

Atlantic Coast Environmental Indicators Consortium

ACE-INC 0401 Cruise Report 29-30 March 2004

This report provides a summary of the research activities completed on the R/V Aquarius. Additional sampling was conducted from the 25' Parker and is briefly noted.

Research Vessel: R/V Aquarius

Area of Operations: Choptank River

Scientific Crew: J. Adolf, J. Bichy, B. Connelly, D. Kimmel, M. Mallonee, E. Martino, G. Chen, and A. Spear

Goals and Objectives:

The ACE INC program goal is to develop integrative indicators of trophic structure and function that reflect changes in nutrient loading resulting from a changing landscape. Biota are proposed to be integrators of changing conditions in the Bay. Physical variability, both temporal and spatial, especially dissolved oxygen, is proposed to modulate trophic responses to nutrient over-enrichment. Phytoplankton, zooplankton, and fish responses are being analyzed to develop integrated indicators of Bay 'health.' The goal of the 2004 cruises is to examine the temporal variability in these properties during the spring and summer.

Cruise Activities:

RV Aquarius

We sampled seven stations, two in the main Bay and five within the Choptank River ([Figure 1](#)). Once on station, a mid-water trawl was conducted. Afterwards, we anchored to conduct a CTD cast and other activities. The station was completed with a Tucker trawl. A list of station activities is provided in [Table 1](#).

Pump and grab samples were obtained for chlorophyll, seston, particulate absorption, dissolved inorganic nutrients, total CO₂, HPLC pigments (size fractionated) and particle size analysis (fixed samples). Primary production was measured using ¹⁴C methodology. In-water bio-optical profiles were obtained using both Satlantic MicroPro (vertical) and Hyper-TSRB (surface) instruments.

Zooplankton was collected in bottom and surface pump samples, vertical lifts of a 0.5 diameter 64µm mesh plankton net, and acoustical sampling by TAPS. The plankton net was lowered to the bottom and lifted to the surface.

A 1m² Tucker trawl tow with 280- μ m mesh was used to sample ichthyoplankton. Each tow provided a 2-min bottom and 2-min top sample that together sampled the entire water column.

One 10-min mid-water trawl (MWT) tow was conducted at each station to collect juvenile and adult fish. The catches were processed to obtain data on species composition, sizes, and abundances.

RV 25' Parker

In conjunction with activities on the R/V Aquarius, surveys were conducted from Horn Point Laboratory's 25' Parker. Activities included CTD casts and ACROBAT tows. For questions related to the Parker activities, please contact Tom Wazniak (see below).

Problems:

1. Micro-pro and TSRB instruments not used on 29 March due to laptop problems.

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Shoal Sampling and Activities Performed on 25' Parker

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CTD Data

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Table1: Consecutive station log for the ACE 0401 cruise conducted on 29 – 30 march 2004.

ACE 0401 Consecutive Station Log

RV Aquarius

29-30 March 2004

STA	CTD	STA 2	LOCATION	TIME	DAY	D	LAT	LONG	CTD	TAPS	TT	MWT	ZOOPS	VL	C14	MP	TSRB	CF
1	1	CHOP_MBW	Main Bay West	945	29	10	38.5676	-76.4991	X	X	X	X	X	X	X			X
2	2	CHOP_MBE	Main Bay East	1129	29	24	38.5676	-76.4408	X	X	X	X	X	X	X			X
3	3	CHOP_LR	Choptank River mouth	1320	29	11	38.6400	-76.3319	X	X	X	X	X	X	X			X
4	4	CHOP_LMR	Castle Haven Point	1450	29	9	38.6450	-76.1722	X	X	X	X	X	X	X			X
5	5	CHOP_SF	Day Marker 52	725	30	10	38.7231	-76.0124	X	X	X	X	X	X	X	X	X	X
6	6	CHOP_UMR	Blinkhorn Creek	930	30	7	38.6602	-75.9565	X	X	X	X	X	X	X	X	X	X
7	7	CHOP_MR	Chancellor's Point	1045	30	10	38.5775	-76.0225	X	X	X	X	X	X	X	X	X	X
Total									7	7	7	7	7	7	7	3	3	7

Field Codes:

STA - consecutive station number; **CTD** - CTD station number; **STA2** - secondary station identifier; **LOCATION** - geographic station location; **TIME** - arrival time; **DAY** - day of the month (July); **D** - station depth in meters; **LAT**- latitude; **LONG** - longitude.

Activity Codes:

CTD - Conductivity, Temperature and Depth datalogger; **TAPS** - Tracor Acoustic Profiler System; **TT** - tucker trawl; **MWT** - Mid-water Trawl; **ZOOPS** - Zooplankton Pump Samples; **VL** - Zooplankton Vertical Lift (35um); **C14** - Carbon uptake incubations (primary production); **MP** - MicroPro vertical profiler; **TSRB** - Towed Surface Radiometry Buoy; **CF** - Cold Filtration (Chlorophyll);

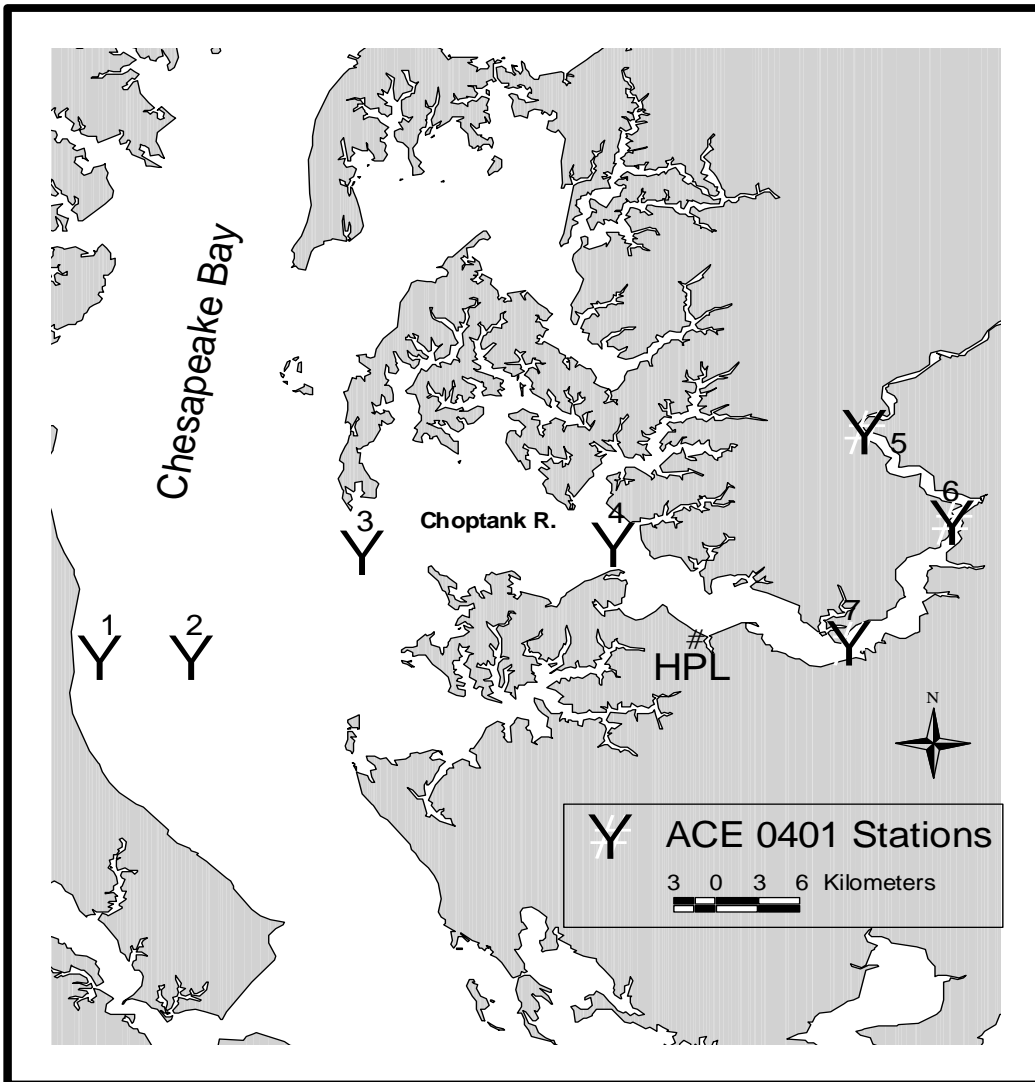


Figure 1: Map of ACE cruise 0401 sampling stations.