



Ernest F. Hollings ACE Basin

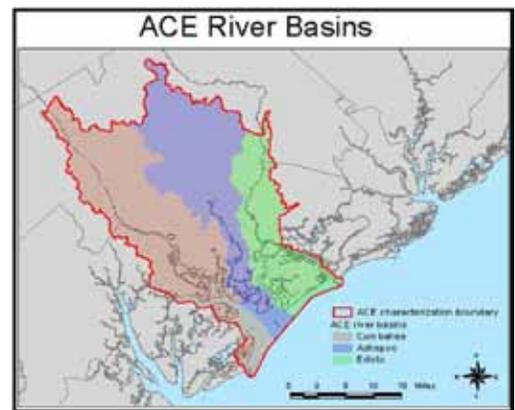
National Wildlife Refuge Climate Change Impacts

The refuge, entirely adjacent to intertidal waters (both salt and fresh) and being situated at elevations typically less than 10 feet above sea level (approximately 75% of the refuge's 12,000 acres), is highly susceptible to the effects of even minimal sea level rise. The physical effects of sea level rise will greatly challenge existing refuge management actions pertaining to the protection of historic structures; water delivery to 3,500 acres of impounded marsh and green-tree reservoirs; littoral zone conversion to 26 linear miles of riparian habitat; and impacts to approximately 60 linear miles of dikes (riverine), causeways and refuge roads.

photo: Ray Paterra



Physical Climate Effects



Along with increased sea levels and tidal amplitude, the refuge aquatic ecosystems will likely become significantly more saline, resulting in the potential for vegetative conversion of 9,500 acres of wetlands (salt and fresh/marsh and forest) to habitats of different vegetation composition and/or open water. The refuge and the ACE Basin National Estuarine Research Reserve are engaged in a cooperative study of the refuge waters to monitor both water quality and quantity parameters. Of specific interest will be observed shifts in salinity ranges, turbidity, and tidal amplitude. This information will become integral to developing management strategies for the various refuge aquatic habitats.

Chemical Climate Effects



Predicted climate change factors such as sea level rise and ambient temperature increase will likely result in refuge habitat changes and animal population shifts. The refuge is known to harbor as many as 291 bird species, including the endangered wood stork and whooping crane. During the 2008–2009 season, approximately 25,000 migratory ducks and geese wintered on the refuge wetland management units. The refuge waters provide habitat for endangered short-nose sturgeon and numerous reptile and amphibian species. In consideration of predicted climate change effects, monitoring and surveying efforts of refuge wildlife populations and habitat have been emphasized so that an

Biological Climate Effects



established baseline can be considered when planning management actions.

Climate change has been described as the most compelling conservation challenge of our time. r nation's fish, wildlife, and plant resources in profound ways. While many species will continue

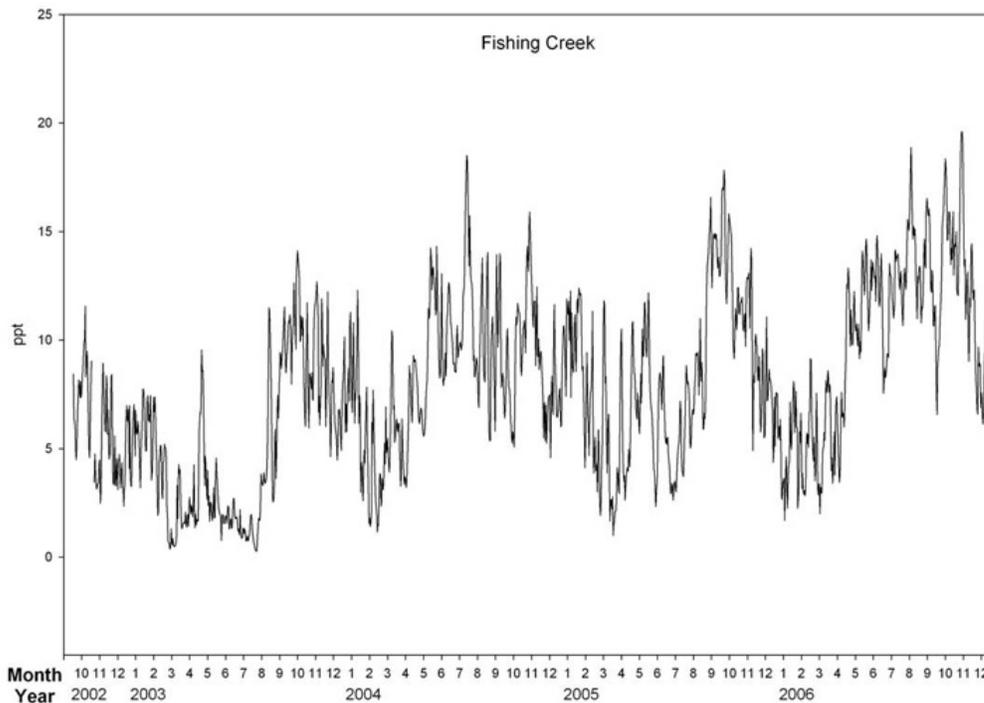
to thrive, some populations may decline and in some instances, go extinct. Others will survive in the wild only through direct and continuous intervention by managers. This defining challenge for the conservation community requires the U.S. Fish and Wildlife Service and its employees and partners to apply the skill,

U.S. Fish & Wildlife Service



determination, creativity and commitment to conserving the nation's natural resources that have defined the American conservation movement since its inception more than 130 years ago.

The U.S. Fish and Wildlife Service's Climate Change Strategic Plan establishes a basic framework within which the Service and its employees will work as part of the larger conservation community to help ensure the sustainability of fish, wildlife, and habitats in the face of accelerating climate change. The plan employs three key strategies to address climate change: Adaptation, Mitigation, and Engagement. Adaptation refers to planned management actions the Service will take to help reduce the impacts of climate change on fish, wildlife, and their habitats. Mitigation involves reducing our "carbon footprint" by using less energy, consuming fewer materials, and appropriately altering our land management practices. Engagement involves reaching out to Service employees; local, national and international partners in the public and private sectors; key constituencies and stakeholders; and the broader citizenry of this country to join forces and seek solutions to the challenges to fish and wildlife conservation posed by climate change.



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