



Coastal Zone Soil Survey

Coastal Zone Soil Survey provides valuable information for planning and managing areas that have significant ecological values yet are exposed to high hazard potentials. When coastal areas are healthy and intact, they provide valuable services — and we rely on coastal areas as places to live, work, swim, boat, fish, and transport goods. Through the Coastal Zone Soil Survey, the Natural Resources Conservation Service (NRCS) is gathering valuable information to assist in predicting and explaining soil distributions and functions that can help identify healthy ecosystems, determine where to focus restoration efforts, and detect early warning signs of degradation. This vital work will assist all of us in making wise decisions concerning our coastal natural resources.

What is a coastal zone soil survey?

A coastal zone soil survey is a seamless data set of soils information that encompasses inland soils, tidal marshes, and shallow subaqueous and submerged soils. Subaqueous and submerged soils are permanently covered by water. The 3-dimensional data set gives properties and characteristics of soils from the soil surface to a depth of approximately 2 meters (6 feet). Traditional soil survey work often focused priority on inventories within agricultural areas and often didn't provide detailed coastal zone soils data.

Why is subaqueous soil survey work so important?

Timely and reliable coastal zone soil survey data will provide crucial information to help manage and protect our coastal areas. Subaqueous soils are a record of past climatic events and provide information about what may happen to our terrestrial soils as they become submerged by projected sea level rise. Data such as spatial mapping, tabular soil properties and characteristics, and soil interpretations are widely recognized as critical for mitigating hazards, creating resources inventories, guiding restoration efforts, and tracking environmental changes.



Peat corer used to obtain soil samples.



Oysters cultivated in plastic net bags supported above the ground on steel racks.



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How are subaqueous soils mapped?

Like terrestrial or traditional soil surveys, coastal areas are best inventoried using the well-established standards, techniques, and protocols established by the National Cooperative Soil Survey which guides the collection, inventory, and distribution of information about the nation's soil resources.

Mapping soil involves fieldwork by a soil scientist who traverses the landscape digging and documenting holes to observe the soil conditions to provide a map of the changes in soil types. Subaqueous soil mapping is performed the same way, except the soil is permanently submerged. Instead of topographic maps to provide landscape position, subaqueous soil mapping uses topobathymetric products to identify landscapes and landforms. Special tools such as peat corers and vibracores are used to obtain soil samples.

What is NRCS' role in mapping coastal zones?

As a member of the National Cooperative Soil Survey, NRCS is the lead Federal agency for mapping and interpreting our nation's soil resources, including the coastal zone. NRCS supports rigorous scientific content from field data gathering and research; diverse and uniquely effective partnerships; and modern techniques to produce spatial and tabular seamless soil surveys as well as timely distribution of the data to all users.

NRCS knows that more refined and detailed scientifically based coastal zone soil mapping, data, and interpretations are achievable. With vast improvements to remotely sensed data including LiDAR, aerial photography, and topobathy, much of the spatial coastal updates can be remotely assessed and verified with minimal time in the field.

How will the information be used?

This collaborative, goal-oriented mapping project will not only address the soil data needs of conservation planners and engineers, it will also confront emerging issues such as climate change, coastal resiliency, estuary restoration, small and large-scale watershed use planning, and environmental literacy. Baseline coastal zone soil survey data is already guiding the protection, conservation, and management of our nearshore coastal waters and natural resources.

Where can I find coastal zone soil survey data?

Coastal zone soil survey data is available for tidal marsh soils and adjacent upland areas for much of the country. Subaqueous soil mapping is currently available for parts of Connecticut, Delaware, Maryland, New Jersey, New York, Rhode Island, Massachusetts, and Texas with additional projects planned or underway all along the Atlantic and Gulf Coast areas.

Web Soil Survey is the official online portal of soil survey data. It provides tabular soil properties and characteristics along with spatial mapping and a variety of soil interpretations. Many soil interpretations already developed work for coastal zone soils but because of the unique nature of subaqueous soils, new interpretations need to be developed for uses specific to their subaqueous nature. New interpretations include submerged aquatic vegetation restoration potential, land utilization of dredge materials, mooring anchors, Coastal and Marine Ecological Classification Standard bottom type, suitability for hard clam habitat, suitability for eastern oyster habitat, carbon pools, and many more.

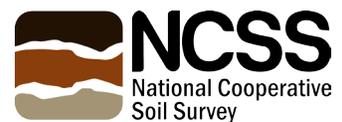
Web Soil Survey can be accessed at <https://websoilsurvey.sc.egov.usda.gov>.



For additional information, visit the Coastal Zone Soil Survey focus team web page: <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/focusteams>.

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