



Eelgrass in Eastern Long Island Sound: Assessment from Inventories

Southern New England-New York Bight
Coastal Program, Charlestown, RI
Andrew MacLachlan



Introduction

Eelgrass habitat in Long Island Sound was surveyed and mapped in 2002, 2006, and 2009, and trend information shared with partners implementing protection and restoration work.

Eelgrass beds are unusually productive biological habitats that stabilize sediments, support different life stages of many animals, and provide significant economic benefit to human economies.

This eelgrass assessment work supports the efforts of, and is encouraged by, many stakeholders in Long Island Sound area including the State of Connecticut and U.S. Environmental Protection Agency.

Background

Eelgrass (*Zostera marina*) is one of several sea grasses that are rooted vascular plants living fully submerged in shallow coastal marine waters. Eelgrass develops into patches ranging from less than one square yard to many acres. Light availability is one limiting factor for this habitat that occasionally grows to depths up to 25 feet in Long Island Sound.

Eelgrass is the dominant sea grass in Long Island/New England area.

Values and Threats

As a wetland habitat, eelgrass is a federal trust resource. It serves as food, nursery, and forage habitat for migratory fish and birds, alters water flow, and provides nutrient cycling. It is identified for protection and enhancement in state wildlife action plans and the EPA comprehensive conservation and management plan for Long Island Sound.



Juvenile flounder in eelgrass

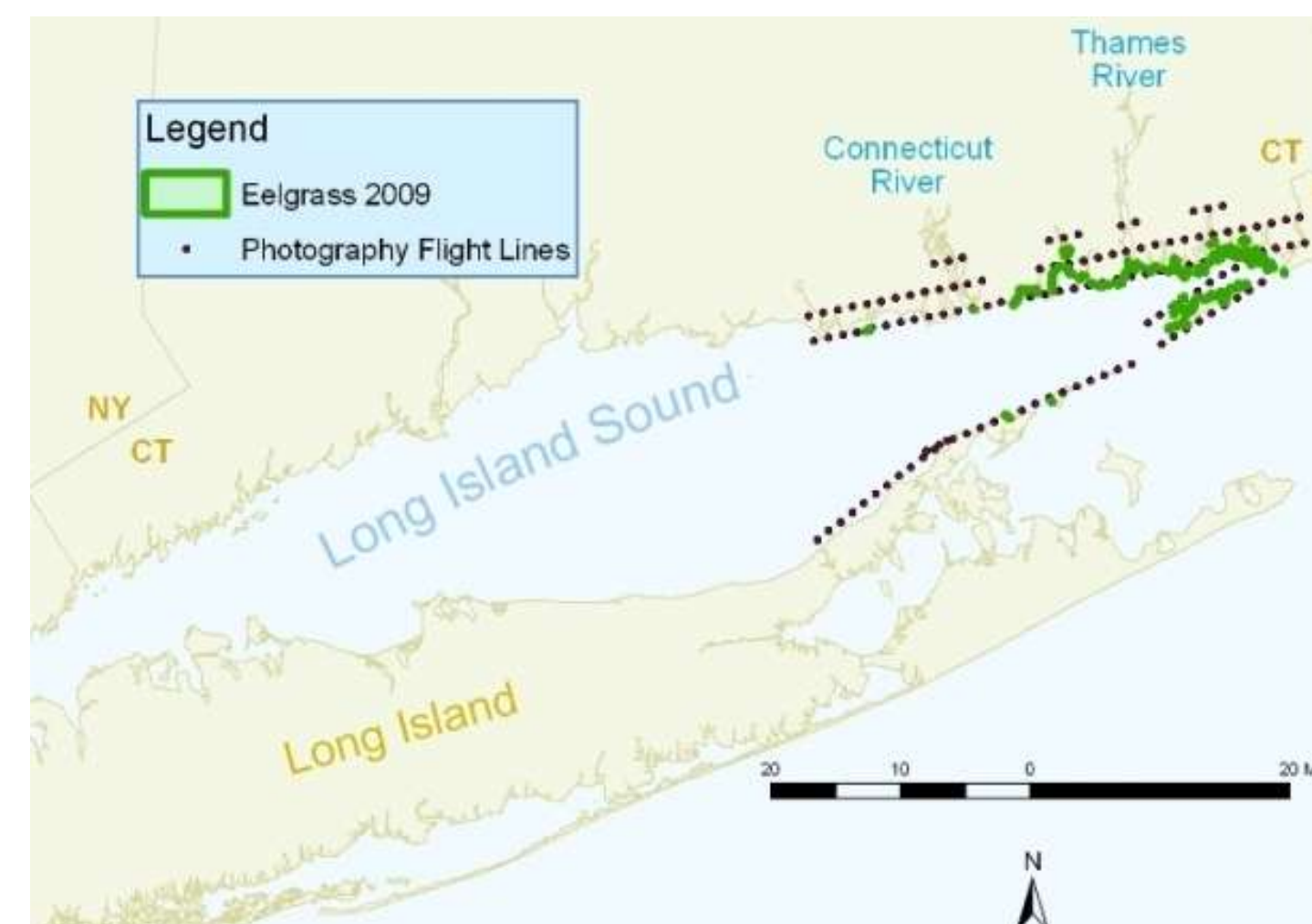
Eelgrass is threatened by a host of anthropogenic influences, most notably sediment discharges from human land development, nutrient pollutants creating eutrophication problems, and physical damage from boats and fishing gear.

Methods

Surveys consist of data manually extracted from aerial photography, combined with field inspections to verify eelgrass presence and extent, and gather bed health information.

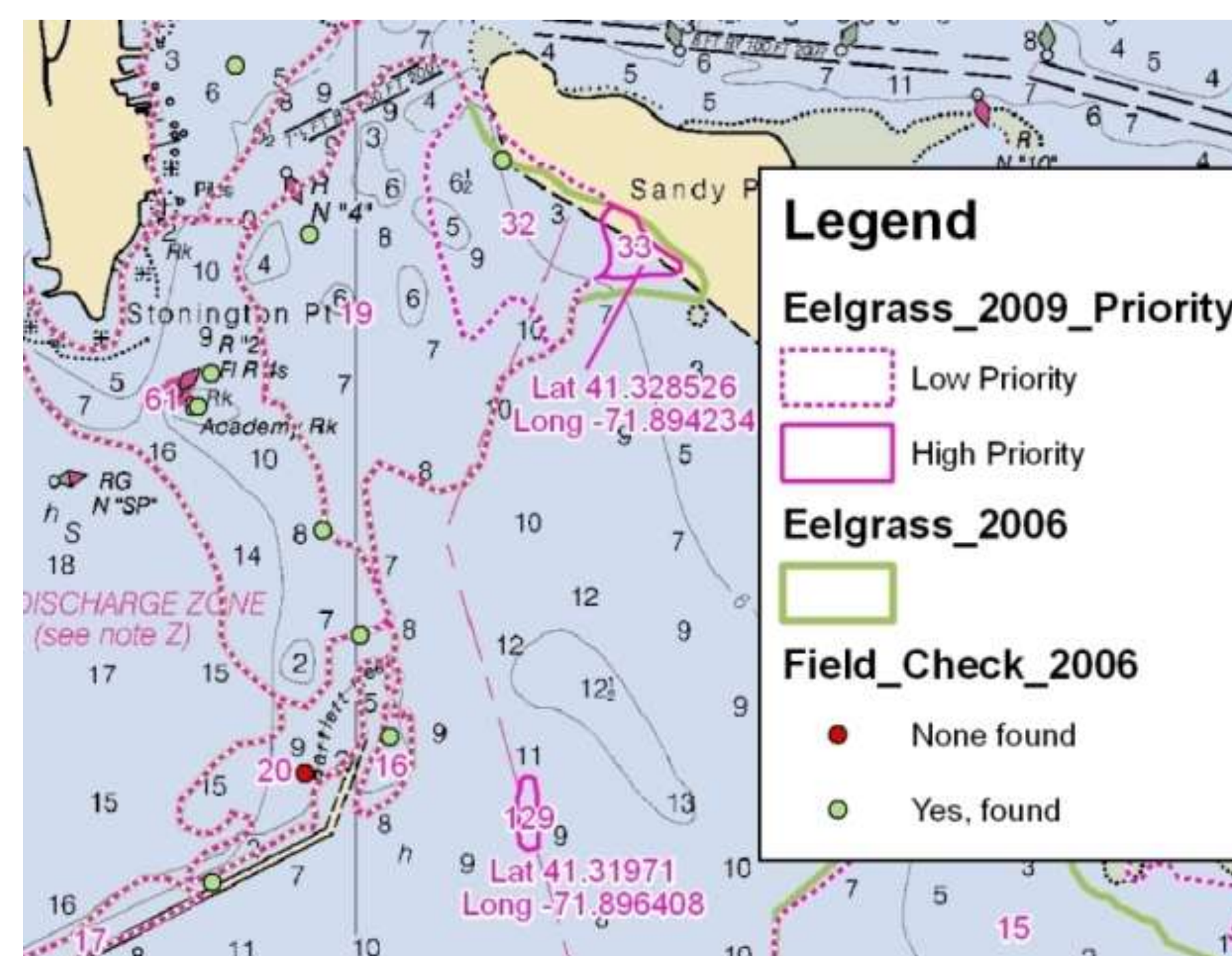
Surveys are limited to the current extent of habitat in the eastern third of Long Island Sound.

Historical distribution included most of the Sound.



GIS Support of Field Work

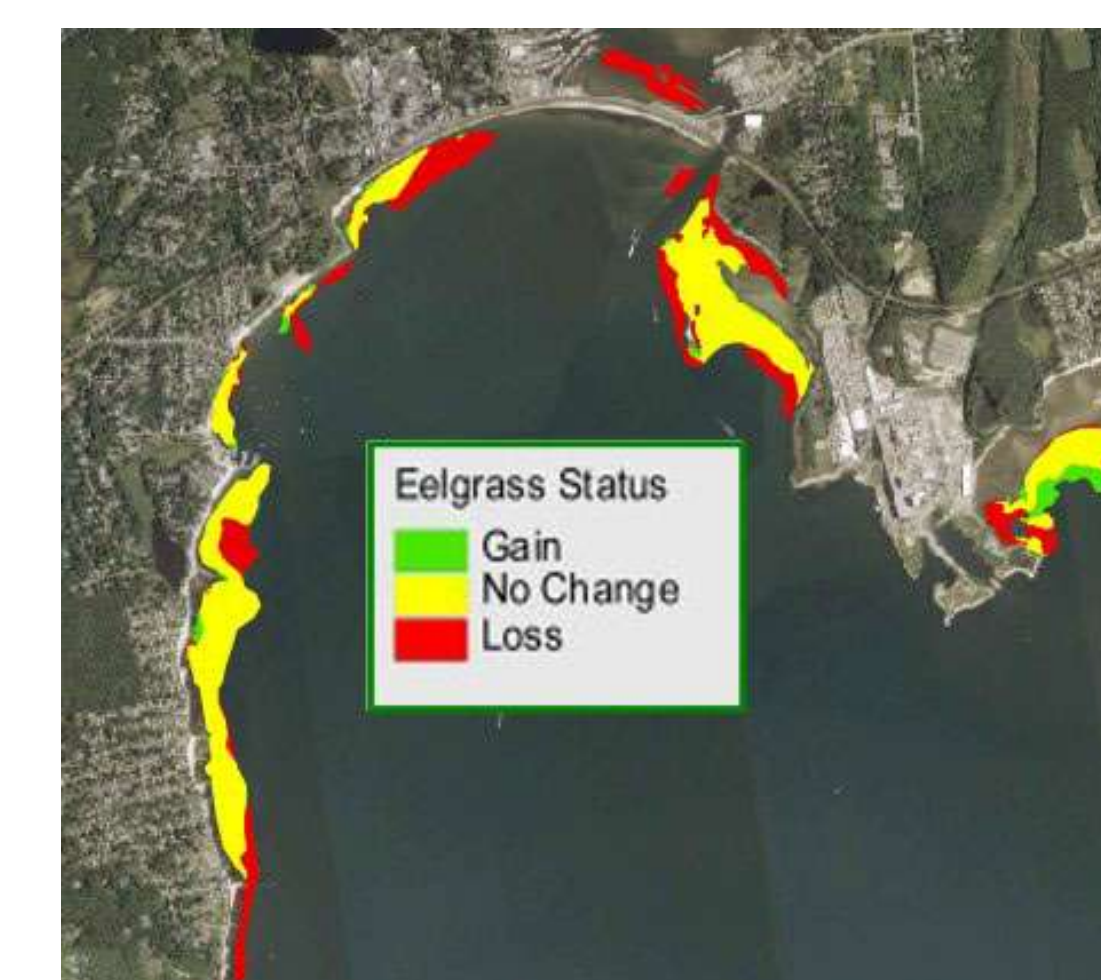
Sites most needing field inspection are located by merging preliminary bed delineations with field inspections and results from previous years.



Preliminary assessment data are merged with marine navigation charts and enhanced with GPS coordinate labels to guide effective field work.

Inventory Products

- Habitat distribution by cove or sub-watershed.
- Range of habitat in the multi-state Long Island Sound ecosystem.
- Habitat quality assessments.
- Monitoring over time becomes possible from repeated surveys.



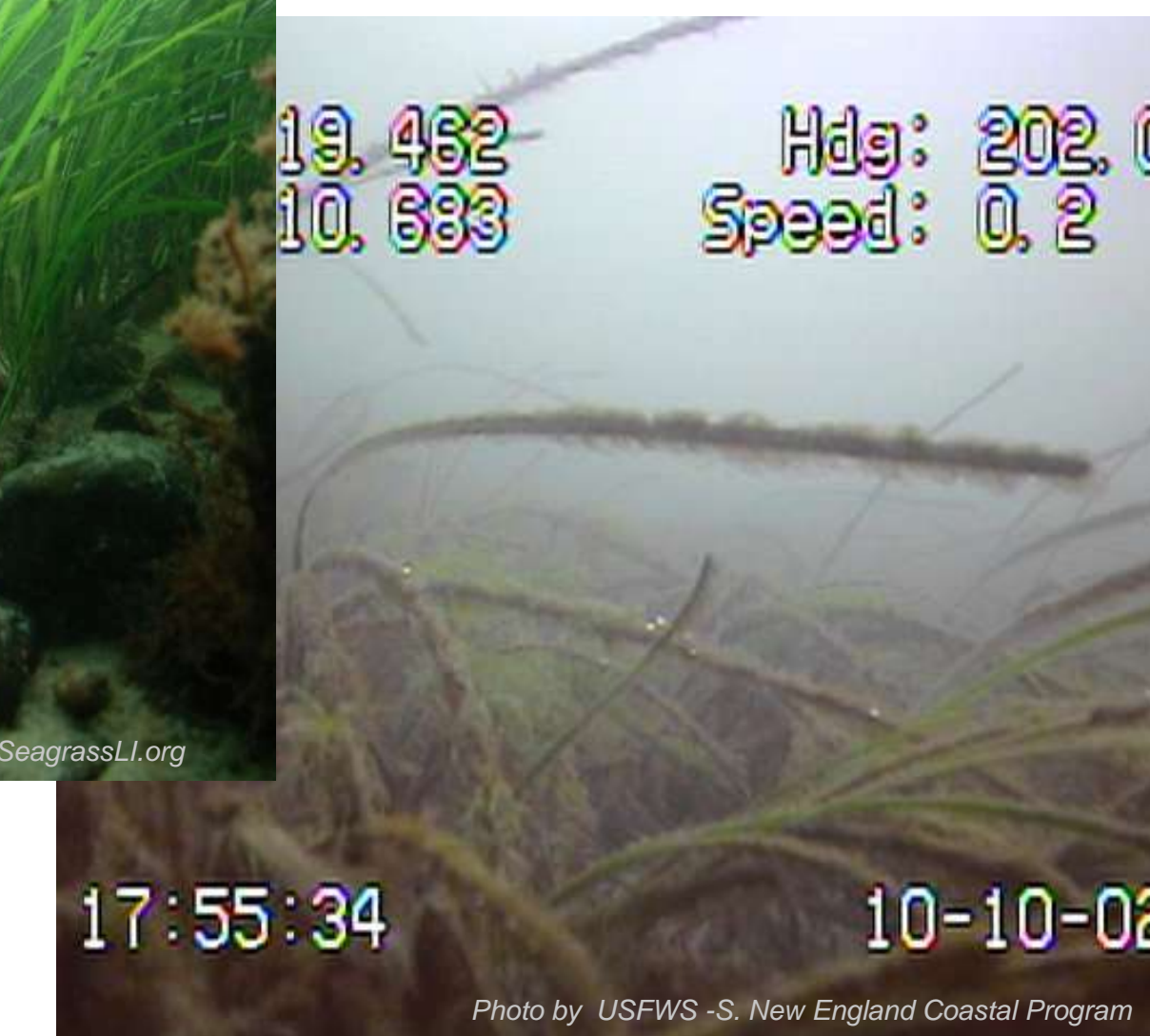
Change information from 2006 to 2009 for one sample sub-basin.

LIS Sub-basin changes eelgrass acreage

Sub-basin	2006-2009	2002-2009
Little Narragansett Bay	-60	58
Stonington Harbor	-15	13
Quilabog Cove	-21	50
Mystic Harbor	-21	83
Palmer-West Cove	-12	-12
Mumford Cove	7	-4
Paquonock River	-3	-6
New London Harbor	-2	2
Goshen Cove	-28	-33
Jordan Cove	1	-5
Niantic Bay	-57	73
Rocky Neck State Park	-8	0
Duck Island Roads	2	5
Fishers Island, NY	145	152
North Shore, NY	-14	-5
Plum Island, NY	-2	8
Total	+74	+381



Healthy eelgrass



Stressed eelgrass

Outcomes

- Valuable extensive eelgrass beds are identified as important protection sites.
- Potential restoration areas are identified from sites lacking eelgrass but otherwise having the proper environmental conditions.
- Areas needing threat assessment are located when monitoring analyses detect habitat declines over time.

Partners

EPA Long Island Sound Study, funding source
Ralph Tiner, USFWS National Wetlands Inventory, contributing author