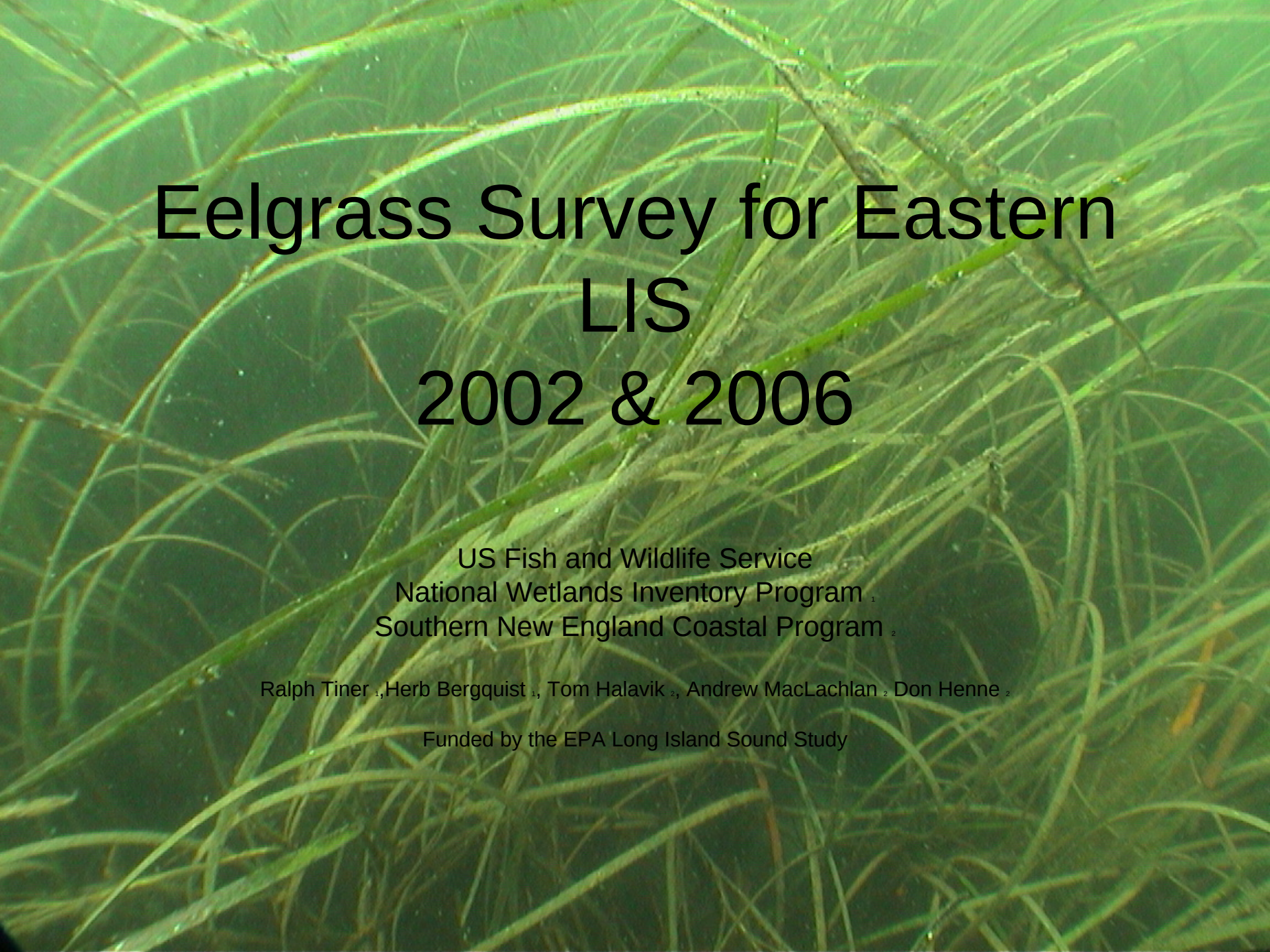


An underwater photograph showing a dense field of eelgrass (Zostera marina) with long, thin, green blades and brownish stems. The water is slightly murky, and the lighting is natural, creating a greenish tint.

Eelgrass Survey for Eastern LIS 2002 & 2006

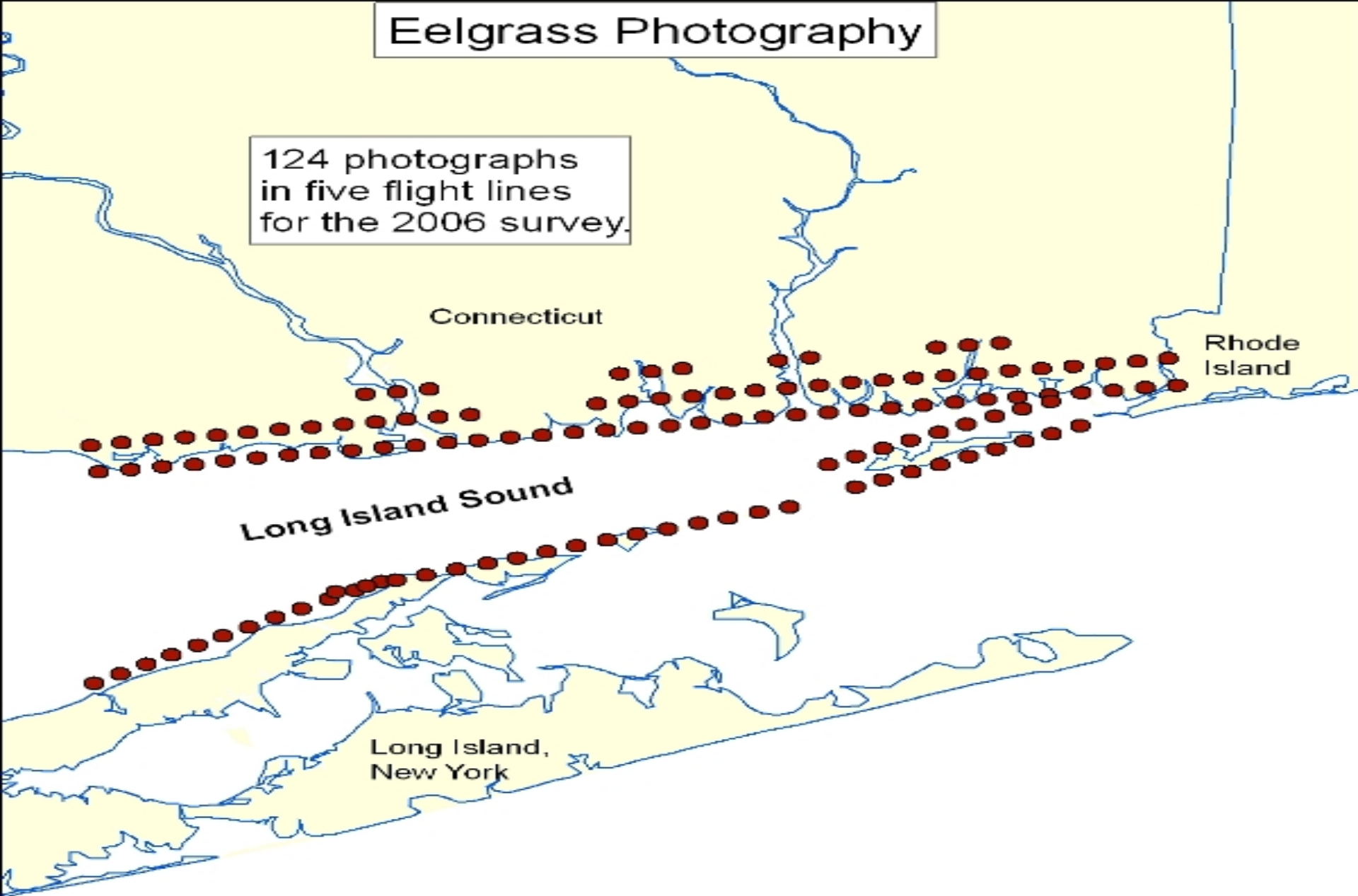
US Fish and Wildlife Service
National Wetlands Inventory Program ¹
Southern New England Coastal Program ²

Ralph Tiner ¹, Herb Bergquist ¹, Tom Halavik ², Andrew MacLachlan ², Don Henne ²

Funded by the EPA Long Island Sound Study

Eelgrass Photography

124 photographs
in five flight lines
for the 2006 survey.



NOAA Coastal Change Analysis Program C-Cap Protocol

Environmental Considerations

- Phenology
- Clouds and Haze
- Turbidity
- Tides
- Wind and Surface Waves
- Sun Angle

6-16-06

LIS EEL

1:20K

4-4

On screen analysis and digitization



N 41 17.244
W071 57.082

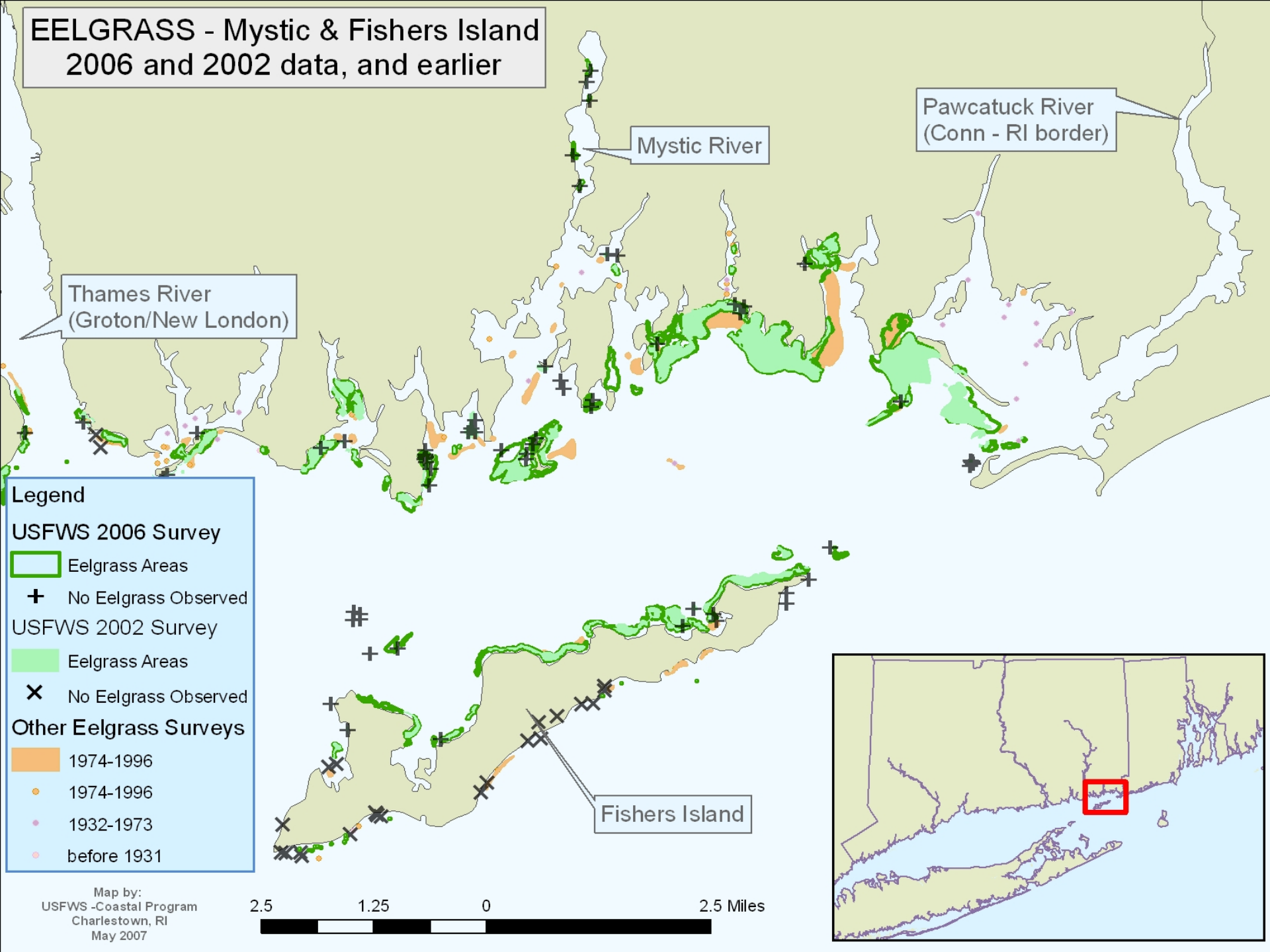
Hdg: 33.3
Speed: 0.5

SEA - TRAK™ GPS Overlay

19:43:28

09-22-06

EELGRASS - Mystic & Fishers Island 2006 and 2002 data, and earlier



2006 Survey



2002 – 2006 Comparisons

1,598 acres – 1,905 acres

Acreage Change in Sub-basin		Change # of Beds
• Little Narragansett Bay	-2.8	-2
• Stonington Harbor	+28.0	+4
• Quiambog Cove	+70.7	+6
• Mystic Harbor	+61.9	--
• Palmer-West Cove	+0.1	-2
• Mumford Cove	-11.0	-1
• Paquonock River	-2.9	-1
• New London Harbor	+3.9	+1
• Goshen Cove	-4.9	--
• Jordan Cove	-6.5	-4
• Niantic Bay	+130.2	-1
• Rocky Neck State Park	+7.7	--
• Duck Island Roads	+5.3	--
• Fishers Island, NY	+7.8	+11
• North Shore, NY	+9.2	+1
• Plum Island, NY	+9.5	+1
• -----		
• Total	+306.2	+12

- Table 6. Differences in eelgrass survey results 2002-2006. + indicate gains and – losses.



2002 Mumford Cove

2006 Mumford Cove
Shift in sediment deposition

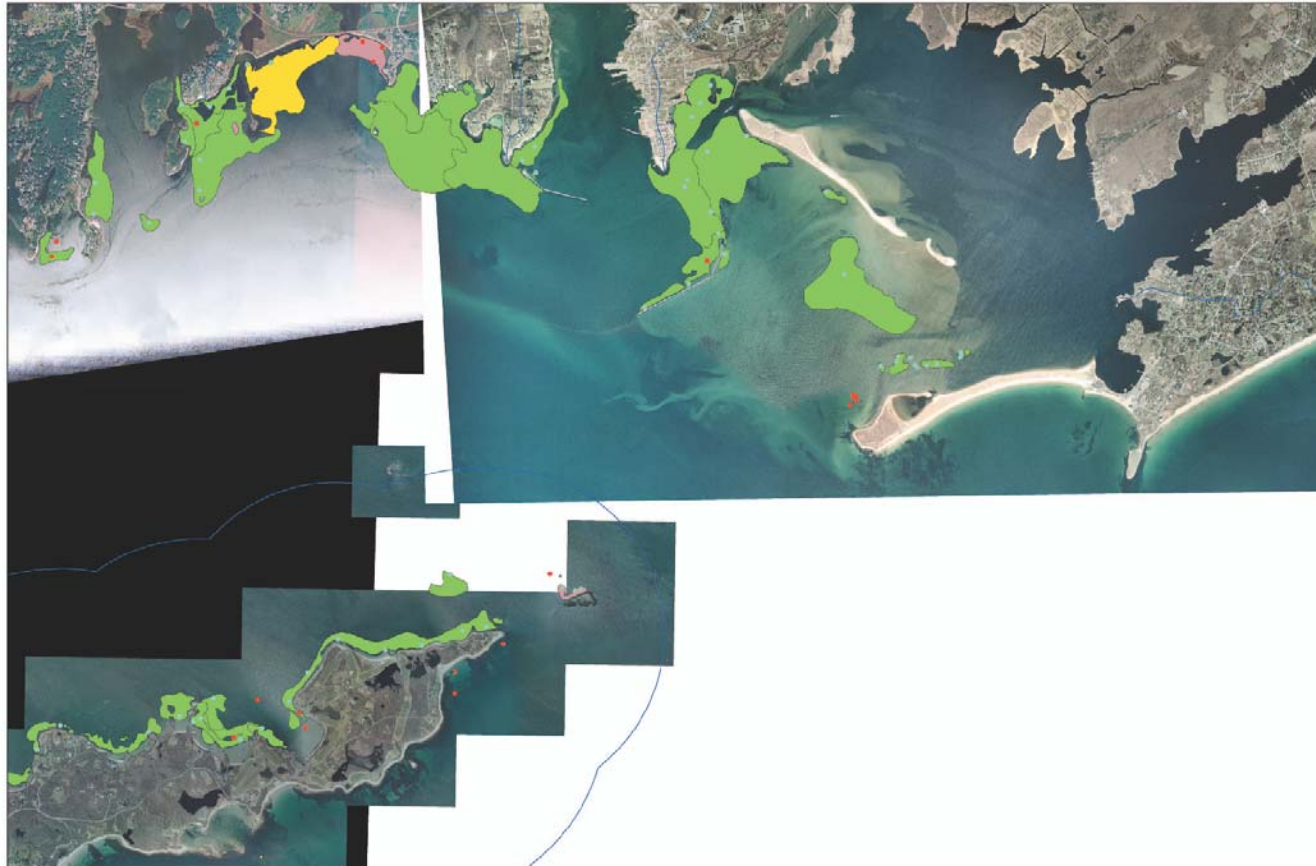


Niantic Bay 2002



Eastern Long Island Sound Eelgrass 2006 Inventory

Stonington Harbor/Little Narragansett Harbor area Sub-basins

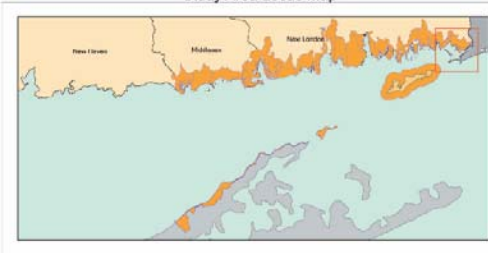


This map is a product of the U.S. Fish and Wildlife Service's National Wetlands Inventory Program, Region 5, and was produced for the U.S. Environmental Protection Agency, Region 1, Office of Ecosystem Protection.

Eelgrass digital data were derived from photo interpretation of 1:20,000-scale true color photography dated 6/16/00 with intensive field verification. ADS 2004 TrueColor, Digital Ortho Imagery were obtained from the University of Connecticut CES program and used as a geo-referencing baseline for photography. Interpreted information was generated "on screen", using USFWS 2002 eelgrass delineations as a base layer.

This map was produced with the intent that it be used or displayed at a scale of 1:20,000. There are no warranties made as to the fitness of this map for any unrelated purpose or reproduction at any other than the original scale.

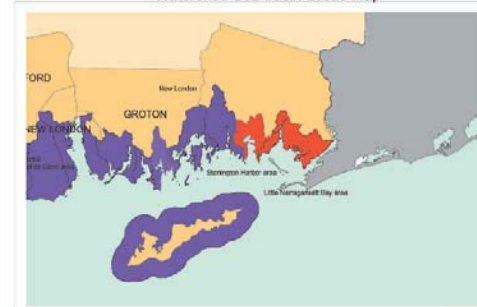
Study Area Locus Map



1:20,000

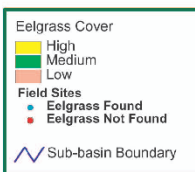
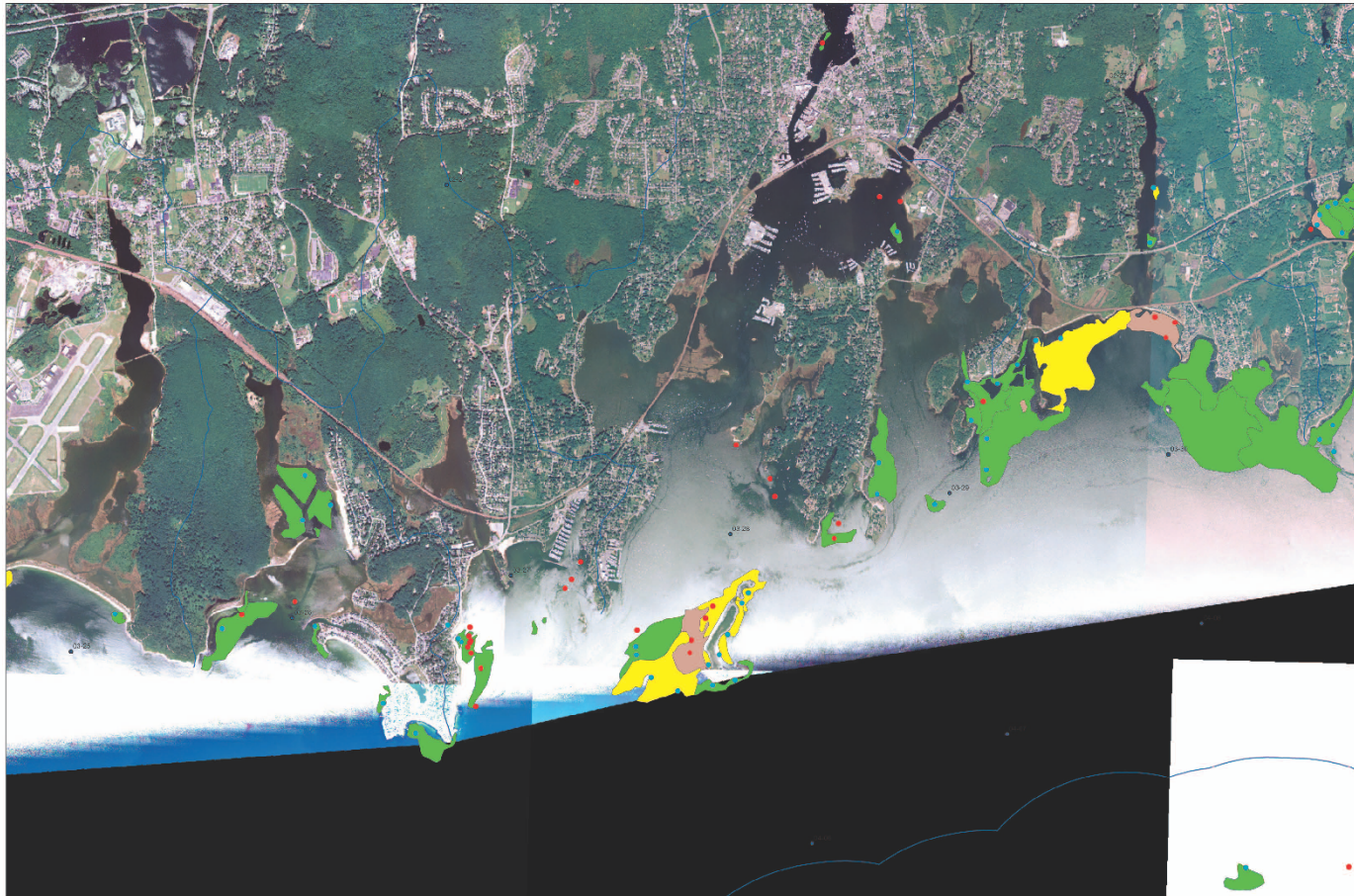


Watershed Sub-basin Locus Map

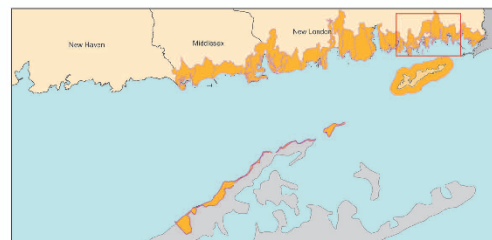


Eastern Long Island Sound Eelgrass 2006 Inventory

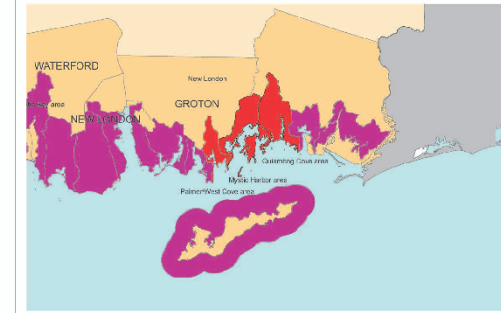
Palmer-West Cove/Mystic Harbor/Quiambog Cove area Sub-basins



Study Area Locus Map



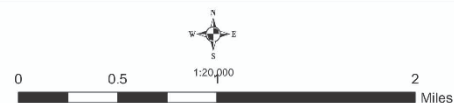
Watershed Sub-basin Locus Map



This map is a product of the U.S. Fish and Wildlife Service's National Wetlands Inventory Program, Region 5, and was produced for the State of Connecticut, Department of Environmental Protection, Office of Long Island Sound Programs.

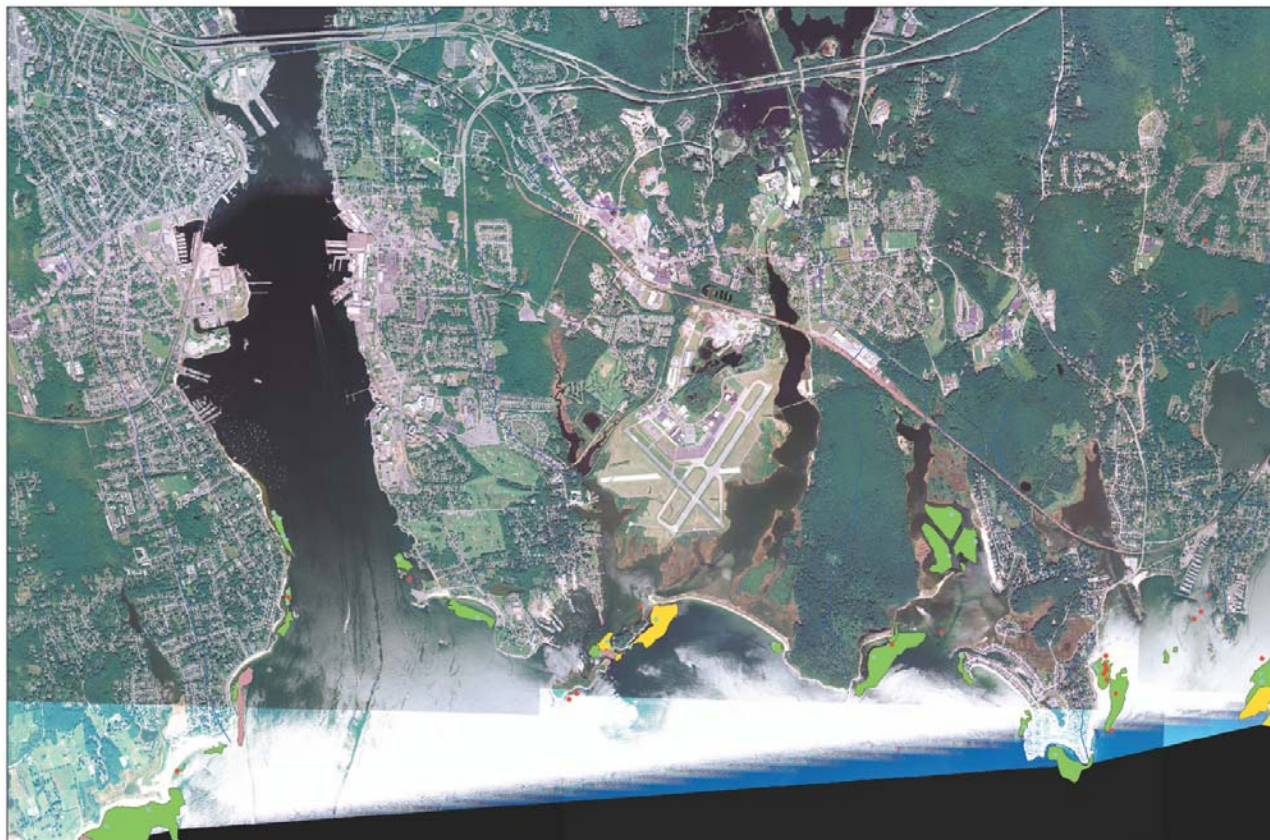
Eelgrass digital data were derived from photo interpretation of 1:20,000-scale true color photography dated 6/16/06 with intensive field verification. ADS 2004 TrueColor, Digital Ortho Imagery were obtained from the University of Connecticut CES program and used as a geo-referencing baseline for photography. Interpreted information was generated "on screen", using USFWS 2002 eelgrass delineations as a base layer.

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Eastern Long Island Sound Eelgrass 2006 Inventory

New London/Paquonock River/Mumford Cove area Sub-basins



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Eelgrass digital data were derived from photo interpretation of 1:20,000-scale true color photography called 616/01 with intensive field verification. ADS 2004 TrueColor, Digital Ortho Imagery were obtained from the University of Connecticut, CES program and used as a geo-referencing baseline for photography. Interpreted information was generated "on screen", using USFWS 2002 eelgrass delineations as a base layer.

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Study Area Locus Map



0 0.5 1 2 Miles

Watershed Sub-basin Locus Map



Eastern Long Island Sound Eelgrass 2006 Inventory

Niantic Bay/Jordan Cove/Goshen Cove area Sub-basins



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Study Area Locus Map



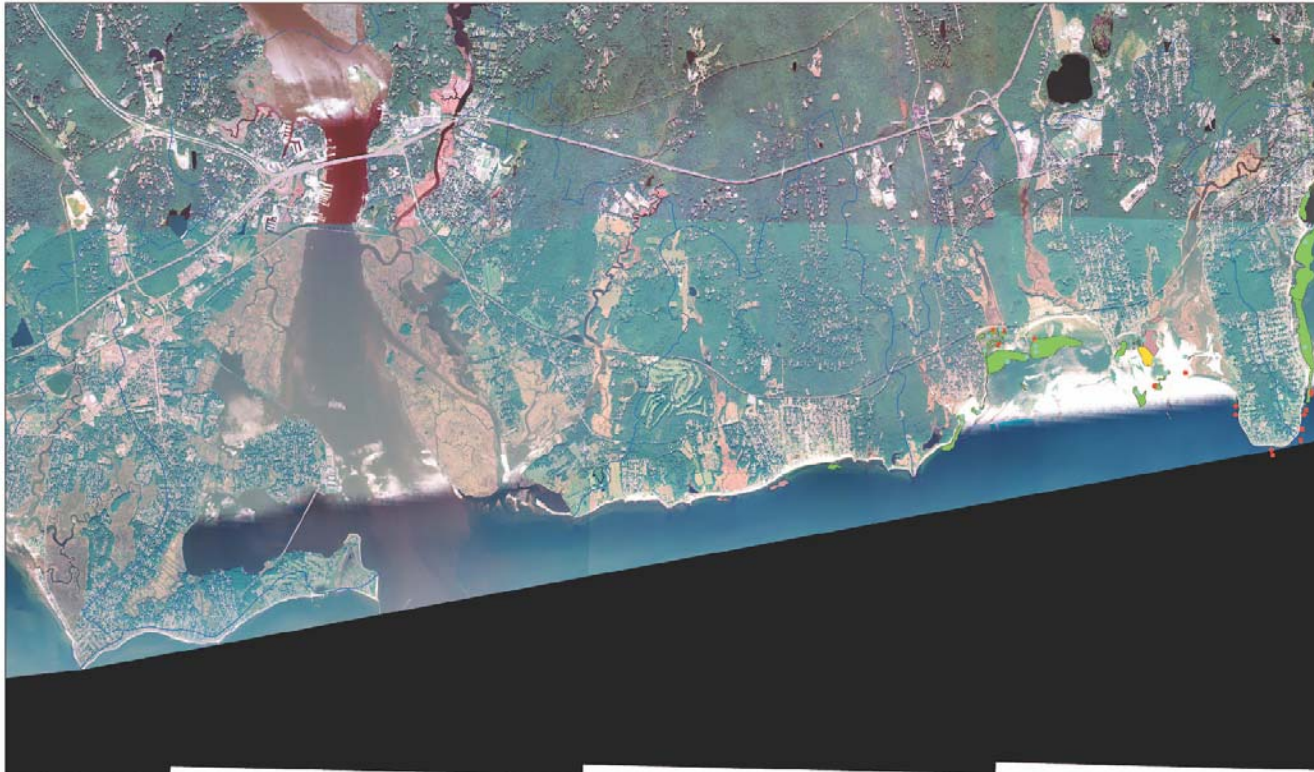
0 0.5 1 2 Miles

Watershed Sub-basin Locus Map



Eastern Long Island Sound Eelgrass 2006 Inventory

Willard Bay/Connecticut River/Old Lyme Shores/Rocky Neck State Park area Sub-basins



This map is a product of the U.S. Fish and Wildlife Service's National Wetlands Inventory Program, Region 5, and was produced for the U.S. Environmental Protection Agency, Region 1, Office of Ecosystem Protection.

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Study Area Locus Map



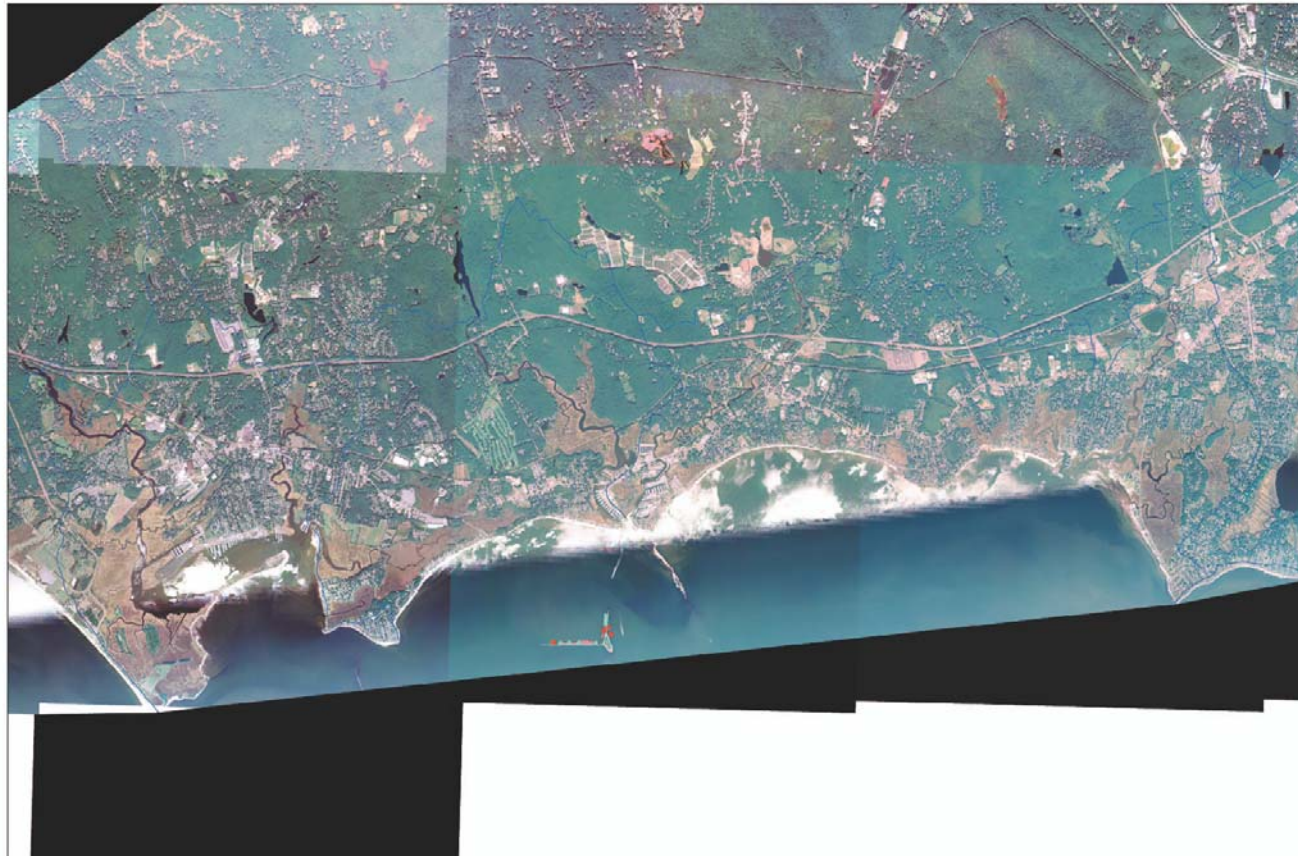
0 0.5 1 2 3 4 Miles

Watershed Sub-basin Locus Map



Eastern Long Island Sound Eelgrass 2006 Inventory

Clinton Bay/Westbrook Harbor/Duck Island Roads Sub-basins



This map is a product of the U.S. Fish and Wildlife Service's National Wetlands Inventory Program, Region 8, and was produced for the U.S. Environmental Protection Agency, Region 1, Office of Ecosystem Protection.

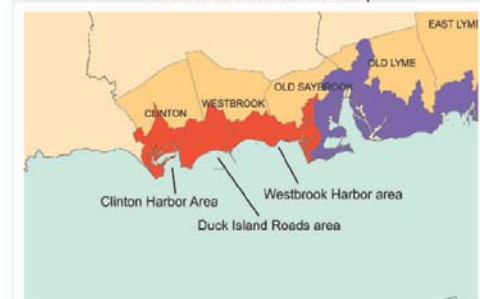
Eelgrass digital data were derived from photo interpretation of 1:20,000-scale true color photography dated 6/16/06 with intensive field verification. ADG 2004 TrueColor, Digital Ortho imagery were obtained from the University of Connecticut CES program and used as a geo-referencing baseline for photography. Interpreted information was generated "on screen", using USFWS 2002 eelgrass delineations as a base layer.

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Study Area Locus Map

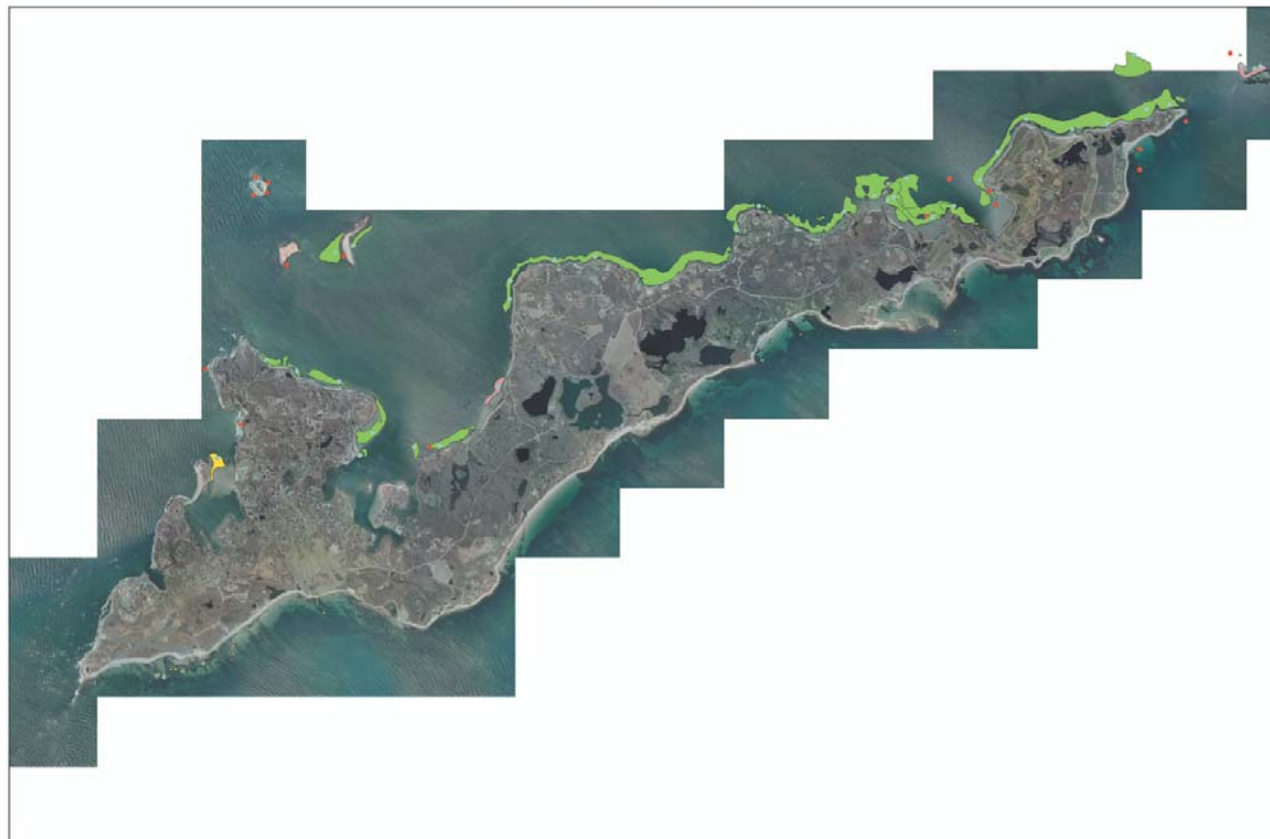


Watershed Sub-basin Locus Map



Eastern Long Island Sound Eelgrass 2006 Inventory

Fishers Island, New York

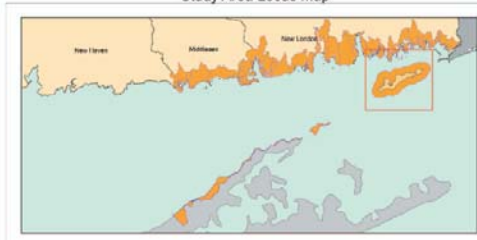


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Eelgrass digital data were derived from photo interpretation of 1:20,000-scale true color photography dated 6/16/00 with intensive field verification. 2004 TrueColor, Digital Ortho Imagery were obtained from The State of New York Ortho Imagery Program and used as a geo-referencing baseline for photography. Interpreted information was generated "on screen", using USFWS 2002 eelgrass delineations as a base layer.

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Study Area Locus Map



1:20,000

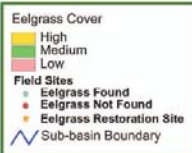


Watershed Sub-basin Locus Map



Eastern Long Island Sound Eelgrass 2006 Inventory

Long Island North Shore/Plum Island, New York

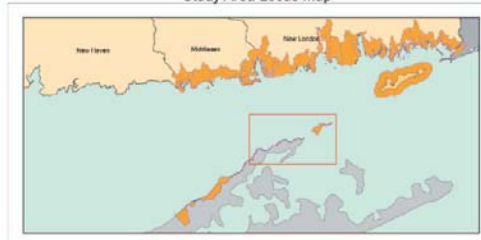


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Study Area Locus Map



0 0.5 1 2 3 Miles

Watershed Sub-basin Locus Map

