



Research and Conservation Activities May, 2010

Dune Monitoring

Twenty-five transects have been established along the twelve miles of Bald Head Island Beaches. Twice per month erosion/accretion measurements are taken by pulling a 100 m tape measure from a stationary reference point to the first line of vegetation. Additionally, once per month five observations (one meter square quadrat) are taken at random locations along each transect. During each observation, number of different plant species, number of individuals per species and percent cover are determined and documented. This information is used to calculate diversity indices for each transect over time. Future efforts include biomass and reproductive output measurements.

Beach Vegetation Study

Bald Head Island recently completed a major beach renourishment effort. In addition to pumping sand on the beach to counteract erosion, newly formed dunes were planted with sea oats, American beachgrass and panic grass. Although there exist some plant survival data from academic studies conducted in the 1960s and 1970s, no commercial-scale study has been undertaken to assess planting success in relation to species or location. The BHI Conservancy is beginning a study to determine plant survivorship on both micro and macro scales.

Bald Head Creek Monitoring

A new study designed to ascertain the water quality and health of Bald Head Creek will begin in late summer 2010. This monitoring effort will build upon a study conducted by Mike Mallin et al. (2007) that established four water quality stations along Bald Head Creek. The intention is to add three additional stations and several benthic sampling components.

Oyster Shell Recycling and Monitoring

In 2008, the Conservancy began accepting oyster shells from BHI residents, guests and restaurants. Currently there are two drop-off stations, one at the Bald Head Creek access point and one at the Conservancy. Oyster shells are accepted throughout the year. Shells remain in yellow bins at the Conservancy until the following May when they are placed in specified sites on Bald Head Creek. These shells serve as habitat for juvenile oysters, oysters in turn improve the water quality of Bald Head Creek by filtering water during their feeding process. Oyster placement sites are regularly monitored for spat (juvenile oyster) settlement. Environmental data such as salinity, temperature and tidal cycle are taken during each measurement period.

Maritime Forest Study

Dr. John Taggart of UNCW is currently conducting a study exploring the possible effects of deer herbivory, canopy openness and past logging practices on live oak population structure in the Bald Head Woods Forest Reserve. Additionally, a floristic study of the maritime forest may be

initiated in late summer or early fall 2010 with the goal of quantifying forest community changes over the past 26 years (original studies were conducted in 1984 and 1988).

Aquifer Study

A water quality/quantity study will continue in the fall of 2010 and spring of 2011. This study involves taking depth to water measurements over a forty well and twelve pond network on Bald Head Island once per month. Additionally, water sampling of wells and ponds occurs once every three months. Measurements taken during the water sampling events include pH, conductivity, salinity, temperature and total dissolved solids. There may be opportunity to conduct single well slug and drawdown tests in summer and fall 2010.

Diamondback Terrapin Study

Leigh Anne Harden, a UNCW marine biology graduate student, will continue her diamondback terrapin research on Bald Head Island during the summer and fall of 2010. This study involves tracking terrapin movements via telemetry, downloading data logger temperature information in the field and taking blood samples.

Geologic Study

UNC Wilmington researchers are planning to begin a geologic study this summer that will involve taking core samples throughout the marshes and islands that make up the Smith Island Complex. The purpose of this study is to determine the age of different Smith Island Complex components (Bald Head Island, Middle Island, Bluff Island and associated marshes). This study will also give insight into how Bald Head Island was originally formed and what the future may hold for the area in terms of erosion and accretion.