Fish Trawls

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Introduction

This protocol provides standardized data on mobile fish and invertebrate communities associated with subtidal habitats like seagrass beds, oyster reefs, and bare substrate. Additional copies of this protocol, field datasheets, data entry templates, instructional videos, literature, and more can be found at: https://marinegeo.github.io/modules/fish-trawls.

Note: Sites with good visibility may instead consider using Diver Visual Surveys.

Measured Parameters

This assay quantifies mobile fish and invertebrate community structure, measured as:

- Mobile fauna abundance and length (mm)

Requirements

Personnel: 3 people

Estimated Total Time Per Location ($n = 2$ trawls):

Preparation: 1 person x 1 day
Field work: 3 persons x 2 day
Post processing: None
Data processing: 1 person x 1 day

*Estimated times will vary by site and conditions

Replication: Two (2) trawls for approximately 2 minutes each (total $n = 2$ per location)

Materials:

Survey Design:

- ☐ 1 50-m metric transect tape
- ☐ Hand-held GPS unit
- ☐ 2 PVC marker poles (diameter and length as needed)

Fieldwork:

- ☐ 1 otter trawl (record dimensions including length, width, opening, and mesh size)
- ☐ Waterproof paper
- ☐ Pencil
- ☐ Clipboard
- ☐ Ruler (mm)

Methods

Fully review this and any additional protocols necessary for the sampling excursion. Address any questions or concerns to marinegeo@si.edu before beginning this protocol.

Preparation:

1. Review the MarineGEO survey design (e.g., Seagrass Habitats Survey Design) for site selection and setup. This protocol assumes $n = 2$ trawls taken at different positions within the habitat.
2. Print field data sheets on waterproof paper.

Fieldwork:

1. Conduct trawls before any other surveys/collections (as to not scare away organisms).
2. Identify starting location for the first trawl. The location should ensure that the trawl occurs mostly within or immediately adjacent to the target habitat. Record the starting location using GPS.
3. Deploy otter trawl over side of boat.
4. Throttle forward at low speed (3-4 knots) to keep wings open for approximately 2 minutes or until no longer in the target habitat. The track of the boat should be as linear as possible.
5. Record ending location using GPS.
6. Retrieve the otter trawl and work through the net, removing and recording the identity of all organisms >5 cm in length. For the first 20 individuals of each species, also record their length (in mm). For fishes, measure total length (tip of the snout to tip of the caudal fin); for invertebrates, measure carapace width or total length (Fig. 1).
7. Photograph any unidentifiable, rare, unique, or interesting species and include the photos in your data submission.
8. Repeat steps 2-7 for the second location.

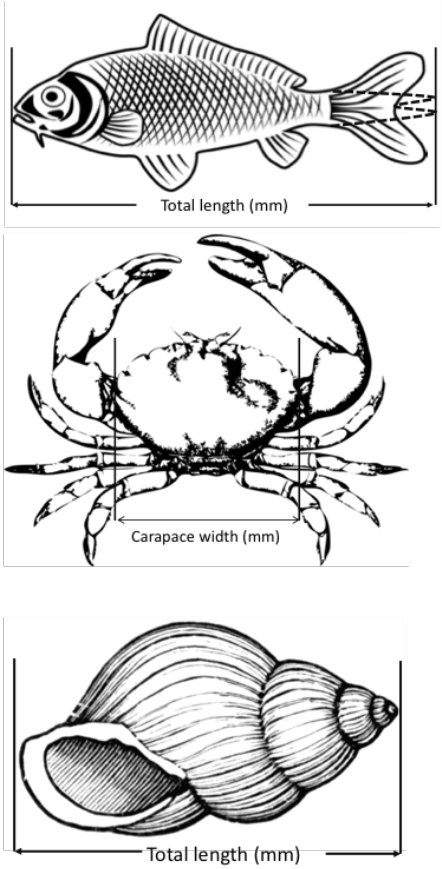

Figure 1: Length measurement for different taxonomic groups that may be caught in the trawl

Data Submission

1. Scan the completed field data sheets and save both paper and electronic versions locally.
2. Enter data into provided data entry template.
3. Use our online submission portal to upload the Excel Spreadsheet (coming Fall 2019).
4. Contact us if you have any questions: marinegeo@si.edu.