

Abstract

The Coastal Ocean Research and Monitoring Program (CORMP) is a NOAA-funded research initiative aimed at better understanding the physical, biological, chemical, and geological processes which shape the near shore and offshore coastal ocean environment of Onslow Bay, North Carolina. Currently, CORMP includes seven mooring sites (OB1-4, LB5-6 & OB27). Each site is fitted with a bottom-mounted ADCP (acoustic doppler current profiler) and CT logger (conductivity / temperature) and mid-water CT loggers mounted on a taut-wire mooring (TWM). All sites are diver-serviced every 3 months. The primary research site (OB27) employs additional instrumentation including a SCUFA fluorometer and a PC-ADP (pulse-coherent acoustic doppler profiler). All instruments at this site are mounted on a stationary quad-pod. The OB27 site is diver-serviced every five to six weeks. In addition to instrument recovery and re-deployment divers collect a number of different sediment samples for biological and geological analyses. The varied scientific objectives coupled with the multiple depths (60-140 FSW), seasonal fluctuations in water temperature (38 - 88° F) and wide-ranging visibility (0-135ft) requires divers to utilize assorted techniques to complete their missions. Presented here is a detailed summary of the scientific diving methods employed by the divers to complete the project objectives.

CORMP Fixed Mooring Locations



Quad Assembly at OB27



OB27 (23-mile reef)

- **Depth** 100 ft.
- **Total dives** 545 (~348 hours)
- **Nitrox** 36.0%
- **Water Temp** 47 - 85° F
- **Dry suits** December - March
- **Visibility** 3 - 100 ft.
- **Equipment serviced (every 5-6 wks.)**
 - PC-ADP
 - ADCP
 - CT Loggers
 - one mounted on quad-pod
 - one on mid-water (40 ft.) TWM
 - SCUFA (fluorometer)
- **Additional work (6 wks. or 3 mos.)**
 - Benthic cores (infauna, chl a)
 - Box cores
 - sediment stratigraphy
 - Video surveys

OB3 (5-mile ledge)

- **Depth** 60 ft.
- **Total dives** 195 (~132 hours)
- **Nitrox** 36.0%
- **Water temp** 38 - 85° F
- **Visibility** 0 - 40 ft.
- **Dry suits** December - March
- **Equipment serviced (every 3 months)**
 - ADCP, CT logger

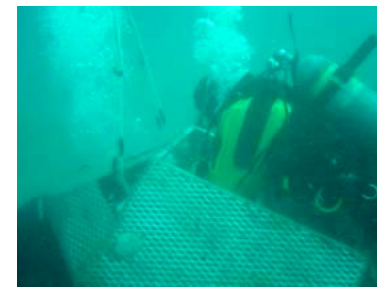
OB1 and LB5 (mid sites)

- **Depth** 85 ft.
- **Total dives** 126 (~45 hours)
- **Nitrox** 36.0%
- **Water temp** 47 - 85° F
- **Visibility** 20 - 100+ ft.
- **Dry suits** December - March
- **Equipment serviced (every 3 months)**
 - ADCP, CT loggers (2)



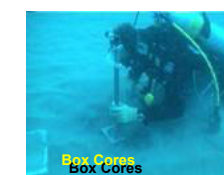
Typical Taut Wire Mooring at OB1- 4, LB5 - 6

Typical Cage Assembly at OB1-4,



OB2, OB4, & LB6 (deep sites)

- **Depth** 135 ft.
- **Total dives** 124 (~67 hours)
- **Nitrox** 31.0% (or Tri-mix 18/50)
- **Water Temp** 61 - 88° F
- **Dry Suits** December - February
- **Visibility** 10 - 135 ft.
- **Equipment serviced (every 3 or 6 mos.)**
 - ADCP, CT loggers (3)



Introduction

UNCW and NCSU coordinate their efforts to maintain the seven mooring sites. OB3 and OB27 are both similarly positioned in proximity to hard bottom ledges. Based on these locations data comparisons can be made between the two sites. Box cores and benthic chl a cores are collected by divers at both sites. Water is also collected at depth, one inch from the SCUFA's sensor eye at these sites. This water is then used to calibrate the SCUFA fluorometers.

Each visit to any site includes cleaning of both the instruments and their mounts either cage, quad or TWM. The growth that accumulates in a five week period can be surprising. Barnacles, worm tubes and hard coral can actually start to form on these instruments in this short amount of time. Mooring sites that are only visited every three months are usually overgrown so heavily that one dive is not enough to sufficiently clean them. The bodies of the instruments are all cleaned with mildly abrasive dishwashing scouring pads and all other metal surfaces are in fact, scraped with paint scrapers. The sensors on the ADCP's and PC-ADP's beam eyes are all coated with a silicone grease which has cayenne pepper mixed into it to prevent growth and fouling. This also prevents the divers from having to scrub the eyes and chance damaging the lenses.

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