UNIVERSITY OF RHODE ISLAND

SEA GRANT MARINE ADVISORY SERVICE

PROGRESS REPORT

AND

PROPOSAL

FY 1980-1981

Project No. A/AS-3

Title: University of Rhode Island Sea Grant Marine Advisory Service

Personnel:

Administration
Walter J. Gray, Director
Sara S. Callaghan, Assistant Coordinator and Marine Resources Specialist (10 months)

Field Specialists
Duncan Amos, Fisheries Development Specialist
Andreas Holmsen, Marine Economics Specialist (1/3 time)
Jeffrey L. Howe, Seafood Technology Specialist
Neil W. Ross, Marine Recreation and Coastal Utilization Specialist
Prentice K. Stout, Marine Education Specialist

Subject Matter Specialists
Christine A. Duerr, Marine Affairs Communicator
Victoria Desjardins, Publications Editor (1/2 time)
Elisabeth Keiffer, Newsletter Editor (1/2 time)
Margaret D. Mitchell, Publications Coordinator

Support Personnel
Susan Brownell, Information Services Technical Assistant (1/2 time)
Mary McNiff, Secretary (85% time)
Secretary

PROGRAM OVERVIEW

Introduction

The mission of the Marine Advisory Service is to serve as the technology transfer and information link between the URI Sea Grant Program and the marine community of the state, region and nation. In this role, MAS attemptsto assure:

a) the application of research results
b) the education of its community of users through the transfer of all available information
c) the availability of assistance in the wise utilization, management and development of marine resources
d) the provision of services intended to encourage the adoption of new ideas, techniques and practices, and

e) the identification of problems and/or opportunities in the marine community which might become appropriate Sea Grant research projects.

An important responsibility of the MAS is its role in the feedback loop which is designed to facilitate the delivery of information to users and to help users identify problems or opportunities which can become the subject of Sea Grant research investigations or new advisory service projects. At the core of this activity is frequent and intensive face-to-face communication with those involved or interested in marine-related activities and rapport with the University's research faculty.

MAS was established in 1970, subsuming the New England Marine Resources Information Program (NEMRIP) which had been the original advisory service activity funded through URI's first Sea Grant in 1968. This 1970 redirection of effort added a field specialist dimension to what had otherwise been a reactive information and publications emphasis.

Worthy of note here is the participation by URI/MAS personnel in numerous programs and projects that are regional and national in scope. While these activities are outlined later (see MAS Regional and National Projects), it ought to be emphasized that our commitment to regional and national programs is illustrative of the broad perspectives and talents of our specialists as well as the pioneering nature of many of the areas in which they are involved. This is especially true of areas such as fisheries development, marine economics, marine education, seafood processing, marine recreation and publications distribution.

Organization

Organizationally, MAS is part of the University's Division of Marine Resources (DMR) (See Table of Organization). The Division was started in 1975 as the umbrella unit for URI's marine public service programs.

Its primary mission is to put knowledge to work for such diverse audiences as fishermen, seafood processors, resource managers, government agencies, school teachers and marine businesses--any group concerned with understanding developing, managing or utilizing marine resources.

The Division conducts specialized applied research investigations coordinated by its Chief Scientist, on a project-by-project basis. Many of these projects are undertaken in cooperation with the University's Graduate School of Oceanography and with other URI research faculty who participate in the Division's activities.

Besides MAS, the other principal operating unit of the Division of Marine Resources is the Coastal Resources Center (A/CR-5). Affiliated

units consist of the Regional Coastal Information Center, which provides a search-and-referral service for agencies and individuals interested in coastal issues, and the National Sea Grant Depository, which produces indexes and makes available loan copies of all the reports which result from Sea Grant projects across the country.

During the past year the Division was responsible for 45 individual grants and accounts with a value of over 2.7 million dollars.

MAS is made up of one director and a part-time assistant coordinator who also carries out specialist activities. Ten field and subject-matter specialists constitute approximately 8.15 full-time equivalents. One specialist has a 10 month appointment, one is one-third time and two are half-time. The 8.15 FTE's cover the areas of fisheries development, seafood technology, marine recreation and coastal utilization, marine economics, marine education, marine advisory communications, user information services and publications, as well as administration.

MAS is housed in the Watkins Marine Science Laboratory, where, as part of the Division of Marine Resources, it shares space with the Coastal Resources Center (CRC) and the Northeast Regional Coastal Information Center (RCIC). The building is located at URI's Narragansett Bay Campus which is home of the University's Graduate School of Oceanography. The Graduate School comprises 29 calendar-year faculty, 130 graduate students, and another 267 persons (including DMR personnel) in professional, technical and clerical/support positions. The 165-acre Bay Campus also includes part of the URI Department of Ocean Engineering, and a three-megawatt nuclear reactor operated by the State of Rhode Island Nuclear Science Center. Adjacent to the Bay Campus are the Northeast Research Center of the Environmental Protection Agency and the Northeast Regional Center of the National Marine Fisheries Service.

Program Administration

The purpose of MAS administration is to support and facilitate the broad range of educational projects and services conceived and developed by MAS specialists, to assure collaboration with appropriate individuals and agencies in program and project definitions, and to encourage cooperative programming among university and external agencies and individuals. MAS administration also represents advisory service priorities and needs to university and outside administrators, agencies, and the public; provides for MAS specialist review and cooperation in research projects and proposal writing; facilitates involvement in the feedback loop, and supervises and coordinates program goals.

During the past year, the assistant coordinator assumed the role of acting coordinator of MAS while the MAS director served as assistant provost for marine affairs and head of the DMR. In July 1980, the director will resume his role as MAS director.

MAS Regional and National Projects

Attention is directed to the fact the MAS projects--past, current and projected--are considered relevant to the overall objectives of the Office of Sea Grant, the NOAA Marine Advisory Service, and responsive to the various recommendations of the National Advisory Commission on the Oceans and Atmosphere (NACOA), the National Ocean Policy Study (NOPS) and various congressional committees which have reviewed the purposes and objectives of Sea Grant Colleges as well as the Sea Grant College and Program Act. Many of the projects initiated by URI/MAS have significance beyond the borders of Rhode Island. Examples of regional and national MAS activities follow:

Regional

- Marine Awareness Center
- Student intern programs in education
- Feature articles in regional publications
- Fisheries Management radio program
- Clam processing waste technology
- Fish preservation processes
- Refrigeration systems for fishing vessels
- Export opportunities for different fish species
- Dogfish processing potential
- Longlining publication
- Marine diesel engine repair and corrosion and electrolysis workshops
- Red tide brochure and fact sheet
- Computers for Marinas
- Marina design conference
- Fishing/recreation boating safety brochure

National

- Feature articles in national media
- Quality control and inservice training for NMFS
- NFI methods used to analyze fish quality
- Financial management seminars for marinas and boatyards
- Marina and boatyard management skills programs
- Cold water survival and hypothermia treatment workshops
- Floating tire breakwaters

- Boat theft workshop and brochure
- Marine education curriculum development and information requests
- Publications distribution
- User information services
- Specialist talent sharing activities

New England Marine Advisory Service (NEMAS)

Since NEMAS was established in 1975, the University of Rhode Island Marine Advisory Service has been an active participant. The MAS director served as the founding chairman of NEMAS and a MAS representative will continue to serve as a member of the regional group's board of directors. During 1979, MAS personnel contributed 29 days of talent sharing in the form of assistance in marine education, communications, business management and marine recreation.

Liaison with External Groups and Agencies

Throughout the year the MAS administrator and specialists acted in various capacities as a liaison with numerous external agencies and groups.

MAS personnel participated in a working group on "Coordination of Public and Private Sectors" as part of a workshop on Upper Narragansett Bay sponsored by the Center for Ocean Management Studies and a group of state agencies.

Presentations describing the breadth of MAS programs and Sea Grant projects at the University of Rhode Island were prepared throughout the year for various external groups including the National Advisory Committee on Oceans and Atmosphere (NACOA), the Canadian Consul General and Senior Trade Commissioner, the NOAA University Relations Officer, members of the Danish Consulate, and the URI Alumni Association.

Slides depicting the URI Sea Grant Program were gathered and sent to Washington to be utilized in an Office of Sea Grant meeting with their review panel.

MAS administrators attended a meeting of the faculty of the Graduate School of Oceanography to help foster a better awareness and understanding, on the part of both parties, of the research and public service responsibilities of these marine-related groups.

MAS and CRC personnel continued to provide direct services on issues such as coastal management, fisheries, outer continental shelf and nuclear power plant environmental impact statements, among others, to such agencies as the Office of the Governor, the R. I. Coastal Resources Management Council, the State Department of Environmental Management and the State Department of Economic Development.

Cooperating URI Department/Units

Graduate School of Oceanography
Division of University Relations
Division of Marine Resources

Related URI Sea Grant Projects

A/CR-5 Coastal Resources Center
M/PM-1 Program Management
M/PM-2 Program Developement

FISHERIES DEVELOPMENT

Background and Need

Prior to the full implementation of the Sea Grant Program, assistance to the commercial fishing industry by the University of Rhode Island centered around sporadic programs conducted by the former Department of Food and Resource Economics, the Department of Fisheries and Marine Technology, and the Graduate School of Oceanography and its former Marine Experiment Station. While frequently productive, these activities were very much dependent on the particular advisory/ extension interests of individual faculty and staff members and offered the industry little sense of continuity or direction.

The Marine Advisory Service has undertaken many significant fisheries projects since the creation of a full-time commercial fisheries specialist position in 1970. Most projects have been carried out in cooperation with the Point Judith fisherman and other interested fishermen from Maine to Cape Hatteras. A group of prominent skippers from Point Judith has played, over the years, an indispensible role in forming the direction and providing the necessary feedback for Marine Advisory Service projects. MAS fisheries-oriented projects will continue to promote a high level of interaction with the industry.

MAS has been without the services of a commercial fisheries specialist since June, at which time an intensive search for a permanent replacement for MAS's first fisheries specialist began. As a result of a broad advertising effort, MAS will be hiring a new fisheries specialist early in 1980 who comes highly recommended from the Whitefish Authority in the United Kingdom--the world's leading center for fisheries development and training.

Objectives

1. To educate fishermen about better harvesting and fish handling techniques and new or improved gear and equipment.
2. To communicate information to fishermen concerning proposed tools for the management of their industry.
3. To offer advisory specialist visibility to industry groups.
4. To exchange fisheries-related information and discuss major issues and technical applications concerning recent fisheries developments.
5. To initiate and/or participate in research projects resulting from industry feedback concerning problems or opportunities in the industry.

6. To develop and prepare proposals for new and supplementary fisheries development advisory projects.
7. To advise individuals and businesses on issues related to entry into, and areas of service to, the industry.
8. To serve on or advise industry, government and public committees as appropriate.

Approach

1. Hold daily face-to-face discussions with fishermen, fisheries managers and fisheries administrators.
2. Arrange demonstrations of new harvesting techniques.
3. Participate in fisheries gear research projects as appropriate and identify, with industry, subjects for Sea Grant research projects.
4. Issue reports, newsletters, pamphlets and other materials, including those of interest from other sources.
5. Serve on local, state, regional and national committees, task forces, etc. as an advisor on industry issues while avoiding an advocacy posture.
6. Plan and conduct an annual Fisherman's Forum as a vehicle to establish dialogue among regional fishermen, fisheries administrators, state and federal agency representatives, legislators and university personnel.
7. Cooperate with personnel from industry, government agencies, the New England Marine Advisory Service: Sea Grant institutions and similar programs in talent sharing activities.
8. Maintain liaison with appropriate representatives of the regional office of the National Marine Fisheries Service and other NOAA Program Operational Elements (POE's).
9. Coordinate interdisciplinary projects related to areas of concern.
10. Stimulate participation by industry representatives in issues of interest.

Progress During 1979

French Polyvalent Doors

Early in the year a demonstration set of French polyvalent doors was obtained. A schedule was drawn up with eight interested skippers from Rhode Island who wished to test the new type of otter doors on their own small draggers. The doors are still being rotated among members of the fishing fleet and, if warranted, an evaluation of their effectiveness will be forthcoming. A film showing the operation of the doors aboard one of the small draggers was also produced and National Fisherman prepared a feature story on the French doors.

Fisherman's Forum

The annual Fisherman's Forum was held in March at the Dutch Inn in the Port of Galilee. The morning session of the program concentrated on efficient propulsion systems for trawlers. During the lunch break, a demonstration of Avon raft inflation and three half-hour sessions on cold-water survival and hypothermia treatment for fishermen took place. The afternoon sessions focused on a discussion of the French polyvalent doors and featured a film by John Foster, Director of the Fisheries Technology Division of NORDCO, Newfoundland, Canada, which showed how otter boards act in conjunction with nets to catch fish. Approximately 180 fishermen took part in the all-day forum.

Fish Expo Involvement

The 1979 Fish Expo was held this year in Seattle, Washington. MAS contributed films on Scottish seining and underwater observation of seine nets to the film festival. MAS also collected a list of MAS fisheries publications which was made available to PASGAP who prepared a national bibliography for distribution at the event.

Fisheries Information Requests

To continue to answer the large number of requests for information about various types of fishing techniques and gear, the MAS specialists worked closely throughout the year with the MAS Information Center and the Regional Coastal Information Center in providing information on a wide variety of fisheries-related topics.

Projects Proposed for FY 81

Planning Ahead

MAS's fisheries efforts are now more broadly based than ever with varying degrees of specialist concentration in marine economics, seafood technology, marine affairs communications and fisheries development. To assist the MAS in looking at fisheries probelms in a more cohesive manner, an MAS Fisheries Group was established in the fall of 1979. This group will have several purposes. Foremost, the group will act as an inhouse initial review committee for all fisheries-related projects to be undertaken cooperatively by any MAS specialists. Also, the group will expand the scope of the Commercial Fisheries Newsletter next year to include more input from all group members as well as others dealing with fisheries issues from throughout the University. With the new fisheries

specialist joining the MAS Fisheries Group in early 1980, the group will play a vital role in providing guidance and direction which will complement the new specialist's own interests and initiatives.

Cooperating URI Department/Units

Fisheries and Marine Technology
Resource Economics
Management
Division of Marine Resources
ICMRD
Ocean Engineering
Food Science, Technology, Nutrition and Dietetics

Related URI Sea Grant Projects

R/F-29 Fishing Vessel Data Collection
R/F-28 Tank Testing of Industry Trawls
E/FT-1 Fisheries and Marine Technology
A/CR-5 Coastal Resources Center

SEAFOOD TECHNOLOGY

Background and Need

Rhode Island continues to be a leader in New England in the area of seafood processing. Existing processing industries within the state are continuing to expand in the fresh fish and processed products areas. There is a pronounced consolidation effort also taking place and attempts to attract other New England based operations to relocate in Rhode Island have been successful. Recently, it was announced that a fleet of new scallop vessels will be berthed in Newport, Rhode Island to fish the Georges Bank area. These vessels, from the Virginia area, will remain home ported therebut unload their catches for processing and distribution in Rhode Island.

This overall expansion in the seafood processing industry in Rhode Island has partially resulted from a conscious effort on the part of the state's Departments of Economic Development and Environmental Management to attract new and expanding processing industries. New site locations of excess government land are now available and an overall feeling of confidence prevails among dealers and processors in the potential of Rhode Island to provide the basic raw products and economic climate necessary to sustain this expansion.

Members of the seafood processing industry and the MAS Seafood Technologist are continually involved in policy and decision making matters as they relate to specific processing concerns. Last year the Rhode Island Marine Management Council, an offshoot of the Governor's Fisheries Task Force of which the MAS Seafood Technologist is a member, was organized with representation from the fish and fish processing industries. This management council deals with statewide fisheries management issues and coordinates federal policy, mandated by the New England Regional Fisheries Management Council.

The new Department of Food Science, Technology, Nutrition and Dietetics which last year combined the Departments of Food and Nutritional Science, Food and Resource Chemistry, Animal Science and Microbiology at URI, culminated an all-university effort to consolidate and expand research and education programs in food science with particular attention to marine foods. In an effort to promote deeper involvement between the MAS and the university community and to give more depth to the MAS seafood technology program, the MAS Seafood Technology Specialist was named an adjunct assistant professor in the new department. His involvement with the academic component and his close association with the Rhode Island seafood processing industry will continue to lead MAS to cooperate on many new industry sanctioned projects. To further lend continuity to the overall MAS fisheries effort, the seafood technologist will play a leadership role in the MAS Fisheries Group described in the Fisheries Development section of this proposal.

Objectives

1. To serve as liaison between industry and the URI Sea Grant Program for research applications and feedback of potential research projects.
2. To advise seafood processors, dealers and administrators on new product development.
3. To advise seafood handlers and packers on the most efficient seafood handling techniques.
4. To demonstrate the applicability of processing techniques and identify areas of future research needs.
5. To develop incentives designed to stimulate increased interest in, and concern for, improved fish quality.
6. To cooperate with university scientists in research and advisory projects including continued liaison with the URI Food Science, Technology, Nutrition and Dietetics Program.
7. To provide assistance and advice to associations, commissions, agencies and government.
8. To assist industry in operations analysis of processes and procedures.
9. To prepare and/or disseminate technical, scientific, engineering, and economic and business information for the seafood processing industry.
10. To serve as a referral service in identifying sources of technological, scientific, engineering, economic, and business expertise.
11. To stimulate participation by seafood processors, handlers, and dealers in issues of concern to the industry.

Approach

1. Hold frequent personal discussions with seafood processors and dealers.
2. Plan and conduct local and regional programs and meetings including the annual Fishermen's Forum aimed at establishing useful dialogue among seafood dealers, processors, handlers, and fisheries administrators, state and federal agency representatives, legislators, and university personnel.
3. Participate in programming and research planning with the URI Food Science, Technology, Nutrition and Dietetics Program.
4. Participate in research projects as appropriate.
5. Arrange demonstrations of new processing techniques.
6. Assist in technical service programs to assure production of safe and wholesome seafood products.
7. Serve on local, state, regional and national committees, etc., as an advisor on industry issues.

8. Assist industry in application of research results through mass media, workshops, conferences, and seminars.
9. Cooperate with personnel from industry, government agencies and Sea Grant institutions in talent-sharing activities.
10. Issue reports, newsletter articles, pamphlets and other materials of interest from Sea Grant or other sources.

Progress During 1979

Clam Depuration

The political climate for depuration of hard-shell clams within the state has changed within the last year as it is slowly being realized that the problems associated with the Providence sewage system, which are polluting much of the upper portion of Narragansett Bay, will not be solved in the near future, if at all. The main opponents to depuration have traditionally been the watermen themselves who now seem to be in favor of the process as they too realize that the cleaning up of the Providence River may never happen. Depuration of the clams harvested from these affected waters may now be the only way to sustain this shellfishery and the benefit of using methods devised as part of an earlier MAS effort has become evident.

The past MAS effort in the area of clam depuration also yielded a wealth of technological information which has been shown to be applicable to other areas of the seafood industry. The depuration project included an investigation into the location and use of salt-water wells. This work has inspired a professor in the Geology Department and the MAS seafood technologist to begin collaboration on a publication describing the applicability of salt-water technology to other areas of the seafood industry.

Clam Processing Waste Technology

MAS involvement with Blount Seafoods, a Rhode Island seafood processor, is over and research originally sponsored by MAS involving the formulation of clam processing waste into commercial feed for salmon is in its final stages of evaluation. Work is presently underway with a trout farm in Carolina, Rhode Island to evaluate the clam waste feed much more precisely. These findings which will result from Sea Grant funded research projects will be available next year.

MAS has branched out in a new direction utilizing spinoff of the original clam processing waste project. Sea Grant funded research to recover clam wastes from processing operations in a much more efficient manner is currently being undertaken by the Departments of Chemical Engineering and Food Science. Several large companies have already expressed interest in applications of these newly developed techniques for waste water treatment. Additionally, the Sea Grant researcher, who has become the resident expert in waste water treatment, is working with the seafood technologist to evaluate seafood processing waste for the New England area. Presently EPA guidelines for the seafood processing industry are under re-review and may revert to BAT (Best Available Technology) requirements. When made public, this joint evaluation by Sea Grant research and MAS personnel will provide useful information to the seafood processing industry so that they may be prepared when the EPA guidelines officially go into effect.

Multi-Purpose Processing Plants

This project, which was undertaken three years ago with assistance from the Southern New England Fisheries Development Program and the National Marine Fisheries Service, is now complete. The equipment trials were completed in March and a publication describing the outcome of the project and its applicability to industry was made available through the MAS in late December. There has been an increasing amount of interest by all facets of the seafood processing industry to adapt this multi-purpose processing technique to their own businesses. It is anticipated that various degrees of plant modification will occur as a result of this project. The concept of multi-purpose processing simply involves a minimal capital investment in compatible equipment for the purpose of producing different forms of seafood products. The concept is relatively new, and though successful in this one particular instance, multi-purpose processing, freezing and packaging could have a pronounced effect on the seafood processing industry in New England.

Offloading and Materials Handling of Fish and Fish Products

This joint project between the seafood technologist and the fisheries specialist was initiated last year to examine fish handling techniques used both on board vessels and shoreside. First, a NMFS-MAS sponsored seminar was held to establish interest, need and available technology for entering such a project. A review of available automatic sorting, holding, boxing and freezing equipment was made and selected sorting equipment was installed at a shoreside location in the state, which successfully demonstrated the equipment's ability to handle high volumes of scup and butterfish. Success of the project, from the very initial stages,

depended heavily on a financial and logistical commitment from industry and NMFS to move the project forward. The fishing industry's heavy involvement and preoccupation with implementation of the Fisheries Conservation and Management Act contributed to this project not being completed by a March deadline. As deadlines for completion of the project approached, it was suggested by MAS Seafood Technologist that the problem of materials handling might be more effectively and timely if addressed from the vessel viewpoint. NMFS withdrew from this redirection of effort towards materials handling so their involvement in the project ended. MAS continued its interest in materials handling with support from the industry to initiate a project to study chilled seawater, slush ice and refrigerated seawater systems on board fishing vessels. A complete review of available literature was made this year and this project will continue, with funding from Sea Grant, into the coming year.

Fishing Vessel Investment and Finance Workshop

In September, the MAS seafood technologist and marine economist cooperated with the Rhode Island Banker's Association to offer a one-day workshop for the banking community on fisheries vessel investment and finance. The program focused on the vessel side of the commercial fishing operation and addressed such topics as vessel values, vessel economics, capital requirements, etc. It is anticipated that this initial workshop will open the door for future cooperation with the Rhode Island Banker's Association in sponsoring workshops on other aspects of the fishing industry.

Fish Preservation Processes

A cooperative project of the MAS seafood technologist, the Food Science Department and Grumman Allied Industries (a division of Grumman Aerospace of Long Island) to look at hypobaric, enzymatic and chemical processes to preserve fish is progressing well. A great deal of work must still be done to make modification to energy-intensive equipment type of equipment Grumman uses for its hypobaric system of preserving fish.

Seafood Specialization and Intern Program

A great deal of time was spent in formulating a proposed curriculum for the Food Science Department in seafood specialization. The program, aimed at providing a curriculum tailored to industry needs, has recently been reviewed and accepted by the Food Science Department and the National Fisheries Institute. An Intern Program, to provide an on-the-job training portion of the new curriculum, was

also outlined during the year. Full implementation of both the seafood specialization and the intern program will hopefully be forthcoming during the next year.

National Fisheries Institute, Methods Used to Analyze Fish Quality

During the year work was completed on reviewing standard methods of analysis for the seafood industry. Under a $3,000 grant from the National Fisheries Institute, the entire spectrum of methods were collected, reviewed and organized into five major categories which included chemical, biochemical, microbiological, organoleptic and miscellaneous. Review articles on methods for determining fish quality were abstracted for each category. Each abstract was quoted in as complete a form as possible in order to provide reference for further information. This publication, titled "Abstracts of Methods Used to Assess Fish Quality", was produced under the supervision of the MAS seafood technologist in cooperation with the Department of Food Science. To date, 650 copies of the publication have been distributed nationally.

Export Marketing of Scup

During the year the seafood technologist worked with two Rhode Island seafood dealers to explore a plan to expand the export potential for scup. However, the market situation for scup during the last season was not conducive to foreign investment. During the past season, the domestic market for scup was very good and the price remained high, discouraging foreign involvement. MAS still maintains information on export potential for this species and it is anticipated that this information will again be useful for dealers wishing to contract with foreign dealers in future seasons.

Other Seafood Technology Specialist Activities - 1979

- Assisted the Statewide Planning Program in defining needs and establishing facilities guidelines for the present and future Rhode Island Fishing industry
- Continued to serve on the Board of Directors of the Atlantic Fisheries Technologists
- Continued to serve on the Governor's Fisheries Task Force
- Served on the American Heart Association (Rhode Island affiliate) Nutrition Committee
- Acted as group leader of the MAS Fisheries Group
- Coordinated a lecture and slide program aimed at the application of seafood technology and seafood nutrition for secondary schools, home economics classes and seafood consumers
- Continued to teach clambake workshops as part of the URI Summer Session
- Arranged for seafood processor and seafood dealer input to the annual Fisherman's Forum
- Assisted in the preparation of the Commercial Fisheries Newsletter
- Served as a panel member on a New Hampshire Governor's Conference on Food Policy

Proposed Projects for FY 81

Refrigeration Systems for Fishing Vessels

A project has been initiated which will evaluate refrigeration systems for fishing vessels (chilled seawater, refrigerated seawater, slush ice) in terms of design of individual systems for various size vessels, extended food keeping quality of New England species of fish in each system, and the relative costs for installation and operation of each system.

To date a complete literature search on the three systems has been made. In trying to provide information which will be valuable for the fishing industry in general, the MAS seafood technologist and marine economist have done a great deal of data collection and have talked with refrigeration experts in Canada, Scandanavia and the West Coast of the U.S. The Rhode Island fishing industry has expressed a great deal of interest in obtaining information regarding the various systems for their vessels. Because of cost and a lack of specific technology, no Rhode Island vessels have refrigeration systems installed on their vessels. One skipper with two new 85-foot vessels is very interested in applying the

information learned from this project in outfitting his vessels with RSW this spring so that he may fish the offshore herring stock during the warm summer months. It is anticipated that this demonstration phase of the project will open the door for transfer of the new technology to other vessels in the fleet. There is also potential to expand this project to include the shoreside installation of slush ice holding systems or more advanced handling techniques which will be required as the fishing vessels become more sophisticated. This project is scheduled for completion in 1981.

Seafood Specialization and Intern Program

Last year, at the request of the seafood processing industry, the MAS seafood technologist and the Department of Food Science began to conceptualize a Seafood Specialization and Intern Program. The details have been completed and the Food Science Department has fully endorsed the value of the program and is presently negotiating with the National Fisheries Institute to sponsor the program. At their last board meeting, the NFI Education Committee thoroughly reviewed the program and accepted it in full. NFI sponsorship and backing will be invaluable in the institution of this unique program. Seafood Specialization will be a four-year course of study designed to give the student a background in food science, concentrating in the marine field. The bulk of the courses will be food science oriented and will comply with the educational standards of the Institute of Food Technologists. Also included in the program are accounting, marketing, ocean politics, computer science and ocean management to name a few. This specialized program will allow students to enter the seafood business having some kind of background close to the area in which they will be working. Details of the project should be worked out by the spring of 1980 and it is anticipated that students may begin the course of study in the fall of 1980. During summer periods students will register for an intern program where they will gain actual work experience with an operating seafood processing plant. The program scheduling will hopefully be flexible enough so that students will be able to coordinate their coursework and internships in conjunction with the heavy seasonal workload present in the processing industry.

Quality Control Inservice Training

Presently underway is a joint project with the National Marine Fisheries Service to provide inservice training to the quality control inspectors and the quality assessment division of NMFS. As the Seafood Specialization and Intern Program becomes established at URI, it would be natural for NMFS seafood inspectors to come to URI to take some of the same courses in an abbreviated form. These minicourses would be designed as 7 to 10-day courses providing both new information and refresher topics where appropriate. This

program is in the formulation stages and its direction and future will be discussed in a meeting with the head of the NMFS quality division the first of the year. Additionally, it has been requested by NMFS that URI, with coordination from MAS, cooperate with them on a large fisheries nomenclature project which they have recently undertaken. This project was designed by NMFS and the Food and Drug Administration to label fisheries products in a way that the consumer can compare one fish to another on the basis of an edibility scale. Both of these projects will utilize the broadly based marine foods and MAS program at URI.

National Fisheries Institute Scholarship

MAS is the recipient of a new scholarship from the National Fisheries Institute to do additional work in the area of assessment of fish quality. This grant was made to compare the assessment methods presently being used, such as the Torry meter organoleptic methods and a new Dip Stick system of a color indication for fish freshness developed at URI with Sea Grant and NFI support. Different aspects of the seafood industry have uses for all these methods. To promote consistent standards of fish quality in the future it is imperative that a study of this kind be made which will accurately compare the present and new assessment methods. This scholarship will go to a student in the Food Science Department who will begin the study, with assistance from the MAS Seafood Technologist, in 1980.

Cooperating URI Departments/Units

Food Science, Technology, Nutrition and Dietetics
Chemical Engineering
Geology
Fisheries and Marine Technology
Resource Economics
Management
Division of Marine Resources

Related URI Sea Grant Projects

R/T-14 Nutritional Evaluation of Seafood
R/T-13 Recovery of Seafood Industry
R/F-29 Fishing Vessel Data Collection
R/A-15 Brine Shrimp
E/FT-1 Fisheries and Marine Technology
R/T-10 Food Utilization in Food Service Systems

MARINE ECONOMICS/BUSINESS

Background and Need

The purpose of the MAS marine economics/business activity is to provide information of use to businesses, industry and government in decision making processes, to assist fishermen and marine firms in adjusting to federal and state regulations and a changing economy and to offer business advice to marine-related individuals and groups.

In past years, MAS effort in this area has largely been directed toward assisting commercial fisheries interests. MAS has on its staff a one-third time resource economics professor who serves as the marine economics specialist.

Additional business management-oriented issues have been handled by hiring other URI professors with public service interests from the College of Business administration on a part-time basis. This practice has proved very successful and beneficial to all parties involved. The advisory service gains the talents and cooperation of individuals with specific skills and interests, be they in management, insurance, accounting, finance or marketing. Professors who have nine-month contracts with the University and who wish to engage in marine-oriented public service activities may do so by planning and researching programs and workshops for the coming year during the summer months. The program and workshop are then carried out during the academic year.

Objectives

1. To assist in the improvement of the business management of a broad range of marine business, including commercial fishing operations, seafood processing companies, marinas, boatyards and other such commercial enterprises.
2. To offer expert advice to marine firms, state and federal agencies, banks and individuals.
3. To conduct applied, short-term studies and training programs, and to issue reports on timely subjects of interest to the marine community.

Approach

1. Advise individuals and groups on relevant economic and business management issues.

2. Develop short-term applied research projects and issue timely reports responsive to issues in the marine community, including commercial fisheries and seafood processing.
3. Develop, conduct and participate in seminars, workshops and conferences,
4. Assist in identifying subjects for feedback research projects in the general area of economics and business management.
5. Represent MAS to state, regional and federal agencies.

Fisheries Economics Projects

Finance and Tax Assistance for Fishermen

Because earning patterns in the fishing industry in recent years have changed, a large number of questions were answered regarding finance and tax issues as they relate to commercial fishing and those seeking to invest in fisheries interests. The marine economics specialist worked closely with the seafood technology specialist in organizing the program for an all-day workshop on fishing vessel investment and finance co-sponsored by the Rhode Island Banker's Association. At the workshop more than 80 banking officials heard presentations on vessel value, economics and capital requirements. A MAS report entitled "Some Aspects of Vessel Economics" resulted from the workshop. Throughout the year questions from bankers on subjects such as squid freezer/trawler potential and financing of aquacultural endeavors were addressed by the specialist. Assistance was also given in the distribution of the IRS Tax Guide for commercial fishermen.

Increased Utilization of Different Species

Non-traditional fish species have become increasingly marketable. Due to the decline in the international value of the dollar and the exclusion of foreign countries from certain U.S. fisheries, potential markets for the export of these "new" fish species have emerged. During the year the marine economist briefed numerous groups from Maine to New Jersey about the economics of processing dogfish and its export potential. The specialist also met with officials from the National Marine Fisheries Service to discuss other export opportunities to Western Europe.

Fish Handling, Port and Unloading Facilities

With an expanding fishing industry in terms of volume of fish landed, number of species landed and number of vessels engaged in fishing, much pressure has been brought to bear upon existing port and unloading

facilities. Delays in unloading causing loss of dollars to the fishermen and inadequate methods of fish handling for out-of-state and export markets are continual areas of concern. The marine economics specialist has begun a project in cooperation with the Coastal Resources Center and four state agencies (Department of Environmental Management, Department of Economic Development, Statewide Planning Program and the Governor's Office) to look into the future needs for Rhode Island fishing port facilities and to make definite recommendations on the findings. In the fish handling area, the specialist will assist the seafood technologist in preparing the economics portion of the refrigeration systems for fishing vessel project described earlier. Both of these projects will continue into FY 81.

Economics of Specific Fisheries

Many questions from persons either entering, investing in, or studying the economics of specific fisheries are answered each year by the economics specialist. During the year investigation began into the economics and technology associated with longlining. Justification for this project stems from the fact that fuel consumption on trawlers will increase dramatically in the next 4-5 years. Longlining uses only 1/3 the fuel of trawling with less capital investment in gear and mechanical equipment. A publication on longlining will be available to fishermen during the next year.

Other Marine Economics Specialist Activities--1979

- Reviewed two papers on the status of the finfishery and shellfishery in Rhode Island for the Statewide Planning Program
- Prepared a paper on the flexibility of the surf clam fleet for the Agricultural Experiment Station
- Attended public hearings in the Mid-Atlantic on gear conflicts and the mackerel and squid fisheries
- Participated as a panel member on the University of Maryland Sea Grant site visit
- Responded to requests for information from various media outlets including the Narragansett Times and the Christian Science Monitor
- Assisted the Department of Environmental Management with questionnaires on increasing the minimum size of lobsters in Rhode Island
- Served as member of MAS Fisheries Group
- Was interviewed for the NEMAS radio program "Fishing and Our Law" which explored issues related to the 200-mile limit over a 13-week period.

Business Management Projects

Financial Management Seminars

During the year two faculty members from the College of Business Administration presented through MAS financial management seminars, developed for New England marina and boatyard operators to audiences in Florida and western New York. Seminar materials developed at URI were also sent to Sea Grant Programs in Wisconsin, Southern California, New York and Texas.

Marina and Boatyard Management Skills

Based on the demand for and usefulness of information derived from a FY 79 Sea Grant study of industry average financial ratios for marinas and boatyards, preparation of a follow-up series of seminars/ workshops was initiated. The purpose of these second workshops are primarily for cost accounting purposes. Topics covered would enhance the skills of marina and boatyard owner/operators in procedures and techniques of comprehensive recordkeeping and management information processing. These procedures and techniques would include, but not be limited to, financial records, labor and capital productivity assessment, inventory maintenance, revenue/expense planning, establishment of profit centers and pricing policies. Both automated (computer) and manual techniques would be addressed. An advisory publication on "Financial Ratios and Operating Performance of Southern New England Marinas and Boatyards" has been prepared and work nears completion on the development of curricula and materials to be used as part of the workshop/seminars. Presentation of a series of workshop/ seminars will begin in January 1980.

Cooperating URI Departments/Units

Management
Resource Economics
Accounting
Finance and Insurance
Cooperative Extension Service

Related URI Sea Grant Projects

R/F-29 Fishing Vessel Data Collection
A/CR-5 Coastal Resources Center
E/FT-1 Fisheries and Marine Technology
E/ME-2 Resource Economics Ph.D. Program
R/F-26 Capital Stock in New England Fisheries
R/A-13 Economics of Salmon Aquaculture

MARINE RECREATION AND COASTAL UTILIZATION

Background and Need

In the early days of MAS, considerable discussion was held to determine needs and priorities in the marine community of Rhode Island. Having started with an information center and a fisheries development capability, discussions among MAS administration and specialists--together with other University faculty and extension people--centered around additional areas requiring advisory service attention.

Rhode Island's Marine Advisory Service took the early lead within the Sea Grant network with its commitment to marine recreation beginning in 1969 with the hiring of a full-time specialist. Starting with a basic involvement in the boating industry in Rhode Island the scope of MAS projects has expanded into engineering, economics, business management, health and safety, law enforcement, coastal planning, ecology, and agriculture. In addition, geographically the programs have increasingly been of regional and national scope while still serving the Rhode Island client group. Marine recreation continues to be fertile ground for developing advisory programs, research projects, and publications. Marine recreation and coastal utilization are now being recognized within the National Office of Sea Grant and Office of Coastal Zone Management as major areas of significance.

Today, the issues of the multiple uses of coastal areas, economic survival of the small marine-related firms, strategies for coastal protection, clarification of environmental impacts, public access to coastal areas, renewal of urban waterfronts, and increasing or emerging technology relating to marine and aquatic safety all point to the need for MAS projects and expanded involvement of the marine recreation and coastal utilization specialist.

Objectives

1. To develop and implement marine recreation and coastal utilization advisory projects for the state, region, and nation.
2. To work directly with business groups such as marine trade associations, chambers of commerce, environmental and conservation organizations, governmental agencies, individual businesses, among others, to identify subjects for discussion and research.
3. To assist in the development of projects and activities which promote public utilization of the state's shoreline and address the issues of multiple-use and resource management.
4. To develop projects which upgrade the education and talents of firms and organizations engaged in coastal businesses.

5. To coordinate resolution of differences in coastal uses.
6. To assist in the identification of issues which may become the subject of Sea Grant research investigations.
7. To collaborate with URI Sea Grant research, education and advisory service personnel in arranging projects responsive to the needs of coastal user groups.
8. To collaborate with representatives of local, state, regional, and federal agencies in the development of programs responsive to problems of and opportunities for coastal users.
9. To arrange for the extension and application of appropriate projects to regional and national audiences.

Approach

1. Develop state, regional, national, communication links with business, industry, government and public and private groups interested in marine recreation and coastal utilization.
2. Provide mechanisms for feedback from user groups to Sea Grant and other research investigators at URI and around the country.
3. Participate as an advisor to business, government and public and private groups in identification of issues requiring research, study, or discussion.
4. Generate publications, discussion papers, reports and other materials, as appropriate, in furtherance of project objectives.
5. Serve on advisory committees to university, governmental and other units as appropriate; to assist and facilitate discussion of appropriate issues.
6. Coordinate interdisciplinary projects related to area of expertise.
7. Cooperate with regional and national groups in talent sharing and the application/extension of locally-developed projects of interest.

Progress During 1979

Boating Industry and Coastal Zone Management

Since 1971 the recreation specialist has worked with marine trade associations and coastal zone management planners to help create a national awareness of the importance of recreational boating and the need for all groups to work together in developing coastal management strategies. Rhode Island has taken a leadership role nationally in planning for improved boating. In this role the specialist has spoken at local, state, regional, and national meetings in over 22 states to encourage cooperation between marine trades and coastal management officials.

For the past nine years the recreation specialist has played a successful (both high and low profile) catalyst role nationally in bringing boating industry and coastal planner groups together. In most states these groups

now recognize the need to work together and the specialist will continue to work with both groups on specific management issues as the need arises.

During the year, the recreation specialist cooperated with the Coastal Resources Center in the development of their report "Recreational Boating in Rhode Island Coastal Waters--A Look Forward." This report is perhaps the most definitive statement ever written on the status of boating in Rhode Island and will provide coastal management officials in the state with the facts and guidelines needed in guiding the state's future development of boating facilities and public access.

In October, the Second National Boating Facilities Conference was held in Berkley, California and was jointly sponsored by the California Sea Grant Program and the National Marine Manufacturers Association. (NMMA is a new joint organization comprised of the former Boating Industry Association and the National Association of Engine and Boat Manufacturers). The first bi-annual conference was held in October 1977 in Rhode Island and the MAS recreation specialist is now working together with other Sea Grant personnel and the NMMA to plan a third conference to be held in the Washington, DC area in 1981. This conference series demonstrates the effectiveness of Sea Grant specialists working with industry groups to focus on issues relating to recreational boating.

Cold Water Survival and Hypothermia Treatment Workshop

In January, the URI MAS and the Rhode Island Boating Council, Inc. co-sponsored a workshop on cold-water survival and hypothermia treatment. Some 161 participants from 11 states came together to learn how cold kills, how to prevent hypothermia, how to treat it, first aid treatment, and survival techniques. A training manual was produced.

The interest in the program created a bow wave of excitement from across the nation and a demand for more training has been sweeping the nation. As a result of the January program, some significant perspectives have emerged. First, cold is more of a killer than has previously been acknowledged--not only for those who fall into the water by virtue of their professions or recreational interests, but it is also a killer among the elderly whose thermostats are set too low, mountain climbers, skiers, researchers, and military personnel. Second, recent publicity and recognition of hypothermia has generated an overwhelming "need to know." The nation is aware of, but does not yet understand hypothermia. Educators and trainers do not know what to teach. Third, Sea Grant research at the University of Michigan has revealed that perhaps 1/3 of all hypothermia victims in the U.S. who were declared dead could still have been saved at the time final judgement was passed. Fourth, no nationally recognized standards for hypothermia education exist. Fifth, the technology is still emerging and there has not been a large forum for the researchers to gather and share and make common their information.

Sixth, national safety training organizations want to embrace hypothermia in their educational programs but need guidance in developing standards and materials. Seventh, a great "need to know" is raising questions for which researchers do not have answers. Priorities need to be identified for hypothermia research.

International Hypothermia Conference and Workshop Planning

During the year the MAS recreation specialist has brought together the resources and talents of the Rhode Island Boating Council and various URI departments including the College of Nursing and the Department of Physical Education to join with the American National Red Cross, the National Sea Grant Program, the Underwater Medical Society, and the U.S. Coast Guard to co-sponsor an International Hypothermia Conference and Workshop on January 23-27, 1980 in Kingston, Rhode Island.

The first two and one-half days of the program will be an international conference devoted to developing and refining hypothermia technology in urban, field, and aquatic environments. The conference is planned to clarify many of the questions posed by educators and will establish national standards for training. The second two and one-half days will be an educational workshop designed to assist key people in national safety education programs to incorporate hypothermia education into their programs.

Already the American National Red Cross has publicly indicated that they will change their standards and their training programs based on the information developed during the conference. Tangible follow-up will include publication of an annotated bibliography on medical research on hypothermia. A training manual and instructor's manual will be published through the URI Sea Grant Program. Regional training programs sponsored by other Sea Grant programs will be held around the U.S. It is anticipated that these regional conferences will pave the way for additional state and local training and education efforts.

The 1980 program will provide the solid foundation for the re-education of the nation in terms of hypothermia education. The results and spin-off from this single Sea Grant event will be measurable for many years in terms of the potential to save many lives.

Anti-fouling Research

With millions of dollars being spent nationally on preventing fouling growth on boat hulls, cooling water pipes, and research installations, non-chemical alternatives to control fouling are of great interest. With this in mind, a research/demonstration project is now underway in cooperation with the MERL (Marine Ecosystems Research Lab) facility at

URI to comparatively test the value of an ultra-sonic anti-fouling device. At the projects completion, the Graduate School of Oceanography scientists who are studying the system's effectiveness will publish their findings.

Floating Tire Breakwaters

Since its initiation as a Sea Grant research/advisory project by URI and the Goodyear Tire and Rubber Company in 1972, about 90 FTB's have been constructed in the U.S. and Canada to protect marinas and coastal installations from waves of moderate size.

This year's activities relative to FTB's included: 1) continuation of a comprehensive fouling community study begun in February 1977, which will be published as a URI master's degree thesis in the spring of 1980; 2) presenting a paper on FTB technology at a conference sponsored by the University of Wisconsin at Madison; 3) cooperating with the Regional Coastal Information Center on updating and publishing a comprehensive FTB literature search and bibliography; 4) cooperating with the U.S. Coast Guard Academy on a feasibility study of the establishment of a FTB at the Portsmouth, New Hampshire Coast Guard Station; and 5) compiling with the RCIC, a file on all known FTB sites.

While the MAS role in FTB's has diminished substantially as a program priority, inquiries on the subject continue unabated.

Ecology of Marinas and Boats

Continuing an active interest in providing environmental information on marinas and boats which began with the landmark publication of the 1972 study entitled "Ecology of Small Boat Marinas," the recreation specialist participated in a number of activities over the past year. They included: 1) speaking at a VIMS Sea Grant conference on marina design and environmental impact; 2) being keynote speaker at the University of Wisconsin Sea Grant Docks and Marinas Institute in May; and 3) speaking at a NEMAS and URI MAS conference on Design of Facilities for Small Craft Harbors and Marinas.

Marine Diesel Engine Repair Workshop

The 8th annual two-day workshop on diesel engine repair was held in January. Attended by 12 persons from marinas and boatyards in the northeast, the successful workshop was conducted for MAS by the URI Department of Fisheries and Marine Technology.

Boat Theft Workshop

A URI Task Force on Boat Theft, represented by the MAS recreation specialist, the Departments of Insurance, Industrial Engineering and Marine Affairs as well as the Rhode Island Police Academy sponsored the first three-day National Workshop on Boat Theft in March. The workshop brought together 40 key experts from national enforcement, insurance, government, boating industry and academia. Strategies were developed and presented on theft information sharing, prevention, and enforcement. These recommendations were published by MAS and various spin-off programs have resulted from this direction-setting meeting. A follow-up national workshop is under consideration for spring 1980.

Red Tide Brochure and Fact Sheet

"Know About Red Tides! Cruising Boaters Face the Greatest Risk" was a poster prepared by the MAS specialist for the New England Marine Advisory Service. The poster, distributed by participating New England advisory programs, informs boaters cruising New England waters of the possibility of being exposed to paralytic shellfish poisoning. A MAS fact sheet was also produced which further explains the causes of red tide and the role shellfish play in infecting people. As a result of the interest in these two publications, the U.S. Coast Guard is discussing the possibility of URI revising the poster for a national audience for Coast Guard printing and distribution.

U.S. Pre-Olympic Sailboat Trial Involvement

At the request of the pre-Olympic Sailboat Trials Planning Committee, the MAS specialist, in cooperation with the members of the RIBC, organized a special team to assist the Olympic medical rescue teams in preparation for prevention of loss of life from hypothermia during sailboat trials in the Atlantic Ocean off Newport, Rhode Island this year. This effort was so successful that hypothermia training will be an official part of the Olympic medical program in sailing next year and in the future. The sailboat racing committee has not previously given consideration to the implications of cold water immersion nor wind chill exposure during the intense competition. The recent loss of life of 15 sailboat racers of England last August and the awareness of the Olympic Committee of hypothermia have set in motion a real concern about the affects of cold at Olympic competitions.

Computers for Marinas

At the request of the American Boat Builders and Repairers Association, the MAS specialist brought together computer specialists from the URI College of Business Administration with five marina operators to discuss

their accounting needs, to identify applicable computer programs and equipment to meet these needs, and to assist them in making a joint decision on a common system which they would purchase and install in their own businesses. URI will continue to provide advice to these marina operators while working with the American Boat Builders and Repairers Association to explore the possibility of developing an association-wide computer system for marina operators.

Marina Design Conference

In cooperation with other New England Sea Grant Programs, NEMAS and the New England Marine Trades Association, the URI MAS specialist helped to organize a regional conference on "Design of Facilities for Small Craft Harbors and Marinas" in Boston. This four-day event held in December explored all the technological aspects of designing and building recreational boating facilities. This very practical conference was well received by 180 participants, including a good mix of planners, government officials and marina operators.

"Marina Expansion: A Case Study"

One of the presentations at the Boston marina conference was made by two graduate students from the URI Department of Community Planning. Their study, initiated by the MAS specialist, perfectly demonstrated how marina operators can make more efficient use of their land and water resources. The various theoretical strategies were applied to expanding two existing marinas, one in Rhode Island and one on Cape Cod. The alternative development scenarios for each of the marinas demonstrated that existing marina facilities in most parts of the nation can expand the numbers of boats and people serviced within existing land and water spaces. This information, to be further refined and published by MAS next spring, will serve as the basis for the master's theses of the two URI graduate students. The information and graphics presented will be an extremely valuable tool for both coastal planners and marina designers across the nation. Already, the two marinas depicted in the case study have indicated that they are planning to adopt some of the recommended strategies and expect that the profitability of their marinas will increase.

Other Marine Recreation/Coastal Utilization Specialist Activities 1979

- Conducted seminars for students in the URI Master of Marine Affairs Program and Department of Geography
- Presented a paper on marine tourism at a Connecticut conference on tourism development
- Consulted on an archaeological dig on a 17th Century seaport ruins found at the URI Narragansett Bay Campus

- Hosted a spring SCUBA training program in Rhode Island waters for the West Point Military Academy's SCUBA Club
- Elected Chairman of the Rhode Island Boating Council
- Interviewed by the University of Wisconsin Sea Grant for a radio spot on the environmental effects of recreational boating
- Prepared a ten-minute public service program on boat theft control for WJAR TV
- Continued as chairperson of the URI Native American Committee
- Conducted a Rhode Island clambake workshop for the URI summer session

Proposed Projects for FY 81

Boating Safety Brochure

The MAS recreation and communication specialists, along with representatives of the commercial fishing industry, will produce a brochure similar to last year's "Make Way" brochure aimed at informing recreational boaters about avoiding fishing boats. The brochure will attempt to explain or describe the different types of fishing activities including fixed fishing traps, lobster pots, draggers, seiners, long-lining and the activities of foreign fishing vessels. Special tips will be given on fog conditions, night fishing or boats under tow. Commercial fishermen in New England have reported loss of equipment and collisions with recreational boats and have asked that MAS publish an informational brochure to educate the recreational boaters about fishing activities.

Maritime Lecture Series

Cooperating with the Marine Awareness Center, the recreation specialist will assist in organizing a public lecture series to begin in the Fall 1980. The lectures will focus on interesting aspects of Rhode Island's involvement with the sea throughout history. The topics may include: The Rhode Island Navy, the Nation's First; Seaborne Medicine During the Revolutionary War; Building Wooden Sailing Ships; Whaling, Southern New England Style; the Indians of Narragansett Bay; Rhode Island Pirates; and Rum Running During Prohibition.

Floating Tire Breakwaters

Since much of the technological development of FTB's has come directly from the field experiences of those working with the FTB design, the need for a modest program to survey the existing FTB structures in the U.S. and Canada will be explored. It is estimated that approximately 90 such structures have been built. A mail and telephone survey, conducted in cooperation with the RCIC, would identify the location of each

FTB and gather information relating to the success or failure of its component parts. A descriptive listing of FTB sites would be published. Since URI and Sea Grant have been involved in FTB research and construction since 1972, this follow-up survey could answer the three basic questions asked by anyone considering constructing a FTB (Where can I visit a FTB near by home? How much do they cost? How well do they work?).

Ocean State Tourism

Recognizing that tourism plays an important part in the economy of the Ocean State, the MAS recreation specialist will work with state and local officials in exploring the status of tourism in Rhode Island and the potential need for a statewide conference on tourism.

Boat Theft Brochure

As follow-up to the successful 1979 National Boat Theft Workshop held at URI, a brochure will be published outlining simple, but effective, techniques on preventing the larceny of boats and related equipment. This useful brochure will be distributed nationally with possible assistance from law enforcement agencies and insurance companies.

Marine Diesel Engine Workshop

The 9th Annual Marine Diesel Engine Workshop will be held in January 1980 in cooperation with the Department of Fisheries and Marine Technology.

Marine Electrolysis and Corrosion Control Workshops

A series of training programs for boating industry and recreational boaters in southern New England were designed by staff members and graduate students in the Ocean Engineering Department. A portable model, instructional instruments and handbooks for use by the trainers have been developed. Scheduling is now taking place for this program which is designed as a self-contained package which will be available for use throughout the NEMAS network.

Cooperating URI Departments/Units

Management
Finance and Insurance
Marketing
Cooperative Extension Service
Ocean Engineering
Community Planning

Resource Economics
Graduate School of Oceanography
Division of Marine Resources
College of Nursing
Physical Education
Alumni Association
Fisheries and Marine Technology

Related URI Sea Grant Projects

R/D-8 Red Tide Geographical Spreading
A/CR-5 Coastal Resources Center
E/FT-1 Fisheries and Marine Technology
R/MR-3 Marine Recreational Fishing
R/D-6 Mapping and Typing of Toxic Dinoflagellates

MARINE EDUCATION

Background and Need

This MAS activity is intended to create a strong marine awareness and literacy in Rhode Island's elementary and secondary school personnel, special needs and interests groups, students of all ages and the public. Rhode Island calls itself the Ocean State, has 419 miles of shoreline and a population of 927,000--95 percent of whom live within thirty miles of the state's shoreline along Narragansett Bay and the Atlantic Ocean. The projects undertaken by MAS are strongly oriented toward in-state use, but there is a constant awareness of the need for cooperation with regional and national marine education users from throughout the Sea Grant network and other educational institutions.

MAS education projects are primarily designed to complement the programs of Rhode Island teachers and administrators. Efforts are also directed toward the State Department of Education, selected URI oceanography and education faculty, the State Vocational Education Department and the State Department of Special Education. Throughout the year MAS assists other organizations with educational components such as the Environmental Protection Agency, Department of Environmental Management, Audubon Society, YMCA, scouts and various recreation departments.

The underlying educational philosophy followed by MAS is to develop programs that will "educate those who will educate others." This philosophy and the solid relationship between the MAS Marine Education Specialist and other education organizations has created a pyramid effect that has enabled large numbers of students, teachers and the public to be in contact with highly qualified marine educators. The Marine Awareness Center, with its strong collection of curriculum resources and carefully planned dissemination service, has further strengthened this philosophy.

Through MAS, the state's forty school districts and the public continue to be given a broad exposure to the role that Narragansett Bay and the Atlantic Ocean play in the scientific, cultural, political, social and economic aspects of Rhode Island. Progress in educating this constituency with integrated future projects will continue to build on the strong base which has already been established by the education specialist.

Objectives

1. To create awareness of and appreciation for the marine environment of the state and region.
2. To educate those who will educate others.

3. To broaden the base of marine awareness to include art, history, music and literature.
4. To provide a clearinghouse for the coordination of efforts at the local, state and regional level in the creation and dissemination of marine-related projects and curricula.

Approach

1. Work with school teachers in developing units and guides for classroom use.
2. Conduct meetings, workshops, seminars and field experiences for teachers, students, interest groups and the public.
3. Coordinate programming with appropriate representatives of the URI Department of Education, the URI Curriculum Research and Development Center, the State Department of Education, the Department of Environmental Management, the URI Graduate School of Oceanography, Roger Williams Park Museum, and the New England Marine Advisory Service.
4. Develop and make available materials of interest to the public.
5. Develop courses and mini-courses for participants in the URI Summer Session.
6. Utilize the media for general interest marine education.
7. Work with environmental education groups for program guidance.
8. Develop displays, exhibits, slide presentations and films for user groups.
9. Provide supportive services for marine education programs of interest to the Rhode Island and regional audience.
10. Solicit feedback from user groups for future programming.

Progress During 1979

Marine Environmental Education Exhibit and Resource Center

A permanent exhibit and resource center focusing on Narragansett Bay opened in December at Roger Williams Park Museum in Providence, Rhode Island. The exhibit, which was a cooperative effort of Sea Grant, the Rhode Island Coastal Resources Management Program, the Providence Department of Public Parks and the Friends of the Park Museum, portrays the history of the Bay, describes its plants and animals, and explores ways that people use the Bay for their work and recreation.

Within two weeks of the opening, the exhibit had over 4,000 visitors. Educational and school visitation programs will be part of MAS continuing education programming.

Marine Awareness Center

A second-year grant was funded by the National Science Foundation for the operation of the Marine Awareness Center (MAC) located at the Narragansett Bay Campus of URI. The Marine Awareness Center (MAC) is designed to assist students with research materials for term papers and projects to help teachers prepare subject matter for the classroom, and to aid the interested layperson with marine reading materials. MAC has available over 3,000 marine documents with marine-related curriculum guides. It has microfilm collections of field trip and curriculum guides, and can provide experiments and laboratory exercises, field trip materials for educators. A large selection of color slides is available on loan. An NSF award of $28, 567.00 was granted MAS for the dissemination of marine science material to kindergarten through sixth grade Rhode Island schools. During the first-year grant an intensive dissemination program for seventh through ninth grade teachers and students revealed that a total of 115 schools were visited, 880 inquiries were answered with specific material and 27 workshops were conducted around the State. In addition this grant has allowed the Marine Awareness Center to contribute to the efforts of Maine, Massachusetts, Connecticut and New York in setting up similar dissemination centers. National response through Sea Grant and the National Marine Education Association has been gratifying. The Center, now the largest in the nation, is staffed by a Project Coordinator and volunteer assistants.

Marine Bibliography

A full catalog of all the holdings of the Marine Awareness Center was distributed to over 300 schools and libraries. In addition an updated version has been distributed to the original mailing list and to Sea Grant marine educators, as well as to members of the National Science Libraries Association. This collection, called the Sawyer Marine Resources Collection, has assisted many students in answering questions for term papers and teachers who seek specific information for classroom use. The National Marine Education Association also used this collection as a study guide for workshops conducted at their national meeting.

New England Resources Publication

Continued efforts have been directed toward the New England Water Study Manual. In consultation with members of the NEMAS education community, the National Marine Education Association and the Massachusetts Marine Educators, a change in focus now emphasizes individual chapters comprised of study guides on specific issues related to the water world. The specific issues were chosen as a result of inquiries and requests for information received by the Marine Awareness Center staff. Publication of a sample Chapter is planned for FY 80. Research and writing will continue.

Fact Sheet

The authorship of the popular one-page fact sheets has broadened to include members of the Marine Advisory Service staff and teachers who participated in the NSF-sponsored, teacher-training seminar held in April and run by members of the URI Department of Education and the Marine Education Specialist. Also some existing fact sheets were reprinted in Spanish. Other language translations are planned.

Summer Interns

Two summer interns, one from the University of Maine and the other from Middlebury College, participated as instructors in the Marine Advisory Service summer "Marine Awareness Program." These summer interns assisted the marine education specialist in the daily operation of the program and had the additional opportunity to work in other departments of the URI Graduate School of Oceanography.

Marine Awareness Summer Program

Sixteen high school students took part in a broad survey course on marine-related topics. They received a series of lectures on such topics as marine careers, fisheries economics, biological survival in various zones of the ocean, chemical and physical oceanography and law of the sea. They also took part in field trips to a major Rhode Island fishing port, New Bedford Whaling Museum and the Mystic Aquarium and Seaport. Each student was required to write a paper at the end of the three-week program. These papers are on file at the Marine Awareness Center. The funding for this program was provided through the URI Summer Session and the URI Sea Grant Program.

R/V Endeavor Study Manual

An outline for a proposed study manual has been completed. The manual consists of eight months worth of daily location reports from URI's research vessel ENDEAVOR which were received by the URI Marine Superintendents office, a copy of the User's Manual for the ship and a collection of slides with a script that depicts the working parts of the research vessel. These location reports will now be printed and distributed to participating schools as a total information package enabling students to plot her course and learn more about the operation of the ship. This manual will now allow the teachers and students to work on this project in a given time frame rather than have it continue out through the whole school year as was originally planned.

Portable Educational Exhibit

Two 30 x 30 inch portable display units were created and have been widely utilized. These display units are simple to change for each special application and the photographs used in them come from the extensive slide collection at the MAS. Representatives of display sites have included the New England Fisheries exhibit, The Rhode Island Maritime Heritage Festival and the New England Regional Garden Club as well as various schools throughout the state.

National Science Teacher's Association Involvement

At the 1979 National Science Teacher's Association, Meeting in Hartford in October, the URI Marine Education Specialist arranged for various marine program directors to present papers at the broadened marine education sessions. Those presenting papers included such marine educators as Dr. Howard M. Weiss of Project Oceanology, Mrs. Bernice Nadelmann, a special needs teacher from New York, members of the staff of the Atlantic Center for the Environment and Dr. Warren Little of the New England Aquarium. The URI Marine Education Specialist gave two presentations--one on infusion techniques for high school marine education and the other dealing with the Sea Grant marine education programs nationwide.

Marine Events Calendar

For the first time a marine events calendar for the 1979-80 academic year has been printed and distributed to over 900 schools, civic groups and interested persons. The calendar outlines all the various marine events sponsored by the Marine Advisory Service and the Marine Awareness Center and the coastal management program. It was attractively designed by a member of the MAS staff and coordinated with all follow-up correspondence to schools and groups.

Slide Collection

The Marine Advisory Service slide collection continues to grow. With full cataloging completed this year, the collection continues to be useful to education personnel, civic and public groups and governmental organizations. Its collection covers the New England marine area and deals with a wide variety of marine related themes. This collection is used extensively by the coastal management lecturers and will be useful in the multisensory approach to special needs education mentioned elsewhere in this proposal.

Curriculum Information Requests

During the year the Marine Education Specialist continued to work with various Rhode Island schools on specific curriculum requests. In addition he assisted in the research and publication of Rhode Island Naturally, a marine study manual for younger students authored by Roger and Gail Greene. This volume was published by the Rhode Island Audubon Society and the Department of Environmental Management. Assistance was also given to the Providence Recreation Department for the creation of curriculum material for the Cronin Center for Oceanography and to Roger Williams Park Zoo in production of their "wetlands" manual.

School and Public Marine Awareness Programs

The phase of the education program is being handled by lectures sponsored by the Rhode Island Coastal Management Council and supervised by the Marine Advisory Service education personnel. During FY 79 over 255 lectures were given on coastal issues.

Other Marine Education Specialist Activities--1979

- Participated in dedication of the "Blue Lobster", a mobile 4-H marine education trailer
- Provided a display and information for public cruises of Narragansett Bay offered as part of coastal awareness week in Rhode Island
- Sponsored a field trip to a rocky intertidal area as part of coastal awareness week
- Contributed to the marine literature and Rhode Island columns in the National Marine Education Journal Currents
- Served on review panel for New Hampshire/Maine Sea Grant site visit
- Provided background information to architect of possible future marine public service building
- Served as a member of the Graduate School of Oceanography space committee

Projects Proposed for FY 81

Theatre Project

Working with the URI Theatre Department the marine education specialist submitted a proposal to Sea Grant for funding to support three to five experimental marine-related plays to be presented to Rhode Island schools. The school students will take part in these experimental plays written by URI theatre majors. Once these plays have been presented and evaluated, they will be printed and scripts and video tapes will be placed in the Sea Grant marine education network and with members of the National Marine Education Association.

Vocational Education Involvement

The marine education specialist has been working closely with the Narragansett Bay Cooperative, a consortium of South County, Rhode Island schools, on a comprehensive marine vocational program. Using the Sea Grant funded research created by the SALTS program, explained in last year's proposal, we are exploring ways to utilize this research. At present talks are ongoing with the Director of the Cooperative and the YMCA's Camp Fuller staff. It is hoped that part of this extensive Camp could be utilized as a study area for vocational programs. The marine education specialist is assisting the Camp Fuller staff with a marine science program that will dovetail with the vocational program.

Mets Course

METS, an acronym for Marine Educational Techniques Survey, is a course for teachers to be taught in the spring semester of 1980. Utilizing the extensive collection of marine-related curricula at the Marine Awareness Center, this course is designed to assist teachers to use this curriculum as infusion material in their daily classroom work. Credit for this course has been applied for through the URI Department of Education and will be taught by the Marine Education Specialist. The Marine Education Specialist taught a pilot version of the METS course last spring.

Slide-Tape Presentations

Extensive efforts will be directed toward developing additional marine-related slide/tape presentations for all marine education users. Utilizing the extensive slide collection at the Marine Advisory Service, and the curriculum material at the Marine Awareness Center, new slide/tape presentations can easily be produced. Also, when dealing with special

needs students with learning disabilities, the presentation of curriculum material that must be read may be beyond their grasp. However for these users a multisensory approach inherent in slide/tape presentation is within their capacity.

It is hoped that the availability of a variety of slide/tape presentation will help MAS to reach even more educators while also cutting below on travel expenses for student lecturers.

Curriculum Development

A significant amount of the marine education specialists time during FY 80 will be devoted to curriculum development. With the extensive capability of the marine curricula housed at the Marine Awareness Center, and with the two dissemination grants from NSF, educators within the state have asked for the creation of new and more specific curriculum to be written focused on Rhode Island's unique marine heritage. Such topics as a marine study guide for Narragansett Bay, Rhode Island's marine history and the socio-economic impact of the oceans on Rhode Island will be part of this overall Rhode Island focus.

"Special Needs" Curricula

With educational systems placing greater emphasis on "special needs" students receiving broader exposure to educational topics, including the marine environment, a large portion of FY 80 will be devoted to the creation of material for this group of student. Working with the Rhode Island Department of Special Education and a "special needs" advisory council formed in 1979, a carefully planned approach to this much needed and little addressed sector of education will take place. A grant to fund further dissemination of this newly created material will be submitted to the National Science Foundation for possible funding.

Cooperating URI Departments/Units

Education
Graduate School of Oceanography
Cooperative Extension Service
Audio-Visual Center
Division of Marine Resources
Division of University Relations
Summer Session
Zoology
History
Graduate Library School
Theatre

Related Sea Grant Projects

E/D-1 Dramatic Performances with Marine Subjects
A/CR-5 Coastal Resources Center
E/FT-1 Fisheries and Marine Technology

COASTAL MANAGEMENT

Background and Need

Since 1971, URI has had an involvement in the area of coastal management through the activities of the Coastal Resources Center (CRC). The MAS and CRC are units of the URI Division of Marine Resources and share office space and support services at the Narragansett Bay Campus. The mission of CRC, which is partially funded by Sea Grant, (see A/CR-5) is to apply the skills of social and natural scientists within the university and elsewhere to practical problems in coastal zone and marine resources management.

Since its inception in 1971, the Center has been concerned with the development of information and management techniques which resulted in the formal approval of a Rhode Island Coastal Resources Management Program by the Secretary of Commerce in May 1978. To implement the Program, Rhode Island will receive approximately $1,000,000 annually. Throughout the planning phase for the Program and continuing into the implementation phase, the education specialists associated with the URI Division of Marine Resources have received support from the R. I. Coastal Resources Management Council (CRMC) for carrying out public participation/education programs. These programs have included holding numerous workshops and field days, producing exhibits and slide shows, developing speaker's programs, running an annual essay contest, and writing a variety of curriculum materials and public-oriented brochures and flyers.

The Marine Advisory Service's close working relationship with the Coastal Resources Center has remained the reason that it has been unnecessary for MAS to employ a full-time specialist involved in the wide range of coastal management matters. The Center's small and highly diversified staff of specialist have technical expertise in resource planning, fisheries, energy, estuarine ecology and business economics and will continue to provide advisory services in the area of coastal zone management.

Progress During 1979

Exhibits and Materials

With the Rhode Island Coastal Resources Management Program solidly involved in its implementation phase, assistance was provided to compliment the MAS education activities taking place at Roger Williams Park Museum. The coastal program made funding possible for the construction of a large 6' x 12' topographic model of Narragansett Bay which is the premier portion of a permanent exhibit entitled the "Narragansett Bay Room" at the museum. Educational materials in the form of a large collection of marine-related children's books were

also made available for inclusion in the museum's Resource Center, Because of the museum's close proximity to nearly 60% of the state's school children and its urban setting, the Narragansett Bay Room which opened in December, should serve an audience of over 100,000 annually,

Speaker's Programs

Since 1974, speaker's programs have been the mainstay of this continuing education program. Each year the lectures have attracted more attention. The audience over the years has expanded to include elementary classes, senior citizens, junior high and high school home economics classes as well as church, civic and environmental organizations. During the last year lectures were given to 255 groups reaching over 7,600 individuals. The lecturers had direct contact with over 200 teachers and had the opportunity to share with these teachers a resource box of marine-related materials which are available to them through MAS's Marine Awareness Center.

Coastal Resources Essay Contest

This year's fourth annual essay contest was entitled "Rhode Island's Coastal Resources: Why are they Important?" The contest attracted 84 essays from 21 Rhode Island schools. Award winners in both the science and english category were presented congratulations from the Governor at the annual awards dinner.

Curriculum Development

Since 1977, the education specialists have been responsible for the production of two sets of curriculum materials relating to coastal management for use in Rhode Island Schools. The first was a very successful, "Down Where the Water Is: A Coastal Awareness Activity Book" and an accompanying "Teacher's Activity Guide to Coastal Awareness". These materials have been widely distributed and to date have been requested by over 450 elementary teachers in Rhode Island and programs in 42 other states including other Sea Grant Programs. The R. I. Coastal Resources Management Program continues to take responsibility for mailing of the materials, and to date have distributed over 33,000 activity books and 1100 teacher's guides. During the past year requests for the 7th, 8th, and 9th grade units on "People and the Sea" were also answered and the Marine Awareness Center continued to provide teachers with marine-related curriculum materials aimed at the humanities.

Projects Proposed for FY 81

Speakers and Programs

With funding for public participation and marine education from Rhode Island Coastal Resources Management Program, the elementary, secondary and adult speakers programs will continue. Many new slides for the programs will be taken and will be used in all the speaker's programs and will be maintained as part of the overall MAS slide collection. Evaluation of the effectiveness of past speaker's programs will take place to determine the most effective format of the lectures for next year.

Workshops and Field Days

Field days and hands-on workshops for training teachers will be held which will focus on a variety of coastal-oriented topics. Designed to improve the awareness of teachers and the public of our coastal environment, the field days and workshops will help to reinforce the continued need for comprehensive long-range planning and management of our coastal resources.

Exhibits and Materials

Future educational programming associated with the Narragansett Bay Room at Roger Williams Park Museum in Providence, RI will take place over the coming year. Educational materials produced as part of the coastal management program will also be distributed from the new resource center at the museum.

Curriculum Materials

MAS will continue to assist in acquiring and developing curriculum materials, producing bibliographies, and providing schools with packages of materials relative to the coastal environment.

Cooperating URI Departments/Units

Division of Marine Resources
Division of University Relations
Audio Visual Center
Education
Graduate School of Oceanography

Related URI Sea Grant Projects

A/CR-5 Coastal Resources Center
R/CL-1-6 Coastal Ponds Project
A/RS-1 Applications of Remote Sensing
R/E-13 Impact of Mosquito Ditching on Salt Marsh Avifauna
E/ES-15 Geochemical Cycling of Compounds in the Providence River and Narragansett Bay
R/ES-14 Circulation Dynamics of Narragansett Bay

MARINE ADVISORY COMMUNICATIONS

Background and Need

University research is often of immediate benefit to society. However, in many areas it is publicized only through scientific and technical journals.

URI's marine communications efforts are aimed at keeping people informed about developments within the university's Sea Grant Program which they may put to work in their daily lives, whether it is to increase economic benefits, to raise the level of quality and safety in leisure activities or to enrich their knowledge of the marine environment. These communication efforts also assist a variety of audiences in identifying marine-related specialists and researchers from within the university who may be able to help them answer a host of marine-oriented questions.

Because New England is a small region, communications are often not confined within state boundaries, and projects and activities of URI's marine communications team are often regional in focus. Many cooperative programs with other Sea Grant universities and outside organizations take place each year. If it is appropriate to do so, communications are also directed nationwide.

Objectives

1. To provide wide exposure for results from URI Sea Grant projects in research, education and advisory services.
2. To help promote the application of Sea Grant research results by specialized audiences through specialized articles.
3. To provide communications support to MAS activities.
4. To edit, publish and promote Sea Grant publications.
5. To acquaint various media with topical marine issues being addressed by Sea Grant and other university researchers and advisory specialists thus completing the feedback loop.
6. To inform specialized and general audiences about the marine environment and how university activities contribute to daily business and pleasure activities.

Approach

1. Initiate dialogue with participants in the URI Sea Grant Program to determine communications' potentials and needs.
2. Write and supervise distribution of news releases and feature articles to newspapers, trade and professional journals, and other appropriate print media.
3. Arrange for production of radio tapes and TV clips to accompany news/feature releases.
4. Arrange for the writing and production of public service announcements for radio and TV outlets.
5. Write and supervise distribution of bi-monthly MAS newsletter and assist in production of the bi-monthly Commercial Fisheries Newsletter.
6. Collaborate in design and production of MAS exhibits and displays.
7. Cooperate with school and public marine education specialists in the promotion of school and public-related projects.
8. Provide media support for all facets of MAS projects.
9. Aid in the identification of broader user groups for Sea Grant products.
10. Work with media personnel to generate an awareness of topical marine issues and to facilitate their access to university specialists and knowledge.
11. Establish uniform procedures for editing, designing and producing quality Sea Grant Publications.
12. Assist in advertising and distribution of Sea Grant and other marine publications.

Progress During 1979

Information Dissemination

During the year 60 news releases were sent to newspapers, trade publications, organizations and broadcast media to publicize events, to respond to an informational need or to report on research projects. These releases were used by state and regional newspapers as well as a cross-section of trade journals, magazines and newsletters concerned with the marine environment. Campus activities were digested in the six issues of the Marine Advisory Service Newsletter which were written and distributed to an audience of 1,500. Additionally, at the request of magazines or newspapers, special features were prepared. These included an article on URI's international Sea Grant project in Malaysia for an international marine policy journal; an article on the strategy for coping with boat theft, developed at a conference hosted by URI's marine recreation specialist, for the National Auto Theft Bureau's Journal, a newsletter which goes to 500 insurance companies nationwide; an article on Rhode Island menhaden fishing which illustrated the university's contributions to fishermen training and studies of resource questions for the major state daily newspaper's Sunday Journal Magazine; and two articles on the accumulation of plastics in the marine environment one of which appeared in Yacht Racing/Cruising.

In connection with conferences and meetings sponsored by Sea Grant, on numerous occasions advance publicity was conducted and invitations were extended to members of the press with a special interest in the topic. During the conferences, assistance was lent to the press in identifying issues and individuals of importance for articles. Follow-up articles either were prepared by the communicator or by outside writers. An example is the hypothermia conference for which the communicator prepared an informational piece on cold-water survival that was distributed to coastal newspapers in New England and for which the NEMAS Information editor wrote an article published in the New York Times Sunday Magazine. Similar services were provided for the Fishermen's Forum, the COMS annual conference, and the Boat Theft Strategy Workshop.

Other forms of communications support extended to researchers, advisory specialists and educators included flyers and poster preparation, logo designs, fact sheets, etc.

TV news spots obtained during the year on Providence television stations focused on boat theft, hypothermia and cold-water survival; fisheries management issues discussed at the COMS 1978 annual conference; fishermen's Forum; Sea Grant research on the use of surfactants to cleanse shellfish processing wastes; and travel patterns for the drifter study conducted when the oil tanker ARGO

MERCHANT sank in December, 1976. Radio news coverage obtained was based primarily on news releases. The marine affairs communicator contacted the producer for the "Man and Molecules" a national radio series on science and arranged for interviews with scientists.

Roger Williams Park Museum Exhibit on Narragansett Bay

The marine affairs communicator assisted in developing the museum exhibit concepts; in writing copy for static displays and the script for the topographic model of Narragansett Bay; in furnishing some of the photography; and in providing technical assistance to other writers. She also developed, in conjunction with the MAS acting coordinator and museum officials, a publicity plan to announce the new exhibit.

MAS Radio-Newspaper Project

The marine affairs communicator developed the concept and format for a 60-second general informational radio and newspaper marine filler program. Topics for this year-long series will focus on marine research, information and issues of interest to Rhode Islanders. A consultant was hired to assist in the technical production and distribution of the program which will be aired next year.

1980 International Hypothermia Conference and Workshop

Acting publicity chairperson for this conference, a meeting was scheduled with the Coast Guard, American National Red Cross and Office of Sea Grant publicity personnel to develop a cooperative publicity program. Responsibilities for the conference have been divided in order to capitalize on the resources of all organizations and to lessen the load on URI.

Seafood Multipurpose Processing Publication

The marine affairs communicator co-authored with the MAS seafood technologist a publication on the results of a seafood multipurpose processing project.

Photography

Collection continued of slides and black and white photographs to illustrate Sea Grant research, education and advisory projects at URI and these were incorporated into the existing slide catalog and photography collection. This collection is available on loan to URI staff members and the general public through the MAS Marine Education Specialist. The Marine Affairs Communicator also won third place in the annual National Fishermen photography contest.

Services to Media Clientele

Assistance, such as background information and appointment scheduling, was provided to outside writers who developed stories on URI projects. These included a naturalist writer who contributes magazine articles to the major state daily newspaper; Metropolitan Life Insurance Company's newsletter editor; a staff writer for MONEY Magazine; and staff writers for the Christian Science Monitor and Boston Globe.

Publications

The Sea Grant publications editor supervised production of 28 research and advisory reports of which 15 were reprints of articles based on Sea Grant research investigations which appeared in refereed professional journals. The communicator abstracted each publication and selectively advertised their availability through mailing lists, journal listings and through news stories. All were generally advertised in the Marine Advisory Service Newsletter, Sea Grant 70's and NEMAS Information. The communicator also assisted in updating the publications catalogue.

Regional and National Communications Program

The marine affairs communicator representing the NEMAS communicators served on the NEMAS Fisheries Task Force, which is attempting to promote projects to improve the communications flow among Northeast participants in fisheries management. One of the major projects has been the development of a 15-minute radio program series, entitled "Fishing and Our Law," for which the URI communicator served as executive director. She developed the series idea, helped select a radio consultant, set up the initial distribution system in each state, guided the choice of topics for the series and oversaw the writing and production. For the committee, she also helped begin a collection of fisheries management publications to be stored at the Regional Coastal Information Center.

Other regional projects included the preparation of a Sea Grant 70's article on the contributions of Sea Grant programs to fisheries management in the Northeast and serving as a publicity advisor for the RCIC port planning program.

On the national level, the communicator arranged for URI fishing films and fisheries publications to be a part of the Fish Expo in Seattle, Washington. She contributed names of Sea Grant investigators to the Media Resource List, a publication to be given to national media personnel which serves as suggestions of scientists in various fields who could be used in stories. She also circulated the marine line art collection prepared last year to all programs so they could order pieces of artwork to use in their projects.

The communicator attended the Sea Grant Communicators Workshop in Washington and the Women In Communications annual meeting and enrolled in a public relations course in order to keep abreast of new developments in the field and to solicit new ideas for projects and programs.

Proposed Projects for FY 81

Information Dissemination

News releases and feature articles which publicize events, contain news about research results and their applications, and respond to informational needs will be prepared. Mailing lists used will be revised in the coming year by sending questionnaires asking if the recipient wishes to continue on the mailing list and what the frequency is of their use of URI releases. Efforts will be made to accommodate special requests for articles by magazines and newspapers. Also topics for major magazine pieces will be explored and several will be prepared. Assistance will be continued to outside writers wishing to schedule appointments with URI staff and to obtain information for articles.

Radio and TV news stories and public service announcements will be produced as needed to publicize Sea Grant research results and to convey to audiences information about their state's marine environment. Researchers, advisory personnel and educators will also be scheduled for talk and feature shows.

MAS Radio/Newspaper Project

The preparation and production of 52 60-second general informational radio pieces and accompanying newspaper fillers will be continued.

Publicity for the project and evaluations will be conducted by the communicator. Coordination of publicity for the 1980 International Hypothermia Workshop and Conference for this event and the follow-up activities will be handled by the URI communicator. The scope of the activities is being planned by a committee of American National Red Cross, U. S. Coast Guard, the National Sea Grant public information officer and the URI Sea Grant communicator.

Utilization of Industrial Publications

The Marine Advisory Service and Cooperative Extension Service will combine efforts to produce a series of short articles on information useful to consumers in Rhode Island which is based on URI research activities. The outlet for these articles would be the external and internal publications of local industries. Potential of this cooperative project will be explored during the coming year.

Publications

Assistance will be lent to the Marine Recreation Specialist in preparing a brochure for recreational boaters on the operation and location of fishing activities in southern New England waters. The intent is to address the problem of increasing collisions at sea between recreational and commercial fishing vessels.

Publication Promotion

For all URI publications, abstracts will be written and advertisements will be distributed to selected audiences and printed in designated newsletters and magazines.

In conjunction with the New York Sea Grant Program, the URI Sea Grant communicator furnished manuscripts to students in the technical journalism program at Rensselaer Polytechnic Institute for rewriting as publications for lay audiences. Two of the publications which resulted will be printed and distributed for use in the marine education program.

Regional and National Activities

The communicator will continue to serve on the NEMAS Fisheries Task Force while overseeing the production of the fisheries management radio program. For Sea Grant 70's, articles on URI projects will be prepared.

Attempts will also be made to include programs on marine topics in the agendas for meetings of regional media organizations.

Newsletters

The communicator and the half time newsletter editor will continue participation in the writing of the bi-monthly MAS newsletter, the NEMAS Information newsletter and the Commercial Fisheries newsletter. Next year several articles may be written by the communicator for the oceanography school magazine MARITIMES. A reader survey to determine the usefulness of information printed in the MAS newsletter will be conducted.

Visits to Editorial Offices

This time-consuming but necessary activity of regular visits to editorial offices has resulted in several special articles and the promise of additional articles, particularly in trade and special interest publications. In the process, much is being learned about the clientele served by these media and a better picture is being obtained of the audiences being reached by MAS information output.

Cooperating URI Departments/Units

Division of University Relations
Division of Marine Resources
College of Resource Development

Related Sea Grant Projects

All

USER INFORMATION SERVICES

Background and Need

The Marine Advisory Service Information Center (MASIC) is the user information service of the University of Rhode Island's Sea Grant Program and serves the specialists and the varied clients of the URI Marine Advisory Service. While concentrating its efforts on providing answers to requests from the Rhode Island marine community, MASIC also routinely continues to handle inquiries and referrals from throughout New England. Requests from other areas of the U.S. and from abroad also come to MASIC because of its sound reputation for prompt and accurate response to inquiries developed over the last ten years.

The Marine Advisory Service Information Center responds to requests for marine information in subject areas such as oceanography, resource economics, ocean engineering and fishing gear technology. Users served include federal, state and local government officials, academia, industry representatives, citizen interest groups and the general public.

MASIC cooperates closely with the Northeast Regional Coastal Information Center (NERCIC) and, under a reorganization of the User Information Services which took place in March 1978, is managed by NERCIC's coordinator. MASIC also works closely with the other information related components of the Division of Marine Resources which include the Marine Awareness Center (MAC), the Publications Unit, the National Sea Grant Depository (NSGD) and the Division of Marine Resources Library (DMRL).

A variety of interactions between the various information components contribute to the successful operation of the User Information Services. Because coastal and marine issues and concerns are interdependent and draw upon many of the same disciplines, (oceanography, resource economics, law, ocean engineering, etc.), this interaction is vital in providing tailored answers to both coastal and marine questions with minimal duplication of effort and expense.

Objectives

1. To continue to identify and assess national, regional and local sources of marine information.
2. To develop, update and maintain specialized information files.
3. To respond to direct requests for marine information from the broad user community, other information sources and the specialists of the New England-New York Marine Advisory Service (especially URI.)

4. To construct information packages to respond to frequently asked questions, generate short publications, brochures and fact sheets to facilitate transfer.
5. To assist and sponsor pertinent conferences, workshops and presentations.
6. To cooperate and interact with other Division of Marine Resources user information components, and other information sources.
7. To increase the awareness of available sources of marine information of priority user groups, the broad-based user community and Division personnel, especially MAS specialists.

Approach

1. Maintain current information files and maintain relationships with information sources within and without URI.
2. Anticipate events/issues which will generate interest and develop materials for responses.
3. Identify user information request trends and develop packaged responses as appropriate.
4. Give priority to significant inquiries from business, industry and government groups in determining magnitude of customized responses.
5. Conduct periodic surveys to identify groups using the service, the effectiveness of the responses they received and their application of the information.
6. Advise on cost and time savings possible for information service efforts.
7. Meet regularly with MAS specialists to determine their information requirements and those of their client groups.
8. Expand information service efforts as demand, funding and time allow.

Progress During 1979

Information Materials Inventory and Selective Dissemination

The Marine Advisory Service Information Center files contain timely and unique information on many marine subjects such as commercial fishing, fishing gear technology, oceanography and ocean mining. During this last year an inventory was completed and out-of-date and redundant materials discarded or donated to other information sources.

The newsletter and periodicals collection of the Division of Marine Resources Library were inventoried as well. A holdings list was developed and a tracking system instituted to monitor subscription ordering and receipt. A user survey was conducted within the Division of Marine Resources and periodicals of little interest to any members

were discarded. Acquisition costs were reduced and duplication of efforts eliminated because several Marine Advisory Service and Coastal Resources Center staff members, both members of the Division of Marine Resources, were found to be receiving duplicate copies of the same newsletters or other periodicals. A system for scanning of these periodicals by MASIC for information for the master files, request response and selective dissemination of information was set up.

Information Request Form and Response Evaluation

During the past year, the request form used cooperatively by MASIC, NERCIC and the New England Marine Advisory Service headquarters in Durham, New Hampshire was revised. Subject areas were refined to show more accurately where user interests lie as well as a new differentiation between the various client types. Referral indicators were added to show more accurately where referrals to other NEMAS information units, or other DMR information centers and other RCIC's, have occurred.

Also, regular monthly meetings of the MASIC and NERCIC staff were initiated to discuss the previous month's completed requests. Cooperative requests, as well as ways to continually improve request response, were discussed. Evaluation efforts were enhanced by the written documentation on each request of the research that took place before a final response to the request was given.

Also, regular monthly meetings of the MASIC and NERCIC staff were initiated to discuss the previous month's completed requests. Cooperative requests, as well as ways to continually improve request response, were discussed. Evaluation efforts were enhanced by the written documentation on each request of the research that took place before a final response to the request was given.

All completed requests were filed by subject matter. This file continues to provide an information database and assistance in answering similar incoming inquiries. This file also assists greatly in the compilation of information packages.

Graduate Student Expertise Survey

During the last year, MASIC conducted a survey of marine-oriented graduate students at the University of Rhode Island. Access to such information will assist considerably in the response to specific requests where information in MASIC's master file may not be adequate. Results of this survey have only recently been compiled and it is too early to assess the total usefulness of this new information to MASIC.

Computer Conferencing Capabilities

This year MASIC gained access to the computer conferencing system of the Regional Coastal Information Center network. The use of this system has provided MASIC with the ability to respond to rapidly changing subject areas such as fishing gear technology. Information on experimental fishing methods and other new and more effective types of fishing gear is hard to track down since little readily available information is documented. Utilizing the NERCIC files and the conferencing system (which includes the Office of Coastal Zone Management's Coastal Zone Information Center, the National Sea Grant Depository, as well as information housed in other Regional Coastal Information Centers) MASIC can easily ascertain what is being done in other areas of the US, how effective the new technology might be, and who the contact person would be. This information can then be communicated to the client requesting the assistance or to the MAS specialist interested in the application of the information.

Information Packaging

The information package constructed around the fishing gear blueprints developed by the fisheries specialist was very successful and will continue to answer questions in the future.

Other information packages constructed during the year covered aquaculture information sources in the northeast, French polyvalent doors, scallop and clam dredging and alternative energy sources.

Other Information Service Activities 1979

- Appointed member of the New England Library Board of Counsellors
- Participated in the November User Education Workshop for NEMAS communicators.
- Presented slide show and discussion to Rhode Island Special Libraries Association
- Produced display for Providence Seaport Days sponsored by the city and the RI Council on the Arts
- Conducted orientation tours of MASIC for numerous visitors

Other Information Units

Regional Coastal Information Center

COASTAL INFORMATION is the first Regional Coastal Information Center (RCIC) for the Northeastern United States. Started in June, 1977, as a project of NEMAS (New England Marine Advisory Service), the Center is located at the University of Rhode Island, and serves the

information needs of coastal planners, legislators and decision-makers, federal, state and local governments, commercial concerns, citizen interest groups, researchers and the general public.

The Regional Coastal Information Center Network is a joint project of three components of the Commerce Department's National Oceanic and Atmospheric Administration (NOAA). The Environmental Data and Information Service (EDIS), the Office of Coastal Zone Management (OCZM) and the Office of Sea Grant (OSG) have funded these centers to provide concise and accurate coastal and marine information in the right form to the right people at the right time.

Concentrating on the special concerns of the Northeast region, the Northeast Regional Coastal Information Center (NERCIC) responds to, and determines the region's most critical coastal information needs. In providing a perspective on these issues and concerns, Coastal Information strives to eliminate duplication of effort and gaps in the information base, and to provide current information on coastal issues and problems as they arise--not after.

The Center provides quick access to all sources of coastal-related information. It developed, maintains, and updates three coastal information files, conducts literature searches on coastal issues, and provides full library services to its users.

National Sea Grant Depository

Another separately funded project, under MAS purview since 1977, is the National Sea Grant Depository (NSGD). Established in 1970, its function is to collect and archive copies of all Sea Grant reports, to publish annual indexes, to conduct information searches of its holdings on request, to make copies of Sea Grant documents available on loan and to market the availability of its products and services to a national audience.

In addition to its ongoing responsibilities, the NSGD, during 1978, began to explore more effective communications links with advisory services nationally. Increased marketing efforts led to a 500% increase in loan services. Printed searches of the Depository's collection were distributed nationally. Aquaculture, outer continental shelf resources and fisheries were subject areas covered.

The annual index was condensed into one volume instead of three and directions for its use were simplified. The monthly acquisitions list was designed with a new format and its distribution has since doubled.

During the coming year, more cooperative searches are planned and the NSGD will participate in a computer conference with the Regional Coastal Information Center Network.

Division of Marine Resources Library

The Division of Marine Resources Library (DMRL) was, until September 1977, the coastal planning library for the Coastal Resources Center, the technical arm of Rhode Island's Coastal Zone Management Program, when its scope was expanded to respond to the library needs of all Division of Marine Resources components, including the Marine Advisory Service.

The library's collection consists of approximately 3000 volumes with notable special collections in outercontinental shelf oil and gas exploration, alternate energy sources and Rhode Island coastal resources. The library's unique cataloging system is currently being revised and its design published in an information package to assist libraries, agencies or other organizations in setting up a similar collection or fine tuning an existing one elsewhere.

The collection is currently being weeded in anticipation of partial computerization and in preparation for publishing of a frequently requested holdings list. Monthly acquisitions lists, by subject, are circulated to libraries, information centers, researchers and other interested persons.

The DMRL takes charge of publication ordering for all Division personnel. Specific requests for books, journals, newsletters, technical reports, etc., are processed using a simple bookkeeping system. Other materials are selected by the librarian to maintain a well-rounded and timely collection.

DMRL catalogs all documents, compiles request statistics for RCIC and MASIC and maintains and updates all information files. The most important function of DMRL is to serve as the documentary research backup for the RCIC, MASIC, and MAC in their efforts to respond to information requests, to compile information packages, bibliographies and publications and to aid users in their research.

Projects Proposed for FY 81

Utilization of Master File of Information

MASIC will continue to add to, utilize and update its master file of information coordinating with the NERCIC, DMRL, MAC, and NSGD.

USER Response Statistics and Evaluation

Compilation of user statistics will continue. Analysis of the statistics will further help to identify areas of concern, gaps in the information base, proper selection of new materials for the master file and the need for new information packages or fact sheets. Evaluation of the appropriateness of responses to requests will be accomplished during the next year by inclusion of a survey form with each response. Analysis of these survey forms by the clients will help MASIC to assess the benefit of MASIC services to its intended user.

Information Packaging

During the coming year, MASIC will begin to develop new priority subject areas within its information files and will utilize the materials contained in its files to construct timely information packages. Priority areas will be determined by the information needs of the MAS specialists, request statistics and knowledge of timely marine issues in the northeast region. Information packages will most likely include the following topics: fishing gear innovations and techniques, coastal erosion, aquaculture, port development, and marine management.

Cooperating URI Departments/Units

Graduate School of Oceanography
Division of Marine Resources
Regional Coastal Information Center
Rhode Island Water Resources Center
Center for Ocean Management Studies
Graduate School of Library Science
Fisheries and Marine Technology
Resource Economics
Community Planning
Management

Related Sea Grant Projects

A/CR-5 Coastal Resources Center
A/COM-1 Center for Ocean Management Studies
E/FT Fisheries and Marine Technology
A/RS-1 Applications of Remote Sensing

PUBLICATIONS

Background and Need

Since 1970 the publication unit of the Marine Advisory Service has had the responsibility of handling and distributing the entire annual output of the URI Sea Grant Program. The publishing effort of the Sea Grant Program serves a significant role of relaying information to the people who cannot be reached personally by the advisory specialists and researchers and augments the personal assistance that they render. Presently, we reach with regularity an audience of 20,000 people by direct mailings of newsletters, conference announcements, and special notices, and an additional 6,000 people annually who request publications.

In January 1979, a new publication coordinator took over the direction of the publications unit. With this change have come many innovations which have assisted MAS in making Sea Grant publications available to even wider, yet more directed, audiences than ever before. Throughout the year over 35,000 research, education, and advisory publications were distributed. Approximately 110,400 periodicals including one quarterly publication and three bi-monthly publications were sent to an audience of 18,500 individuals, businesses, offices, and schools. Bi-monthly periodicals published by the MAS included the Commercial Fisheries Newsletter (1,940 subscribers), the MAS Newsletter (1,450 subscribers), and NEMAS Information (11,000 subscribers published for the New England Marine Advisory Service). Publication periodicals distributed for other URI marine-related components included the quarterly GSO Maritimes (6,650 subscribers), the bi-monthly CRMC Briefings, (5,000), Coastal Information (900), Coastal Ocean and Climatology News (600), and the Marine Affairs Journal (300).

To handle this volume of publications, MAS uses the South County Association for Retarded Citizens Chapter to store over 65,000 marine-related publications and handle much of the actual packaging and mailing. Also to help relieve the MAS staff of these time-consuming operations, the URI mailroom and a commercial mailing service handle many of the mailings of periodicals.

Objectives

1. To disseminate publications resulting from URI Sea Grant research, education, and advisory project.
2. To assure the availability of publications to the marine audience.
3. To make known the results of the Sea Grant projects to as broad an audience as possible.

4. To cooperate with NEMAS and Sea Grant Marine Advisory Services in disseminating regional/publications.
5. To recover the cost of printing and distribution through user charges as appropriate.

Approach

1. Maintain an adequate inventory of publications to assure their availability from MAS over an 18-month period.
2. Assure their future availability from the National Sea Grant Depository and the National Technical Information Service.
3. Determine through user feedback and other means, as feasible, the value and utilization of URI Sea Grant publications in the marine community.
4. Make known the availability of URI Sea Grant publications to as wide an audience as possible in cooperation with the MAS communicators.
5. Maintain and access a master file of mailing addresses.
6. Maintain and update a comprehensive publications index.
7. Keep inventory up to date and readvertise publications to insure proper dissemination and turnover.
8. Oversee distribution center to make sure of availability of storage space for publications.

Progress During 1979

Publication Distribution

Approximately 35,000 copies of URI Sea Grant publications were distributed during the year. Twenty-eight new publications were issued, of which 15 were reprints of refereed articles in professional journals and three were second printings. Of the 28,000 multiple copies of new publications printed in 1979, 18,500 were distributed during the year.

An increasing proportion of Sea Grant-generated research and technical information is being published in the open literature. This trend reflects a concerted effort by the MAS to obtain the widest possible distribution of information through traditional outlets.

Manuscript Promotion

The MAS publication coordinator has made a major effort during the year to assist in the promotion of URI Sea Grant publications. At frequent University and community events throughout the past year, an effort was

made to make known publications including flyers, fact sheets and brochures, through displays of publications at a host of conferences and events. In each case the type of publications displayed were relative to the nature of the event being held.

Promotion for specific publications came in a variety of ways. National publicity for the January 1979 Hypothermia Conference and related materials appeared in the New York Times. New England newspapers carried promotion for the Red Tide Poster and Fact Sheet which were both of regional scope. A revised flyer on Popular Marine Publications was printed and distributed widely at Boat Shows, on cruises and at recreational events where appropriate.

Publications Catalog

A second 1000 copies of the first URI Sea Grant Publications Catalog were printed and distributed during the year. This catalog contains abstracts of over 300 Sea Grant publications listed by category (marine recreation, marine education, etc.). Because of heavy demand for this useful publication, it was necessary to update the catalog with over 50 new abstracts. Two thousand copies of the revised catalog were printed and were available for distribution in October.

Abstract Distribution

Last year an abstract distribution program was initiated, designed to reach all technical and managerial personnel at URI having marine interests, all Sea Grant communicators and all personnel listed in the NOAA Marine Advisory Service Directory. To further reduce the number of hard copy publications sent needlessly to other advisory personnel, libraries, and organizations, the abstract distribution program was reviewed. The publication coordinator also made sure that copies of abstracts were sent to SG 70's for inclusion in their newsletter and many abstracts appeared in the appropriate bi-monthly newsletter published by MAS.

Address List Maintenance

The publications unit is responsible for the maintenance of a mailing list for the distribution of all Sea Grant-related publications, for MAS specialist's client lists, and additional maintenance responsibilities for other URI marine-related activities.

During the year the old system was converted from an IBM 370 System to a Prime 400 Computing System. This switch enables the MAS to maintain a more up-to-date system and have the new system more accessible geo-

graphically. Unlike the old system, all updates, deletions and additions are made directly to a master list. Therefore the list is always current when address labels need to be run. Elimination of key punch operators and the inhouse use of CRT make this possible. CPU, line and input/output time are comparatively less expensive with the new system. The additions and deletions of entries can now be made either by zip code, last name or if nothing else is known about an entry, the first four characters of any known address line. This new system eliminates the possible insertion of an identical entry and coding of the entries keeps the mailing list down to only those who should be contained on a particular list.

Publication Index

The printed index of all marine-related URI publications was revised during the year with a new emphasis placed on the most pertinent information needed when a user requests a publication (title and P Number). The revised index format was duplicated and placed in hard bound booklets for easy access and readability and a simple system for keeping the index up to date was devised. The index is used to coordinate and keep track of the publishing and distribution efforts which are conducted at geographically separate offices and also keep track of Sea Grant Depository acquisition number, price, date of publication, supplier of publication and whether or not the publication is in or out of print. Updated versions of the index are distributed bi-annually to MAS, the URI Publications Office, MAS publication distribution center, the Sea Grant Depository, Coastal Resources Center, the North East Regional Coastal Information Center, the Marine Advisory Service Information Center, Pell Marine Science Library, the URI Main Library, and ICMRD Library.

National and Regional Publication Distribution

Over 300 copies of the Seafood Sourcebook, a national publication produced by the New England Marine Advisory Service, were distributed by MAS.

The Commercial Fisheries Tax Guide was made available at the Point Judith Fisherman's Cooperative.

The New England Marine Advisory Service and the Rhode Island Boating Council contributed funds so that a Training Manual for Cold Water Survival and Hypothermia could be published for a Conference and for nationwide distribution.

The Make Way Flyer and Red Tide Poster and Fact Sheet were distributed to marinas and boatyards throughout the state, region, and nation.

Projects Proposed for FY 81

Publication Procedure Brochure

The MAS publication coordinator will prepare an inexpensive brochure for MAS specialists, Sea Grant P.I.'s, authors of Sea Grant publications, and office secretaries outlining all the ground rules and procedures that should be followed when preparing Sea Grant material for publication. The brochure would include an explanation of Marine Memo, Technical Report, Bulletin, Marine Memorandum, and Marine Reprint categories. Also included would be specifications on purchase requisitions, URI Publication Office procedures for graphics, editing and layout, and proper Sea Grant acknowledgement to be included in publications and National Sea Grant Office distribution policy.

Specific Publication Lists

During the year the MAS publication coordinator will produce one-page publications lists for specific audiences (i.e., marine recreation, commercial fisheries, marine education, etc.) so that responses to questions on publications in individual categories may be made with an inexpensive flyer rather than sending the entire Publications Catalog.

Publication Display Unit

An easily changed and portable table top display unit will be designed foruse at conferences, workshops and community and university events where distribution of information about Sea Grant publications may be appropriate.

Continuing Projects

Many of the functions performed by the publications coordinator are activities which continue from year to year. They include:

1. Coordination of abstract distribution
2. Updating of Publications Catalog
3. Maintenance of publication index and keeping specialists informed of relevant publications
4. Oversee ordering of Sea Grant publications from other programs
5. Maintain inventory of all marine-related publications housed at publication distribution center

Cooperating URI Departments/Units

National Sea Grant Depository
Division of Marine Resources
Division of Development and University Relations
Graduate School of Oceanography

Related Sea Grant Projects

All