

41°17'1.1"N

71°57'39.7"W

09/12/25

fishers isl

# LIS EELGRASS MAPPING AND MONITORING STRATEGY (DRAFT)

LIS Eelgrass Collaborative Virtual Meeting September 24, 2025



**Long Island Sound Study**

A Partnership to Restore and Protect the Sound

THE  
UNIVERSITY  
OF RHODE ISLAND



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# THE TEAM

## University of Rhode Island:

Mike Bradley - Project Lead

Charles LaBash – Drone Ops (purchasing)

Chris Damon – Drone Ops (image processing)

## EPA / LISS:

Cayla Sullivan – Project Lead/Admin/Dive Ops

Phil Colarusso – Dive Operations

## USFWS:

Suzanne Paton – Project Lead /Admin

Tom Halavik (ret) – Boat Operations

MacKenzie Payne – Field Technical Support

## CT DEEP:

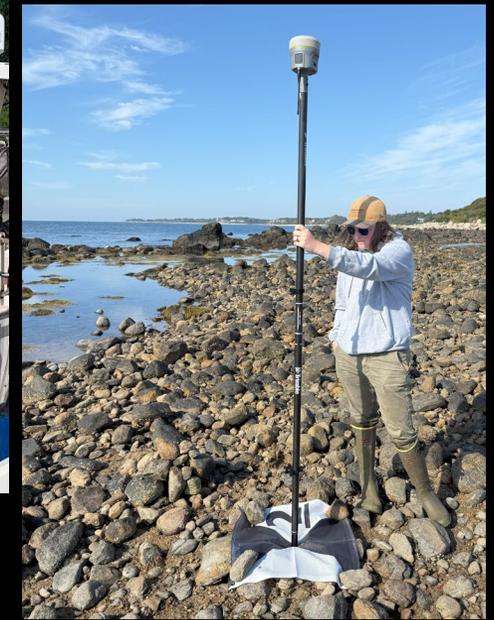
Kelly Streich - Admin

Chuck Morrison – Drone Ops (pilot in charge)

Dan Denyer – Drone Ops (pilot in charge)

Matt Green – Drone Ops (pilot in charge)

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# REVIEW AND GOALS

- Purpose of the Intercomparison Study
- Neckles et al 2012
- Oakley et al 2025 (example of successful Tier 2 monitoring)



Estuaries and Coasts (2012) 35:23–46  
DOI 10.1007/s12237-011-9410-x

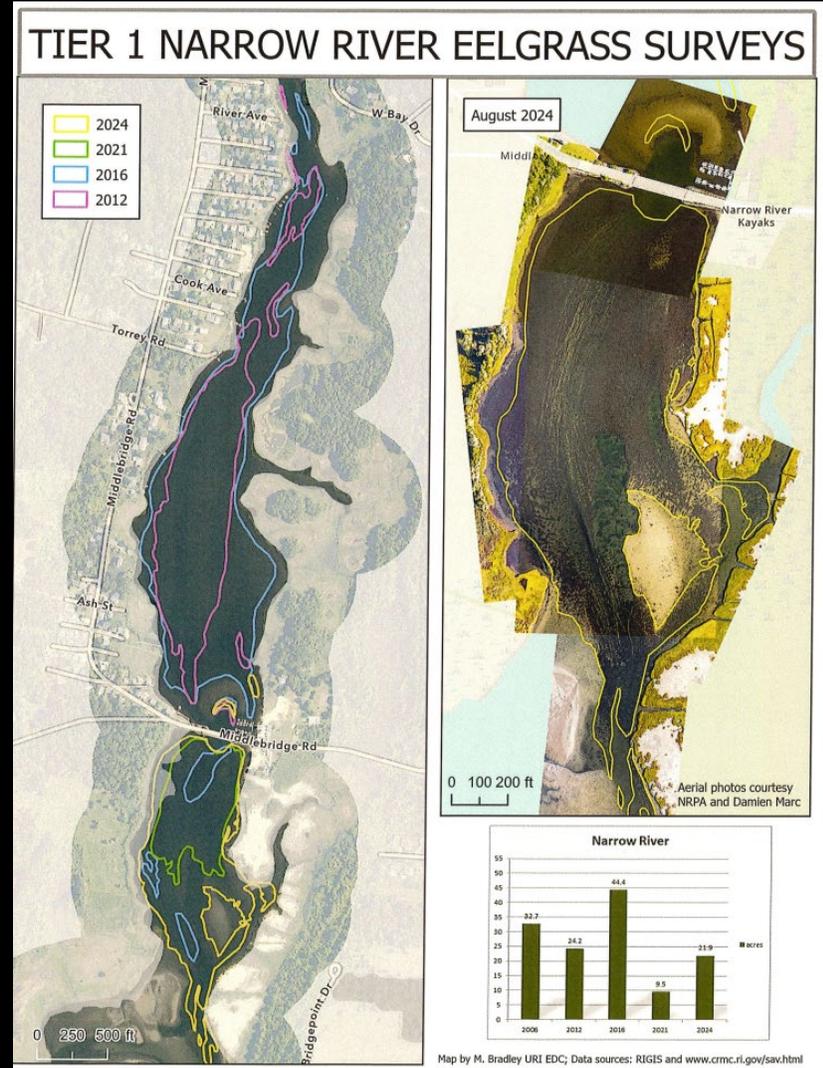
## Integrating Scales of Seagrass Monitoring to Meet Conservation Needs

Hilary A. Neckles • Blaine S. Kopp •  
Bradley J. Peterson • Penelope S. Pooler

Received: 29 November 2010 / Revised: 11 March 2011 / Accepted: 25 April 2011 / Published online: 10 May 2011  
© Coastal and Estuarine Research Federation (outside the USA) 2011

# EELGRASS DYNAMICS

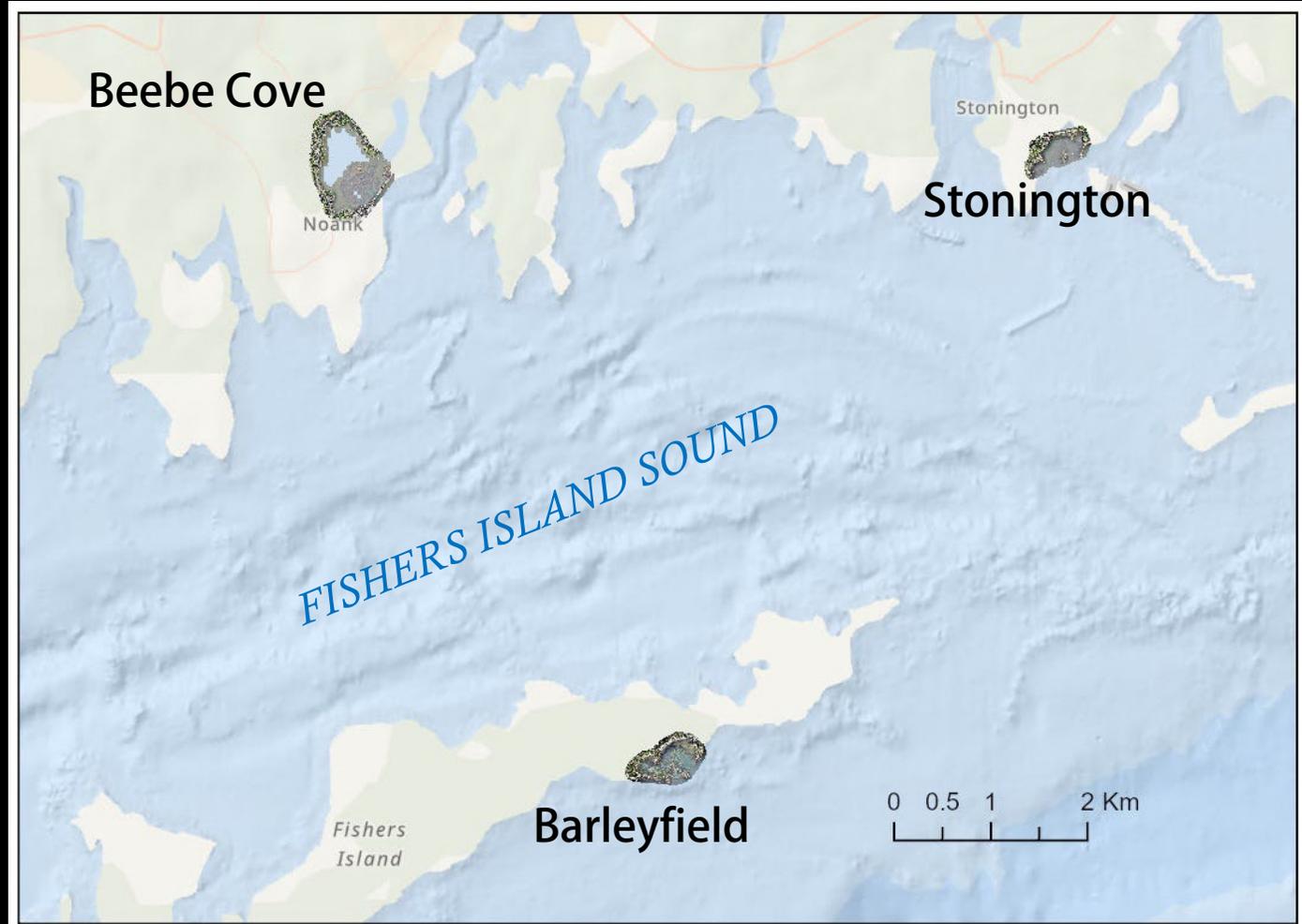
Mystic, CT 2012-2017



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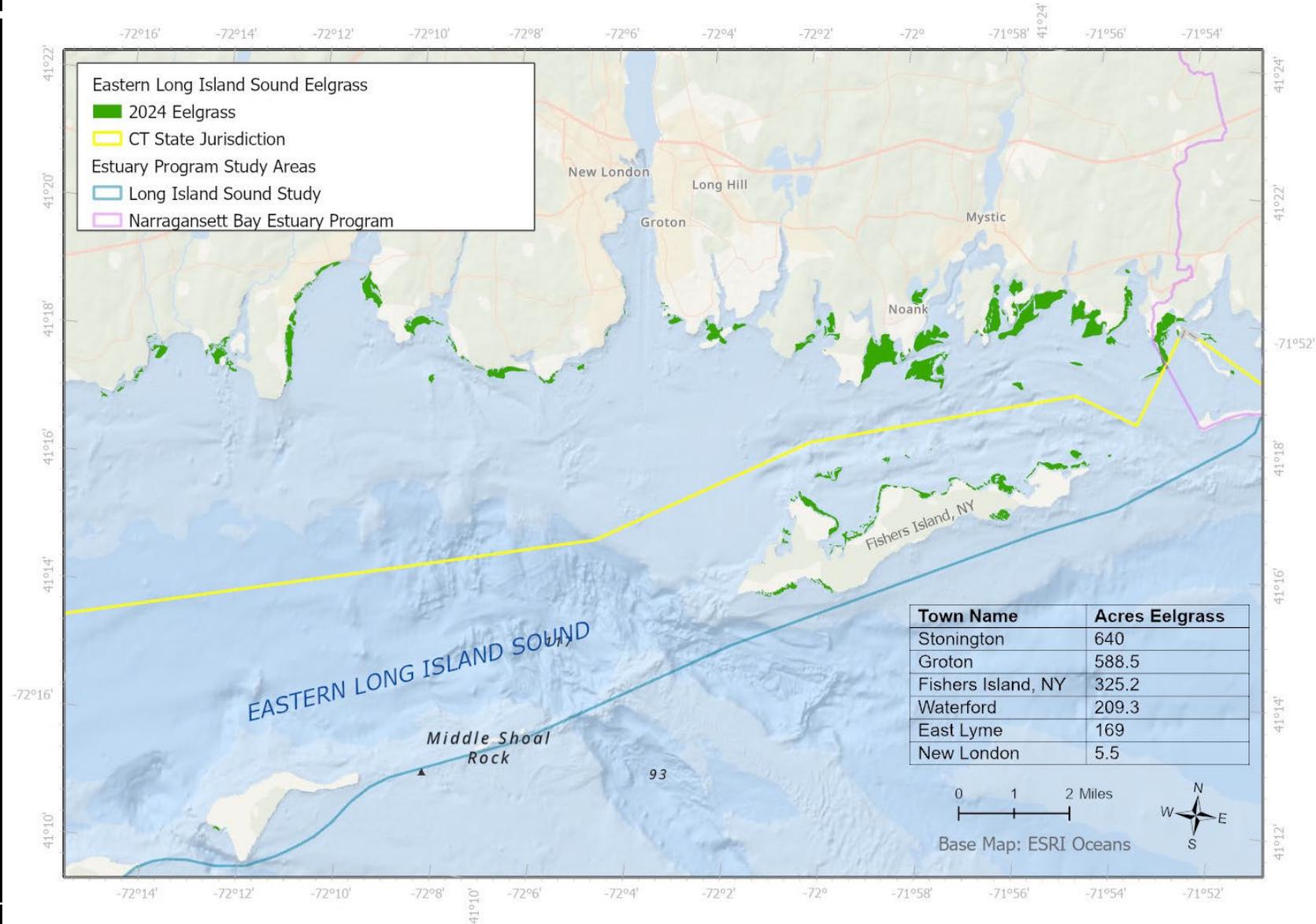
# 2024 DATA COLLECTION EFFORTS

- Final ortho-imagery from the aerial survey delivered to URI on December 30<sup>th</sup>, 2024.
- Three sites (Barleyfield, Beebe Cove, and Stonington) had drone imagery flown in June and September.
- Over 7000 benthic habitat points generated from the underwater video data
- Percent cover measured by divers in June and September for all three drone sites (3 40 m diameter plots/site).
- Monthly basemaps downloaded from Planet.com for June, July, August, and September 2024



# 2024 AERIAL SURVEY RESULTS

- Finalized (report submitted) on July 1, 2025
- Net  of 473.3 acres since 2017
- For more info, go to: <http://lispartnership.org>



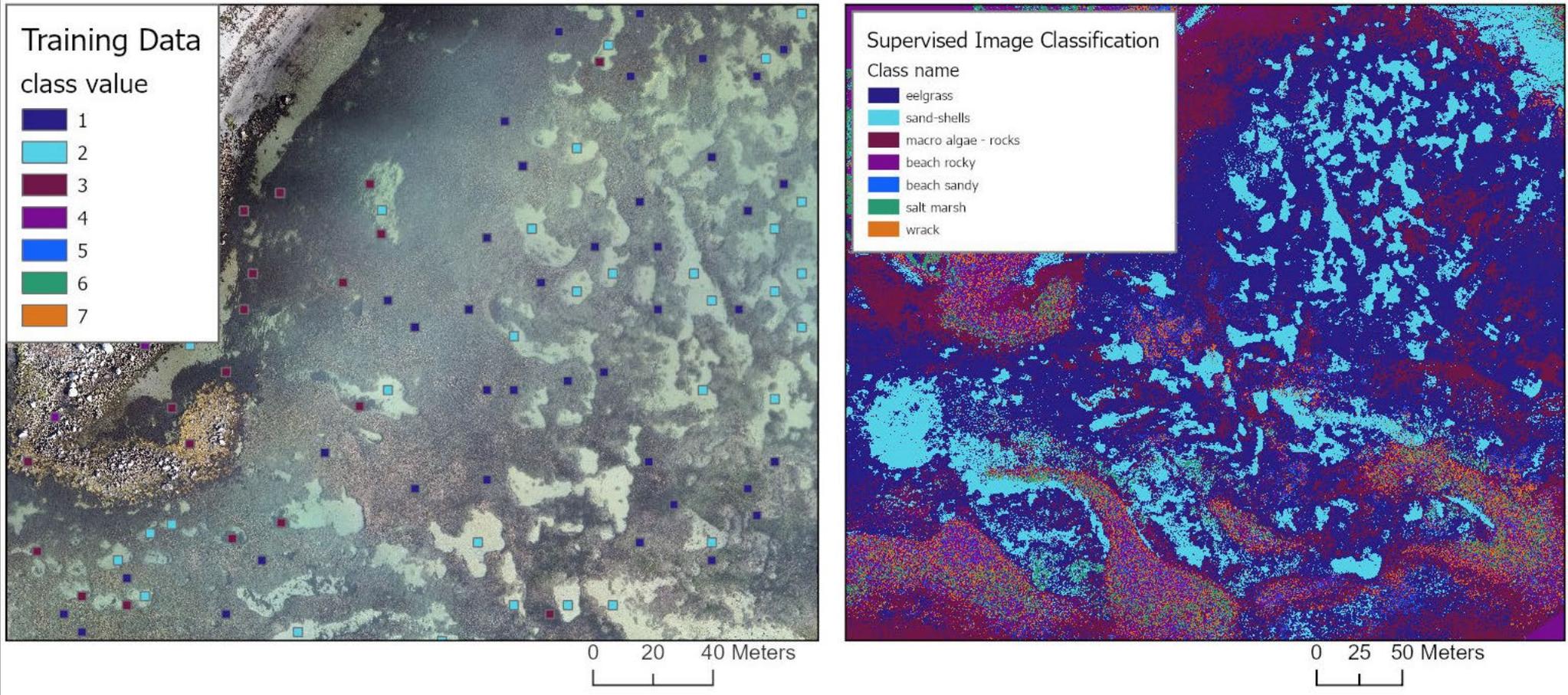
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**BARLEYFIELD  
AERIAL  
SURVEYS: 2009,  
2012, 2017, 2024**

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# 2024 DRONE SURVEY RESULTS (BARLEYFIELD)



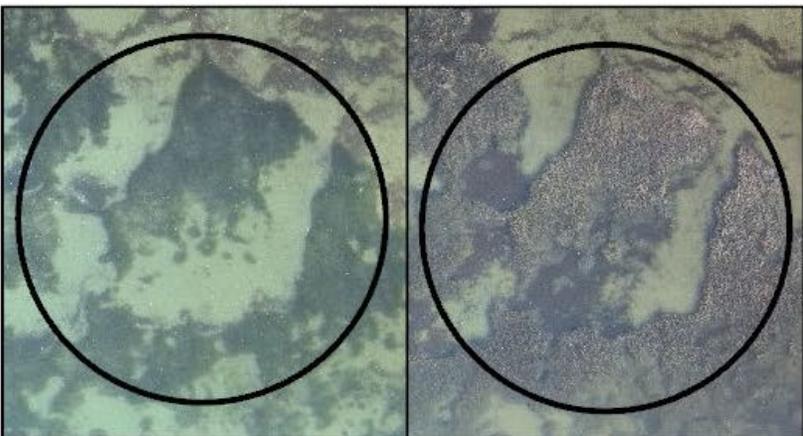
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# 2024 DIVE SURVEY RESULTS (BARLEYFIELD)

## Station 1

June

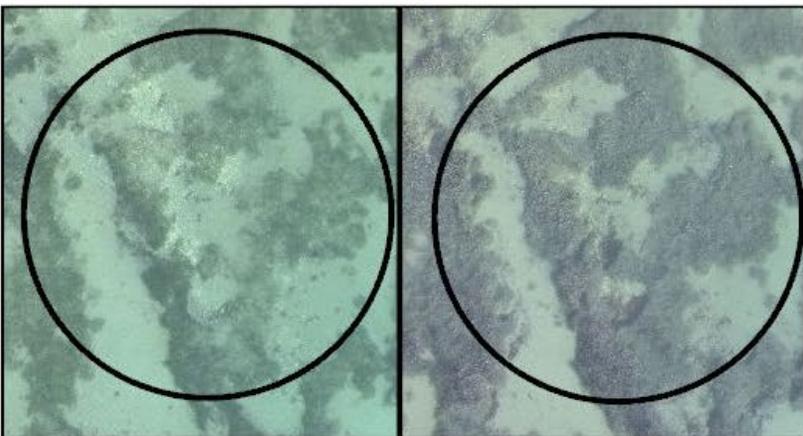
September



## Station 2

June

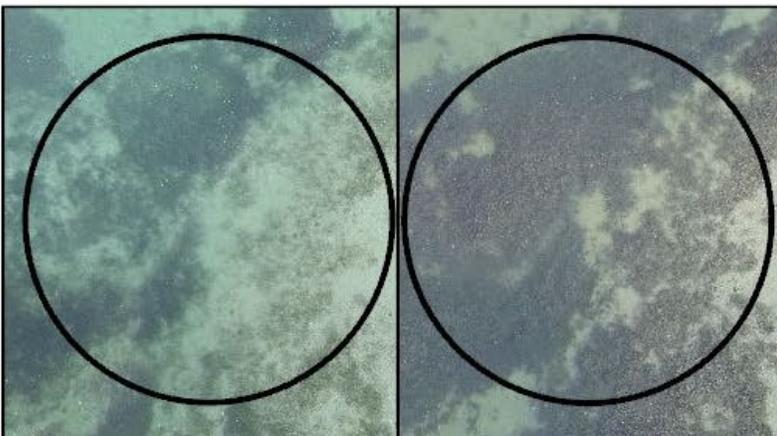
September



## Station 3

June

September



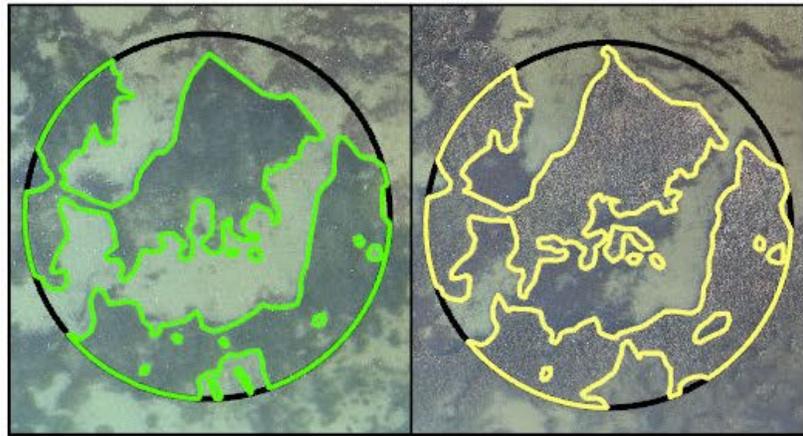
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# 2024 DIVE SURVEY RESULTS (BARLEYFIELD)

## Station 1

June

September



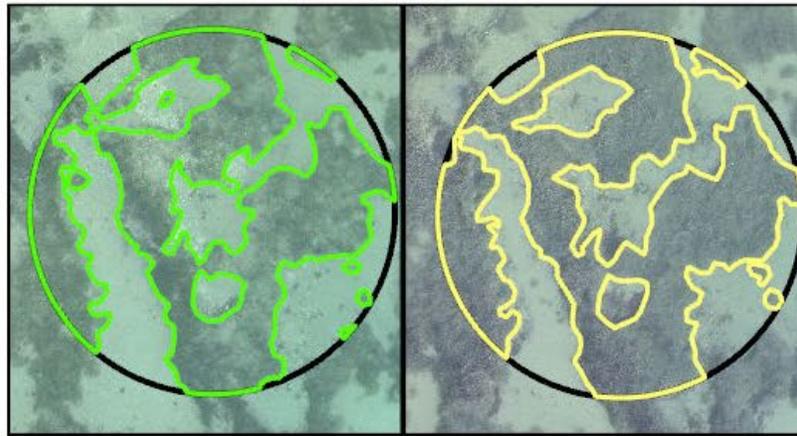
1,154 m<sup>2</sup>

1120.1 m<sup>2</sup>

## Station 2

June

September



721.9 m<sup>2</sup>

757.2 m<sup>2</sup>

## Station 3

June

September



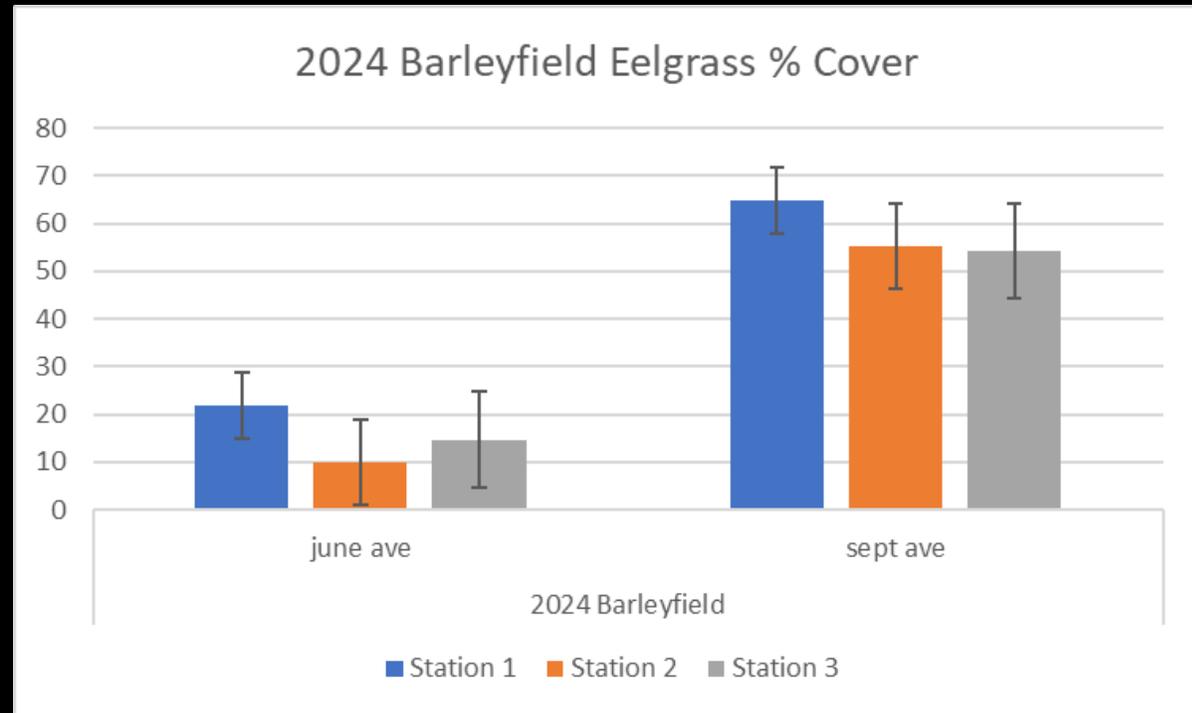
689.9 m<sup>2</sup>

679 m<sup>2</sup>

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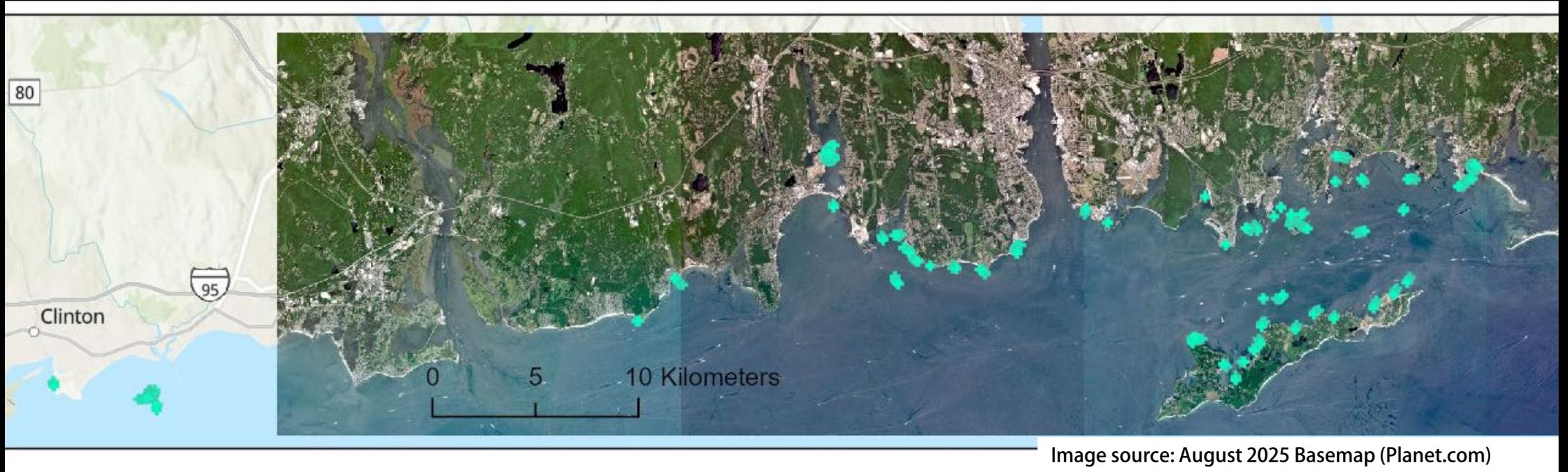
# 2024 DIVE SURVEY RESULTS (BARLEYFIELD - % CV)

- **Percent cover data at Barleyfield is significantly different between June and September 2024 (n=20; P<0.001)**
- **This trend is not reflected in the heads-up digitizing of the plots using the drone imagery**
- **The time of year for the aerial survey (June vs August or September) may not be relevant**



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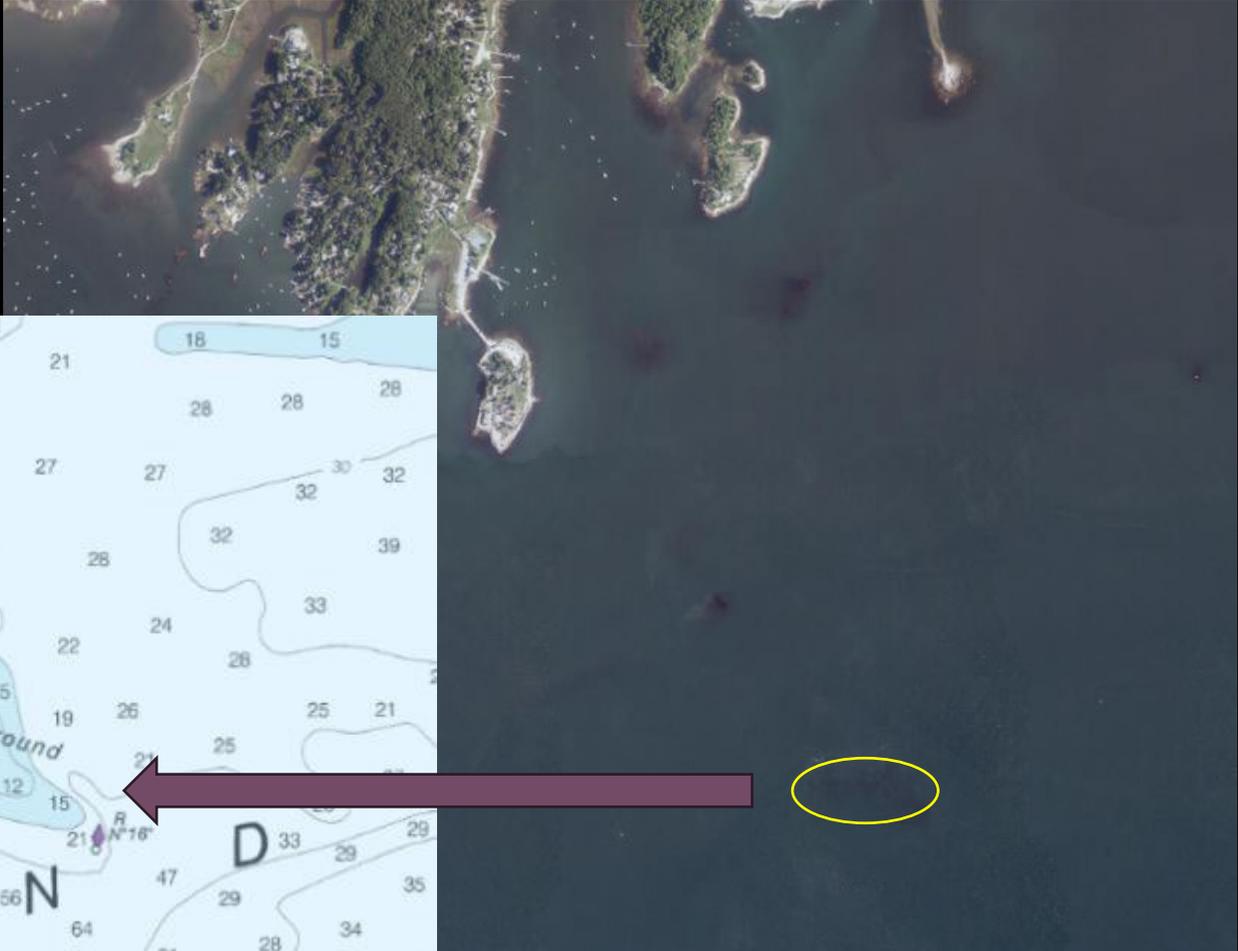
# 2025 UNDERWATER VIDEO SURVEY RESULTS



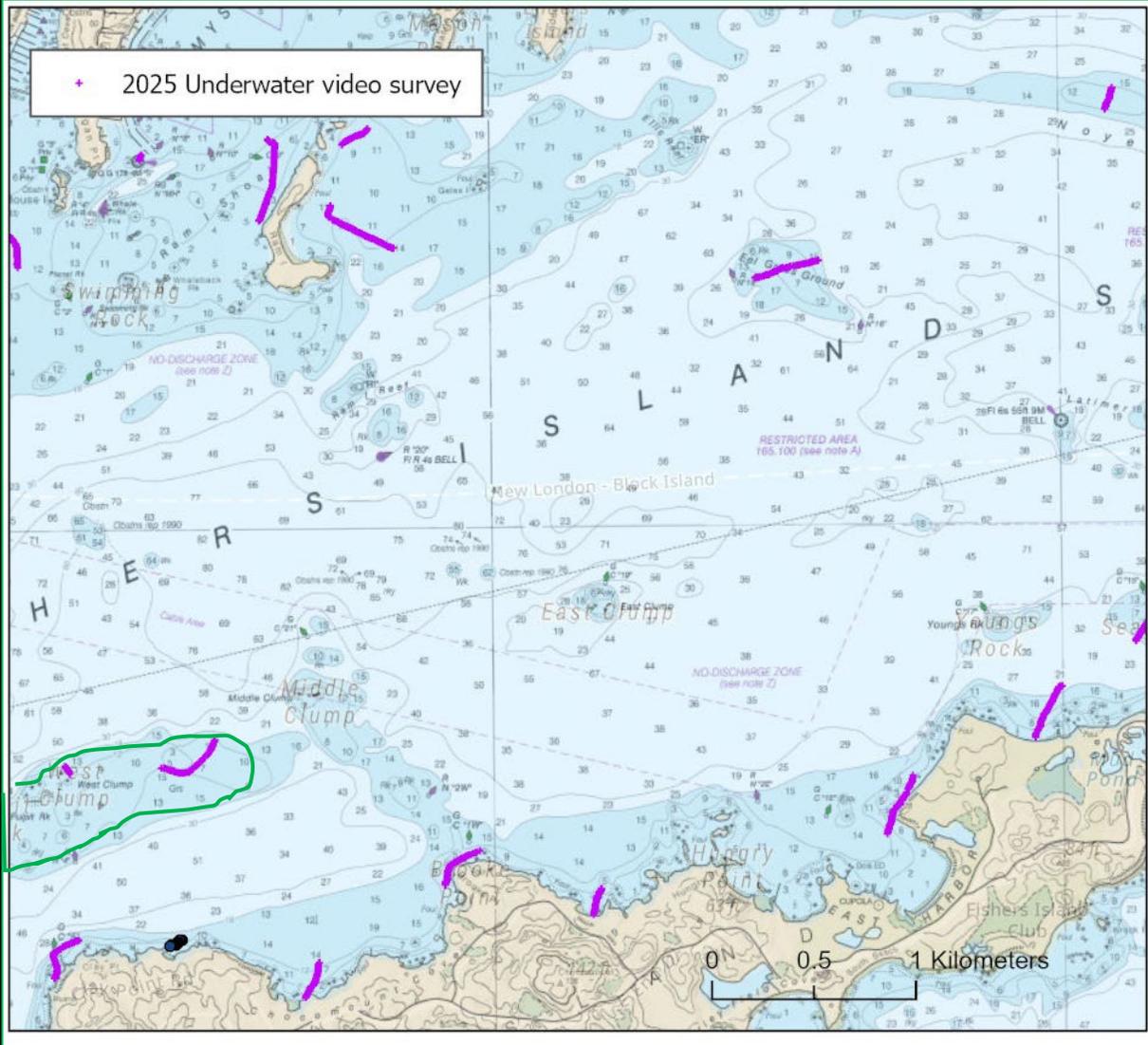
- No mappable beds east of CT river (there is eelgrass at Duck Island Roads)
  - No eelgrass observed in the Niantic River
  - New eelgrass beds discovered in Fishers Island Sound
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# 2025 UNDERWATER VIDEO SURVEY RESULTS



# 2025 UNDERWATER VIDEO SURVEY RESULTS



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# DRAFT LIS MAPPING AND MONITORING STRATEGY- UPDATE

- Finalizing field work
  - Literature review
  - Data processing and analysis.
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# DRONE PURCHASE

- **Inspired Flight Technology**
- **IF800 Tomcat**
- **Hi resolution imagery**
- **LiDAR payload capable (Geocue True View)**
- **~50 minute flight time**



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