# SOUTHEAST CLIMATE SCIENCE CENTER

### FY 2015 Funding Opportunity

**Eligible Applicants:** Only investigators from North Carolina State University and USGS science centers, Cooperative Research Units, field stations and laboratories may submit proposals in response to this Funding Opportunity. Other parties may participate on funded projects via subawards from proposals with NCSU or USGS principal investigators.

**Funds Flow:** All funds will be transferred from the Southeast Climate Science Center to either a USGS entity or North Carolina State University. These entities may then provide subawards to other parties.

**Estimated Funds:** Approximately $450,000 may be available to fund multiple projects identified in this funding opportunity in Fiscal Year 2015.

**Project Duration:** Not to exceed 36 months.

###### SE CSC Contact: Dr. Gerard McMahon, Director

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###### Submission Portal: [HTTPS://NCCWSC.USGS.GOV/RESEARCHFUNDS](https://nccwsc.usgs.gov/RESEARCHFUNDS)

**Or directly:** [**https://my.usgs.gov/rfpManager/events/southeast\_csc/Funding\_Opportunity\_**](https://my.usgs.gov/rfpManager/events/southeast_csc/Funding_Opportunity_2015) [**2015**](https://my.usgs.gov/rfpManager/events/southeast_csc/Funding_Opportunity_2015)

**Background:**

The U.S. Department of the Interior (DOI) established the Southeast Climate Science Center (SE CSC) in 2010 to address the challenges presented by climate and land use change in the Southeastern United States (<http://globalchange.ncsu.edu/secsc/>). The SE CSC’s mission is to provide essential decision-focused scientific knowledge and tools that resource managers and other partners interested in land, water, wildlife, and cultural resources can use to anticipate, monitor, and adapt to a changing climate. The geographic scope, mission, goals, guiding principles, and research priorities of the SE CSC are described in a strategic Science and Operational Plan (<http://pubs.usgs.gov/of/2012/1034/>). The research priorities delineated in this RFP are consistent with strategic Science Plan priorities, as well as the more immediate management priorities of LCC partners.

### FY15 Science Needs:

The Southeast Climate Science Center (SE CSC) is soliciting Statements of Interest (SOI) for two projects that support development and implementation of a Southeast Conservation Adaptation Strategy (SECAS). Additional details about these FY15 science needs are available and should be reviewed before submitting a statement of interest or proposal ([**http://globalchange.ncsu.edu/secsc/wp-**](http://globalchange.ncsu.edu/secsc/wp-content/uploads/SECSC_FY15_call_description_041414.pdf) [**content/uploads/SECSC\_FY15\_call\_description\_041414.pdf**](http://globalchange.ncsu.edu/secsc/wp-content/uploads/SECSC_FY15_call_description_041414.pdf))

**1. SECAS framework development:** The lands and waters of the southeastern United States have experienced tremendous change, particularly during the 20th Century, and yet have remained remarkably resilient in their capacity to sustain some of the most diverse natural resources found on the North American continent (Master et al. 1998, White et al. 1998).

Serious unanswered questions exist about the degree to which past successful conservation strategies can sustain all aspects of these diverse, natural resources in the face of unprecedented changes (and interactions) broadly expected to occur as a result of both climate and land use change.

Those whose decisions shape the SE landscape and the status of these natural resources will need to account for at least three challenges: (1) the unprecedented degree of change in large scale stressors (climate and land use change) and the impacts of these stressors on services provided by these resources at multiple scales; (2) the potential mismatch between the scales at which changing physical and biological processes affect valued natural resources and scales at which governance of these resources is exercised; and (3) articulation of objectives that adequately reflect the values and priorities of multiple stakeholders who have an interest in these resources at a variety of spatial and temporal scales.

Recognizing these challenges and needs, in 2011 the Directors of the Southeastern Association of Fish & Wildlife Agencies (SEAFWA; <http://www.seafwa.org/index.php>) initiated a process to develop a Southeast Conservation Adaptation Strategy (SECAS) that will define a “future conservation landscape in the Southeast United States”. This element of the FY15 SE CSC science needs contributes directly to this initiative.

The **overall goal of this “SECAS Framework Development”** effort is to **produce a report and a website that will support this initiative.** We are seeking proposals for research efforts that accomplish the following goals:

1. Reviews and summarizes the objectives and management actions contained in existing federal, state, and local plans and other strategic documents that guide management decisions about three key dimensions of SE natural resources: species (such as fish, wildlife, and plants); priority ecosystems (including, at least, coastal and upland wetlands, and forests); and landscape-scale systems (such as open space and corridors, the interface between urban and non-urban areas, and water quantity and quality associated with meeting conservation objectives). At minimum, reviewed plans should include: state wildlife action plans and open space and habitat connectivity plans for all member states of SEAFWA; open space plans for large metropolitan areas in each SEAFWA state; and forest plans.
2. Using existing climate and land use change-related impact assessment products, assess the impacts of expected climate and land use change on the objectives and priorities associated with these key resources. Examples of such an assessment are contained in Dunlop and others (2012 a&b); and,
3. In collaboration with LCCs, develop and articulate a small number (3-5) of high-level guiding principles or propositions to guide natural resource decisions in the SE in the face of changing climate and land use. Examples of such broad propositions are contained in Dunlop and others (2013).

###### Specific objectives of this project include:

* 1. Increase the understanding, for both the general public and those whose decisions shape the SE landscape, about the scientifically complex and politically charged set of topics that include: what matters to the public and decision-makers about these key natural resources, as reflected in planning documents and other resources? and how are the things that matter about these resources threatened by climate and land use change?;
  2. provide a one-stop place to get introductory and more advanced information about natural resources-related planning objectives and priorities, and climate and land use change-related impacts, including impacts on attaining these resource objectives;
  3. enable users of the report and web site to visualize the trajectory of climate and land use change and risks to natural resources in the Southeast, where risks are expressed in terms of the vulnerability of the resource-related objectives and priorities;
  4. use information about current objectives and values placed on natural resources as a context to advance the conversation about defining the desired conservation landscape of the future.

**Audience**: The primary audiences for these products are those whose decisions shape the SE landscape now and in the future and the technical staff that support the decision-makers.

The proposed **report** should include sections that accomplish the following three tasks:

###### ) Review objectives and management actions that underlie natural resource decisions that will be affected by climate and land use change in the SE:

This review should identify natural resources objectives and the menu of management actions contained in existing planning documents and present these objectives and actions organized by three key dimensions of these natural resources: (species/assemblages (fish, wildlife, and plants); ecosystems; and landscapes).

In choosing natural resource plans for review place a priority on: (a) state wildlife action plans; (b) open space and habitat connectivity plans for all member states of SEAFWA; (c) open space plans for large metropolitan areas in each SEAFWA state; (d) forest plans at federal, state, and private levels. Work with LCCs to identify plans and build on existing summaries prepared by LCCs.

Identify and discuss any scale mismatches between the objectives and priorities related to the management of these natural resources and the scale of governance activities that currently can be brought to bear to achieve these priorities.

Analyze and assess the apparent challenge that despite the awareness that conservation frameworks will need to account for the impacts of broad-scale climate and land use change processes, very little has been articulated about how these broad scale processes affect the definition of local and broad scale objectives, values, and priorities related to these resources.

In addition to this review of objectives and management actions over a broad range of resources and plans, a more detailed assessment will be completed on the objectives found in a sample of legislation, plans, and regulatory documents associated with a few key resources in the SEAFWA region.

Proposals should suggest 2-3 types of natural resources that will be the focus of this more in-depth analysis (from among important SE resources such as open pine systems; black bears; coastal wetland; migratory waterbirds; open space/habitat connectivity, etc.) and, using a sample of legislation, planning documents, and promulgated regulations, propose an approach for assessing the quality of the objectives indicated in these documents, using properties for “good” objectives such as those described in Gregory and others (2012; e.g., complete, concise,

sensitive, understandable, independent). This analysis should improve understanding of the ways in which the development, articulation, and use of objectives can promote or provide barriers to accomplishing what matters to those who value natural resources in the SE, and ways to surmount these barriers. Final selection of natural resources and a list of document analysis objectives will be done in cooperation with a project steering committee (see below).

Examples of the types of documents that may be useful for understanding and framing a proposal for this element of the SECAS project:

[Florida Forever Conservation Needs Assessment](http://fnai.org/PDF/FFCNA_TechReport_v4.pdf)  [Range-Wide Conservation Plan for Longleaf Pine](http://americaslongleaf.org/media/86/conservation_plan.pdf)  [Connectivity Approaches in State Wildlife Action Plans](http://www.conservationcorridor.org/2014/03/connectivity-approaches-state-wildlife-action-plans/)

[Co nsidering Clim ate Change in Florida’s Wildlife Action P lanning A Spatial Resilience P lanning Approach](http://myfwc.com/media/1770248/ConsideringClimateChange-WildlifeActionPlan.pdf)   [National,](http://www.taccimo.sgcp.ncsu.edu/PlanningReport.aspx) [state,](http://www.southernforests.org/) and [other](http://www.fs.fed.us/spf/coop/programs/loa/fsp.shtml) forest plans

1. Use available scientific literature to **understand and describe the impacts of climate and land use change on these existing objectives and priorities**:

Provide an overview of climate and land use change impacts in the SE, by LCC boundaries, reflected in temperature, precipitation, extreme climatic conditions, hydrology, soil moisture, and land use/cover. For the natural resources identified in part one of this project, use existing assessment literature to summarize expected impacts of climate and land use changes on the ability to achieve objectives. In collaboration with the project steering committee, identify resource types (e.g., long leaf pine; mangroves) where more detailed impact studies have been accomplished, and synthesize these study findings. Identify important knowledge gaps to understand the impacts of global change scenarios on SE natural resources objectives.

Potential documents that may be useful for understanding and framing a proposal for this element of the SECAS project:

[The implications of climate change for biodiversity conservation and the National Reserve System: Final Synthesis](http://www.csiro.au/Nationalreservesystem)  [Implications for policymakers: Climate change, biodiversity conservation and the National Reserve System](http://www.csiro.au/Nationalreservesystem)  [National Climate Assessment](http://www.globalchange.gov/home.html)

[Climate of the Southeast United States: Variability, Change, Impacts, and Vulnerability](http://www.cakex.org/virtual-library/climate-southeast-united-states-variability-change-impacts-and-vulnerability)

[Regional Climate Trends and Scenarios for the US National Climate Assessment: Part 2. Climate of the Southeast](http://www.sercc.com/NOAA_NESDIS_Tech_Report_Climate_of_the_Southeast_U.S.pdf)  [US](http://www.sercc.com/NOAA_NESDIS_Tech_Report_Climate_of_the_Southeast_U.S.pdf)

[Intergovernmental Panel on Climate Change Assessment Reports](http://www.climatechange2013.org/images/report/WG1AR5_ALL_FINAL.pdf)

[A Multi-disciplinary Assessment of the Southeastern United States Climate](http://link.springer.com/journal/10113/13/1/suppl/page/1)

[Integrating climate change vulnerability assessments into adaptation planning, Florida, 2011](http://www.defenders.org/sites/default/files/publications/integrating_climate_change_vulnerability_into_adaption_planning.pdf)

###### Articulate broad SECAS conservation principles and propositions:

A fundamental challenge is to develop high-level principles to guide the formulation of more detailed objectives and plans for adapting to climate change in coming decades. Using what is known about how climate change will affect (at least broadly) the key SE natural resources listed above, and in consultation with LCCs, develop climate

and land use ready, broad scale principles to guide management of natural resources in the Southeast (Dunlop and others, 2013).

Potential documents that may be useful for understanding and framing a proposal for this element of the SECAS project**:**

[Climate-ready conservation objectives: a scoping study](http://www.nccarf.edu.au/publications/climate-ready-conservation-objectives-scoping-study)  [National Fish, Wildlife and Plants Climate Adaptation Strategy](http://www.wildlifeadaptationstrategy.gov/strategy.php)

The proposed **companion website** developed as part of this proposal should enable users to visualize the trajectory of climate and land use change and other threats and risks associated with global change. This site might integrate some existing LCC GIS data and capabilities, along with new data (e.g., climate-related scenarios that can be portrayed on user selected geographies). One example of such a web resource is the Cal Adapt website (<http://cal-adapt.org/>), which enables members of the public to examine and explore the impacts of climate change on things that matter to them.

**Additional information**: We anticipate that project funding will begin in late 2014, or as soon as the FY15 USGS appropriation is complete, and that the project may take 2-3 years to complete, in an iterative manner. A first iteration of the report and website should be prepared by January 2016. Project team members should be prepared to use the draft framework to assist in the planning of a SECAS summit planned for summer 2016. We anticipate that the summit planning process and the summit will produce information that can inform a second iteration of some or all of the project products. The final project report and website should be completed by no later than June 2017.

SE CSC and LCCs will provide assistance in identifying members of an advisory group for the project. Full proposals should indicate how an advisory group would be used in scoping, reviewing, and finalizing all project- related products. Teams invited to submit proposals are encouraged to identify and include as project team members scientists that have experience in developing large scale natural resource climate adaptation plans (e.g., Dunlop and others, 2012 a and b) as well as scientists with expertise in decision analysis approaches such as structured decision making.

Dunlop M., Hilbert D.W., Ferrier S., House A., Liedloff A., Prober S.M., Smyth A., Martin T.G., Harwood T., Williams K.J., Fletcher C., and Murphy H. (2012a) *The Implications of Climate Change for Biodiversity Conservation and the National Reserve System: Final Synthesis*. A report prepared for the Department of Sustainability, Environment, Water, Population and Communities, and the Department of Climate Change and Energy Efficiency. CSIRO Climate Adaptation Flagship, Canberra.

Dunlop M., Hilbert D.W., Stafford Smith M., Davies R., James, C.D., Ferrier S., House A., Liedloff A., Prober S.M., Smyth A.,. Martin T.G., Harwood T., Williams K.J., Fletcher C. & Murphy H. 2012b Implications for policymakers: climate change, biodiversity conservation and the National Reserve System. CSIRO Climate Adaptation Flagship, Canberra.

Dunlop M, Parris, H, Ryan, P & Kroon, F 2013, Climate-ready conservation objectives: A scoping study, National Climate Change Adaptation Research Facility, Gold Coast, 102 pp.

Gregory, R., Failing, L., Harstone, M., Long, G., McDaniels, T., & Ohlson, D. (2012). [*Structured decision making: A practical*](http://www.decisionresearch.org/publications/books/sdm/index.html)[*guide to environmental management choices.*](http://www.decisionresearch.org/publications/books/sdm/index.html)Chichester, West Sussex, UK: [Wiley-Blackwell.](http://onlinelibrary.wiley.com/doi/10.1002/9781444398557.ch2/summary)

2. **Cultural resources**. Climate and land use change are already having a broad set of adverse impacts on cultural resources. Sea level rise, extreme storms, and coastal flooding threaten coastal resources like shell middens and historic structures. The combined stressors of climate and land use change can create substantial problems for maintaining the values associated with cultural resources.

Three key features of cultural resources in the Southeast are of particular value: significance, association, and integrity. To be significant, a cultural resource must have important historical, cultural, scientific, or technological meaning and this meaning must be connected or associated with a physical place or form. For purposes of this project, every cultural resource must have a connection with the history or prehistory of the United States, or it must have value for a particular ethnic group. Integrity addresses the degree to which socially valued behavior and ideas are manifested in the form and substance of a resource. A cultural resource has integrity if it retains material attributes connected with its social values.

Managers are seeking objective, replicable, and transparent ways to make wise decisions that will protect important values and objectives associated with cultural resources. Management options for protecting and preserving societal values associated with cultural resources have narrowed due to the stresses associated with climate and land use change and constraints associated with limited budgets, and increasing urgency for managing threatened resources. In these complex cultural resource decision making settings, decision analytic approaches, such as structured decision making, can be useful in providing a “…formalization of common sense for decision problems which are too complex for informal use of common sense (Keeney, 1982).”

The overall goal of this project is to utilize a decision-analysis based approach to strengthen the ability of the agencies and organizations in the Southeast to make wise management choices about cultural resources, accounting for the stresses associated with climate and land use change (Thompson and others, 2013). This 1-2 year long project will be done as a collaboration between staff at agencies responsible for managing the cultural resources and, as appropriate, collaborators from academia and elsewhere. The project will focus on three goals:

1. define an overall conceptual framework that articulates what cultural resources in the Southeast are important (significance, association, integrity) and why; (2) use this conceptual framework to define an overall decision context (in a decision analytic sense) applicable for cultural resource conservation decisions by an agency/organization; and (3) implement a decision analysis-based pilot project focused on an actual cultural resource management decision.

**Conceptual framework**: A theory-based conceptual framework will be developed that provides the rationale for understanding the significance, association, and integrity of cultural resources in the SE that are under the purview of the agencies and organizations that range from the National Park Service (NPS) to a local historic preservation organization. The framework may be informed by and build on documents developed by the National Park Service (NPS), considered to be one of the pre-eminent national organization for management of cultural resources. Among these documents are: Climate Change Response Strategy (2010), Climate Change Action Plan (2012), and a recently released policy memo, Climate Change and Stewardship of Cultural Resources (2014).

**Decision context**: A decision context for cultural resource management decisions in the Southeast will be defined using the conceptual framework and an articulation of: the key cultural resource decision problems facing organizations that manage cultural resources in the next 20-50 years; an articulation of the objectives of both decision-makers and stakeholders in these cultural resource management decisions; an overall rationale for the key cultural resource management objectives in the SE of these decision-makers and stakeholders, including their attitudes toward risk; and an articulation of an innovative portfolio of potential management strategies and actions.

**Pilot project**: Proposals should also define how structured decision-making will be used to frame a *specific* cultural resource-related decision problem. The proposal should describe how decision-makers and other stakeholders will frame a relevant decision problem, develop conservation objectives, identify possible mitigation or adaptation actions that are within the purview of the decision-maker(s), evaluate these potential strategies and make a

decision, and design or re-design monitoring programs to assess the effectiveness of management actions (figure 1). The research should be focused on a problem shared by multiple cultural resource locations and result in information (including the process of conducting such a study) that is informative and transferable for addressing similar management questions across the Southeast.

It is expected that the team of investigators for a proposal will include cultural resource experts from the resource management organization, researchers in fields such as cultural anthropology and geography, and experts in the field of decision analysis.

Matthew P. Thompson, Bruce G. Marcot, Frank R. Thompson, III, Steven McNulty,

Larry A. Fisher, Michael C. Runge, David Cleaves, and Monica Tomosy, 2013, **The Science of Decisionmaking:** Applications for Sustainable Forest and Grassland Management in the National Forest System, USDA General Technical Report WO-88. July 2013

### SE CSC Evaluation Criteria:

#### Statement of Interest Evaluation Criteria:

Statements of Interest for the SE CSC will be ranked and evaluated according to the following criteria. Please see [Page 3](#_bookmark1) of this document for additional information about each category.

###### Management Significance (30%)

* + - Responsiveness to the FY15 science needs as described in the SE CSC science needs document at <http://globalchange.ncsu.edu/secsc/wp-content/uploads/SECSC_FY15_call_description_041414.pdf>

###### Scientific merit and quality of the proposed research (30%)

* 1. **Study Team qualifications** (**15%**)
  2. **Coordination and engagement with stakeholders and decision-makers, including leveraging funding from other sources** (**15%**)

1. **Potential for cross-CSC collaboration** (**10%**)

**FULL PROPOSAL** (by invitation only, following SOI evaluation)

**Proposal Review Criteria:** Overall review criteria for full proposals submitted to the SE CSC are listed below along with weighting that will apply to each criterion for all proposals. Please see [Page 4](#_bookmark2) of this document for additional details about each category. Additional factors that will be evaluated by the SE CSC may be communicated at the time a full proposal is invited.

###### Management Significance (30%)

In additional to details on Page 4 for this category, a proposal will be evaluated based on how well it uses a decision analysis/structured decision-making framework and includes evidence of project staff expertise in decision analysis.

###### Scientific merit and quality of the proposed research (30%)

* 1. **Study Team qualifications (15%)**
  2. **Coordination and Engagement (Working Partnerships and Knowledge Transfer) (15%)**
  3. **Budget/Work Plan (10%)**

**Additional Information:**

* Complete details on the SE CSC Proposal Specifications and Criteria can be found at this URL: <http://globalchange.ncsu.edu/secsc/wp-content/uploads/SECSC_FY15_call_description_041414.pdf>
* It is expected that proposed project teams will include PIs with experience and expertise with decision analysis approaches, including structured decision-making. A roster of potential decision analysis colleagues will be available from the SE CSC director, Jerry McMahon ([gmcmahon@usgs.gov](mailto:gmcmahon@usgs.gov)).
* When appropriate to meet objectives described in this solicitation, projects that extend across multiple CSC and/or LCC regions are encouraged and applicants considering such projects should consult with the relevant CSC Directors and LCC coordinators. While matching funds are not required, projects providing matching funds or leveraging other funding sources from organizations (Federal, State, Tribal, or other) will be viewed more favorably. SOIs with co-PIs from the USGS and a University consortium member are encouraged and will be evaluated more favorably. Likewise, collaborations with other organizations are encouraged.
* The Southeast Climate Science Center will host a question and answer session pertaining to this solicitation:

###### Wednesday, April 30, 2014 at 11:00 AM EDT

* + **Tuesday, May 13, 2014 at 11:00 AM EDT**
  + Call in number will be 703-648-4848, 62240#
* NOTE ON SUBMISSIONS THAT INCLUDE PI’S FROM UNIVERSITIES OTHER THAN NC STATE: All proposals that include investigators at a university other than NC State must be submitted by a faculty member at NC State University who is a PI on the proposal. Applicants from other academic institutions must include an amount to cover indirect costs at NC State for this pass through. It is the policy of NC State to apply indirect charges to the first $25,000 of any funds passed through to another institution. Please include the appropriate indirect charges on the budget sheets for your proposal.

#### LCCs in the SE CSC Domain and LCC Coordinators:

|  |  |  |
| --- | --- | --- |
| **LCC** | **Coordinator** | **Email address** |
| Appalachian<http://applcc.org/> | Jean Brennan | [jean\_brennan@fws.gov](mailto:jean_brennan@fws.gov) |
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