

EELGRASS IN THE PECONICS

Background

Eelgrass (*Zostera marina*) has always played an important role within the Peconic Estuary. It provides food, habitat, and shelter for a multitude of marine species. Seagrass acts as a nursery for juvenile fish (flounder, black sea bass, seahorses, etc), and shellfish such as bay scallops; an important, historic fishery of the Peconic Estuary. Additionally, eelgrass has demonstrated the ability to combat coastal erosion by reducing wave energy. As a marine plant, eelgrass also plays a role in producing oxygen, while also storing greenhouse gases like carbon dioxide. Eelgrass also aids in improving water quality by filtering pollution, like nitrogen runoff, within then watershed.

Since the 1930s, there has been a steady decline of the estuary's eelgrass population in the Peconic estuary. Since the last aerial survey conducted in 2014, the Peconic Estuary has seen ~7.5% loss in eelgrass habitat over 10 years. Due to the importance of this species, and the role it plays within the ecosystem, PEP continues to dedicate its efforts towards research, management, and future restoration of eelgrass in the Peconic Estuary.

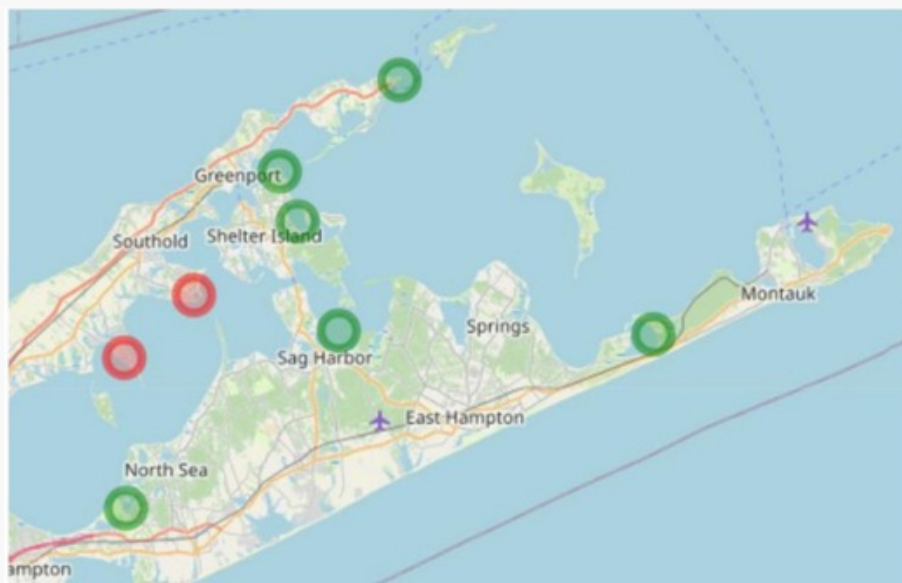
Historical PEP Eelgrass Data

In 1997, PEP partnered with the Cornell Cooperative Extension of Suffolk County to monitor eelgrass survival and bed expansion resulting from previous habitat restoration efforts. Long-term measurements of seagrass extent and deep edge location at historical sites, measurements of light, temperature, and sediment conditions at these sites have been documented and the Peconic Estuary Partnership Long-Term Eelgrass Monitoring Program (PEP LTEMP) report has been produced every year.

New PEP Eelgrass Monitoring Strategy

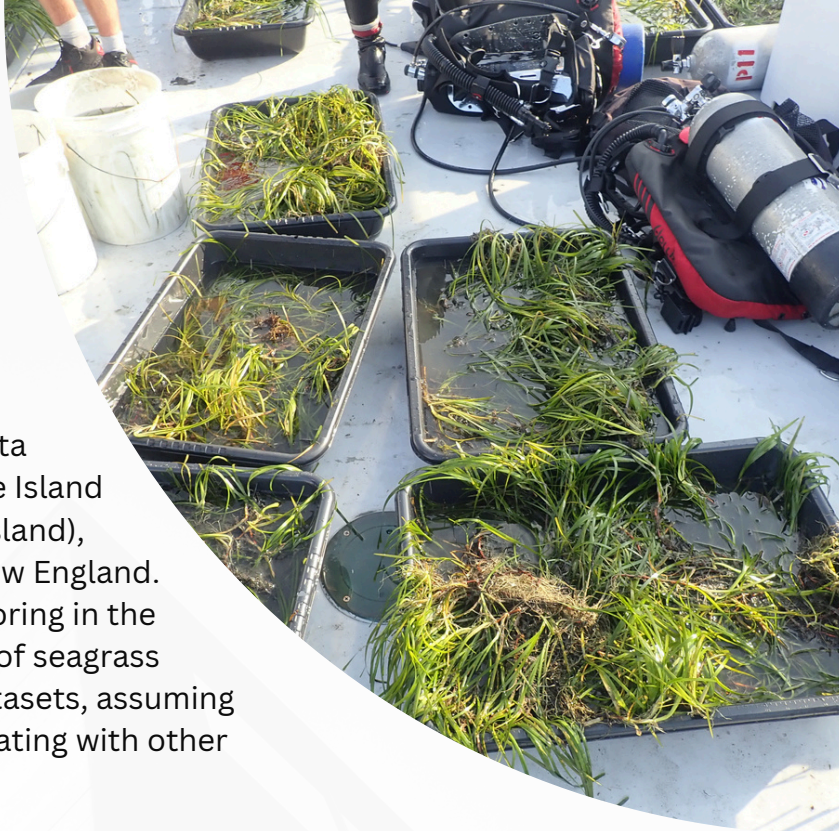
In 2023, the PEP Technical Advisory Committee voted to reassess monitoring efforts to align with regional efforts. With our partners from the Stony Brook University Geospatial Center and the University of Maryland Center for Environmental Science (UMCES), the historical data was compiled into the Peconic Estuary Seagrass Story Map to show the visual and spatial changes of eelgrass within the estuary over time.

By incorporating the methodology of SeagrassNET, PEP will contribute important seasonal data to determine trends of the local seagrass populations. This annual monitoring initiative will engage researchers, regulators, and communities by providing access to information that can be used in future eelgrass protection within the estuary.



SeagrassNet

SeagrassNet is the largest and longest-running seagrass monitoring program in the world and is now housed at the Center for Coastal Studies in Cape Cod, Massachusetts. It has been used in data collection throughout the region including at Fire Island National Seashore, Long Island Sound (Fisher's Island), Nantucket, and throughout much of southern New England. SeagrassNet provides the ideal design for monitoring in the Peconic Estuary by incorporating key indicators of seagrass condition, maintaining continuity with legacy datasets, assuming some data curation responsibilities, and coordinating with other regional monitoring programs.



Aerial Flyover Data

PEP is working with its regional partners to coordinate aerial flyovers in order to continue determining the trends in delineation of eelgrass habitat overtime. As of 2024, our most recent assessment has confirmed about 800.6 acres of eelgrass within the estuary. Eelgrass delineation can be seen within the green (eelgrass) and yellow (eelgrass and boulders) boundaries on the map. Our delineation data also highlights one other marine vegetation similar to *Z. marina*: widgeon grass (*Ruppia* sp.).

Partners

- Center for Coastal Studies
- Peterson Lab - Stony Brook SoMAS
- New York State Department of Environmental Conservation
- Stony Brook University Geospatial Center
- University of Maryland Center for Environmental Science
- Cornell Cooperative Extension of Suffolk County
- Restore America's Estuaries (RAE)
- Old Dominion University
- University of Rhode Island
- Long Island Sound Partnership

PEP Seagrass Research Projects

- **Restoring America's Estuaries - Coastal Watershed Grant:** Rising water temperatures are restricting seagrass coverage to areas of increased oceanic influence throughout the northeastern US. This project will demonstrate the use of groundwater as thermal refugia in an emerging restoration strategy for eelgrass in the Peconics
- **CHANGES Project:** The Peconic Estuary faces ecological challenges such as coastal resilience to storm events, sea level rise, excess nutrients leading to harmful algal blooms, and loss of habitat. This project will utilize combinations of kelp, oysters, and seagrasses to tackle these issues.

CCMP Actions

ACTION 30 Monitor and protect existing eelgrass beds; where appropriate, restore and expand eelgrass beds.

