South Carolina Cooperative Fish & Wildlife Research Unit

Research for science-based decision making in natural resources

About the Unit

Cooperative Research Units provide science support to management agencies designed to sustain the hunting, fishing, and wildlife-related recreation needs of the public that account for $147 billion dollars in expenditures and 6.1 million jobs; identify conservation measures to prevent species from being listed as endangered or threatened; recover listed species; prevent or control invasive species and wildlife disease outbreaks; and apply decision science that is transparent and durable to management and policy actions.

The South Carolina Cooperative Fish & Wildlife Research Unit (SC Coop Unit) is a collaboration between the State of South Carolina, Clemson University, the Wildlife Management Institute, and the U.S. Geological Survey. Each contribute resources and expertise to address natural resource management issues primarily in South Carolina and the southeast and Gulf states through applied science, technical assistance, and graduate training. The SC Coop Unit was established in 1988 under the Cooperative Units Act of 1960 (PL 86-686).

Fulfilling the Public Wildlife Trust Mandate

The Unit contributes science support to state and federal partners responsible for managing public wildlife resources. For example, over the past 15 years the SC Coop Unit has provided state and federal partners with tools to efficiently monitor populations of Brown Pelicans and other coastal birds. The goal of the research has been to develop tools for wildlife managers that simultaneously optimize costs and precision of monitoring individuals and colonies in remote locations. Pelicans are an iconic species and the research conducted by the SC Coop Unit and their partners will ensure that pelicans continue to be a flagship species of coastal ecosystems.

SC Coop Unit Information

3 Federal Scientists

Each conducts research, teaches graduate classes, advises graduate students, and provides technical assistance to stakeholders.

20 Clemson University Positions

Number of university staff and student positions supported by the two federal scientists since 2017.

~ $5,000,000

Research funding brought into Clemson University by SC Coop Unit since 2010. Research is conducted locally in SC as well as throughout the region, nation, and internationally.

Graduate Students

25 MS and PhD students graduated with CRU scientists as advisors since 2010.

Teaching

Unit scientists have recently taught classes and are developing classes on topics including Conservation Physiology, Functional Ecology, Spatial Ecology, Philosophy of Ecology, Analysis of Fish & Wildlife Populations, and Foundations of Ecology.

Cooperators and Funding Sources

CRU scientists cooperate with partners in state agencies (SC DNR, GA DNR), federal agencies (FWS, USFS, BOEM, NPS, BLM, NOAA, NMFS), and private organizations at both the national and international level (e.g., Nature Conservancy, Grupo Jaragua, BirdsCaribbean).

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Spatial Ecology of Brown Pelicans in the SE US (PI: Jodice)

Brown Pelicans are a species of ecological and cultural importance in the southeastern U.S. Despite occupying a highly visible and elevated trophic position in estuarine and oceanic ecosystems, habitat use, foraging behaviors, and migratory corridors are poorly understood at multiple spatial and temporal scales. The SC Coop Unit employs a variety of research tools such as satellite telemetry, contaminants analysis, and diet studies to assess conservation threats to this species in the region. Data from this research will support marine spatial planning and coastal conservation actions that extend to other seabirds in the region as well.

Determining Flow-Ecology Relationships to Inform Flow Standards

Natural flow regime (magnitude, frequency, duration, timing, rate of change of flow events) is crucial for maintaining freshwater biodiversity and ecological integrity. Appropriation of water resources will continually increase with the rapidly growing human population in South Carolina, increasing 11.3% from 2010 to 2019. Protecting instream flow from anthropogenic alterations and maintaining ecosystem services of water resources first requires an understanding of the relationship between aquatic organisms and instream flow. The goal of the proposed project is to identify key relationships between flow metrics and biotic response (flow-ecology relationships) in the eight major river basins of SC and to use these relationships to predict the response of aquatic organisms to changes in streamflow and water withdrawals to inform river basin planning across the State.

Changes in Sagebrush Habitat Over Time (PI: Buchholtz)

Connectivity is a key component of resilient, functioning ecosystems. For restoration and management actions to be successful, it is crucial to understand how the spatial patterns of landscape connectivity may vary over time and how wildlife with different needs may be affected by such structural changes. Working with USGS FORT Science Center and Colorado State University, we investigated temporal connectivity patterns for the sagebrush biome of the western United States using an omnidirectional circuit theory approach to support land planning and management decisions.

Gulf of Mexico Marine Assessment Program for Protected Species (PI: Jodice)

The Gulf of Mexico supports seabirds from throughout the Atlantic basin, but data on species composition and abundance are limited. We examined the seabird community in the Gulf to support information needs of federal agencies with respect to oil and gas development and oil spill response. Preliminary results have offered substantial revisions to our understanding of the distribution of seabirds in this region.

Brown Pelican colony, SC

Blackbanded Darter (Percina nigrofasciata)

Sagebrush habitat, Colorado

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