

Protocol: Oyster Reef Associated Fauna



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Introduction

This protocol provides standardized data collection on the associated biodiversity found living within an oyster reef. Here, the use of “bio-boxes” of a known size are deployed on the reef 1.5 – 2 months prior to sampling and allowed to be colonized by resident mobile invertebrate fauna. Details are given on how to construct cost-effective bio-boxes but in general, these can be constructed of the practitioner’s choice but must have a known area such that data can be reported as individuals m^{-2} . Post-processing requirements include identification and enumeration of associated fauna done in the lab.

Measured Parameters

- Individuals (m^{-2})

Requirements

Personnel: 2 – 4 people

Estimated Total Time Per Location ($n = 3$)

Preparation: 1 person x 1 day

Fieldwork: 2 - 4 people x 1 day per location

Post processing: 1 – 2 people x 5 days

Data processing: 1 person x 1 day

Replication: 3 bio-boxes (0.5 x 0.5m) deployed at each reef, 3 oyster reefs per region

Materials:

Fieldwork:

- ☐ Bio-boxes (3 per reef)
 - 0.5 m length PVC (1” diameter) with several holes drilled to reduce buoyancy
 - 1” PVC elbows
 - 5 mm vexar mesh or smaller
 - Cable ties
- ☐ Forceps
- ☐ Collecting jars
- ☐ 70
- ☐ Large tray

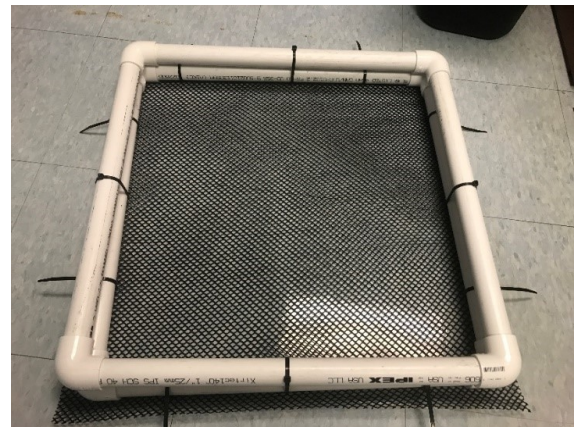


Figure 1: A fully constructed example of a biobox.

Methods

Preparation:

1. Review the MarineGEO Oyster Reef Habitat Survey Design for selection of permanent sites.
2. Deploy bio-boxes in triplicate at each site 1.5 – 2 months prior to sampling.
3. Become familiar with the methodology prior to going out into the field to conduct sampling.
4. Print datasheets on waterproof paper.
5. Sampling is typically done at a low tide when the oyster reef is exposed.

Fieldwork:

1. Deploy 3 bio-boxes per reef approximately 1.5 – 2 months before field sampling during a low tide. Oysters should be excavated, and bio-boxes placed into the substrate so that the top of the box is level with the substrate. Fill the bio-box with oysters such that it resembles the density of the reef. In high wave areas, bio-boxes can be secured with rebar or plastic dowels though in general, the weight of the oysters inside the box is sufficient to hold them in place.
2. After the allotted time for colonization, return to the reef can collect the bio-boxes. This is typically done when other sampling is being conducted. To do this, lift the bio-box and immediately place it in a large enough tray to fit the bio-box.
3. Carefully pick up material and collect all associated fauna either using fingers or forceps and place into a labeled sampling container. Spend a good amount of time with oyster clusters as crabs can easily hide and be difficult to locate. Larger crabs and fish can be noted as found and released alive.
4. Once all shells have been picked through, the rest of the sediment and smaller shell hash can be picked through in the tray or sieved. If sieving the material, a 1 mm sieve is recommended.
5. Sampling containers should have labels, filled with 70% ethanol in the field, and brought back to the lab to be processed at a later date.

Post-Processing:

1. All associated fauna should be identified and counted.
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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