of the budget period. Failure to provide the required information may delay payments to your project and may jeopardize your ability to participate in future CASC funding opportunities. Please submit completed reports electronically to the CASC from which funds were received. Additional questions, comments, and supplemental information may also be sent to the CASC.

The CASCs acknowledge that the first annual report for a project may be short with only start-up activities. PIs should still complete the report to their best ability. Annual reports are internal and will not be made publicly available on ScienceBase.

Additional / more frequent reporting (e.g. quarterly) may be required by individual CASCs.

This document contains instructions for completing an **annual report** for projects funded by a Climate Adaptation Science Center (CASC). Annual reports of your project activities provide a record of your study and preliminary results. Annual reports serve several important functions to the CASC and are used as:

- An essential component of the CASC due diligence activities;
- A means for PIs to communicate significant preliminary research findings or reasons for project delays;
- A metric for gauging the impact of CASC funding programs;
- A method for PIs to provide advanced notice to the CASC about upcoming publications in order to ensure effective communication efforts (e.g. press releases, website announcements etc.);

Annual reports do not need to be lengthy, but we ask that you include the following information.

ADMINISTRATIVE: Please include name and contact information of the award recipient, agency or institution, project title, agreement number, date of report, and period of time covered by the report.

PURPOSE AND OBJECTIVES: Describe the project goals and objectives, with particular emphasis on changes made to the objectives as stated in the original proposal. If the objectives have been added to, eliminated, or modified, please explain why these changes have been made.

ORGANIZATION AND APPROACH: Explain how each research objective is being conducted. Briefly list which research methods are being used to achieve results, including new methods that were not described in the original proposal. Please also discuss any problems or delays encountered in conducting the research during the reporting period.

RESULTS: Present your preliminary project results if possible. Both quantitative (numerical and/or statistical data) and qualitative results (descriptions of how well or poorly something worked) are useful. Of particular interest are major discoveries, innovative approaches and solutions, and accomplishments made by the project team to date.

SCIENCE PRODUCTS: Provide a list of any project related science outputs completed during the reporting year. This should include: published peer-reviewed articles; technical reports, science conference presentations, seminars, or webinars; other technical science products, such as data or databases, audio/visual productions, and fact sheets, etc.

ENGAGEMENT AND OUTREACH PRODUCTS: List and describe your engagement with your project's stakeholders including science end users and decision makers completed during the reporting year. This should include the names and agencies of key stakeholders engaged, the date(s), and type of key engagements and communications. Describe how the engagement(s) informed the project (e.g., refined research questions, determined model output formats, post-result training on how outputs could be used). Also list the type of outreach that you did including any publications or other presentations of your project targeted to non-scientists or the public. This list should include project-related:

- non-technical reports, summaries, newsletters, or fact sheets;
- outreach, application, or adaptation workshops, or other presentations to stakeholders or the general public made by research team members;
- trainings;
- tools or decision-support applications;
- websites created for the project and/or containing project information, data etc.

NEXT STEPS: State and describe the next steps in the research, including an updated project timeline and anticipated completion date.

BUDGET: Briefly provide a summary of expenditures incurred during the year, and any unspent balance of funds and why funds have not been spent as expected.

APPENDIX E: Final Report Instructions for CASC Funded Projects

Final reports are due ninety (90) days after the close of the performance period for the project. Failure to provide the required information may delay payments to your project and may jeopardize your ability to participate in future CASC funding opportunities. Please submit completed reports electronically to the CASC from which funds were received. Additional questions, comments, and supplemental information may also be sent to the CASC. Final reports will be made publicly available on ScienceBase. As such, USGS investigators should obtain and provide notice to the CASC at the time of Bureau approval under the USGS Fundamental Science Practice (FSP) system (Information Products Data System, IPDS). Investigators should immediately notify the CASC if they anticipate any reporting delays due to internal review processes (for example, IPDS review).

This document contains information and instructions necessary to complete the **final report** for projects funded by a CASC. The final report of your CASC-funded project provides a record of your study and its results. Your report will serve as a resource for others: copies of project reports are available to the public on ScienceBase. The final report serves several important functions to the CASC and is used as:

- An essential component of CASC due diligence activities;
- A metric for gauging the impact of CASC funding programs;
- An opportunity for Principal Investigators (PIs) to suggest areas for improvement in the CASC funding program;
- A tool for the CASCs to gather information about publications, products, presentations and data to advance communications to resource managers, stakeholders and the general public;

The final report shall include the following sections:

SECTION 1. ADMINISTRATIVE INFORMATION: Please include:

- Name and contact information of the award recipient
- Agency or Institution of the recipient
- Project title
- Names of Co-PIs and affiliations
- List of any early-career PI or Co-PIs (within 5 years of a Masters or Doctoral degree or Assistant Faculty status at beginning of project)
- Names of any postdocs or students funded by project
- Grant or cooperative agreement number
- Date of the report
- Period of time covered by the report
- Actual total cost of the project

SECTION 2. *PUBLIC* SUMMARY: The public summary should be concise and informative and should be self- contained and intelligible to a layperson. In *less than 300 words* please describe your major scientific achievements to a non-scientific community (i.e., in non-scientific language) including major benefits of your research to society at large. Highlight the findings and significance of your research to expanding general knowledge in your scientific discipline, and the application of the results of your research to address significant societal problems. The CASC may use the public summary in publicly-distributed documents and other materials. Please see Appendix C for general guidance about writing plain language public summaries.

SECTION 3. PROJECT SUMMARY: The project summary should provide a synopsis of the overall project. This section should summarize information from the following sections of the report body: Purpose and Objectives, Organization and Approach, Project Results, Analysis and Findings, Conclusions, and Future Recommendations. The project summary should be more technical than the "Public Summary" (described above).

SECTION 4. REPORT BODY (Please Include the Following Sections):

Purpose and Objectives: This section should include information about the issue(s) the project addressed and the community/stakeholders it serves. Please describe the original objectives and goals identified during project initiation and explain how these goals were or were not met, highlighting specific achievements. This section should also describe if original objectives were eliminated, added to, or modified from the original proposal, and why these changes were made.

Geographic Scope and Focal System: Describe the geographic scope of the project and provide a map if applicable.

Organization and Approach: This section of the report should explain in task orientated terms how the research activities of the project were conducted. Briefly list which research methods were used to achieve results and why they were chosen by the team.

Project Results, Analysis and Findings: Present your project results. Quantitative results (numerical and/or statistical data) and qualitative results (descriptions of how well or poorly something worked) are both important. Tables, graphs and other figures representing your data are excellent ways to summarize data and present them in an accessible way. Describe your research findings and list major discoveries, innovative approaches and solutions, and research accomplishments of the project team made possible by receiving CASC funding.

Science Products: List science products that emerged from this project. Include a description of if/how the results from this project are accessible to the resource management community. The list should include project-related:

- technical reports or articles in preparation, under review, accepted, or published in peer reviewed journals and other non- peer reviewed journals;
- science conference presentations, seminars, or webinars;
- other technical science products, such as data or databases, audio/video productions, fact sheets, etc.

Stakeholder Engagement and Outreach Products: List and describe your engagement with your project's stakeholders including science end users and decision makers throughout the entire project duration:

- List key stakeholders including their name and agency and describe if these are science end users or decision makers (or both).
- List the date(s), type, and primary participants of key engagements and communications. Describe how the engagement(s) informed the project (e.g., refined research questions, determined model output formats, post-result training on how outputs could be used).
- Provide a summary of any stakeholder feedback you received on the application and utility of your products (e.g. tools, publications, etc.).

Also list the type of outreach that you did, or expect to do, including any publications or other presentations of your project targeted toward non-scientists, managers and decision makers, or the public. This list should include project-related:

- non-technical reports, summaries, newsletters, or fact sheets;
- outreach, application, or adaptation workshops, or other presentations to stakeholders or the general public

made by research team members;
- trainings;
- tools or decision-support applications;
- websites created for the project and/or containing project information, data etc.

Conclusions: Summarize the key project take-aways. Please indicate how your research results contributed to the advancement of scientific knowledge regionally and/or nationally. Please describe how the results from this project are relevant to natural and/or cultural resource managers and/or decision makers. Explain the anticipated application of your product by stakeholders and summarize how the project will forward adaptation action or knowledge for natural and/or cultural resource managers and/or decision makers.

Future Recommendations: What problems, if any, did you encounter during the project? What would you do differently if you did this project again? Based on what you've learned, what are recommended next research or other steps and questions?

Optional Photo(s): Optionally, include one or more publicly-releasable photo(s) that represent(s) the project. Please provide captions, image credits, and any necessary release documentation:

- copyright dedication agreement to grant release to use photo publicly (not needed if taken by a Federal employee during work hours nor if photo is already in the public domain): https://www.usgs.gov/media/files/usgs-copyright-dedication-agreement
- photo release form required for all people clearly visible in photo (not needed if photo is of USGS employee nor if signage or registration at any event stated that photos were being taken): https://drive.google.com/open?id=1XkbjAyzz1yCyzqxi2DUzBOcd8w8Gq_7l

NOTE: The PI is expected to produce a written final report within ninety (90) days of the end of the performance period even if the project is still in a "wrapping up" phase (and even if all manuscripts have not yet been completed or published). These reports are necessary to advance the CASC mission of providing tools and information to resource managers in a timely and efficient manner.

CASC/NCASC-funded projects will not be considered complete until all data/products have been delivered to the CASC/NCASC and the Data Management Plan has been updated. All projects with a USGS-affiliated researcher must comply with the USGS Fundamental Science Practices policy.

APPENDIX F: Instructions for Manuscripts Intended for Publication, Press Releases, and Other Project Products

Advanced Notice to CASC of Publications:

Funded researchers must provide *advance* notification to the CASC of all anticipated manuscripts, videos, web tools, educational tools, etc. (any type of deliverable that will be made public) intended for publication/distribution that have been produced through the CASC-funded project (or where staff received funding through a CASC graduate fellowship). This early notice allows the CASCs to accurately account for CASC-derived products and assist as needed in any press announcements. Investigators should notify the CASC at the time a manuscript is accepted for publication, and if possible when it has moved to "in press" status. USGS investigators should provide notice to the CASC at the time of Bureau approval under the USGS Fundamental Science Practice (FSP) system (Information Products Data System, IPDS).

Funding Acknowledgement in Publications, Products, and Press Releases:

- Funding acknowledgement must be spelled out in all scientific publications and press releases where research funding was provided by USGS.
- For other communication products – such as videos, handouts, and bookmarks – including the USGS and DOI logos is sufficient acknowledgement of funding support.
- When acknowledging funding support from a Climate Adaptation Science Center, use the full (no abbreviations) official name of the CASC: The Department of the Interior [insert CASC region] Climate Adaptation Science Center (e.g. for the NC CASC, please use The Department of the Interior North Central Climate Adaptation Science Center).
- Indicate that the CASC is managed by the USGS National Climate Adaptation Science Center.
    - Ex: This work was supported by The Department of the Interior Northeast Climate Adaptation Science Center, which is managed by the USGS National Climate Adaptation Science Center.
- In scientific publications (or manuscripts intended for publication), use the specific wording below to acknowledge funding:
    - **Non-federal PIs** should include the following statements (usually in the acknowledgements section): "The project described in this publication was supported by Grant or Cooperative Agreement No. [add number and include appropriate designation of award] from the United States Geological Survey. Its contents are solely the responsibility of the authors and do not necessarily represent the views of the [insert CASC region Climate Adaptation Science Center or the National Climate Adaptation Science Center] or the USGS. This manuscript is submitted for publication with the understanding that the United States Government is authorized to reproduce and distribute reprints for Governmental purposes."
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    - **Graduate Student Fellows** should use the following statement of acknowledgement: "This research was funded by a Department of the Interior [insert CASC region] Climate Adaptation Science Center graduate fellowship awarded to [Name]."