

Coastal Ocean Monitoring Program

NOAA Award # NA96RP0259
Semi-annual Progress Report, 1 March 2000 to 31 August 2000

Submitted by:

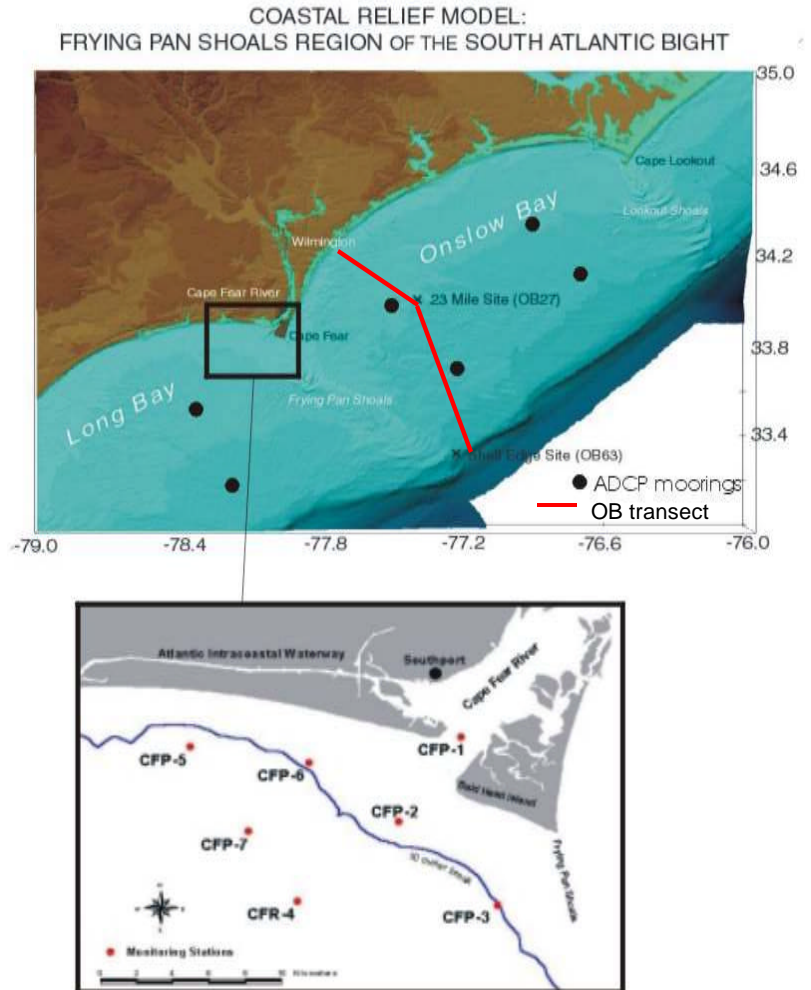
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INTRODUCTION

The Coastal Ocean Monitoring Program, entitled the Southeast Marine Monitoring and Prediction Center in appropriations language, was established on September 1, 1999. As described in the original proposal, the purpose of the program is to create a predictive model to assess the effects of natural and anthropogenic influences on coastal processes in the South Atlantic Bight. The program is based at the University of North Carolina at Wilmington's Center for Marine Science, located on the Intracoastal Waterway (ICW) opposite Masonboro Island (Figure 1). This progress report summarizes accomplishments during March through August of CY 2000 for grant award # NA96RP0259.

Figure 1. Chart of COMP study area showing Onslow Bay transect (red line), permanent stations at OB27 and OB63, NCSU ADCP moorings (dots, to be deployed in 2002), and Cape Fear River plume sampling stations (inset).



OBJECTIVES

The primary scientific objectives for the program include:

- understand and model the dynamics of cross shelf transport of materials (including nutrients, sediments, and biota)
- define the relationship between physical properties (circulation, weather, storms) and coastal environmental health
- determine the influences of oceanographic forces on the recruitment of commercially important fisheries
- assess the impact of riverine input on coastal water quality and productivity

In order to accomplish these objectives, the following tasks were proposed that apply to this six month period:

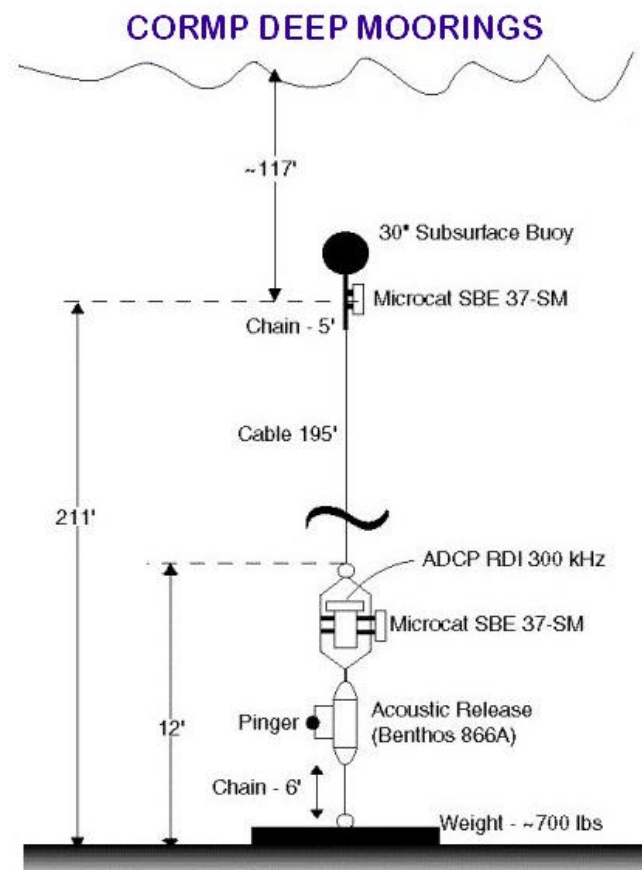
- establish long-term stations across the continental shelf in Onslow Bay off Wilmington, NC (Figure 1a)
- establish long-term sampling stations in the Cape Fear River plume (Figure 1b)
- develop and deploy a permanent, long-term mooring and seafloor instrumentation on a mid-shelf “live bottom” reef
- develop and deploy a permanent, long-term mooring and seafloor instrumentation on the outer shelf near the west wall of the Gulf Stream
- integrate observations from the at-sea sampling, in situ instrumentation, and satellite imagery

RESULTS

The beginning of 2000 saw the continuation of monitoring of the impacts of Hurricane Floyd. The long-term stations were identified in Onslow Bay and the Cape Fear River plume and monthly sampling cruises commenced (see www.uncwil.edu/cmsr/comp for cruise logs and monthly data tables and graphs). The seafloor instrumentation was added to the mooring at the 23 nm reef live bottom reef study site (Figure 2). The station was equipped with:

- SonTek Pulse-Coherent Acoustic Doppler Profiler (PCADP) to assess near-bottom flow
- Optical Back-Scatter (OBS) device to measure turbidity
- Acoustic Doppler Current Profiler to measure water column currents
- Micro-cat CT loggers to measure temperature and salinity
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Figure 2. COMP deepwater moorings deployed 27 and 63 nm off Wrightsville Beach.



A second station with similar equipment was deployed at a depth of 100 meters, 63 nm off Wrightsville Beach (Figure 1a). A subcontract was established with North Carolina State University to help evaluate the physical data from the two shelf moorings.

Seabird research in the Cape Fear river region included studies of genotoxicity resulting from a chromium spill that occurred during Hurricane Floyd. Beginning in late summer of 1999, S. Emslie initiated investigations of Royal Terns to study the foraging ecology of this species and the impact of pollutants and toxic compounds ingested by adults and chicks near their breeding sites (<http://www.uncwil.edu/people/emslies/terns/>).

COMP supported continuing efforts to document the population structure and residency patterns of Atlantic bottlenose dolphins in coastal North Carolina waters (http://www.uncwil.edu/people/sayighl/research/program_description.HTM). Stock structure of mid Atlantic bottlenose dolphins is highly complex, with offshore and coastal forms, as well as both migratory and resident individuals. Year round photographic surveys of Wilmington coastal waters strongly indicate that some dolphins are resident year-round in SE North Carolina. Photos were submitted to the NMFS centralized Mid-Atlantic Bottlenose Dolphin Photo-Identification Catalog, which shows that many dolphins in this area have been seen in northern sites such as Beaufort and Manteo, NC as well as in southern sites such as Myrtle Beach, SC (Figure 3).

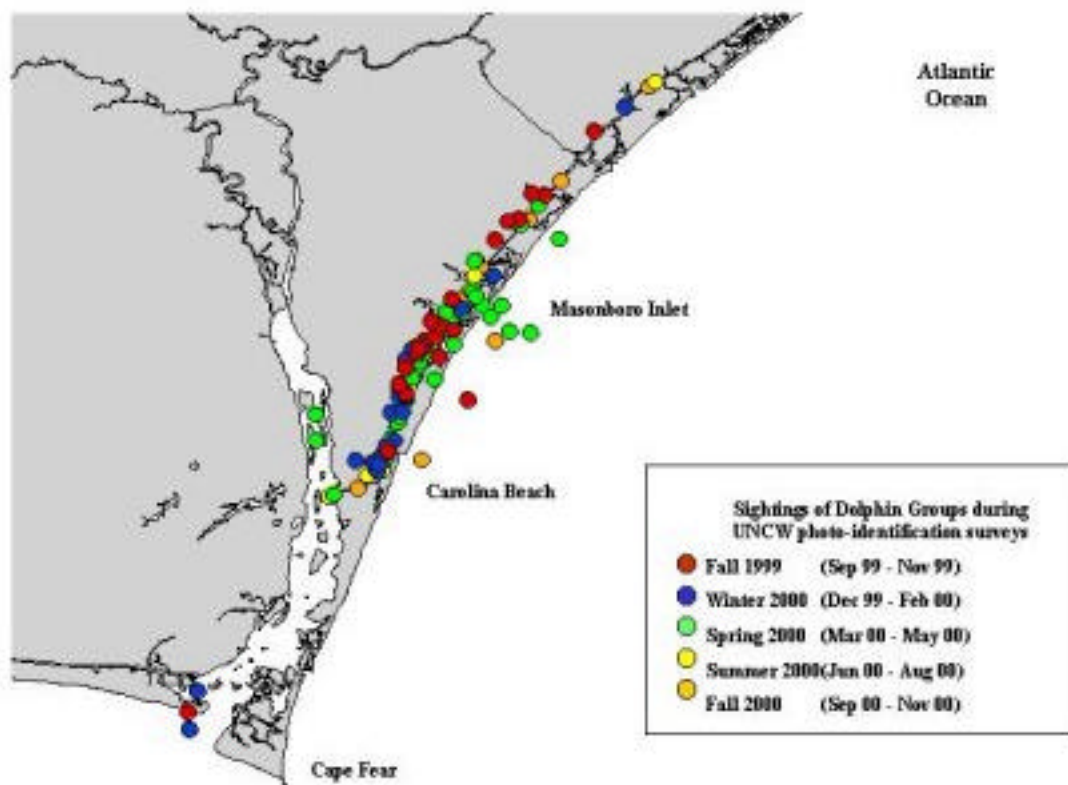


Figure 3. Dolphin sightings from 1999-2000 UNCW boat surveys, including offshore operations supported by COMP.