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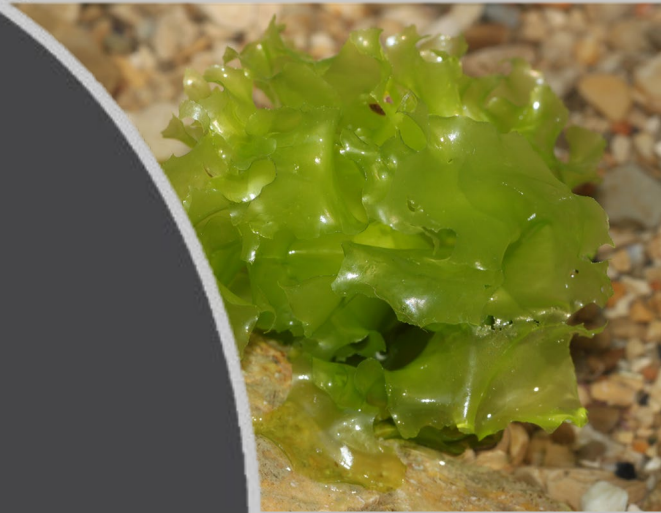
MONITORING MACROALGAE AND BENTHIC COMMUNITIES AT GULL AND STURGEON ISLAND

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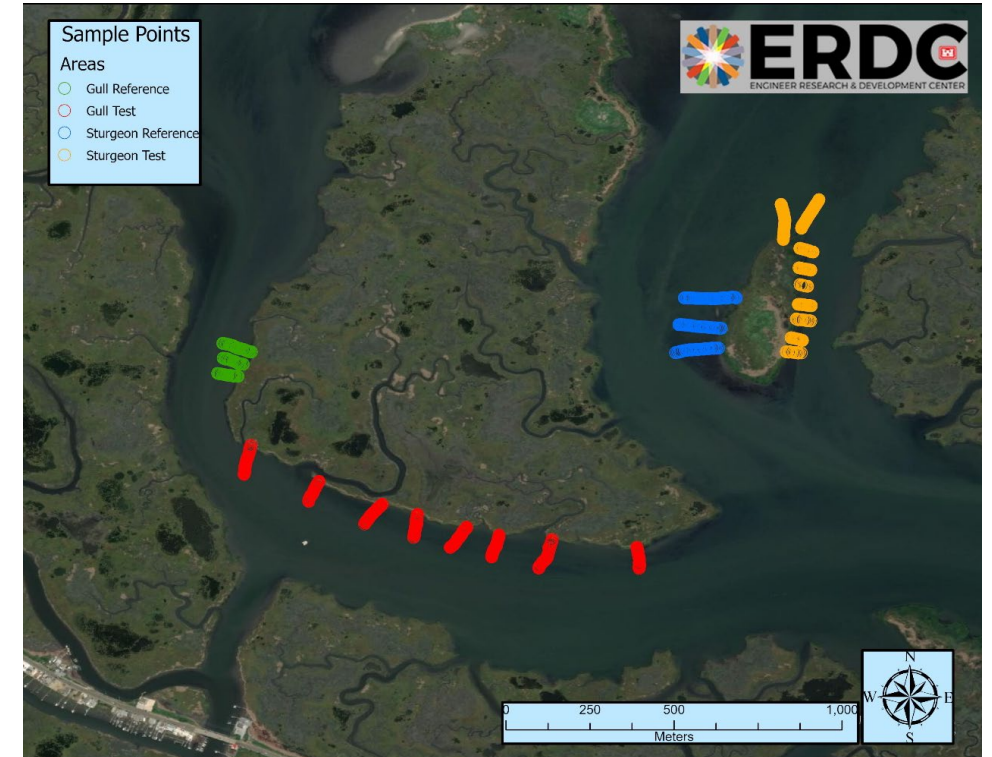
US Army Corps
of Engineers



Macroalgae

- Conducted baseline sampling July 25-26, 2020
- 8-9 transects and 3 reference transects per island
- Macroalgal abundance measured using a 0.5m² quadrat along each transect
- Quadrat samples were taken at every third interval of quadrat flips from the starting point
- Transects stopped when water became so deep the bottom was no longer visible or at transect length of 100m
- Coverage determined by the number of cells each species occupied within quadrat

Transect Locations



Macroalgae – baseline results

- 824 quadrat point sampled along 23 transects
- Macroalgal coverage ranged from 0-100%
- Macroalgal composition:
 - 71% *Agarophyton vermiculophyllum* (invasive)
 - 12% *Gracilaria tikvahiae*
 - 6% *Ulva lactuca* (shift from 95% cover in historical surveys)
- *Codium fragile* was seen within *Spartina* habitat at the island's edge of each transect
- One species of fish (likely *Fundulus heteroclitus*) and blue crabs, were seen swimming between the macroalgae patches throughout the area when water was available
- One live Atlantic horseshoe crab *Limulus polyphemus* was found

Gull Island Transects



Benthic Invertebrates

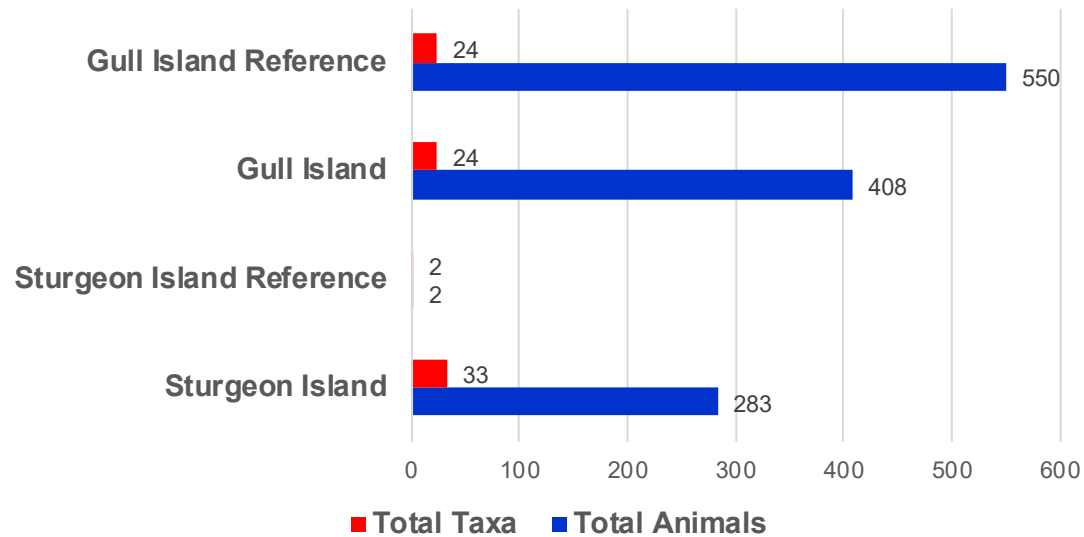
- Conducted baseline sampling July 25-26, 2020
- 15 push-core (7.6 x 15 cm) samples at both Gull and Sturgeon Islands
- 8 push-core samples from each of the nearby reference areas
- Collected water quality data
- Samples were preserved, sorted, enumerated and identified to Lowest Practical Identification Level
- Wet-weight biomass was determined after combining LPIL taxa into higher-order taxa

Sampling Locations

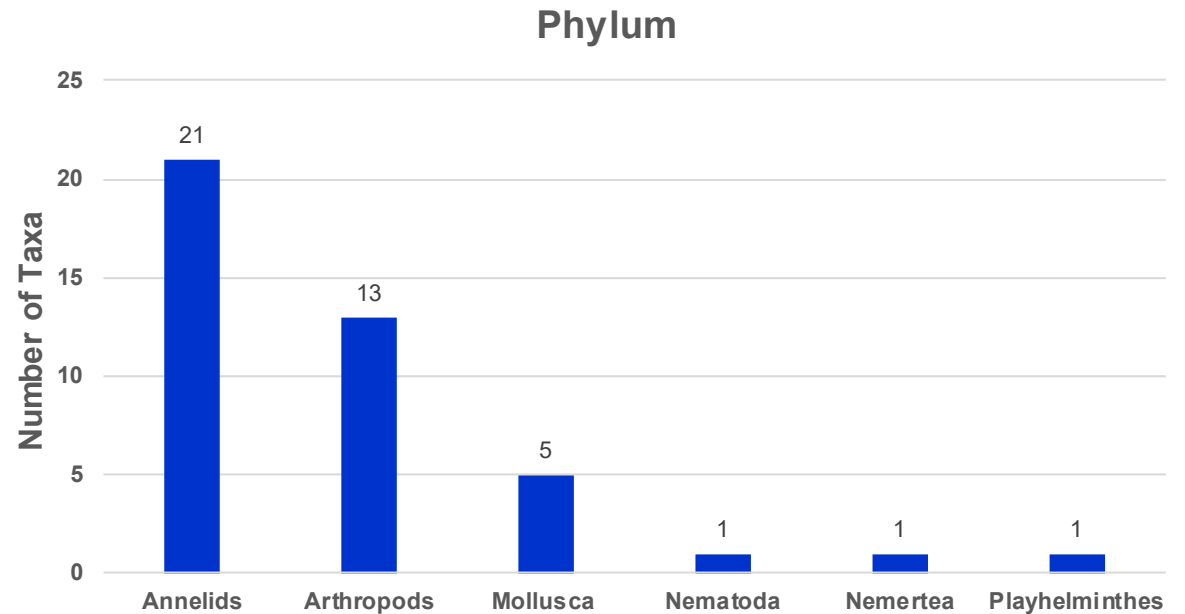


Benthic Invertebrates – baseline results

Number of Taxa and Individuals by Site



- 1243 individuals, 42 taxa
- 6 Phyla, 13 Major groups
- Polychaeta and oligochaeta were dominant (62.8% of total species composition)
- Low numbers at Sturgeon Island Reference site could be due to Hypoxic conditions. DO was 4.3 mg/l with 64% saturation.



Upcoming Plans

- Baseline results provide an snapshot of macroalgae coverage and benthic community within project and in reference areas
- Repeat surveys for macroalgae and benthic invertebrates will be conducted in late July 2021
- Macroalgal sampling will be modified:
 - distances between points on transects will be 4-5m
 - At least 20 additional points will be taken between transects to develop spatial coverage maps
 - Macroalgal coverage will be estimated throughout project area allowing for more detailed comparisons over time



(Image: European Network on Invasive Alien Species: NOBANIS)



(Image: Wikimedia)



(Image: Wikimedia)