

Delivering Information and Tools for Increasing Resilience and Adaptation of Communities and Priority Coastal Resources across the Network of Coastal LCCs

Regions: 1, 2, 3, 4, 5, 7, 8

LCCs: California, North Pacific, Northwest Boreal , Western Alaska , Aleutian and Bering Sea Islands , Arctic, Pacific Islands Climate Change Cooperative; North Atlantic, South Atlantic, Peninsular Florida, Gulf Coastal Plains and Ozarks, Gulf Coast Prairie, Caribbean.

Summary:

Coordinate, synthesize and deliver coastal resilience information, ideas, activities and lessons learned across the coastal portion of the Landscape Conservation Cooperative (LCC) network with an initial focus on synthesizing and delivering existing coastal resilience and adaptation information to communities and, where feasible, prioritizing conservation actions to increase the resilience of both coastal communities and natural resources. This approach is consistent with the President's *Priority Agenda for Enhancing the Climate Resilience of America's Natural Resources*, and the Department of the Interior FY 16 budget focus on coastal resilience. Coastal change is an important issue for all coastal regions of the LCC Network, including the coastlines of the Great Lakes, yet there are vast differences in the tools and information available across coastal regions. While the key uncertainties may differ across the Network, all coastal LCCs have been working to advance coastal resilience and adaptation. In some coastal areas, there are significant resources available to communities to understand coastal change and the discussions are now focused upon adaptation and incorporating natural resource considerations. In other regions, few tools exist for either communities or resource managers to address observed and predicted coastal change. The ultimate goal for LCCs is to have decision makers informed about the potential impacts, adaptation strategies and management approaches that incorporate both an ecological and human communities in their decisions. Given the geographic scope of this project's goals, and the variability of existing tools/resources, the most feasible way forward is via a suite of pilot activities in strategic sub-geographies that can then be extended to all coastal geographies through a collaborative effort by the Network and our partners. Funding multiple pilot activities in strategic sub-geographies still allows this one-year pilot project to advance local climate adaptation planning and resilience, advance regional coastal partnerships, and speed adoption of lessons learned across the network of coastal LCCs and our partners.

Objectives:

1) Facilitate management and adaptation planning of coastal communities and resources along the Pacific, Gulf of Alaska, Bering, Chukchi, and Beaufort Seas through (i) improved understanding of types and rates of major coastal changes currently expected in each region (information synthesis), (ii) improved access to existing tools and resources for improved management and planning (information delivery), and (iii) synthesis of lessons learned and strategic needs across this coastal domain including the benefits to communities of sustaining natural systems (strategic planning).

2) For those geographies well-positioned to advance further, develop and deliver information to prioritize restoration and management actions to increase resiliency of coastal systems and species in

the face of increasing rates of sea level rise and increased frequency and intensity of storms while also increasing the resilience of coastal communities and providing a range of ecosystem services through natural and nature-based approaches.

Brief Description of proposed activities:

The scope of work embodied by the two Activity Areas described in this proposal generally fall into three task areas: training/workshops, syntheses, and pilot demonstration. These collectively represent ways the LCC Network can uniquely contribute to furthering adaptation and resilience planning and implementation that account for all resource needs in the coupled human-environment systems along our coasts.

Activity Area 1: Coastal habitats are impacted by climate change and related stressors. Regional economies, communities, cultures, and natural and cultural resources face increasing risks from these impacts. The major drivers of coastal change vary widely across this domain yet the coastal communities and natural/cultural resource managers and other stakeholders all share an urgent need for access to quality information on the types and rates of major changes currently expected in their region. Unlike the coastlines of the contiguous United States, there are no “coastal resilience toolkits” available from partner organizations such as NOAA in Alaska. Baseline information is unavailable to create the types of sea level rise estimates and community resources that form the foundation of many coastal adaptation programs. Recent attention to these topics by the scientific community and some municipalities has advanced our understanding but has not, in general, made it into the hands of smaller communities, natural/cultural resource managers and other decision makers to address their planning and response needs. Available information is often piecemeal, difficult to access and not easy to understand. We propose to address this via one-year pilot projects focused on information delivery, with secondary elements of synthesis and strategic planning. While the geographic focus will initially be on a couple of sub-geographies along the Alaska coastline, it is intended that the pilot projects will be designed so that they may be adapted to other geographies within and beyond Alaska. One or more third parties will be partnered with to:

- Compile a handbook for a portion of the North Pacific LCC (including Alaska), of existing or nearly-completed coastal projects designed to produce tools and resources (including data sets) for planning for and adapting to coastal change (e.g., hazard mapping tools, sea level rise and flooding prediction tools, etc.) for use by local and regional planners and resource managers. This pilot effort will build from existing efforts by the Western Alaska LCC ([link](#)) and enable the North Pacific LCC to facilitate the discussion on how to fill the identified science and information needs along the Alaska portion of their geography;
- In one or more sub-geographies of Alaska, coordinate and host sub-geographical science delivery with the aim of delivering the results of recent LCC and other partner activities to the local and regional coastal community, resource managers and planners, NGOs, Tribes, and other stakeholders. Methods may include a mixture of training workshops and/or on-line or printed resources for decision makers that are tailored to the selected sub-geographies. This includes incorporating time dedicated to co-development of end-user information needs by coastal scientists and stakeholders;
- Coordinate workshop session at the BIA’s Providers Conference and/or other forum where rural Alaskan decision makers are convened in Anchorage to focus on cross-LCC information transfer and identification of both major future information/delivery needs and potential methods for addressing those needs.

These efforts will:

- Provide the target audiences with information about ongoing and recent efforts by LCCs and others to advance the understanding of coastal change impacts within the pilot sub-geographies,
- Provide the target stakeholder audience with access to mapping resources that display modeling products that project future coastal change and potential for coastal flooding, as well as other resources with clear guidelines for interpretation of results and case studies,
- Provide collaborating partners a better understanding of their region's state of science as well as future priority needs, and
- Provide the opportunity for collaborating LCCs to develop new partnerships and strategies for meeting their LCC's needs.

They will also greatly advance toward an ultimate goal of working with key partners (including NOAA OCS, NMFS, RISAs; IOOS regional associations; USACE) to develop regional 'coastal change/resilience information hubs' for all coastal regions of the Network and thus provide foundational information for ultimate prioritization of strategic activities addressing impacts to communities and the natural and cultural resources upon which they depend.

Activity Area 1: Recommended approach/budget for first year. The ABSI, Arctic, NW Boreal and Western Alaska LCCs will expand upon an existing partnership with the Wildlife Management Institute to convene and summarize workshops. Each LCC will identify key delivery products and work with our partners to identify the appropriate mix of products to deliver to at least one "hub district" in Alaska (likely in the NW region of the State). With NPLCC we will design and host an initial session at an Anchorage-held conference and utilize the feedback to further design delivery products. An assessment of existing coastal work in the northern portion of the NPLCC will be compiled and used as a tool to identify how the NPLCC can be most effective in advancing coastal adaptation, resilience and planning activities in that geography.

Activity Area 2: Pilot compilation and synthesis effort on sea level rise and storm impacts to priority coastal resources and management alternatives for the Atlantic and Gulf Coasts

Relate existing projections of sea level rise and storms to impacts to habitats and populations of priority fish and wildlife species across their range. Assess restoration and management alternatives for increasing persistence and resiliency of these habitats and species and how these alternatives relate to use of natural and nature-based approaches to community resilience. Actions could delay or preclude listing of species that are sensitive to sea level rise, help sustain and recover listed species, and maintain economically important fish and wildlife populations. We propose to initially address this via a one-year pilot compilation and synthesis effort for the Atlantic and Gulf Coasts.

Demonstrable products include:

- Establishment of an Atlantic/Gulf Coast LCC/CSC coastal resilience team
- Compilation and synthesis of existing Gulf and Atlantic Coast vulnerability/resiliency information on priority coastal species and models that quantitatively link sea level rise and increased storm severity and frequency with system response, impacts to habitats and species, and restoration and management alternatives.
- Identification of thresholds of viability for these species under different rates of sea level rise.

- Identification of additional science needs and approaches to address information gaps.
- Assessment of restoration and management alternatives to increase persistence/resilience of these species and their habitats as well as evaluation of their effectiveness.
- Assessment of how these alternatives relate to use of natural and nature-based approaches to community resilience (i.e. whether approaches to increasing community resilience will also increase persistence/resilience of priority coastal resources).
- Compilation of existing efforts to relate to use of natural and nature-based approaches to community resilience.
- Pilot effort(s) to incorporate species and habitat information into community resilience planning.
- Final results compiled and made available in report, website(s), data portal(s).
- Workshop to review initial results, exchange information and increase collaboration among coastal researchers and managers and web based collaborative work spaces to share this information (Year 2).

These efforts will:

- Add value to significant ongoing efforts related to coastal resilience by providing a synthesis of existing information on predicted impacts to priority species and habitats, assessment of alternatives to increase their persistence/resilience and identification of key information gaps.
- Allow coastal resilience efforts focused on communities and cultural resources to have complementary information related to species and habitats and encourage investment in natural infrastructure to meet multiple objectives.
- Demonstrate the value-added role of LCCs in integrating ecological resilience with community resilience for adaptation planning
- Provide information to guide strategic investment of DOI Coastal Resilience funding (proposed in FY 16 budget).

Activity Area 2: Recommended approach/budget for first year

Contract with host university of either Northeast (University of Massachusetts) or Southeast (NC State) CSC for a one-year post doc or research associate to compile and synthesize information described above with collaboration and input from Atlantic and Gulf Coast LCCs. Oversight team should include Science coordinator or designee from each LCC. Post-doc salary and benefits, P.I. salary, travel, equipment, indirect, workshop facilitation, approx. \$90K, does not include in kind travel for workshop or web and data portal support. Gulf Coast LCCs to pick a location with existing information on ecosystem response and resilience and pilot effort to integrate with community resilience, approx. \$30K for one pilot area.

Funding Request

The geographic breadth of this project is such that the proposed pilot activities are scalable as a function of the resources available. In order to show progress in both core activity areas below requires a budget of \$300,000.00. For initial implementation of these pilot activities the budget breakdown within the U.S. Fish & Wildlife Service will be \$180,000.00 to Region 7, \$90,000.00 to Region 5 and \$30,000 to Region 4. More explicit estimates of the budget for each task is shown in the table below.

Budget: Estimated costs

		Item Total
Activity Area 1	Handbook on existing coastal work in a portion of the N. Pacific LCC	\$30,000
	Creation of resources/syntheses for training in “hub district(s)”*	\$50,000
	training coordination & hosting**	\$70,000
	Probable administrative costs	\$30,000
	Subtotal sent to Region 7 Science Applications	\$180,000
Activity Area 2		
	Establishment of an Atlantic/Gulf Coast LCC/CSC coastal resilience team. Report/website with compilation and synthesis of coastal resilience linking species, ecosystem and species resilience to community resilience.	\$90,000
	Pilot effort(s) along the Gulf Coast to incorporate information species and habitat information into community resilience planning.	\$30,000
	Subtotal (\$90,000 to Region 5, \$30,000 to Region 4)	\$120,000
	Total	\$300,000

* “hub districts” are sub-geographies of the Alaska coastline that includes the rural, often Tribal, coastal communities surrounding larger hub communities.

** This includes travel costs for decision makers/practitioners from remote communities in Alaska and a few from British Columbia. Typically travel costs for bringing a remote community participant into Anchorage for a two day meeting costs approximately \$2500 per person.

Potential Partners and Champions

- FWS Fisheries, Migratory Birds, Endangered Species, Partners for Fish and Wildlife
- Atlantic and Pacific and Gulf Coast Joint Ventures; Saltmarsh Habitat Avian Research Program, Atlantic Coastal Fish Habitat Partnership
- Coastal state fish and wildlife and coastal zone agencies and regional ocean councils (e.g. Northeast Regional Oceans Council)
- NOAA RISAs (CNAP - California-Nevada Applications Program; CIRC – Climate Impacts Research Consortium; ACCAP – Alaska Center for Climate Assessment and Policy; Pacific RISA, Consortium for Climate Risk in the Urban Northeast RISA; NOAA -Office for Coastal Management)

- Regional Ocean Observing System associations (Southern, Central & Northern California; Pacific Northwest; Alaska; Pacific Islands; Gulf of Mexico; Northeast, Mid-, and South Atlantic, Gulf Coast)
- FEMA, U.S. Army Corps of Engineers, DHS
- Climate Science Centers (AK, NE, NW, SE, SC, SW and PI CSCs)
- Gulf Of Mexico Alliance
- Pacific Coast Collaborative (State/Provincial governments of AK, BC, WA, OR, CA)
- West Coast Governor’s Alliance (WA, OR, CA)
- Kawerak Native Association
- Univ. of WA Climate Impacts Group
- Univ. of Alaska
- USGS

[Southern Climate Impacts Planning Program](#)