

Classification and Standards Committee

2008 North Central Regional Work
Planning Conference

Classification and Standards Committee

- Charges:
 - Review the existing proposals for new taxonomic classifications and provide recommendations to NSSC for adoption in Soil Taxonomy.
 - a. review plinthite and mica proposals.

Classification and Standards Committee

- The majority of proposals submitted do not affect the North Central Region, and are not commented on.
 - Recommended to approve changes to “Normal Years” explanation and the correction to the Temperature Regime Limits.
 - Rapid City SD MLRA Office recommended approval of the changes in Taxonomy to Gypsic Soils mineralogy and particle size groups and Micaceous soil mineralogy.

Classification and Standards Committee

- Gelisols –
 - Jim Bockheim, of the University of Wisconsin, disapproved of the proposed elimination of the requirement for Gelic materials in the Gelisol Order. As Dr. Bockhiem was the chair of the International Committee on Gelisols, the North Central committee concurs with this concern, and disagrees with the proposal to drop gelic materials as a requirement for inclusion in the Order.

Classification and Standards Committee

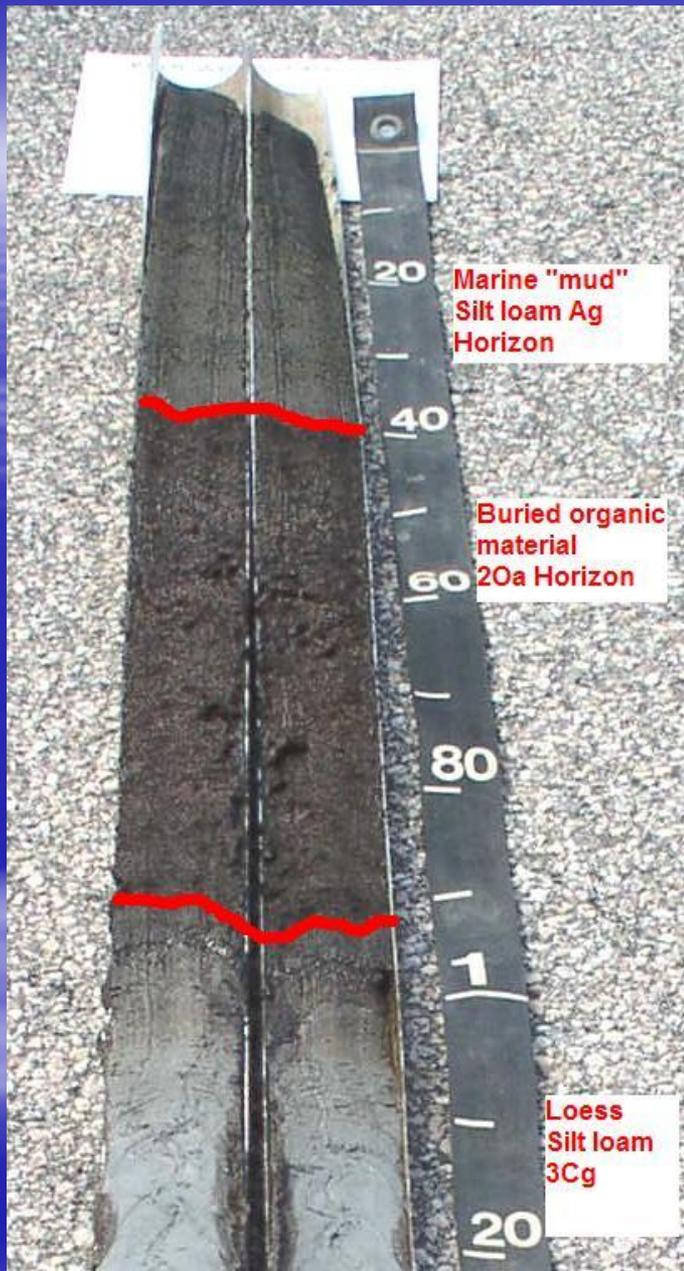
- Change in Natraquerts definition to remove “or have an exchangeable sodium percentage of 15 percent or more.”
 - Agree in principle, but need to evaluate how this change will affect the Natraquerts of the Northern Plains (Heil, Napa, Ryan series). These soils have very well developed columnar structure, but some comments questioned whether Vertisols could have natric horizons, which are a type of argillic horizon.

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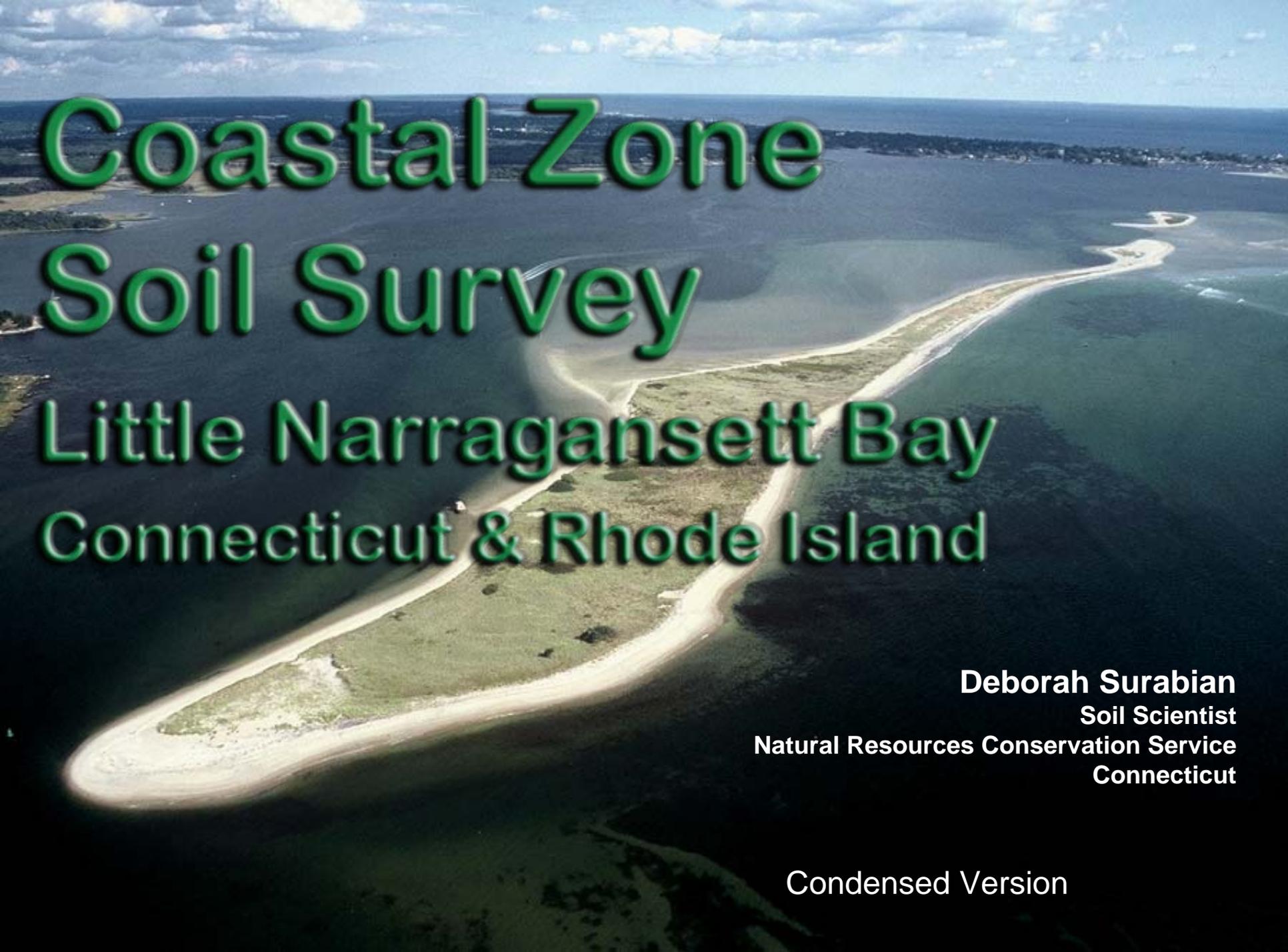
■ Charges

- Identify changes needed to technical references to accommodate subaqueous Soils.
- Identify ways to disperse information learned from current Subaqueous soil survey activities to the greater soil survey community

<http://nesoil.com/sas/>



There is potential for subaqueous soil mapping in Sandhill lakes, Kettle Lakes and shore areas of the Great Lakes. Partners may request subaqueous soil information for a variety of reasons.

An aerial photograph of a coastal bay. A narrow, sandy isthmus connects two landmasses. The water is a deep blue-green color, and the sky is a clear, bright blue with some light clouds. The landmasses are covered in green vegetation and have a sandy shoreline. The text is overlaid on the left side of the image.

Coastal Zone Soil Survey Little Narragansett Bay Connecticut & Rhode Island

Deborah Surabian
Soil Scientist
Natural Resources Conservation Service
Connecticut

Condensed Version

Definition of Soil

1. Soil ... is a natural body that occurs on the land surface ... and is characterized by [either] **horizons, or layers**, that are distinguishable from the initial material as a result of **additions, losses, transfers, and transformations** of energy and matter, or
2. The ability to **support rooted plants** in a natural environment.



Definition of Soil (continued)

The upper limit of soil is the boundary between soil and air, shallow water, live plants, or plant materials that have not begun to decompose.

The lower limit of soil has been arbitrarily set at 200 cm.

The horizontal boundaries of soil are areas where the soil grades into deep water (typically 2.5 meters deep), barren areas, rock, or ice.



Definition of Soil (continued)

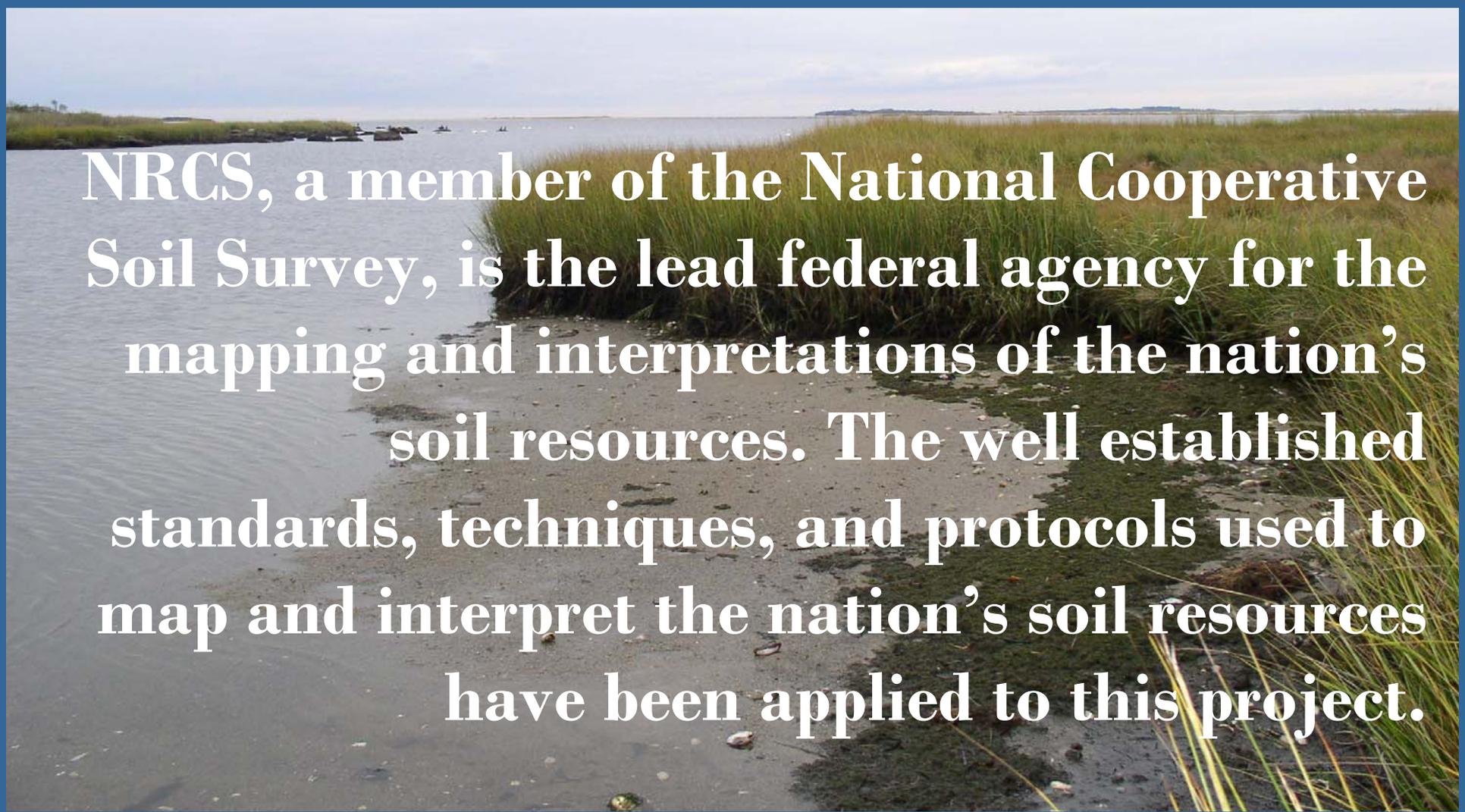
Subaqueous soils formed under a continuous water column, although their sediments may have originated from an upland area such as a dune.

Submerged soils formed in an upland environment but are now underwater. Submerged soils became submerged as a result of rising water tables, flooding events, or sea level rise.

For USDA-NRCS purposes, both subaqueous and submerged soils are considered subaqueous soils.



Coastal Zone Mapping Procedure

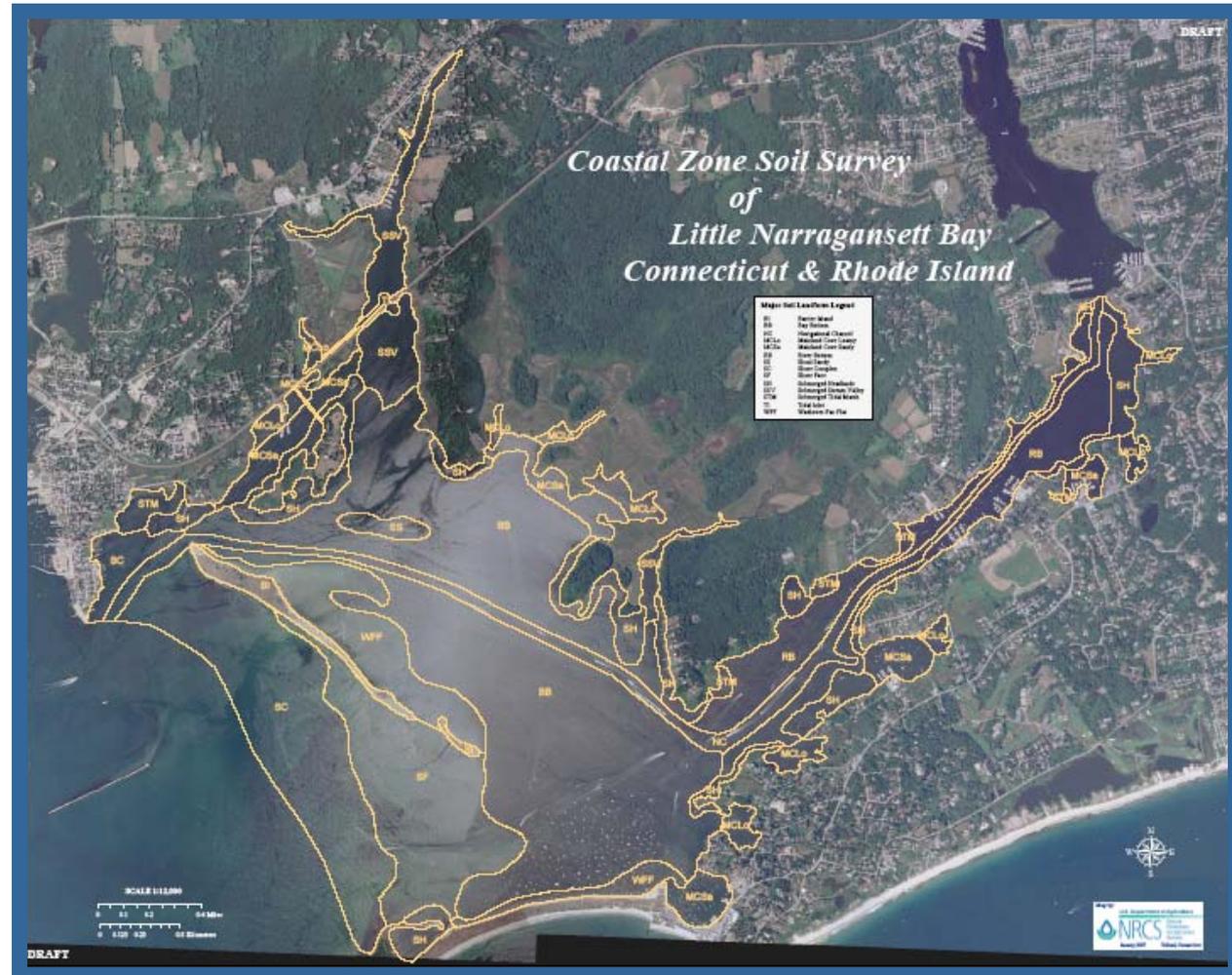


NRCS, a member of the National Cooperative Soil Survey, is the lead federal agency for the mapping and interpretations of the nation's soil resources. The well established standards, techniques, and protocols used to map and interpret the nation's soil resources have been applied to this project.

Coastal Zone Mapping Procedure (continued)

Major soil landform units are identified and delineated to predict and explain soil distributions.

Due to overlying water, the identification and delineation of submerged landscape units is somewhat more complicated than that of terrestrial landscapes.



Coastal Zone Mapping Procedure (continued)

Major soil landform units:

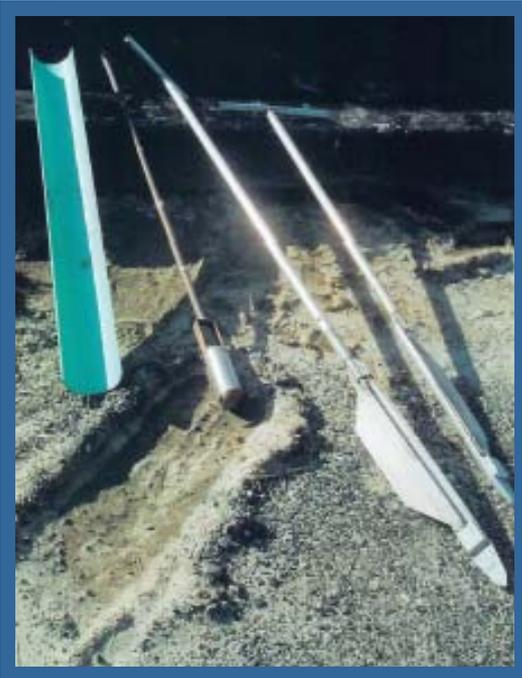


Coastal Zone Mapping Procedure (continued)

Major soil landform units:



Coastal Zone Mapping Procedure (continued)

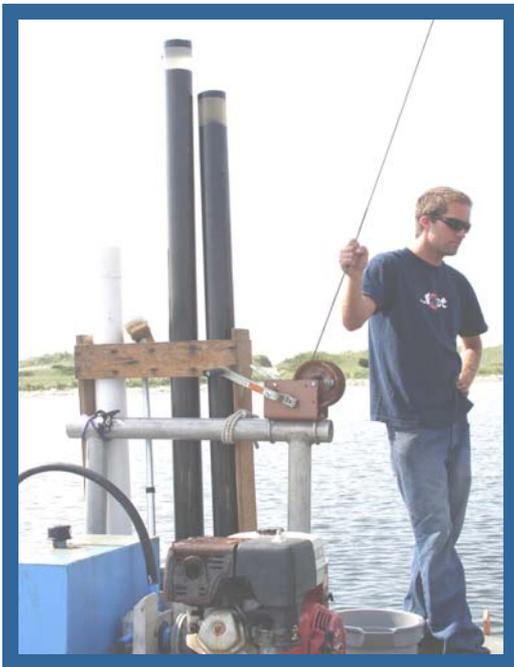


Bucket
augers and
McCauley
peat samplers
were used to
investigate
soil
morphology.



Coastal Zone Mapping Procedure (continued)

Vibracore and push tube techniques are used to obtain minimally disturbed samples for detailed descriptions and sampling of typical pedons. The URI Graduate School of Oceanography captured these soil cores.



Coastal Zone Mapping Procedure (continued)

Soil cores are described and samples are sent to our National Soil Survey Center, in Lincoln, Nebraska, for laboratory analyses.

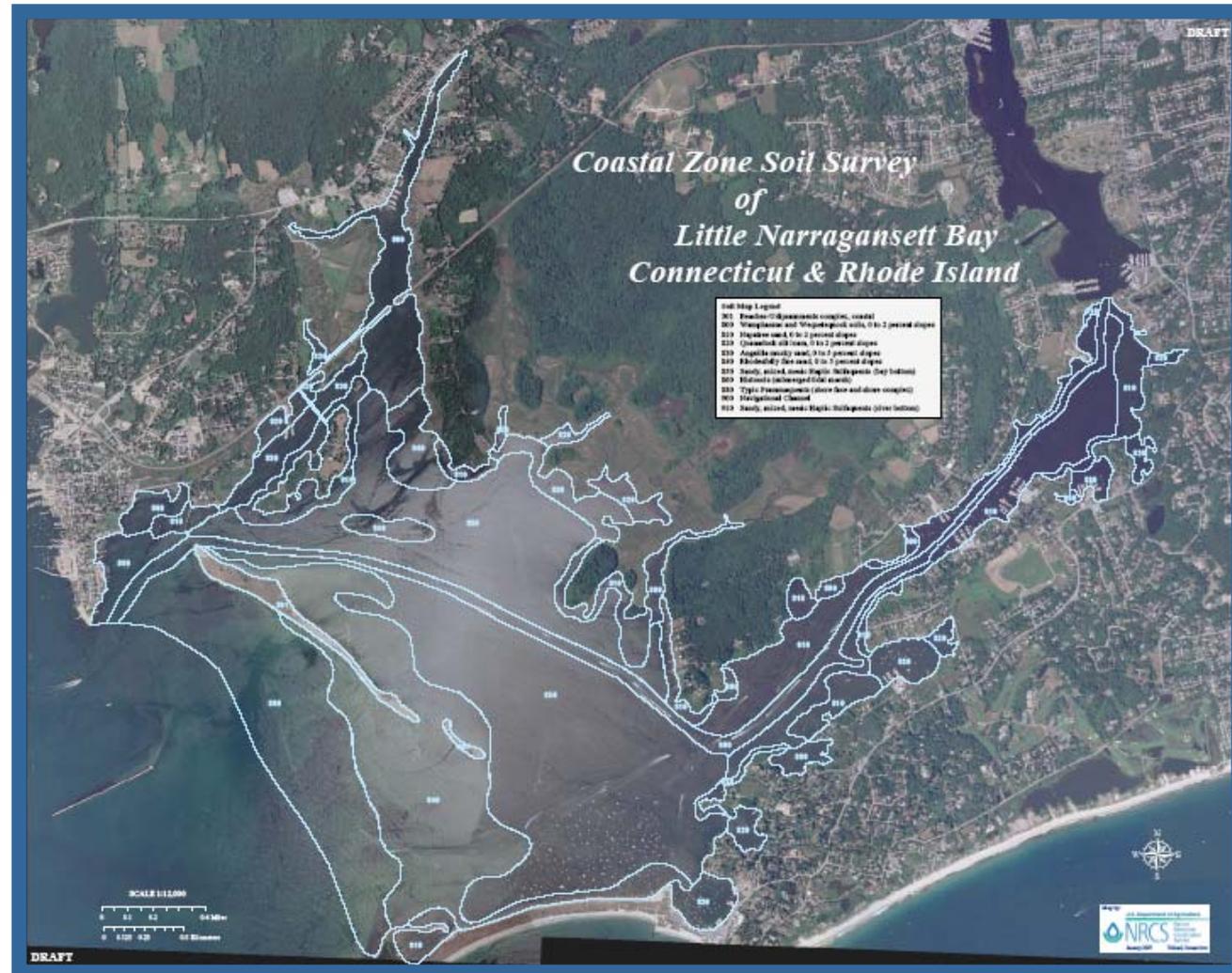
Soil samples are shipped and stored cold until lab tests are completed. Upon exposure to air, the sulfides oxidize and lower the pH by creating sulfuric acid. This also effects the measurement of salinity and percent clay.



Photographs of three vibracores taken from Little Narragansett Bay. From left - the Napatree, Anguilla, and Rhodesfolly proposed series.

Coastal Zone Soil Survey of Little Narragansett Bay

The result of this endeavor is a detailed seamless soil map extending from the land into the estuary identifying subaqueous soil resources at a scale of 1:12,000.



Coastal Zone Soil Survey of Little Narragansett Bay (continued)

Coastal Zone Soil
Survey of Little
Narragansett Bay

The result of this endeavor is a detailed seamless soil map extending from the land into the estuary identifying subaqueous soil resources at a scale of 1:12,000.



Coastal Zone Soil Survey Interpretations (continued)

Presence of Sulfidic Materials

If soils containing sulfidic materials are disturbed without appropriate management and remediation, they pose a significant threat to development and the natural environment. The pH value, which normally is near neutral before drainage or exposure to air, will drop below pH 4.

The effects of actual acid sulfate soils are evident in the foreground. This dredged spoil material will remain either unvegetated or suitable only to acid tolerant species.



Coastal Zone Soil Survey Interpretations (continued)

Submerged Aquatic Vegetation (SAV)

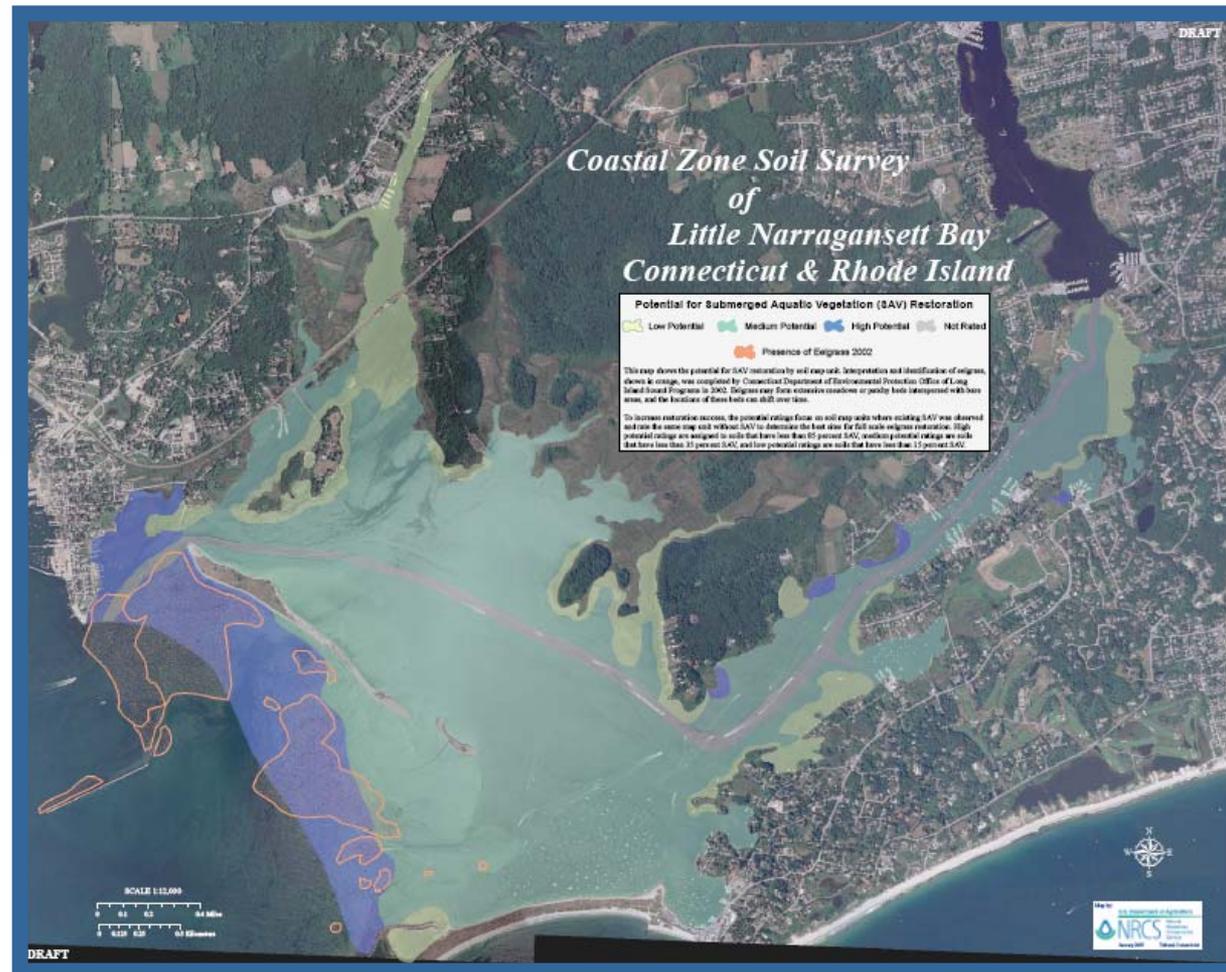
SAV beds, rooted vegetation that grows under water, are among the most productive ecosystems in the world. The ecological importance of eelgrass is derived from this productivity and its substantial habitat it creates.

Eelgrass beds on the shore face major soil landform unit in Little Narragansett Bay. They serve as a haven for crabs, scallops, numerous species of fish, and other wildlife, providing these creatures with shelter, nursery grounds, and food.



Submerged Aquatic Vegetation (SAV)

To increase restoration success, such efforts may focus on soil map units that have existing SAV and locate areas of the same map unit without SAV to determine the best sites for full scale eelgrass or other SAV restoration.



Bottom Type

The bottom type of soil material is measured by the soil structure stability *n-value* of the soil surface layers.

An *n-value* of slightly fluid through very fluid is classed as a soft bottom. An *n-value* of nonfluid is hard bottom.



Coastal Zone Soil Survey Interpretations (continued)

Moorings

In the last decade, the boating population has exploded and moorings are increasing in number.

The *n-value* of the soil surface layers (bottom type of material) influences the type of anchor that boat mooring facilities may use.



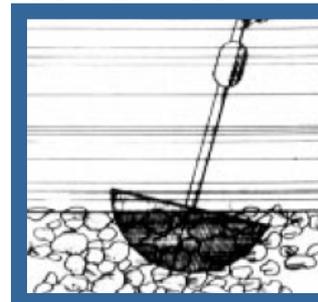
Coastal Zone Soil Survey Interpretations (continued)

Moorings

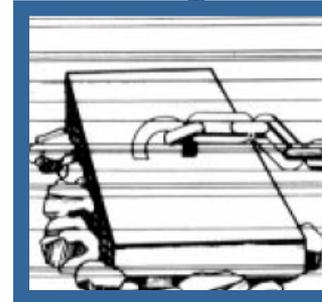
Map Symbol and Soil Name	Mooring Type	
	Mushroom Anchor	Deadweight
301 Beaches ----- Udipsamments -----	-----	-----
800 Wamphassuc ----- Wequetequock -----	Not Limited	Very Limited soft bottom
810 Napatree	Very Limited hard bottom	Not Limited
820 Quanaduck	Not Limited	Very Limited soft bottom
830 Anguilla	Not Limited	Very Limited soft bottom
840 Rhodesfolly	Very Limited hard bottom	Not Limited



Mushroom



Deadweight



Ultimately, new partners and stakeholders will engage in the National Cooperative Soil Survey efforts of mapping subaqueous soils in coastal zone areas such as Little Narragansett Bay.



**Connecticut NRCS soils website:
www.ct.nrcs.usda.gov/soils.html**