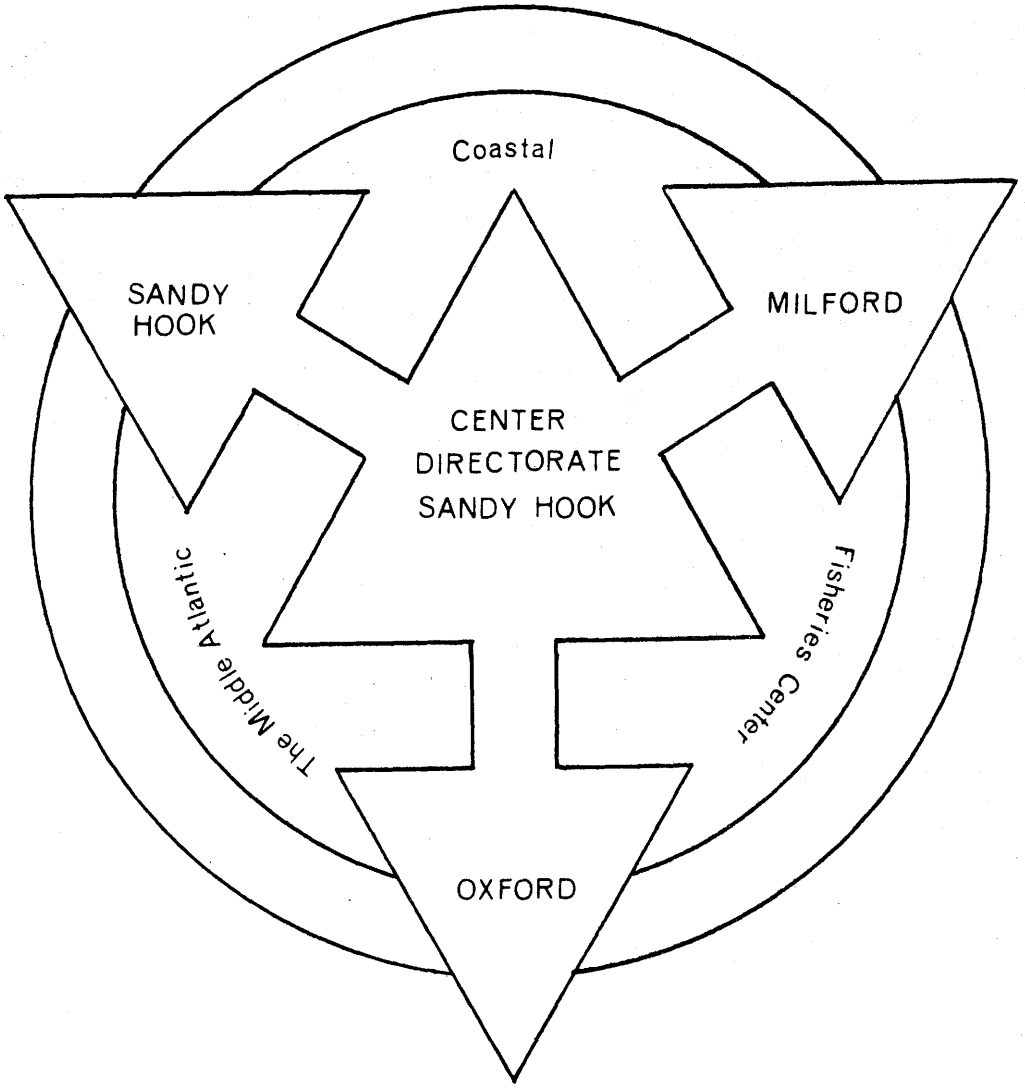
Pre-proposal -- The Effects on Marine Fish and Shellfish of Biologic and Abiologic Controls Utilized in Agriculture

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

MIDDLE ATLANTIC COASTAL FISHERIES CENTER



Informal Report No. 100

March, 1976

The Effects on Marine Fish and Shellfish of Biologic and Abiologic Controls Utilized in Agriculture

Objective:

Several new agricultural chemicals and more recently live or attenuated microbial agents (viruses and bacteria) are in use or soon will be used to control populations of insect pests, snails, etc. We know virtually nothing of how these agents affect "non-target" aquatic species such as fish and shellfish. We plan to determine the chronic pathological effects of bacteria, viruses, and chemical pesticides on populations of marine fish and shellfish.

Plan of Action:

With the cooperation of FDA and USDA to: (1) Perform controlled chronic exposures in the laboratory of selected fish, mollusks, and crustaceans to chemical pesticides, (2) Determine body burdens of pesticides through chemical analysis of tissues of experimental animals exposed to chemical-pesticides; (3) through exposure and inoculation, determine effects of viruses and spore-forming bacteria proposed for biological control on key species of estuarine and coastal fish and shellfish; (4) Survey selected natural populations for effects of the biotic and abiotic agents through histopathology, chemical analysis, and microbiological analysis. Compare results with those obtained by experimental means.

End Product:

Understanding of the pathological changes caused by the various agents in shellfish and fish, so that estimates can be made of damage the agents cause to food chain animals and commercially utilized species.

Benefit:

The ability to predict the effect on populations of fish and shellfish if exposure to the agents occurs or, in the case of many chemical substances, continues to occur. A knowledge of what body burdens of abiotic agents may occur in animals used as human food.

Schedule:

Over a period of 5 years to: (1) Perform chronic exposures to selected pesticides and inoculation and exposure to selected biotic agents; (2) Survey on a continuing basis certain natural populations known to be at risk; (3) Survey populations undergoing unusual exposure to pesticides or mortalities known or suspected to be caused by biotic or abiotic agents.

Milestones:

After each test exposure or inoculation, determination of the pathological consequences to the test animals of exposure to the chemical or biotic agent.

The Effects on Marine Fish and Shellfish of
Biologic and Abiologic Controls Utilized in Agriculture

	1st Year	2nd Year	3rd Year	4th Year	5th Year
Personal Service	50	52	60	66	71
Contracts (chemical analysis)	70	70	70	75	75
Supplies	20	21	22	23	24
Equipment	60	15	15	15	20
Other	12	15	15	15	15
Travel	5	5	6	6	7
	217	178	188	200	212

1st Year	4 People	$217.0K
2nd Year	4 People	$178.0K
3rd Year	4 People	$188.0K
4th Year	4 People	$200.0K
5th Year	4 People	$212.0K