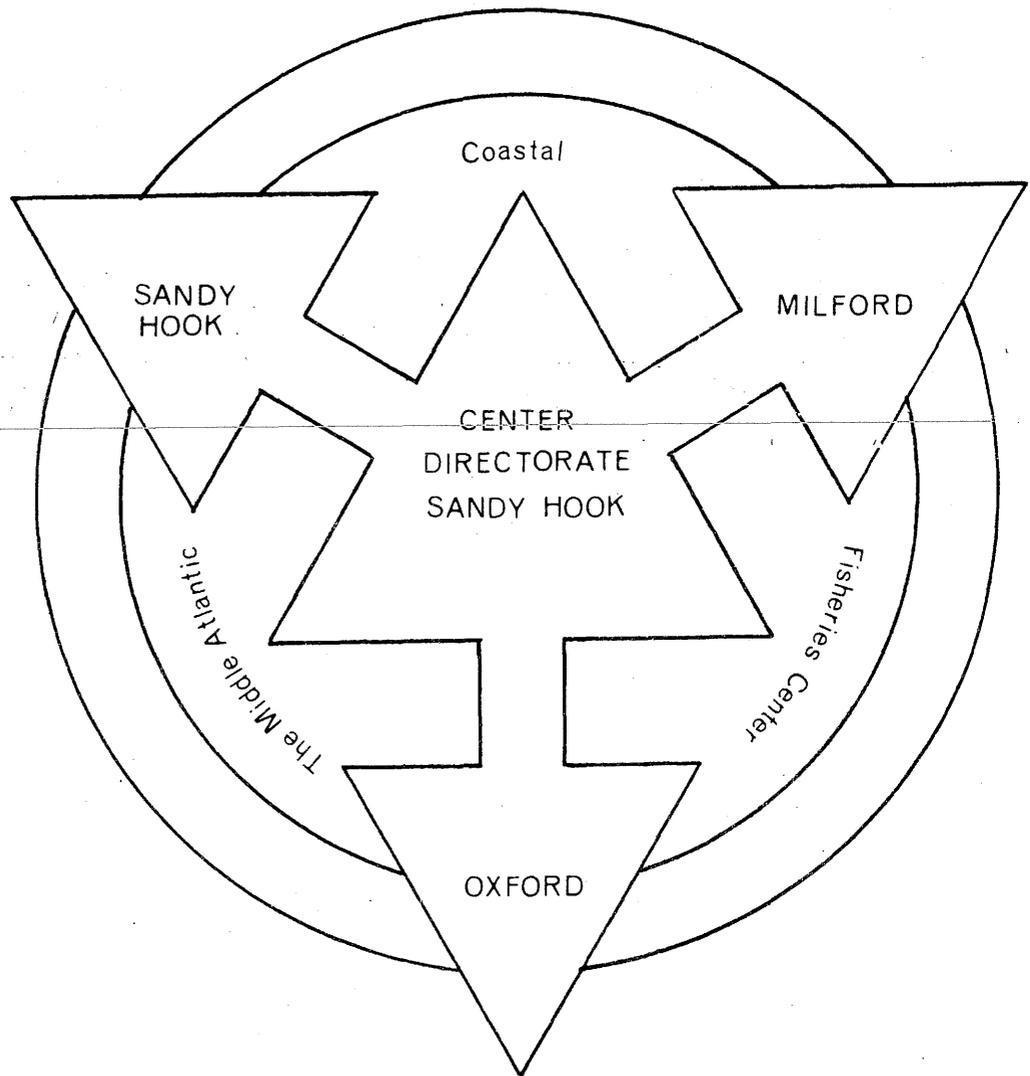


DRAFT RESEARCH PROPOSAL FOR FY 1976  
MESA-NYB FUNDING: "RELATIONSHIP OF COASTAL POLLUTION  
TO PRIMARY PRODUCTIVITY AND ALGAL BLOOMS"



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
National Marine Fisheries Service  
Northeast Region

MIDDLE ATLANTIC COASTAL FISHERIES CENTER



Informal Report No. 59

March 26, 1975

DRAFT

Research Proposal

Submitted by

Middle Atlantic Coastal Fisheries Center  
National Marine Fisheries Service  
National Oceanic and Atmospheric Administration

to

MESA-New York Bight Project Manager  
Marine Ecosystems Analysis Program  
Environmental Research Laboratories  
National Oceanic and Atmospheric Administration

for support of studies on:

RELATIONSHIP OF COASTAL POLLUTION TO  
PRIMARY PRODUCTIVITY AND ALGAL BLOOMS

Total Amount Requested: \$190,800.00

Date: \_\_\_\_\_

Approved by: \_\_\_\_\_

Principal Investigator  
(201) 872-0200

\_\_\_\_\_  
Carl J. Sindermann  
Director, Middle Atlantic Coastal Fisheries Center

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RELATIONSHIP OF COASTAL POLLUTION TO PRIMARY  
PRODUCTIVITY AND ALGAL BLOOMS  
(Narrative summary of proposed research)

This proposal is predicated on continuation of the ongoing integrated primary productivity studies carried on by the Middle Atlantic Coastal Fisheries Center and Dr. Malone of CUNY. It represents an expansion of effort to include greater emphasis on the role of detritus, and a more detailed examination of the effects of pollutants on algal blooms.

Research by the Middle Atlantic Coastal Fisheries Center will concentrate on the following two areas:

(1) The role of detritus in the carbon cycle of lower Hudson estuary, Raritan Bay and the New York Bight Apex will be studied; there is some indication that detritus is of great importance in the total ecosystem in respect to its contribution to turbidity and as a food source for marine animals. We therefore plan to measure standing stocks of dissolved and particulate forms of organic carbon using serial fractionation methods to resolve the following ecosystem compartments: dissolved inorganic carbon, ultraplankton, nanoplankton, net plankton and microzooplankton. Concurrent with standing stock measurements, we plan to measure carbon transfer rates between several compartments of the ecosystem: 1) photoassimilation of inorganic carbon, 2) release of phytoplankton-derived dissolved organic matter, 3) heterotrophic uptake and oxidation of dissolved organic matter. This work would be coordinated with the contract research outlined on the next page.

(2) Recent investigations of plankton blooms in the New York metropolitan waters suggest a relationship between pollution, nutrient input and excessive phytoplankton growth. "Red Tides" in the Bight have frequently resulted in ill health of swimmers, closure of beaches and consequent economic losses conservatively estimated to exceed hundreds of thousands of dollars/year. We propose to study the role of mineralized and non-mineralized nutrients in plankton blooms during FY76. Our investigations will emphasize laboratory and field studies closely correlated to demonstrate the role of pollution in "blooms".

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University contract research which will be a part of this proposal will extend NYB apex phytoplankton-primary productivity studies conducted in FY1974-1975. During this time enough information was acquired to determine where and when more frequent sampling would be necessary to understand phytoplankton growth responses to environmental changes. The principal objective of the contract research will be to quantify the environmental regulation of netplankton and nanoplankton productivity, and to evaluate the relative importance of detritus, nanoplankton, and netplankton to pelagic food chains.

Work Unit: Title: Relationship of Coastal Pollution to Primary Productivity and Algal Blooms

## BUDGET SUMMARY - FY 1976

		<u>% Time</u>	<u>MAN-MONTHS</u>	<u>MESA FUNDS</u>
<u>Personnel Service</u> (15% Benefits - Leave Surcharge, etc.)				
<u>Name or Position</u>				
Dr. J. Pearce, Dir. of Invest.	GS-14	5	0.6	1.8
*Dr. K. McNulty, Fish. Biol.	GS-14	10	1.2	3.2
Dr. J. Thomas, Fish. Biol.	GS-12	50	6.0	11.5
Dr. J. Mahoney, Fish. Biol.	GS-12	90	10.8	20.7
J. O'Reilly, Fish. Biol.	GS- 9	90	10.8	13.5
C. Evans, Botanist	GS- 7	50	6.0	6.5
M. Cohn, Biol. Tech. (Micro.)	GS- 5	100	7.2	6.5
Biological Technician	GS- 4	100	12.0	8.9
(3) Student Trainees, Bio. Sci.				
Biol. Aid	GS- 3	100	36.0	23.3
			90.6	95.9
<u>Travel</u> 3.5				
<u>Transportation of Things</u> .5				
<u>Printing and Reproduction</u> 2.0				
<u>Computer</u> 10.0				
<u>Contracts</u>				
(Maintenance - Inst.) .7				
<u>Support Services</u> 0.5				
<u>Capital Equipment</u>				
Infrared gas CO <sub>2</sub> Analyzer		5.0		
ATP Photometer		5.0		
Recorder (Photosynthetically Active radiation)		3.0		
(5) Millipore Filtration Holders		1.0		
Peristaltic Pump		2.5		
Culture System		6.0		
		22.5		22.5
<u>Supplies and Expendables</u> 7.5				
<u>Total Direct Funds</u> 143.1				
<u>Total Support Funds</u> 47.7				
Total Funds 190.8				

\* MESA Coordinator