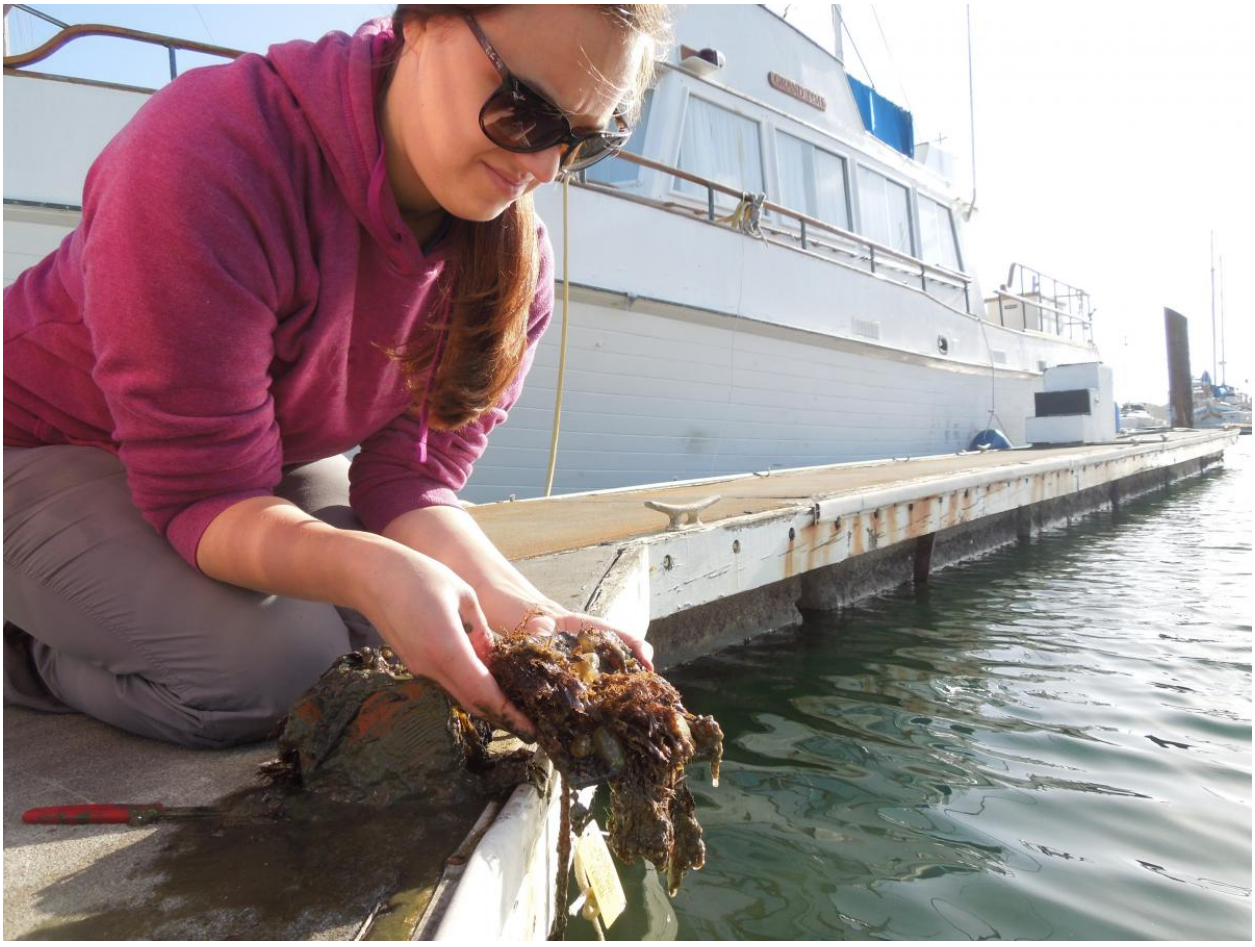
Protocol: Fouling Panel Retrival and Post-Processing



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MarineGEO
THE TENNENBAUM
MARINE OBSERVATORIES NETWORK

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Introduction

This protocol provides methods on retrieval and standardized data collection for post-processing of fouling communities. This is typically done after a 90-day period for sub-tropical and temperate regions.

Measured Parameters

- Species richness and diversity of the sessile community
- Total community biomass

Requirements

Personnel: 1-2 people

Estimated Total Time Per Location ($n = 3$ sites per habitat):

Preparation: 1 person x 1 day
Field work: 1-2 people x 1 day per location
Post processing: 1-2 people x 5 days
Data processing: 1 person x 5 days

*Estimated times will vary by site and conditions

Replication: At least three (3) sites per habitat, the number of habitats is decided by the partner site.

Fieldwork:

- ☐ Scissors and/or cable tie cutters
- ☐ 1-gallon zip sealable plastic bags or containers labeled by site and color
- ☐ Paper labels (waterproof) with site and color
- ☐ Data sheets
- ☐ Container with ice or buckets for transport

Post-Processing:

- ☐ Metal paint scraper
- ☐ Labelled vials
- ☐ Forceps
- ☐ Dissecting microscope

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 Fouling Community Survey Design for selection of permanent sites.

2. Deploy fouling panels in an artificial or benthic habitat **(see fouling panel deployment protocol)**

Fieldwork:

1. After taking 90-day photos, detach panels from either the PVC frame or bricks.

2. Place the panel in labeled bags or containers with enough fresh seawater to keep moist. Each bag should be labeled on the outside and a paper label should be on the inside. The backs of the panels should be cleaned of fouling species with a paint scrapper either in the lab or in the field as these are not quantified. In some cases, it may be necessary to do this in the field to reduce lab work or even to get the panel into the bag.

3. The easiest method of transport is to place all panels in a cooler with ice for travel back to the lab. In some cases, if travel time is short, panels in bags with fresh seawater can simply be placed in buckets and returned to the lab.

Post-Processing:

1. Depending on the number of panels and time available at the site, panels can either be processed live or frozen. If freezing, simply place the zip lock bag with seawater directly in a freezer.
2. After rinsing, let the panel hang vertically for 1 minute to allow water to drip off. Place the entire panel on a scale to obtain a wet weight (g). Note that this weight contains the panel itself, which can be subtracted during data entry from weights obtained prior to deployment.
3. Once the panel is washed and weighed, place the panel in a dish with fresh seawater and examine it under a dissecting microscope. If panels were previously frozen, they can go into tap water. Identify all sessile species found and place any mobile fauna into associated vial. **Be careful with tube-dwelling fauna (corophiid amphipods, sabellid or serpulid worms, etc.) as these are considered to be part of the sessile community and get quantified as percent cover from the photographs.** If species are difficult to ID, at least give each a unique identifier. The overall goal is to acquire a species list and a count for total species richness and therefore, there is no need to count the number of individuals on the same panel.
4. At this point, the community can be destructively sampled to find hidden or cryptic species.
5. Take photos of unknown species. Photographs can be shared with the network for help in identifications. Also, a photo library is generally beneficial to have for incoming techs or students to assist in identifications. Within the first sampling year, the majority of fauna will be captured, and this makes the next season's sampling go faster.

Data Submission

1. Scan the completed field data sheets and save both paper and electronic versions locally. We do not require you to submit the scanned forms.
2. Enter data into the provided data entry template. Each template is an Excel spreadsheet. Please provide as much protocol and sample metadata as possible, such as the protocol version and contact information. Use the "notes" columns to provide additional information or context if a relevant column doesn't already exist, rather than renaming or creating columns.
3. Use our online submission portal to upload the Excel Spreadsheet: https://marinegeo.github.io/data-submission
4. Contact us if you have any questions: marinegeo@si.edu