



Soil and Plant Science Division

Technical Soil Services

Special Projects Region

Tuckahoe Wildlife Management Area Impoundment Restoration Sampling

Hammonton, New Jersey, Soil Survey Office

Purpose

During the week of July 21, staff from the Hammonton Special Projects Soil Survey Office assisted the New Jersey Department of Environmental Protection (NJDEP) Fish and Wildlife staff with collecting and describing soil samples from drained impoundments for submerged aquatic vegetation (SAV) restoration purposes. The approximately 500 acres of coastal impoundments found at the Tuckahoe Wildlife Management Area have been impounded since the 1940s. The impoundments have ecological and recreational importance, providing critical habitat for migratory birds and offering activities such as hunting, fishing, and crabbing. The long-term goal of this restoration effort is to establish healthy, vibrant SAV beds for migratory birds and to serve as a seed source for broader restoration projects across the state.

Background

The nature of the impoundments required staff to use a kayak to access the points of interest, given the tidal implications, walking difficulty, and fluid soils found in the borrow ditches surrounding the berms (fig. 1). The samples were collected and described by horizon to a depth of 50 cm. There was a wide range of soils found within the impoundments, from submerged, sandy uplands to former organic tidal marsh soils (fig. 2). During preliminary observations, staff saw that areas with thin layers of recent (i.e., deposits since being impounded) silts in the surface overlying firmer, denser material (i.e., either moderately decomposed organics, sands, or a mix of both) seem to have a higher percentage of SAV cover. Staff did not observe high percentages of SAV cover in areas with very fluid silts, former tidal marsh organic surfaces, and sandy surfaces (fig. 3).



Figure 1.—Benjamin Keys, habitat planner for NJDEP Fish and Wildlife, preparing to use a kayak to cross the burrow ditch. Keys was the point of contact for this project and his knowledge of the area and logistical assistance was key to collecting all the samples.

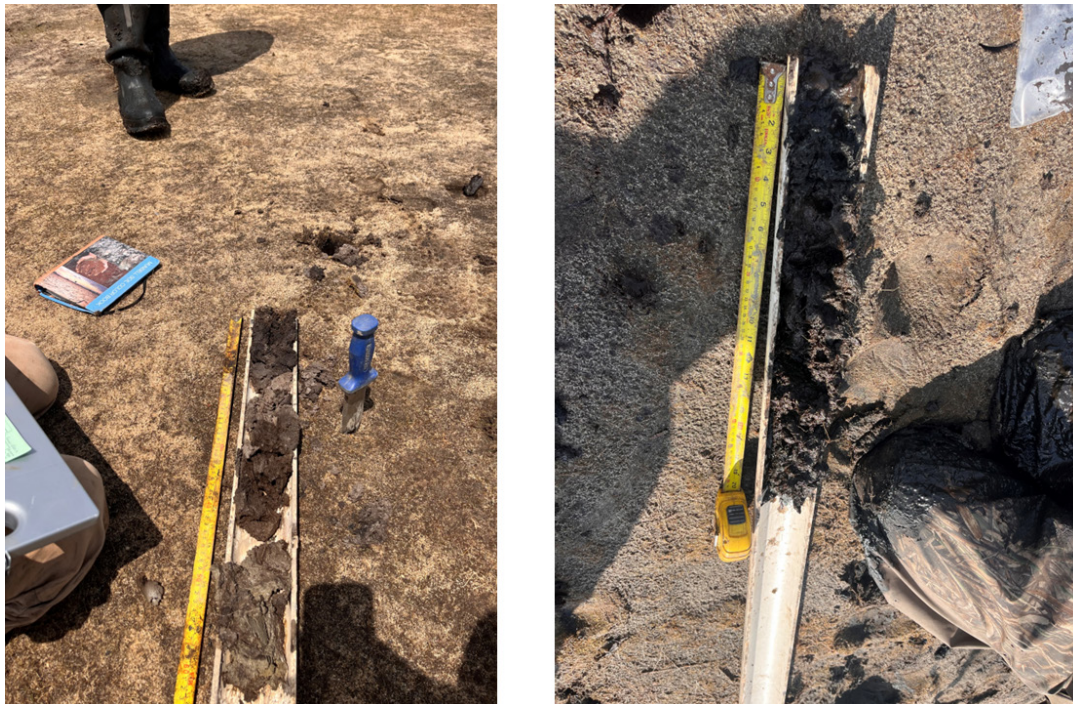


Figure 2.—Left: Example of a submerged, sandy upland soil. Right: Soil with a mineral surface on top of a hemic organic horizon. This is an example of a soil in which SAV was observed.



Figure 3.—Section of the impoundments with little to no SAV cover.



Key Outcomes

Staff collected a total of 31 sample points from the 2 impoundments. The samples will now be processed to collect pH (1:1 and oxidized), electrical conductivity, and organic carbon percentage. With the laboratory analyses and field descriptions, the NJDEP Fish and Wildlife can identify and focus on suitable areas for SAV restoration in the impoundments. The results from this technical soil service can be used for further restoration of critical habitats within the watershed.