NOAA FISHERIES

Standard Operating Procedure

Title: **Subtidal Oyster Bed Area Measurements**	Version Number: 1	Effective Date: **01/01/24**	Page 1 of 4

Revision History		
Version No.	**Effective Date**	**Description**
1.0	*01/01/2024*	*Original composition by M. Kachmar*

Procedure Owners: **Date:**

KACHMAR.MARIAH.LYNN.1620667907 Digitally signed by KACHMAR.MARIAH.LYNN.1620667907 Date: 2024.01.24 14:43:20 -05'00'

Mariah Kachmar, Field Project Lead,
LISS Oyster Health Project

MCFARLAND.KATHERINE.MARIE.1594264629 Digitally signed by MCFARLAND.KATHERINE.MARIE.1594264629 Date: 2024.01.24 16:05:30 -05'00'

Katherine McFarland, Research Biologist

PARIKH.MEGHANA.PENDURTHI.1589493164 Digitally signed by PARIKH.MEGHANA.PENDURTHI.1589493164 Date: 2024.02.02 12:30:58 -05'00'

Meghana Parikh, Veterinary Medical Officer

Approved By: **Date:**

MILKE.LISA.MICHELLE.1365840276 Digitally signed by MILKE.LISA.MICHELLE.1365840276 Date: 2024.02.07 14:00:44 -05'00'

Lisa Milke, EAD Chief

Title: **Subtidal Oyster Bed Area Measurements**	Version Number: 1	Effective Date: **01/01/24**	Page 2 of 4

1 Purpose

The purpose of this SOP is to provide concise guidance and methodology on how to measure oyster bed area for subtidal sites.

2 Scope

This SOP is pertaining to the EPA Long Island Sound Study funded Oyster Health project where oyster bed area will be used to characterize the size of the oyster bed at each oyster site as part of biannual population surveys.

3 Definitions/Acronyms

4 Safety Precautions

All survey team members will wear appropriate clothing dependent on weather conditions including, but not limited to waders, rubber boots or protective footwear, gloves, hats, sunglasses, long sleeve shirts and pants. Team members will wash hands thoroughly after each sampling day. A first aid kit will be present for any injury. Extra water will be provided to avoid dehydration or heat stroke. Team members will take regular breaks when needed.

Exercise weather-appropriate field safety measures by monitoring conditions before and during the trip. Do not perform fieldwork during dangerous conditions (e.g. lightning, extreme winds, extreme floods). Do not visit field sites alone (use buddy system). Inform PIs of dates and times of fieldwork. Confirm safe return to the lab. At subtidal sites, divers are to follow NOAA diving regulations according to the instructions of the lab diving coordinator (barry.smith@noaa.gov).

5 Supplies/Materials

1. Field Measuring Tape
2. Waterproof paper attached to PVC dive sleeve
3. Number 2 wood pencil
4. Mechanical pencils
5. Extra datasheets
6. Digital datasheets

6 Equipment

1. Field tablet
2. GPS tracker

7 Quality Control

All team members will be trained to complete all field tasks, including training on data entry requirements for each specific task. To ensure completeness, data sheets will include a checklist of all data that needs to be recorded during each visit. All datasheets will be screenshotted as back up in the event data is lost before connecting to the network.

8 Procedures

1. *To determine the area of an oyster bed, methods described in Janiak (2021) will be used.*
    a. With one diver on either end, place a weighted measuring line (Figure 1) along the longest axis of the oyster bed starting at the edge or perimeter.
        i. The perimeter is defined as the continuous edge where live or dead shells make up ~25% of the substrate (Janiak, 2021).
    b. Divers will record the total length of the oyster bed on the dive sleeve datasheet for the site.
    c. Divers will measure and record the width of the bed at 3–6 random locations covering the length of the longest axis line (Figure 1).
    d. The shore team will transcribe these data onto the appropriate data sheet on the tablet. Example data sheet "characteristics"
    e. Area of the oyster bed will be calculated from the resulting polygon created in Google Earth following the Oyster bed area Intertidal protocol.

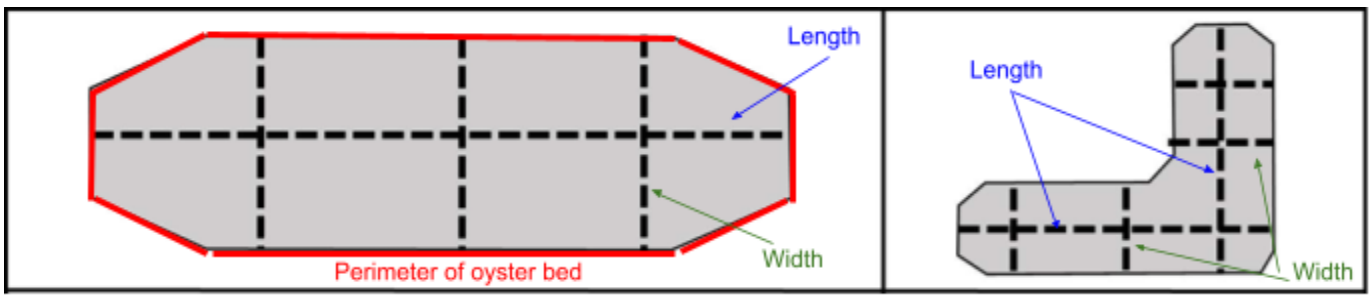

Figure 1: Example schematic of oyster bed area measurements.

9 References

Janiak, D., 2021. MarineGEO Oyster Reef Habitat Monitoring Protocol. Tennenbaum Marine Observatories Network, MarineGEO, Smithsonian Institution.

10 Appendices

END OF DOCUMENT