



# Marine Resource Bulletin

A Sea Grant Advisory Service

Vol. XI, No. 1

January/February 1979

## Sea Grant '79 In Virginia



*Researchers at George Mason University and VIMS are participating in a genetic and breeding structure study of hard clams in Virginia waters. Data collected will aid in the development of breeding programs for producing superior lines of clams.*

IN THE 1860's, CONGRESS SAW A NEED to develop the nation's agricultural lands. From this need came the Land Grant Program, a system through which the finest talents in the agricultural field could be applied to the practical needs of our country.

In 1966 a parallel concept was fostered by Athelstan Spilhaus, then dean of the University of Minnesota Institute of Technology. He called it "Sea Grant," envisioning a Land Grant pattern of applying research extension or advisory services and educational programs to today's national needs in the marine environment. The Office of Sea Grant, National Oceanic and

Atmospheric Administration (NOAA) administers the National Sea Grant Program. Through matching funds, financial grants-in-aid are provided to universities, colleges, other groups and individuals carrying out research and educational projects in marine resources.

Sea Grant encourages broad interdisciplinary cooperation among researchers at institutions with Sea Grant projects, some of which concern development and use of the vast resources of the oceans, others dealing with problems in our Great Lakes and coastal states, and still others at the regional and local levels. Local level involvement includes such areas as fisheries,

beaches and shorelines, energy, food, commerce and recreation.

How is funding apportioned? The Office of Sea Grant receives research and educational proposals from various institutions, businesses and groups. Following a thorough review, including a site visit by a team of experts, a particular grant or project may be approved. Generally speaking, approximately two-thirds of project funds come from federal appropriations. The balance may come from state, private, educational or institutional budgets.

Sixty percent of the Sea Grant funds normally are earmarked for research, with the remainder allocated to education and advisory services programs. The Virginia Institute of Marine Science (VIMS) has been a participant in the Sea Grant Program since May, 1968, when its first proposal was submitted. VIMS operational area includes all of the tidal waters of Virginia and the adjacent Atlantic Ocean.

To date, 74 projects have been approved, including 19 for 1979. This unprecedented number of approved projects emphasizes two points: First, National Sea Grant's increasing confidence in the expertise of Virginia's researchers, educators and advisory associates; and secondly, the increasing importance in the national interest of wise management of our marine environment.

The following is a breakdown of the list of projects approved for 1979, including the listing of federal and matching funding and a brief statement concerning the gist of each project.

## **I. MARINE RESOURCES DEVELOPMENT**

### **(1) Mariculture of Shellfish - Disease Resistance**

Sea Grant Funds -- \$ 26,871  
Matching Funds -- \$ 34,689

Participating Institution: VIMS

A study to develop disease resistant strains of oyster broodstock. Such broodstock will be made available to hatcheries for the production of resistant seed. The oyster disease "dermo" (*Perkinsus marinus*) has curtailed oyster bottom culture in some high salinity areas since 1958. It is hoped that this project will help revive the oyster industry in such dermo-prone areas.

### **(2) Genetics and Breeding Structure of Marine Clams, *Mercenaria spp.***

Sea Grant Funds -- \$ 30,108  
Matching Funds -- \$ 15,993

Participating Institutions: George Mason University and VIMS

A study to determine the distribution of genetic variation and to understand the genetic and breeding structure in hard clams of Virginia's seaside, Eastern Shore and in lower Chesapeake Bay. Also, to study and analyze several bay scallop populations in North Carolina and to furnish basic information required for producing superior breeds and hybrids of clams and scallops.

### **(3) Investigations of the Cause and Epizootiology of Mortalities in Soft and Shedding Blue Crabs**

Sea Grant Funds -- \$ 38,650  
Matching Funds -- \$ 19,461

Participating Institution: VIMS

An investigation to determine the cause of large mortalities among blue crabs confined for the production of soft crabs. Anticipated benefits include recommendations for improved industry practices resulting in greater survivability of crabs held for shedding. This will result in providing a greater economic return in the industry.

### **(4) Distribution and Migration of Blue Crab Larvae in the Lower Chesapeake Bay and Adjacent Waters**

Sea Grant Funds -- \$ 51,757  
Matching Funds -- \$ 26,568

Participating Institutions: Old Dominion University and VIMS

A study to determine the role and fate of blue crab larvae hatched near the mouth of Chesapeake Bay. This information, hopefully in conjunction with that from related projects being proposed in Maryland and Delaware, will help re-



*VIMS scientists continue to investigate the cause of high mortalities in soft and shedding blue crabs, an important phase of the summer seafood industry in Virginia and Maryland.*

solve the continuing controversy as to the identity and relative magnitude of the actual source(s) of recruitment of the commercial blue crab stocks of Chesapeake Bay. The resultant data will be utilized by fishery biologists and marine resource managers in Virginia as well as by their counterparts in Maryland and Delaware to formulate a comprehensive and effective coordinated regional blue crab management plan.

#### (5) The Effects of Hemoflagellates on Commercially Important Estuarine Fishes

Sea Grant Funds -- \$ 10,894  
Matching Funds -- \$ 7,515

Participating Institution: VIMS

A study to determine the host ranges of two species of fish blood parasites (hemoflagellates) and their effects on recreationally and commercially important fishes in lower Chesapeake Bay.

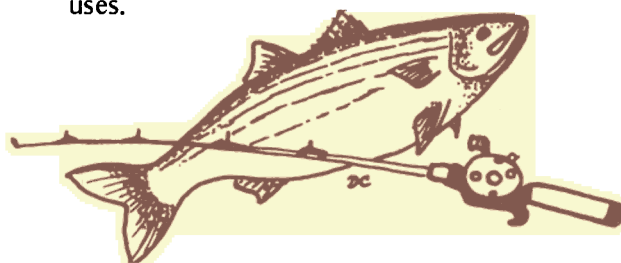
Hemoflagellates are well known parasites of marine and freshwater fishes. This research will provide fisheries management personnel and present and future aquaculture operators with input data to affect management and operational decisions.

#### (6) Studies on the Structures and Biological Properties of the Horseshoe Crab Agglutinin

Sea Grant Funds -- \$ 24,290  
Matching Funds -- \$ 11,855

Participating Institution: George Mason University

Continuing studies of the blood of horseshoe crabs, particularly in use of two methods to isolate the agglutinin limulin. A detailed knowledge of the specific binding characteristics of limulin could lead to its commercial use in blood typing and the study of cell membranes (as a tool to detect differences between normal and malignant cells), among other uses.



## II. SOCIO-ECONOMIC AND LEGAL STUDIES

#### (1) Sport Fishery Citation Data Coding and Storage

Sea Grant Funds -- \$ 13,478  
Matching Funds -- \$ 7,257

Participating Institution: VIMS

A project to encode existing sport fishery citation data for descriptive seasonal and geographic distribution of marine sport fish and fishermen. The general public and recreational fishermen, resource managers, scientific personnel and tourism interests should benefit by summarized catch data of trophy type marine fish and the catch techniques involved.

### III. MARINE TECHNOLOGY RESEARCH AND DEVELOPMENT

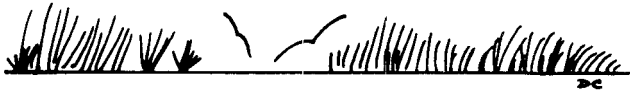
#### 1) Tidal Inlet Management and Research in the Chesapeake Bay System

Sea Grant Funds -- \$ 28,128

Matching Funds -- \$ 28,627

Participating Institutions: VIMS

A program to study tidal inlet-basin behavior in the Virginia portion of the Chesapeake Bay system. Benefits should include: Extended knowledge of the tidal hydraulics of relatively small tidal inlet-basin systems fringing the shores of Chesapeake Bay; application of new data to similar systems; and preparation of an engineering assessment of a select few systems under pressure for development to aid the present knowledge of environmental management agencies, planners and developers.



### IV. MARINE ENVIRONMENTAL RESEARCH

#### 1 Nutrient Mass Balance Studies of Mesohaline Marshes in the Lower Chesapeake Bay

Sea Grant Funds -- \$ 41,584

Matching Funds -- \$ 22,914

Participating Institutions: VIMS and University of Virginia

Identify qualitatively and quantitatively the biological and/or physical processes controlling nutrient exchange between tidal estuarine or intermediate salinity (mesohaline) marshes and estuarine waters. To provide new and supporting information on both biological and physical processes that control nutrient cycling in the salt marsh-estuarine ecosystem. One of the benefits of such a study will be to scientifically establish the importance of preserving and enhancing marsh production and its subsequent utilization by the entire ecosystem.

#### (2) Past and Present Shoreline Trends of the Mid-Atlantic Coast and Wave Advisory Services

Sea Grant Funds -- \$ 28,902

Matching Funds -- \$ 32,591

Participating Institution VIMS

A study of shoreline erosion and accretion trends of the mid-Atlantic coast will prove extremely useful in planning the expanding use of the coastal zone. Information will be provided to all local, state and federal planning and management agencies in the mid-Atlantic region.

#### (3) Oxygen Demand and Estuarine Water Quality

Sea Grant Funds -- \$ 5,695

Matching Funds -- \$ 9,283

Participating Institution: University of Virginia

A laboratory study to establish the biochemical oxygen demand of naturally occurring organic materials in estuaries. Benefits: Researchers will be able to predict the impact of major storms on dissolved oxygen concentrations in unpolluted estuaries and the cumulative effect of natural and cultural biological oxygen demand in altered estuaries. This study also will provide an important ingredient for local and national coastal zone management decisions concerning increased economic development of specific estuaries.

### V. MARINE EDUCATION AND TRAINING

#### (1) Embryology Course Development to Increase Ethnic Minority Manpower Pool in Marine Sciences

Sea Grant Funds -- \$ 9,500

Matching Funds -- \$ 7,052

Participating Institutions Virginia State College and VIMS

Cooperative effort between the Department of Life Sciences at Virginia

(cont. p. 7)



# THE FISH HOUSE KITCHEN

*"Happy as a clam" is an old expression often used to describe a person who is just sitting tight, content with his lot and not talking much about it. It's a nice level to which we all might aspire, and four steps in the right direction and away from ill-conceived humor about this popular shellfish are the recipes listed below. Only trouble is, they're so good, you'll have trouble clamming up after you've tried them.*

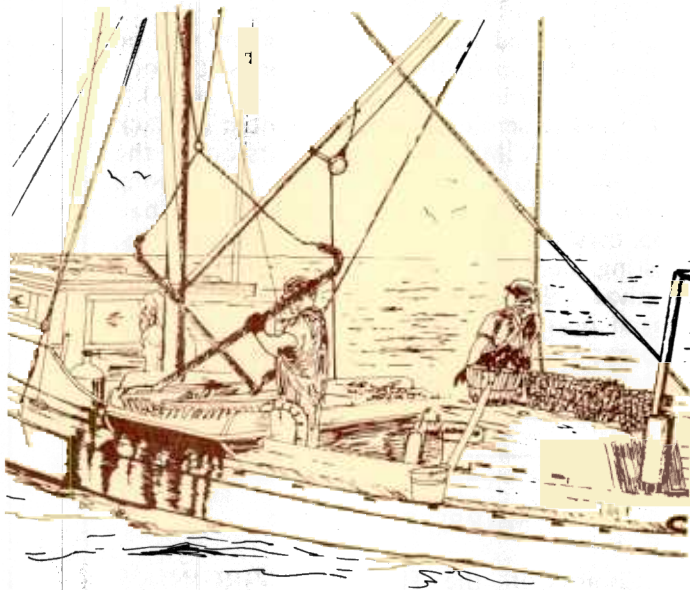
## DEVILED HARD CLAMS

Open enough chowder clams to supply 2 cups of meats and liquid, (or use 12-14 oz. of canned minced clams). Simmer clams, chopped fine, in natural juices for 3 minutes. Melt 3 T. butter in saucepan, add ½ c. minced celery, 1½ T. minced green pepper and 1½ T. minced onion. Cook until tender. Add clams and ½ c. cracker crumbs, ¼ t. prepared mustard, 1/8 t. pepper, dash of salt, 2 or 3 drops hot pepper sauce (more if desired). Stir mixture and spoon into reserved clam shells (or lacking shells, use small baking pan). Sprinkle with paprika and parmesan cheese. Bake in 350 F oven for 12 minutes. Serve hot.

## PILGRIM'S CLAM PIE

|  |                                |
|--|--------------------------------|
| 3 dz. shell clams or 3 cans (8 oz. ea.) minced clams | ¼ c. margarine or butter       |
| 1½ c. water  | 2 T. minced onion              |
| 1 egg, beaten  | 1/8 t. liquid hot pepper sauce |
| ½ c. sliced fresh mushrooms                          | 1/8 t. white pepper            |
| ¼ t. salt  | 1 c. reserved clam liquor      |
| 1 c. Half and Half                                   | 2 T. chopped parsley           |
| 1 T. lemon juice                                     | Pastry for a 1-crust 9" pie    |
| 2 T. chopped pimiento                                | ¼ t. dry mustard               |
| ¼ c. all-purpose flour                               |                                |

Wash clam shells thoroughly. Place clams in a large pot with water. Bring to a boil and simmer for 8 to 10 minutes or until clams open. Remove clams from shell and cut into fourths. Reserve 1 cup clam liquor. (OR: If using canned clams, drain and reserve 1 cup liquor). In a skillet melt margarine. Add mushrooms and onion and cook until tender. Stir in flour, mustard, liquid hot pepper sauce, salt and pepper. Gradually add clam liquor and Half and Half. Cook, stirring constantly, until thick. Stir in lemon juice, parsley, pimiento and clams. Pour mixture into a 9-inch round deep-dish pie plate (about 2 inches deep). Roll out pastry dough and place on top of mixture in pie plate; secure dough to the rim of the pie plate by crimping. Vent pastry. Brush with beaten egg. Bake in a hot oven, 370 F., for 25 to 30 minutes or until pastry is browned. Makes 6 servings.



## CLAM FRITTERS

|                          |                    |
|--------------------------|--------------------|
| 12 hard clams            | ½ t. salt          |
| 2 eggs                   | ¼ t. pepper        |
| 1 c. bread flour         | ½ T. parsley       |
| ½ c. clam juice and milk | 2 t. baking powder |

Mix and stir flour, baking powder, salt and pepper. Add clam juice and milk mixed, half and half, and eggs well beaten. Stir in the clams, which have been washed and cut in small pieces, and the parsley. Drop by tbsp. into hot fat. Fry until golden brown on all sides. Drain on crumpled paper. Serves 4.

## CLAM SOUP

2 cans (7½ or 8 oz. ea.) minced clams  
 1 pk. (10 oz.) frozen baby lima beans  
 1 c. boiling water  
 ½ t. savory salt  
 4 slices bacon  
 2 cans (10½ oz. ea.) condensed cream of chicken soup  
 1½ c. milk  
 1 T. onion powder  
 Dash liquid hot pepper sauce

Drain clams. Place beans in boiling salted water in a 3-quart saucepan. Bring to the boiling point again. Cover and simmer for 10 to 15 minutes or until beans are tender. Fry bacon until crisp. Drain on absorbent paper. Crumble bacon. When beans are tender, stir in remaining ingredients except bacon. Cover and simmer until hot. Garnish soup with bacon. Makes 6 servings.

## SPORTFISHING EXPO '79

"MIDDLE ATLANTIC SHARKS -- What's Out There and How to Catch Them" will be a new addition to the seminar series at Sportfishing Expo in Ocean City, MD March 9-11, 1979. The seminar, to be presented by Jack Musick of VIMS and John Thurston of the Virginia Beach Sharkers, will be among several on how to catch popular river, bay and offshore fish. Boat and tackle exhibits, casting demonstrations and a fishing film festival will round out the activities at the beach resort's convention center. EXPO '79 programs are available from VIMS/Sea Grant Marine Advisory Services, sponsor of the shark seminar.

## MARSH FILMSTRIP

Copies of the filmstrip "VIRGINIA'S MARSHES: a World Between" are again available at \$ 2.50 from the VIMS/Sea Grant Marine Education Center, Gloucester Point, VA 23062. Orders may be placed by phone at (804) 642-2111, Ext. 111.

"VIRGINIA'S MARSHES" was produced with support from the Virginia Wildlife Federation and the VIMS Sea Grant program. The program includes photographs of typical marsh plants and animals, as well as information on their role in a complex ecosystem.

## MEMS GUIDEBOOK

The Guidebook to the Marine Education Materials System (MEMS) may now be purchased at \$5.00 per copy through the Marine Education Center, Marine Advisory Services, VIMS.

MEMS is the most comprehensive collection of marine-oriented materials on microfiche available for classroom use. The system uses 15 distribution centers across the United States.

Included in the MEMS GUIDE are instructions on how to use the system and a list of publications which have been entered. Also, there is an index of descriptors with accession numbers of the publications to which each descriptor has been assigned. The Guide's Author Index and Grade Level Index will help any teacher conduct a complete search of pertinent documents in MEMS.

## SEA GRANT PUBLICATIONS AVAILABLE

**Offshore Pipeline Corridors and Landfalls in Coastal Virginia, Vol. I and II** -- Ann Hayward Rooney-Char and Ronald P. Ayres. *Special Report*, \$ 5.00 for both volumes.

**The Oyster Industry of Virginia: It's Status, Problems and Promise** -- Dexter S. Haven, William J. Hargis, Jr. and Paul C. Kendall. *Softbound book*, \$ 16.00.

**Guide to the Marine Education Materials System (MEMS)** -- Susan C. Gammisch and James A. Lanier. *Book*, \$ 5.00.

**Tidal Wetland Plants of Virginia** -- Gene Silberhorn. *Booklet*, \$ 3.00.

**Sensing the Sea. Curriculum Guide, Grades Two-Three.** \$ 2.00.

**Biology and Identification of Rays in the Chesapeake Bay** -- Joseph W. Smith and J. V. Merriner, Ph.D. *Booklet*, 50 cents.

**Tax Guide for Commercial Fishermen.** *Paper*, Free.

**Advisory No. 15, A New Roe Knife.** *Paper*, Free.

**The VIMS Sea Grant Marine Education Program.** *Booklet*, Free.

**Spring Resource** -- The American Shad -- William Kriete and John Merriner. *Leaflet*, Free.

The above publications can be ordered from the Sea Grant Communications Office, Virginia Institute of Marine Science, Gloucester Point, VA 23062.

## Marine Resource Bulletin A Sea Grant Advisory Service

DICK COOK ..... EDITOR

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William J. Hargis, Jr. .... Director



# Wavelets

## TIDAL WETLANDS --- PART I, SALT MARSHES by GENE SILBERHORN



ALL ALONG THE ATLANTIC and Gulf Coasts of the United States one can find low grassy areas called *wetlands*, or to be more specific, *salt marshes*. The term wetlands is a very good description of these natural areas, since generally they are a combination of land and water. Wetlands may be covered by water most of the time or only during the rainy season. At other times they may even be dry. Usually wetland areas are vegetated, but this is not always the case. A tidal pool, a tidal flat or a spit are examples of unvegetated wetlands.

In this issue of WAVELETS we will be exploring the unique world of salt marshes. The salt marshes along the Atlantic Coast, especially those from Virginia south to Florida, are made up mostly of one species of grass, Saltmarsh Cordgrass. Sometimes it is referred to as Smooth Cordgrass. It is called cordgrass because the scientific word for this grass, *Spartina*, is a Greek word meaning "cord."

Cordgrass is tough and coarse, and the Greeks likely used the stems that grew in their country for making cord for weaving purposes. Saltmarsh Cordgrass usually grows in the intertidal part of the marsh, that area covered by daily tides. On a high tide, for example, most of the marsh where this grass grows is under water. In order to survive in this harsh environment, any grass must be very tough and able to take a lot of bending.

One of the greatest obstacles it must overcome is the high salt content of the water. If you have ever accidentally gulped a mouthful of water while swimming at an ocean-side beach, you know how salty it is. Except for algae, a lower plant form, not many plants can live in such salty conditions. In fact, no other high form of plant can successfully grow under these conditions except *Spartina alterniflora*, or Saltmarsh Cordgrass. This plant must also withstand the pounding of waves during storms or windy conditions, when trees may be uprooted or knocked down. Somehow, marsh grass usually survives with little damage.

Salt marshes are best developed behind barrier islands along the coast from New Jersey to Florida. Barrier islands are usually long and narrow, such as the Outer Banks of North Carolina, or relatively broad and "cigar-shaped" as those along the Georgia Coast. Broad expanses of salt marshes are found just behind the barrier islands where they are protected from the heavy ocean surf. Many of the marshes are so large they are measured in square miles and resemble great, flat prairies. Unlike prairies, however, the marshes are interlaced

with many winding tidal creeks and guts which drain or flood the marshes, depending on the tidal flow.

Marshes have been called "nurserys of the sea." They are called that because many different species of commercial and sport fishes spawn in the thousands of tidal marsh creeks. The young hatchlings remain there, feeding on microscopic crustaceans and other tiny aquatic animals.

One of the greatest values marshes provide to the marine environment is the production of organic material called *detritus*. Detritus is dead plant material (leaves and stems) that is flushed out of the marsh by tidal action. This material is broken down (decomposed) by fungi and bacteria. The tiny particles of organic matter are consumed by clams and oysters. Microscopic crustaceans (tiny shrimp-like animals called copepods and amphipods) feed upon the fungi and bacteria. Minnows (mummichogs) and hatchling fish in turn feed upon the crustaceans. These smaller fish are then eaten by larger fish. This process is called the marine or estuarine food chain. The detritus from the marsh is the basis for the food chain.

Many different species of ducks and geese make their temporary home in these coastal marshes. The marshes offer cover and food for thousands of other birds, too, including such non-migratory species such as the clapper rail and willet.

About 50 percent of the organic material that is produced in a marsh remains there. It accumulates in the marsh where it partially decays. After hun-

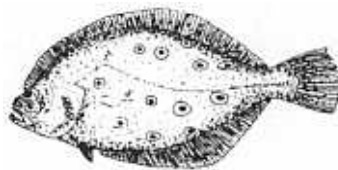
dreds or even thousands of years, it builds up, keeping pace with the rise in sea level (See WAVE-LETS, Marine Schoolhouse Series No. 4). This material is called *marsh peat*. It is a mixture of partially decayed organic material with large portions of mud, clay and/or sand. The peat may be 30 to 50 feet thick in old marshes. This deep peat underlying coastal marshes can soak up thousands of gallons of storm-generated sea water that surges over the low barrier dunes and through the inlets, thereby protecting the mainland behind it.

We can see that salt marshes have many values that benefit nature and man. For this reason, a number of coastal states have adopted protective wetlands laws. Virginia's tidal wetlands law was passed in 1972. Since then, many acres of wetlands have been saved from destruction through man's activities.

*Clapper Rail*



*Flounder*



*Saltmarsh Cordgrass,  
adapted from the  
author's book, "Tidal  
Wetland Plants of  
Virginia."*





State College and VIMS to increase the number of minority students successfully preparing for careers in marine science.

**(2) Sea Grant Intern Program**

Sea Grant Funds -- \$ 37,244  
Matching Funds -- \$ 10,867

Participating Institutions: Old Dominion University and VIMS/College of William and Mary

Provide exposure for outstanding graduate students in marine science to the Washington political process at a period in the student's academic internship program that will prove beneficial to both intern and the host office.

Benefits anticipated are an increased knowledge and awareness of the political process regarding marine matters on the part of outstanding young scientists, and exposure of policy level offices in federal government to the most recent material being taught in marine programs.

**(3) Pilot Program in Environmental Journalism**

Sea Grant Funds -- \$ 13,175  
Matching Funds -- \$ 8,898

Participating Institutions: Norfolk State University and VIMS

A program to: Train undergraduate and graduate students to write and report on environmental issues; provide mid-career training in environmental writing to working journalists (toward increasing awareness of environmental and scientific issues); and help meet the anticipated future need for journalists trained in reporting marine-related issues, thus providing the first Sea Grant program in environmental journalism.

**(4) Marine Education Proposal for Materials and Course Development**

Sea Grant Funds -- \$ 4,932  
Matching Funds -- \$ 3,851

Participating Institutions: College of William and Mary and VIMS

Benefits include: Development and field testing of a hands-on unit to foster awareness of the marine ecosystem for primary and upper elementary grades; marine science awareness and a content unit for upper elementary grades; initial work marine science units for secondary level; and the organization of a marine science workshop for teachers focusing on content and instructional techniques. Modification of the Marine Education Materials System (MEMS) to allow easier access by teachers is another phase of this project.

**VI. ADVISORY SERVICES**

**1) Marine Advisory Services**

Sea Grant Funds -- \$ 168,752  
Matching Funds -- \$ 133,304

Participating Institution: VIMS

Provide assistance and dissemination of information to coastal resource users, managers, researchers and the general public to promote problem-solving activities among user groups. The activities of the Advisory Services program involve constructive assistance to such groups as sportfishermen, commercial fishermen, boaters and any of the general public who are marine resource users. Books, bulletins, leaflets, newspaper stories and TV presentations from this program aid public awareness of the benefits of Sea Grant in Virginia.

**(2) Marine Education Section**

Sea Grant Funds -- \$ 58,286  
Matching Funds -- \$ 15,921

Participating Institution VIMS

A continuation in the improvement of the VIMS/Sea Grant Marine Education Center, including the Marine Education Materials System (MEMS); a continuation of special programs and assistance for museums and public aquariums in Vir-

ginia; a completion of the publication of special elementary teaching materials; initiation of a request-oriented cooperative program for gifted elementary students (toward an increase in national marine literacy) via audio-visual and slide programs, field trips, teacher assistance workshops, exhibits, publications, telephone calls and letters. Also in this effort are pilot programs in elementary marine education in the Gloucester County, Virginia school system and assistance in development of the Mid-Atlantic Marine Education Association.

The Virginia Institute of Marine Science proposes to interact with the National Oceanographic Data Center to develop and test a prototype Data Distribution Network which will provide low cost, efficient access to the national oceanographic files maintained by EDS to potential users at various locations remote from Washington, D.C. The proposed Network will also enable NODC to test more rapid methods of evaluating, processing and accessing new data for their files.

### (3) Development of a Prototype Data Distribution Network

Sea Grant Funds -- \$ 8,120  
Matching Funds -- \$ -0-

Participating Institutions: VIMS and Environmental Data Service (EDS)

## VII. PROGRAM ADMINISTRATION

### (1) Program Administration, Planning and Development

Sea Grant Funds -- \$ 46,348  
Matching Funds -- \$ 37,916

Participating Institution: VIMS



*Fish blood parasite studies now underway at VIMS are keyed to the recreationally and commercially important fishes of Chesapeake Bay. Above, these watermen take blues, croakers and trout from a pound net.*

Jon Lucy

To execute the functional and operational responsibilities of the VIMS Sea Grant Office (administrative and research).

## (2) Program Development

Sea Grant Funds -- \$ 20,000  
Matching Funds -- -0-

Participating Institution: VIMS

This project will provide small local grants to be used to initiate short term rapid responses to local problems urgently in need of solution, and to initiate pilot projects in areas of endeavor which, if successful, may develop into fully supported projects at a later date.

## (3) Sea Grant Publications

Sea Grant Funds -- \$ 28,650  
Matching Funds -- -0-

Participating Institution: VIMS

A fund for preparation costs for publications resulting from Sea Grant


activities in the areas of research, education and/or advisory services.

## VIII. INTERNATIONAL SEA GRANT PROJECT

### (1) Improvement and Application of Ocean Wave Data Acquisition and Modeling Techniques for the Facilitation of Coastal Management Decisions in Israel and the United States

International Sea Grant Funds -- \$ 62,700  
Matching Funds -- -0-

Participating Institutions: VIMS and Israel Oceanographic and Limnological Research, Ltd.

An ocean wave study for the improvement and application of ocean wave data acquisition and modeling techniques. Results of this work, a two-year project, will aid coastal management decisions in Israel and the United States by helping planners predict areas of high erosion potential. This, in turn, will affect site selection of offshore oil rigs, deepwater ports, shallow water ocean mining and spoil deposits. 

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## PUMPOUT REQUIREMENT DROPPED

WHILE THE CASE of *Virginia Marinas versus Health Department* heads towards the state's Supreme Court to resolve the pumpout facility issues, the U.S. Army Corps of Engineers has backed off from its mandatory requirement for such facilities at new and expanding marinas around the country.

In the first place, the agreement by the U.S. Coast Guard to inspect facilities for compliance with the Corps directive has been rescinded. In a letter to the Corps dated December 14, 1978, the acting Commandant for the Coast Guard stated that he must withdraw Coast Guard support and personnel from the prior agreement between the two regulatory agencies. The Coast Guard, in explaining withdrawal of its support, said the entire issue needed more study in light of new

considerations brought to its attention.

The Corps agrees with the Coast Guard's assessment of the situation. In a letter to the Coast Guard dated January 15, 1979, the Deputy Director for Civil Works in the Chief of Engineers office stated that the pumpout condition on permits for new and expanding marinas was no longer mandatory. This means that District Engineers will have discretionary powers in attaching the condition to a marina permit, as they have had in the past.

In the Corps' Baltimore District, Public Notice 543 originally brought the change in policy on marinas to industry's attention. It is expected to be rescinded before March 1. The rescindment (Public Notice 059) will also stress the return to discretionary use of the pumpout requirement.

## CLAM CULTURE COURSE OFFERED

Gloucester Point--The Virginia Institute of Marine Science (VIMS) is again offering a course in culturing hard clams at its Eastern Shore laboratory in Wachapreague. Conducted by VIMS senior scientist Michael Castagna, the increasingly popular course will be offered in two sessions: May 28 - June 1 and June 3 - 8, 1979.

Each session will be limited to five persons. Accommodations are available at the residence dormitory at \$3 per night, and although students must provide their own meals, some kitchen facilities are available in the dorm. Tuition is \$35, with the cost

of books and materials coming to an additional \$15. Students completing the course will be awarded three Continuing Education Units through the Office of Special Programs, College of William and Mary.

The clam culture course, first offered in 1973, is conducted through the VIMS/Sea Grant Marine Advisory Services Office. Applicants should contact either: Michael Castagna, Virginia Institute of Marine Science, Wachapreague, VA 23480, (804/787-3280); or Dr. William DuPaul, Virginia Institute of Marine Science, Gloucester Point, VA 23062, (804/642-2111, Ext. 126).

## MARINA DESIGN CONFERENCE

A Marina Design and Environmental Impact Conference is set for March 12-13, 1979, at the Ramada Inn Old Town in Alexandria, Virginia. Sponsors are the Coastal Plains Center for Marine Development Services and VIMS/Sea Grant Marine Advisory Services.

The conference is directed at marina operators, contractors, engineers and management agency representatives interested in marina development and related environmental issues.

Programs and information on conference registration can be obtained by contacting Sea Grant Marine Advisory Services, VIMS, Gloucester Point, VA 23062 (804/642-2111, Ext. 297).

# Marine Resource Bulletin

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Gloucester Point, Virginia 23062

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