ABSTRACT

Sea-level rise and its impacts to natural resources are a concern for the U.S. Fish and Wildlife Service (FWS) and National Park Service (NPS) lands within the Southeast United States. Rising sea levels threaten coastal wetlands leading to wetland loss, saltwater intrusion, habitat conversion, and inland migration of coastal ecosystems. Conserving and protecting resources and habitats is part of the mission for both federal agencies, and as federal budgets continue to fluctuate, the need to find cost-effective ways to conduct long-term monitoring on local, regional, and larger scales to understand these threats is crucial. In a recent Nature Climate Change article, the authors identify the need to formalize coordination and create regional partnerships among federal and state government agencies, academic and research institutions, and other private and nonprofit conservation organizations to coordinate and expand coastal wetland monitoring into regional networks. The FWS Southeast Region Inventory and Monitoring (I&M) Branch and NPS Southeast Coastal Inventory and Monitoring Network (SEON), along with the U.S. Geological Survey (USGS), Girina Tolumato Matanzas National Estuarine Research Reserve (GTMNERR), and other partners, have been working together since 2011 to develop a regional network for coastal wetland monitoring in the South Atlantic geography of the United States. In 2012, FWS I&M and NPS SEON initiated the South Atlantic geography approach (SAGA) by establishing a network of surface elevation table (SET) benchmark sites on refuge and park lands, which include 34 sites with 101 SET benchmarks. The objective of this poster is to present information about how the SAGA works to accomplish coastal wetland monitoring on public lands and how leveraging resources, people, data, methods, and other support tools will allow local and large-scale analyses to be conducted along the U.S. Atlantic coast. There are numerous localized SET projects that provide valuable information for smaller scale conservation and management efforts. The strategy SAGA utilizes has created a SET network in different priority habitat types, ranging from low salt marsh to forested wetlands, on public lands from North Carolina to Florida. This type of approach is not new, however, trying to accomplish these monitoring efforts across agencies and regions at these scales is in its infancy. A cohesive methodological protocol is being used across all SAGA sites resulting in consistent and comparable data. Currently, a process is underway to allow seamless management and sharing of network data resulting in long-term data archival, network analysis, and modeling. The SAGA provides an avenue to exchange information, share equipment and resources, collaborate on methods, troubleshoot technology, and provide support to build local and regional capacity for coastal wetland monitoring. Though the SAGA adds complexity, this collaboration allows for greater opportunity to ensure continued monitoring efforts, resource allocation, data management and sharing, and a commitment for long-term success. Through these efforts, FWS and NPS will be able to make more informed, science-based decisions for conservation and management of coastal wetlands on public lands.

BACKGROUND AND MONITORING OBJECTIVES

Background

Due to the importance of coastal wetlands, salt marsh elevation was initiated as a Vital Signs Monitoring Element for SEON in 2010. In 2011, FWS I&M and refuges in the South Atlantic identified coastal wetland elevation monitoring as essential and began working closely with NPS SEON to implement. Since then, FWS I&M and NPS SEON began working with partners to perform coastal wetland elevation monitoring at both local and landscape scales in the South Atlantic.

NPS SEON Vital Sign and FWS I&M Objectives are to determine the:

- Magnitude, rate, and within-site variability of change in ground surface elevation in parks and refuges
- Status and trends in the surveyed elevation of benchmarks relative to the National Spatial Reference System
- Status, trends, and within-site variability of surface sediment accretion
- Status and trends of soil salinity
- Status and trends in vegetation species composition, cover, and height (structure)

FWS I&M and NPS SEON are working with many regions to implement a regional network of SET benchmark sites on refuge and park lands in the South Atlantic geography. Partners have been engaged since the beginning of the SAGA and have continued to provide guidance in planning, sample design, site selection, field techniques, equipment, logistics, data management and analysis, and reporting. The SAGA relies on collaborating closely with refuges and parks where the study sites are located. Other FWS regions and NPS networks, and external partners, have partnered with the SAGA and USGS are two principal collaborators and detailed efforts are located:

- Data Management: The FWS and NPS Natural Resource Program Center divisions are developing an online, centralized database to house data collected from coastal wetland monitoring efforts using surface elevation tables. Multiple FWS regions, NPS networks, and Department of the Interior researchers are involved in the creation of this collaborative database, which will create one application to meet both FWS and NPS data management needs. Currently, the database is in production with anticipated completion within the coming year. FWS I&M and NPS SEON staff will be among the users testing and utilizing this database.

NEXT STEPS

Data Analysis and Reporting

Individual FWS I&M and NPS SEON will perform site-specific analyses of monitoring data to provide localized information to the individual refuge/park. This will be done per agency reporting schedules. Together, FWS I&M and NPS SEON will collaborate with other partners including the South Atlantic Landscape Conservation Cooperative to complete a landscape-scale synthesis report.

Collaborative Agreement

Currently, the SAGA is an informal partnership. Formalizing this partnership through a FWS I&M and NPS SEON collaborative agreement will ensure continued monitoring efforts into the long-term.