

United States Department of Agriculture

COASTAL ZONE SOIL SURVEY

Fiscal Year 2019 Report



Soil and Plant Science Division

Natural Resources Conservation Service nrcs.usda.gov/



Coastal Zone Soil Survey Projects and Highlights



This fiscal year, the Soil and Plant Science Division (SPSD) is working on the collection, analyses, and release of coastal zone soil survey data for **18 projects** which will impact:

- Eight (8) Major Land Resource Areas (MLRA) 144A, 144B, 149A, 149B, 150B, 151, 153D, and 155
- Eleven (11) states Connecticut, Florida, Maryland, Massachusetts, Maine, Mississippi, New Hampshire, New Jersey, New York, Rhode Island, and Texas
- ★ Approximately 524,750 acres

Coastal zone soil surveys give conservation planners the most up-to-date information to improve and build upon the delivery, effectiveness, and outcomes of USDA programs.

Subaqueous soil survey data is currently being used by Delaware, Maryland, New Jersey, and Rhode Island NRCS as part of the Environmental Quality Incentives Program (EQIP) oyster restoration site selection criteria and by Connecticut Sea Grant to locate priority areas for future restoration.

Seventy-four coastal zone soil survey projects are populated in the National Soil Information System (NASIS) for **18 states** and **1 territory**. The majority of these NRCS projects are completing new coastal zone soil surveys and updating tabular data to assist with farm bill conservation planning.

Interpretations

Soil interpretations are a method of taking a large amount of technical soils information and simplifying it into specific recommendations or ratings. Soil interpretations are available through Web Soil Survey (WSS), our customer-facing product and one-stop shop to a wealth of free soils information.

New interpretations produced by the SPSD and available on WSS for conservation planning include:

- Submerged Aquatic Vegetation Restoration Potential
- Land Utilization of Dredge Materials
- Mooring Anchors
- Coastal and Marine Ecological Classification Standard Bottom Types
- Suitability for Hard Clam Habitat
- Suitability for Eastern Oyster Habitat

In addition, four new interpretations are being developed for:

- Coastal Erosion
- 2 Carbon Pools
- Eliving Shorelines
- Salt Marsh Restoration using thin layer deposition

Shellfish Restoration

A Connecticut NRCS Conservation Innovation Grant (CIG) was awarded to Connecticut Sea Grant to locate potential shellfish restoration areas to advance conservation planning. Through the NRCS CIG program, public and private grantees develop the tools, technologies, and strategies to support next-generation conservation efforts on working lands and develop market-based solutions to resource challenges.

Soil Carbon Stock Data for Blue Carbon Pools

The University of Rhode Island, with funding from Rhode Island NRCS, is sampling tidal marsh soils in MLRAs 144A and 149B in support of the SPSD National Coastal Blue Carbon Assessment Project. The NRCS-Kellogg Soil Survey Laboratory is conducting soil characterization analysis of tidal marsh soil samples from MLRAs 149A and 153D in support of the New Jersey Long-term Tidal Wetland Monitoring Network. These projects will provide accurate soil carbon stock data for blue carbon pools. Coastal ecosystems sequester and store a tremendous amount of carbon that would otherwise be a contributing factor through climate change.

Wild Oyster Reef Restoration

New Hampshire NRCS is helping fund The Nature Conservancy and The University of New Hampshire in restoring eight acres of wild oyster reefs in Great Bay, NH, which will result in measurable improvements to water quality and lost fish habitat, like winter flounder. Due to a 42 percent increase in nitrogen, there have been harmful algae blooms that are devastating eelgrass beds and creating anoxic conditions. To increase the "filtering" of the Great Bay system, Federal and State efforts have focused on restoring oyster populations. Using subaqueous soils information will help improve site selection for identifying new restoration sites. Specifically, understanding bottom type and local sediment dynamics are vital to developing successful oyster reef restorations.

Partnership Projects

Collin McCormick, national elevation leader at the National Geospatial Center of Excellence, and Jacob Isleib, resource soil scientist with Connecticut NRCS, are now part of the Interagency Working Group on Ocean and Coastal Mapping (IWG-OCM). IWG-OCM is a working group of the Subcommittee on Ocean Science and Technology (SOST) which serves as the Ocean Science and Technology Interagency Policy Committee under the National Ocean Council. It was established in 2006 to facilitate the coordination of ocean and coastal mapping activities across Federal, State, industry, academic and nongovernmental sectors. Topobathy lidar data is necessary for NRCS to achieve accurate, fast soil survey mapping of our nearshore areas.

Partners

- Albemarle-Pamlico National Estuary
- Barnegat Bay Partnership
- Brooklyn College
- Coastal Carolina University
- Conservation Districts
- Clemson University
- Connecticut State Department
 of Agriculture
- Eastern Carolina University
- Eastern Connecticut State
 University
- Environmental Protection Agency
- Great Bay National Estuarine
 Research Reserve
- Marine Resources Research
 Institute
- Monmouth University
- National Oceanic and Atmospheric Administration
- Ocean County Parks Departments
- Old Dominion
- Peconic Bay National Estuary
 Program
- Piscataqua Region Estuaries
 Partnership
- Restore America's Estuaries
- Sapelo Island National Estuarine Research Reserve
- Save Barnegat Bay
- Sea Grant
- St. Johns River Water Management District
- Stockton University
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- U.S. Geological Survey
- U.S. National Park Service
- University of Connecticut
- University of Georgia
- University of Florida
- University of Maryland
- University of Massachusetts
- University of New Hampshire, Jackson Laboratory
- University of Rhode Island
- Virginia Institute of Marine Science
- Waquoit Bay National Estuarine
- Research Reserve

GOALS and MANAGEMENT INITIATIVES

Coastal Zone Soil Survey (CZSS) aligns with USDA's strategic plan and the agency's goals and management initiatives. The Soil and Plant Science Division continues to improve coastal zone soil survey information to meet current and emerging resources concerns. CZSS will provide science-based data of the soils and ecological resources to help land managers ensure the coastal areas are productive, sustainable, and profitable.

USDA Goal 1. — Ensure USDA programs are delivered efficiently, effectively, and with integrity and a focus on customer service.

<u>Objective 1.4</u> Improve Stewardship of Resources and Utilize Data-Driven Analyses to Maximize the Return on Investment.

NRCS Management Initiative 2. — Create a climate of inclusion and foster diversity so private lands conservation will thrive.

Coastal Zone Soil Survey Activities

The Soil and Plant Science Division (SPSD) is:

- Providing coastal soils information and interpretations to users who want to better understand nearshore environments and improve coastal conservation management decisions.
- Combining the knowledge, skills, tools, and expertise from across mission areas to identify innovative opportunities such as joining the Interagency Working Group on Ocean and Coastal Mapping.
- Exploring new methods and technologies to more efficiently collect diverse subaqueous soils data as process, output, and outcome indicators for USDA programs and activities.

USDA Goal 5. — Strengthen the stewardship of private lands through technology and research. Objective 5.1: Enhance Conservation Planning with Science-Based Tools and Information.

Objective 5.2: Promote Productive Working Lands.

NRCS Goal 1. — Deliver High-Quality Science and Technology for Private Lands Conservation.

NRCS Goal 2. — Promote Productive Working Lands and Healthy Waters.

NRCS Goal 3. — Conserve and Enhance Agricultural Lands for Farming, Ranching, and Forestry. Coastal Zone Soil Survey Activities

By completing coastal zone soil surveys, the SPSD is:

- Developing the latest science and technology critical to sustaining economically sound operations in upland and nearshore environments.
- Partnering with scientific research institutions and industry experts to provide conservationsystem solutions in coastal areas.
- Gathering data on the status and trends of soil, water, and related resources in coastal zone areas to meet present and future demands for USDA programs such as the Emergency Watershed Protection Program–Floodplain Easement and EQIP-funded oyster restoration efforts.
- Actively evaluating coastal zone soils information to examine issues (such as sea level rise) that have implications for U.S. agriculture and to develop and deliver science-based, conservation solutions in a timely, responsive manner.

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