The Mudflat

DAMARISCOTTA'S INTERDISCIPLINARY APPROACH TO COASTAL STEWARDSHIP

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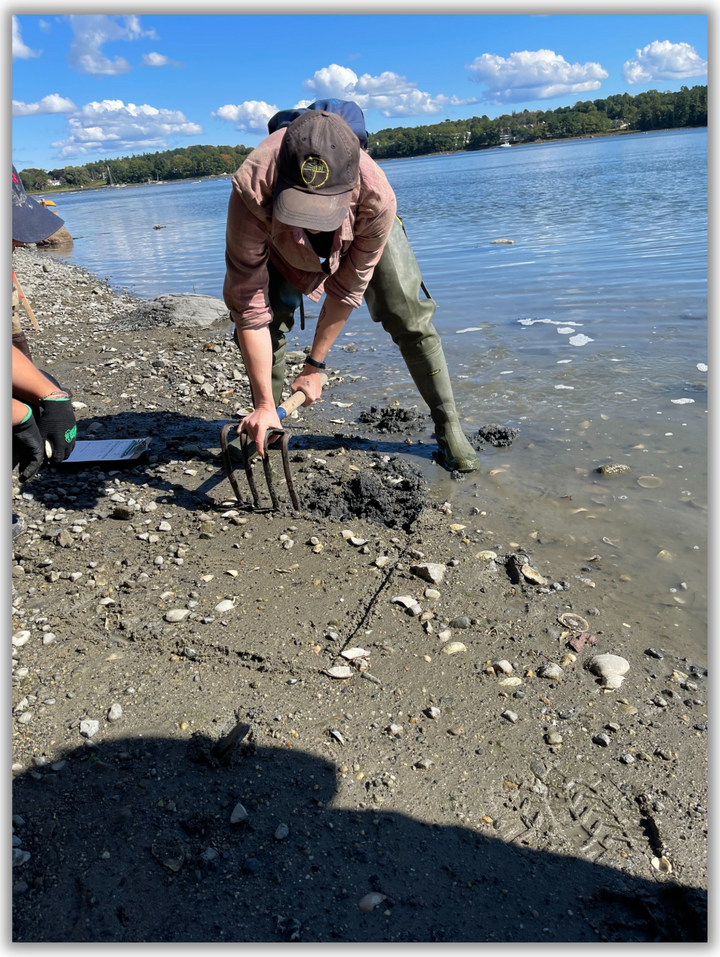
Town
Damariscotta

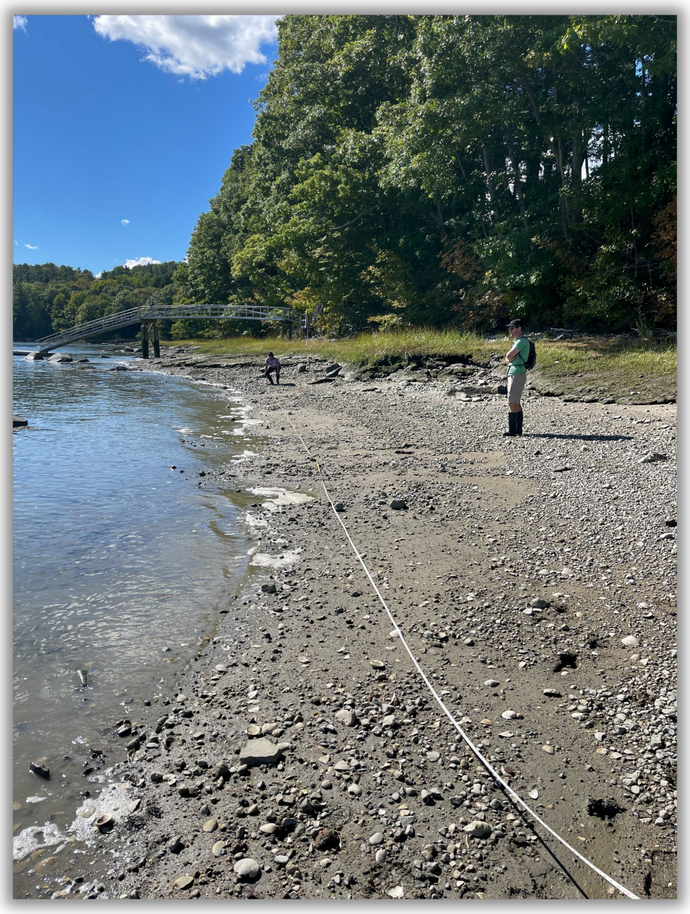
Watershed
Damariscotta River

Project Type
Research Surveys

The Chadbourne study site, on the western shore of the Damariscotta River estuary



Sarah Risley begins to dig a sample quadrant to survey



Defining the area to be surveyed with a transect line

Survey Goals

In 2019, the Damariscotta-Newcastle Shellfish Committee commissioned the University of Maine Darling Marine Center (DMC) to study the shellfish resource in the Damariscotta River estuary mudflats. This project involves interviewing local shellfish harvesters and collecting biophysical data along sites in the Damariscotta River estuary. This interdisciplinary approach will help the Damariscotta-Newcastle Shellfish Committeeto sustain local shellfish resources, livelihoods and coastal ecosystems.

Environmental Data

Environmental data are critical for informing municipal shellfish management. At each location, a 25m transect parallel to the shoreline organizes five sampling quadrants, each one square meter. At each quadrant, researchers record physical and ecological data points, including percentage of algae, rock coverage, and the number and dimensions of clams. Surveyors also identify other species such as bloodworm, sandworms, milky ribbon worms, and most importantly invasive green crabs in order to give the fullest picture of the ecosystem dynamics around shellfish.

Local Knowledge

Additionally, harvesters' local environmental knowledge is crucial for effective stewardship. DMC graduate students Sarah Risley, Melissa Britsch, and advising professors Dr. Josh Stoll and Dr. Heather Leslie created a local mapping survey to survey commercial clam harvesters on their observations of changes on the river, the shellfish population landscape, and pressing challenges for the shellfish industry. The local knowledge of harvesters has guided the selection of the monitoring sites and provided possible explanations for changes in the ecosystem. DMC researchers and community partners including local students fromNewcastle-based Lincoln Academy, will annually document local ecological knowledge and contribute to environmental monitoring.

Integrated Data Supports Local Management

Local knowledge and environmental data collected by students and scientists are integrated to support management of the shellfish resources by the Damariscotta-Newcastle Joint Shellfish Committee. Ultimately, by combining the experience of fishermen and the biophysical data, this initiative generates useful information to the Damariscotta-Newcastle Shellfish Council and fisheries as well as highlight conservation priorities and opportunities to enhance the shellfish fishery.

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