

Virginia Coast Reserve Long-Term Ecological Research Project: A Partnership of USGS, USFWS, NSF, University of Virginia, and Others....



- **The Challenge:** The coastal region of Virginia and the mid Atlantic is one of the most vulnerable regions globally to climate change and sea-level rise. The Virginia Coast Reserve has been recognized as one of the most important regions hemispherically for shorebirds and other waterbirds, with almost all of its barrier islands in pristine condition. The area thus represents an ideal outdoor laboratory for long-term investigations of physical changes (e.g., barrier island migration, hurricane impacts) and ecological effects (state changes in seagrass communities, major shifts in nesting habitat use by a suite of waterbirds, dynamic salt marsh vegetation shifts). Experimental studies and long-term monitoring of processes and elements in the system permit comparisons of this relatively natural coast with those that have undergone more alteration and disturbance. One of the major challenges is to find support to maintain projects lasting more than a decade. This is an area where the NSF supported LTER program has succeeded.
- **The Science:** The USGS has had a long-standing role in the VCR LTER primarily in studying habitat use of a number of nesting waterbird species and in setting up several marsh elevation monitoring stations (SETs). The bird monitoring has evolved into a large partnership with The Nature Conservancy, Commonwealth of Virginia, and College of William and Mary where complete inventories of nesting birds are conducted every 5 years. These efforts allow scientists to model how changes in habitats may result in population changes of selected species.
- **The Future:** The ongoing research and monitoring that continues will enable scientists to learn whether the short-term predictions made about sea-level rise effects will in fact result in longer-term ecosystem changes. New work is also underway to determine how well certain parameters of wading bird species (e.g. growth rates of feathers, young) may be used as bioindicators of estuarine quality.