Fish Trawls

v 0.1.2

How to cite this work: MarineGEO Protocols. (2019) Tennenbaum Marine Observatories Network, MarineGEO, Smithsonian Institution. DOI:

Smithsonian Institution
marinegeo@si.edu

Introduction

This protocol provides standardized data on mobile fish and invertebrate communities associated with subtidal habitats like seagrass beds, oyster reefs, and bare substrate. These measures will help characterize local food web and top-down impacts on smaller fauna and primary producers.

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

Additional copies of this protocol, field datasheets, data entry templates, instructional videos, literature, and more can be found on the Seagrass section of the MarineGEO protocol website: https://marinegeo.github.io/seagrass-habitat.

Measured Parameters

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

- Mobile fauna abundance and length (mm)

Requirements*

*Estimated times will vary by site and conditions

Personnel: 3 people

Estimated Total Time Per Site (i.e., all three locations at the site):

Preparation: 1 person x 1 day
Field work: 3 persons x 2 day
Data processing: 1 person x 1 day

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. The following protocol assumes *n* = 2 trawls taken at different positions within the habitat.
2. Print field data sheets on waterproof paper.

Fieldwork:

1. Conduct trawls b*efore* 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 approximately linear.
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).

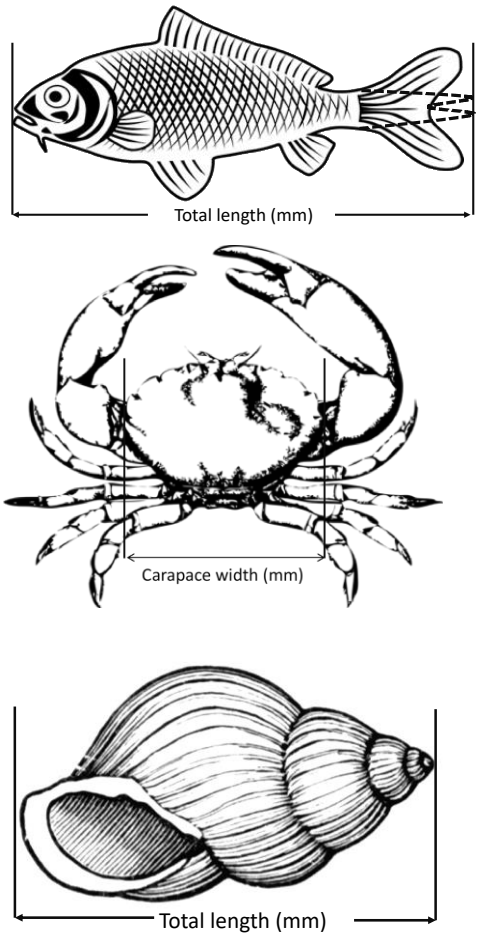

Figure 1. Length measurement for different taxonomic groups that may be caught in the trawl.

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.

Data Submission

1. Enter data into provided data entry templates.
2. Scan the completed field data sheets and save both paper and electronic versions.
3. E-mail data entry file, any photos, and scanned field data sheets to: marinegeo-data@si.edu.