

OFFICE COPY ONLY

# Twenty-Ninth Annual Report

## 1977-1978

of the

# Gulf States Marine Fisheries Commission

To the Congress of the United States  
and to the Governors and Legislature  
of Alabama, Florida, Louisiana,  
Mississippi and Texas.

Gulf States Marine Fisheries Commission  
P.O. Box 726  
Ocean Springs, Ms. 39564

The *GULF STATES MARINE FISHERIES COMMISSION* is an organization of the five states, whose coastal waters are the Gulf of Mexico. This compact, authorized under Public Law 81-66, was signed by the representatives of the Governors of the five Gulf states on July 16, 1949, at Mobile, Alabama. It has as its principal objective the conservation, development and full utilization of the fishery resources of the Gulf of Mexico, to provide food, employment, income and recreation to the people of these United States.

**GULF STATES MARINE FISHERIES COMMISSION  
TWENTY-NINTH ANNUAL REPORT (1977-1978)**

*To the*

**CONGRESS OF THE UNITED STATES**

*And to the*

**GOVERNORS AND LEGISLATORS**

*of Alabama, Florida, Louisiana, Mississippi and Texas*

*Presented in compliance with the terms of the Compact and the State enabling Acts  
creating such Commission and Public Law 66 - 81st Congress assenting thereto.*

**GULF STATES MARINE FISHERIES COMMISSION  
P. O. Box 726  
Ocean Springs, Mississippi 39564  
(601) 875-5912**

## ACKNOWLEDGEMENT

In submitting this Twenty-ninth Annual Report, the Commissioners wish to express their most sincere appreciation for the splendid cooperation of the members of Congress and the Governors and Legislators of the compact states. The commission fully appreciates that such measure of success as has been attained in the past twenty-eight years could not have been possible without such valued assistance. This acknowledgement is also extended to the directorates and staffs of federal, state and interstate agencies and to representatives of all organizations and individuals who have contributed toward the realization of the objectives of the *Gulf States Marine Fisheries Commission*.

Respectfully submitted,

Nat Sonnier, Chairman  
Henry Burkett, Vice Chairman  
Charles H. Lyles, Executive Director

**GULF STATES MARINE FISHERIES COMMISSION  
TWENTY-NINTH ANNUAL REPORT**

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*Roster of the*  
**GULF STATES MARINE FISHERIES COMMISSION**

October 1977 – October 1978

**Chairman:** Nat Sonnier

**Vice-Chairman:** Henry Burkett

**Executive Director:** Charles H. Lyles

**COMMISSIONERS**

(order of listing – Administrator, Legislator, Governor's appointee)

**ALABAMA**

John W. Hodnett, Director  
Alabama Department of Conservation and Natural Resources  
Montgomery, Alabama  
L. D. Owen, Senator  
State of Alabama  
Bay Minette, Alabama  
Nat Sonnier, Representative  
State of Alabama  
Mobile, Alabama

**FLORIDA**

Harmon Shields, Director  
Florida Department of Natural Resources  
Tallahassee, Florida  
Eugene Hodges, Representative  
State of Florida  
Tallahassee, Florida  
Clyde Richbourg  
Pensacola, Florida

**LOUISIANA**

J. Burton Angelle, Director  
Louisiana Department of Wildlife and Fisheries  
New Orleans, Louisiana

Conway LeBleu, Representative  
State of Louisiana  
Cameron, Louisiana  
Leroy Kiffe  
Lockport, Louisiana

**MISSISSIPPI**

Richard L. Leard, Director  
Mississippi Marine Conservation Commission  
Biloxi, Mississippi  
Ted Millette, Representative  
State of Mississippi  
Pascagoula, Mississippi  
William Gray Slay  
Biloxi, Mississippi

**TEXAS**

Henry Burkett, Executive Director  
Texas Parks and Wildlife Department  
Austin, Texas  
Leroy Wieting, Representative  
State of Texas  
Portland, Texas  
John A. Mehos  
Galveston, Texas

**COMMISSION OFFICERS ELECTED FOR  
YEAR 1977-1978**

**Chairman:** Nat Sonnier succeeding J. Burton Angelle

**Vice-Chairman:** Henry Burkett succeeding Nat Sonnier

**STANDING COMMITTEES**

**Executive Committee** J. Burton Angelle, Chairman

**Technical Coordinating Committee** Ted Ford, Chairman

**Industry Advisory Committee** Leroy Kiffe, Chairman

**Recreational Fisheries Committee** Guy Billups, Jr., Chairman

**Sea Grant Committee** Willis Clarke, Chairman

**Committee to Correlate Fishery Laws** Wings Benton, Chairman



## COMMISSION ACTIVITIES

OCTOBER 1977 – SEPTEMBER 1978

The Gulf States Marine Fisheries Commission operates on a fiscal year (FY) basis beginning October 1 and ending September 30. Two meetings are held each year during this period: one beginning the third Thursday in October, and the other, the third Thursday in March.

The accomplishments during FY 1977–78 of the Commission were more far reaching and important than in any other period of its history. Public Law (PL) 94–265 (The Fishery Conservation and Management Act) became the “law of the sea” for the United States.

By this law, the Fishery Management Councils were created and staffed, and thus began the task of preparing fishery management plans as prescribed in the statute.

The statute also confronted the states with several major problems. The states had to be prepared to coordinate their fishery management plans with those developed by the Councils for species taken in both the territorial sea and the Fishery Conservation Zone (FCZ). For species taken almost totally within the states’ territorial sea and inland waters, yet migrating between states, an interstate and coordinated plan had to be developed that would provide a rational approach to the use of these resources. There also had to be continuing progress toward development and utilization of these resources for optimum benefit.

The completed Eastland Survey needed to be implemented before it became just another fishery publication placed on the shelf to collect dust, much the same as a biological collection of animals in a museum.

Finally, there was the problem of trying to obtain increased funding of PL 88–309 (The Fisheries Research and Development Act), and the constant job of monitoring federal legislation to evaluate its impact on the states’ ability to manage their fishery resources. The

creation of the Councils, with the Commission’s Executive Director serving as a non-voting member, added tremendously to the work load.

The Southeast Regional Office of the National Marine Fisheries Service recognized the additional work load problems involved, but National Marine Fisheries Service policy dictated that each Commission be allowed \$10,000 compensation for each Council it served. Since the Executive Director of the Commission served on only one Council the amount received, therefore, was limited to \$10,000.

Considerable time and effort were spent trying to employ a graduate student or part time assistant to help alleviate the work load problems, within the funding limits provided by National Marine Fisheries Service. By obtaining special consideration for the Commission, funding was increased to \$20,000. Subsequently, Mr. Larry Simpson was employed on June 15, 1978 as a full time assistant with the primary responsibility of representing the Commission on the Council.

In keeping with the need for development and full utilization of fishery resources, two major thrusts were carried out during the year. The first was a Commission meeting in Mobile, Alabama, in October 1977, which had as its main theme the development of under-utilized species in the Gulf of Mexico. A summary of the subjects discussed at this meeting appears elsewhere in this publication.

In addition to devoting an entire meeting to development of fishery resources, the Executive Director attended several meetings with personnel of the National Marine Fisheries Service (Washington, D.C.), as well as with members of Congress, in an attempt to get the Eastland Survey enacted into law. These efforts were coordinated with the Atlantic and Pacific States Marine Fisheries Commissions.

One of the major objectives of the Eastland Survey is fishery development, and the Commission was fulfilling its obligation under the Survey to have the findings of the study enacted into legislation.

Several events prevented the enactment of developmental legislation as mandated under the Eastland Survey. The fisheries industry failed to generate sufficient interest to propel developmental legislation through Congress. Because of constant rumors that the Department of Commerce planned a developmental conference in late 1978, little or no progress was made in implementing the mandates of the Eastland Survey. The prevalence of problems with higher priority such as inflation, energy and taxes, also decreased support for developmental legislation. With the retirement of Senator James O. Eastland at the end of 1978, who was a staunch supporter of this study which bore his name, enactment of legislation again has been greatly curtailed.

The Commission has been concerned about PL 93-205, The Endangered Species Act, for some time. The incidental capture of sea turtles by shrimp trawls presents a constant threat to that industry. Also, the inability of certain states to deal with their alligator populations, in a manner consistent with good management principles, contributes to the placement of some relatively unimportant animals on the Endangered Species List. In midyear National Oceanic and Atmospheric Administration/National Marine Fisheries Service and U.S. Fish and Wildlife Service reopened the sea turtle question. In spite of determined efforts to delay the hearing long enough to prepare an intelligent brief, no delay was permitted. A National Oceanic and Atmospheric Administration/National Marine Fisheries Service publication in the *Federal Register*, showed that insufficient data exists to ascertain a specific cause for the turtle's demise. Despite this lack of data, regulations were tightened further. The law became so inflexible that it appeared that only by making drastic changes could some flexibility be induced.

Therefore, the Executive Director prepared a brief and made a presentation before the House Subcommittee on Fish, Wildlife and the Environment on June 1, 1978. Copies of the brief were distributed to all Commissioners. A few days prior to the hearing, the Supreme

Court ruled that the law was in fact inflexible and the Tellico/TVA Dam could not be built.

To coordinate efforts toward obtaining the necessary changes, many groups were contacted that had shown interest in achieving those changes in the law. These contacts were helpful and although not all of the changes were incorporated, a remarkable amount of success was realized in the final version. However, the ability to fully operate a trawl fishery remains in jeopardy as long as this statute remains on the books.

For almost a decade PL 88-309 (The Fisheries Research and Development Act) has been funded at \$3.8 million. This statute allocates certain funds to the states for commercial fisheries research and development. In the states bordering the Gulf of Mexico, PL 88-309 was perhaps the major factor that gave impetus to the development of research staffs in several states. From implementation of this law came data helpful in enacting coastal zone management laws, for developing better management systems based on scientific studies, and provided substantial amounts of data used to prepare management plans by the Councils (under PL 94-265) for such species as groundfish and shrimp. It became apparent, however, that unless funding could be increased, states could not continue to support their research staffs with the current amounts awarded. Management of the states resources was suffering and the stage was being set for federal preemption.

The three Commissions, Gulf States Marine Fisheries Commission, Pacific and Atlantic States Marine Fisheries Commissions, began the groundwork necessary to obtain an increase in funding from \$3.8 million to \$5.0 million. This modest increase of \$1.2 million was to ensure that states could and would use this increase before seeking any additional funding. This preparation paid off and the additional \$1.2 million increase was awarded.

Since the first oil well was drilled south of Morgan City, Louisiana, in the late 1940s, there has been constant conflict between offshore oil operations and shrimpers. For years the government ignored the problem, took the revenue from the oil, while the shrimpers in most instances suffered the losses. However, that changed with the advent of an oil shortage and the need to drill off the Atlantic Coast.

In 1978, Congress started legislation that would establish policy for management of oil and natural gas in the outer continental shelf, and for protection of the marine and coastal environments. The Commission requested a section be added that would provide payment to fishermen for losses of gear and equipment sustained as a result of oil and gas exploration. Congress provided this with a section of the Bill known as Title IV. The Bill was signed into law September 18, 1978, and is known as PL 95-372 (the Outer Continental Shelf Bill). It now remains for regulations to be promulgated on the manner in which payment to the fishermen will be made, and the proof required to obtain payment. The Commission continues to follow the development of these regulations.

During FY 1976-77, the Gulf State-Federal Fisheries Management Board of the Gulf States Marine Fisheries Commission and National Marine Fisheries Service, had developed management plans for shrimp and menhaden. Implementation of these plans commenced during FY 1977-78. The Technical Coordinating Committee of the Commission, established to provide technical guidance to the Fisheries Management Board and the Commission, recommended catch and operating unit data on the recreational aspects of the shrimp fishery as the most important research needed. The method to be used will be coordinated with the contractor for National Marine Fisheries Service recreational fishing survey. Human Sciences Research, Inc. of McLean, Virginia, was awarded the contract but as of the close of the fiscal year, the contract had not been signed. It is anticipated that actual signing will occur by early November and the needed data on this important aspect of shrimping should be available soon.

The Technical Coordinating Committee also recommended four additional studies be conducted, each of which compliments the menhaden management plan developed in the previous year. These are: (1) a pilot study for menhaden catch-and-effort logs; (2) formalization of a menhaden information data bank; (3) simulated implementation of the menhaden management system, and (4) menhaden tagging mortality study. Contracts were signed with the Louisiana Department of Wildlife and Fisheries for the menhaden tagging mortality study, and with the Gulf Coast Research Labo-

ratory, Ocean Springs, Mississippi, for a pilot study for the catch-and-effort logs. The amounts of these contracts were \$10,000 and \$25,000, respectively. Louisiana's Sea Grant expressed an interest in the two remaining projects, but as of the end of the fiscal year these contracts had not been finalized.

The controversy over gill netting and the keen competition between sport and commercial fishermen for the spotted seatrout and red drum (redfish) led to the instigation of a red drum and spotted seatrout profile. A committee was formed by the Technical Coordinating Committee and charged with the responsibility of developing a management profile on these two species. To compliment the study of the two species, a colloquium was planned for the October 1978 Commission meeting in Tampa, Florida. At the close of the fiscal year the committee had completed most of its work and the report is expected in early 1979.

Considerable controversy has arisen over the management of the blue crab *Callinectes sapidus*. The Commission requested a profile of this crustacean also be developed in FY 1979. There was some hesitation on the part of the state scientific staffs and the Technical Coordinating Committee to undertake this additional work in view of the heavy work load of their staffs. It was decided, however, in view of the importance and urgency of this work, a committee be appointed and, as time permitted, the subject be properly addressed. The meetings were paid by State-Federal funds when monies were available. Mr. Gerald Adkins of the Louisiana Department of Wildlife and Fisheries was appointed chairman. A colloquium on the blue crab and its fishery is planned for the fall 1979 meeting of the Commission in Biloxi, Mississippi, which will also include the preparation of a profile on this important crustacean.

One of the major problems confronting the Gulf states in the management of fisheries is the lack of adequate statistical data. Although statistics on the commercial catch is relatively inadequate, the data are more numerous than data on the recreational harvest. Recreational fishing on the Gulf Coast has grown enormously in the past two decades and yet little actual data is available on which to base management decisions. To facilitate obtaining the necessary statistical data on the recreational harvest, a

state salt water fishing license is under consideration. Statistical surveys are difficult even where the sample can be drawn from a known number. It is almost impossible in a situation where not even the total number of participants is known. At present quantities harvested and economic input of the recreational fishery are unknowns.

This is not to imply that management of

the fisheries by the several Gulf states has not been good. An examination of the history of Gulf of Mexico fisheries since the Commission was formed is shown below. While not available in time to be included in this publication, the 1978 catch already shows a record in both volume and value. In fact landings of menhaden in the Gulf show an all time record for landings of a single species.

	Fish		Shellfish		Total	
	Quantity*	Value*	Quantity*	Value*	Quantity*	Value*
1950	386,501	\$11,833	184,140	\$ 38,525	570,641	\$ 50,358
1960	1,005,272	20,008	260,678	65,451	1,265,950	85,459
1970	1,404,493	42,046	293,611	124,535	1,698,104	166,581
1977	†	†	†	†	1,476,392	404,685

\*Quantity = thousands of pounds; value = thousands of dollars  
 †Data not available

The Spring Session of the Commission held in Brownsville, Texas, was devoted entirely to a Mackerel Colloquium. Spanish and king mackerels are sought after by both sport and commercial fishermen along the Gulf. The information accumulated from the Colloquium can be used to develop a management plan for the states' territorial waters. The documents resulting from the Mackerel Colloquium are being published under separate cover entitled *Proceedings: Colloquium on the Spanish and King Mackerel Resources of the Gulf of Mexico*, Volume 4. Delivery of this publication is expected in late March 1979.

The Fall Meeting of the Commission was held at the Sheraton Hotel, Mobile, Alabama. The program was devoted to fishery development — both commercial and recreational. The following are summaries of the subjects discussed dealing with fishery development.

Hon. Jere Beasley, Lt. Governor, State of Alabama, led the morning session with a "Welcome to Alabama" address. He dwelt on the seafood industry of Alabama, its contribution to the economy of the state, and what the state had done for the seafood industry. He reminded those present that many times both the state and federal governments create problems for industry by trying to do things for them that they do not need done. He cautioned that we must not lose humility — or touch with reality. He thanked the group for inviting him to participate.

Mr. Sam Bleicher, Office of Ocean Management, represented the National Oceanic and Atmospheric Administration (NOAA). He discussed in considerable detail the organizational chart proposed by Richard A. Franks, Administrator of NOAA, as a means of administering the agency.

Mr. Bleicher detailed the difficulties encountered in trying to make the present organization functional. He stressed that fisheries are being elevated in importance in the new organization, and it would be possible to identify responsibility, not only within each segment of the organization, but also by individuals.

Dr. Gary B. Perkins, Economist, Mississippi State University, addressed the meeting on "Opportunities for Marketing Underutilized Fish." Dr. Perkins described the worlds starving millions and their need for food. He traced the development of the population problem and projected its growth to the year 2000, and related that to world shortage of food. He then dealt briefly with the volume of the incidental catch of fish taken in connection with shrimp trawling.

Dr. Perkins pointed out that fish names, per se, have been a barrier to their use. He cited such names as croaker, silver eel and spot as names that without doubt affect use of these species. He documented this with proof of peoples' eating habits the world over. In conclusion, he discussed the problem of

institutional barriers, i.e., laws, regulations and restrictions by both state and federal governments. Many of these have been instituted under the guise of conservation laws or management regulations. He suggested that fishermen, processors and distributors join together for their common good, and cooperate with their counterparts in other fisheries and other areas in order to have a stronger voice. Said Dr. Perkins, "this is what we economists call countervailing power".

Dr. Perkins concluded by saying that the fish are available in the Gulf, the technology exists for harvesting and processing these fish, and the markets, both foreign and domestic, exist in which to dispose of these fish. What is required is a systematic and coordinated approach that brings together both the expertise and the resources currently available.

In summary, the markets are there, the fish are there, but we need to remove the prejudice barrier and the barriers to improve technology in harvesting this resource. With these gone, the fisheries should develop. When and if this is accomplished, it will add tremendously to the economy of the Gulf Coast.

**Mr. Melvin Waters**, National Marine Fisheries Service, Pascagoula, Mississippi, discussed the 200-Mile Limit Bill and its impact on U.S. fisheries. While he warned that it is too early to judge the total effect of this legislation, one should not be too enthusiastic about the results since there is a hungry world to be fed and not nearly enough food for all. He did point out some results already occurring. There has been a 100% increase in vessel loans over the past three years. U.S. processing facilities are increasing and some foreign countries are raising their import quotas to obtain more fish for their populations.

In connection with this increased activity, National Marine Fisheries Service is working on the full utilization of fishery products in four stages. First, a study of the export potential is being conducted; second, a study of the domestic market potential; third, a study of the restraints, such as on harvesting technology and institutional barriers; and fourth, there will be national conferences directed toward fishery development in which those items the government can control will be sorted out and appropriate action will be taken.

He further cautioned that there could be

serious problems in the industry if there developed a large increase in food fish landings without an adequate increase in processing facilities. Processing technology may need to be upgraded to produce the desired product, both for domestic and foreign markets. Finally, both storage and transportation facilities may need to be upgraded to accommodate the expected increases.

There is an abundance of groundfish in the Gulf that can be processed into good quality, nutritionally desirable products in a wide variety of forms. Some of the potential may be likened to the development of soy beans that took place many years ago. Soy bean products can be made to taste like, smell like and look like pork ham. Turkey is now being processed into turkey ham which looks like and tastes like pork ham.

Thus it can be seen that in the world of fabricated foods the field is wide open. The use of breaded raw and cooked portions are both on the increase, as are all prepared foods. Thus the opportunity exists in the Gulf for utilizing our fishery resources to a greater extent than is true at present. It only remains to tackle this job with sufficient capital, a well-planned marketing program, removal of institutional barriers and a quality product.

**Dr. Jack Greenfield**, Fishery Economist, Regional Office of National Marine Fisheries Service (NMFS), addressed the hard issue of fishery development, that is, the more realistic view of creating an opportunity for investment not only in the fishing industry but in all areas of financial opportunity. The fishing industry is characterized by being made up of many small firms, particularly in the southeast and by world standards all over the U.S. Many are family-owned and have difficulty raising venture capital. This is particularly true when the odds of the venture are perhaps no better than 75% that the undertaking will be successful. Where large corporations can withstand several such failures and still continue in business, the small business cannot afford such setbacks. The result is a failure that not only is a disaster to one businessman but may serve to discourage other ventures of this type, thus further curtailing development.

The fishery biomass of the Gulf is composed of some pelagic and some demersal species. Furthermore the one thing they all have in

common is that they can be taken by seine or trawl and for the most part can be put on a dock somewhere in the area for around 3 to 8 cents per pound. It is necessary to place an upper and lower price ceiling on these species because below the minimum they cannot be taken profitably; above that they run into competition with other more desirable species. There must be enough to keep a plant in operation for at least 6 months of the year, either on a single species or by shifting to other species as they are seasonally available.

Labelling requirements for fish are such that in removing the flesh from the carcass and rearranging it in any form, does not alter the necessity to identify the species. This is unlike beef where hamburger from each type of cattle does not require separate labelling. If minced fish could be so labelled it would simplify cold storage problems as well as marketing problems. It would enable us to do many things with fish that we are not able to do at present.

Another drawback is that the species we are seeking to develop may not be in the mainstream of America's fish-eating habits. We would be required to not only develop a new fishery, but also a market. Some further problems to be faced in developing some of these species might be: (1) the species are too small; (2) not yet acceptable in the market; (3) short lived; and (4) not suitable for filleting operations in general.

If we are to develop Gulf fisheries we will probably have to develop along the lines of minced fish, that is removing the flesh from the carcass and remolding it in an acceptable manner. This, however, has limited use anywhere in the world. National Marine Fisheries Service is working with industry, the states, universities and the Gulf and South Atlantic Research and Development Foundation in an effort to find new uses for these fishery resources. Proper evaluation of the opportunities is an important part of this process.

**Dr. Andrew Kemmerer**, Director, Engineering Laboratory at the National Space Technology Laboratory, Bay St. Louis, Mississippi, described developments and progress in satellite technology as it is used to manage, conserve and utilize some of our fishery resources. He particularly dealt with some of the work with Landsat on menhaden and thread herring

which is not in its final stages. The intent was to determine if the satellites have potential for locating certain species of fish. While the satellite cannot be expected to see a specific fish, it can, by looking at environmental parameters, determine whether or not the fish are present. Essentially this is done by looking at the earth in four portions of the light spectrum. In the summer of 1966 two areas were selected as test areas. One of these was the Mississippi Sound and the other was off the Louisiana coast. Two areas were selected in order to make comparisons and to clearly demonstrate that satellites could be used to spot fish. The operation was carried on in connection with menhaden fishing since the menhaden are a schooling fish and the industry could supply needed data to the project. The project did prove that satellites could be used to locate this particular species of fish.

The next step in the project was to develop technology that could be used in endangered species work. In this connection a small transmitter, called the Nimbus Six, was developed that could be attached to a marine animal, such as a sea turtle, a whale or a porpoise, and which could transmit data on movement and location to the satellite and in turn back to earth.

A new satellite, known as Seasat, will be launched in the summer of 1978. The vehicle will contain two sensors and will be a valuable tool in fishery surveillance. Its practical use has already been demonstrated in the Gulf of Alaska and Bering Sea where fishing vessels were spotted within the 200-mile limit area with 90% probability. Not only were vessels detected but also the size and approximate numbers of fish, that is whether or not the vessel was fully loaded, 3/4 loaded or empty. Speed and direction of travel of the vessel can also be detected. The satellite can also be used to detect direction of current flow, an extremely important factor to those fish that spawn offshore and depend on favorable currents to transport the larvae to the estuarine areas. Thus it could prove to be an invaluable instrument for prediction of year-class survival.

The Engineering Laboratory is located just north of Bay St. Louis on the test site facilities of NASA. Visitors are always welcome.



Mr. Blair Weaver, Senior Trade Specialist, U. S. Department of Commerce, Birmingham, Alabama, discussed the services available to U.S. business firms through the Department of Commerce. These services can also be applied to marketing fishery products abroad. There are two main reasons why U.S. manufacturers should export: (1) more profit, and (2) more jobs for Americans. In addition to these it also provides a broader marketing base and results in greater company growth. Export markets have become a major growth area for many U.S. firms, 95% of which are small businesses. In implementing the program and discharging the statutory responsibilities, the Department of Commerce works "hand-in-glove" with offices in some 200 embassies located in approximately 127 foreign countries.

There is a relatively new target industry program to assist U.S. exporters and potential exporters. A staff of experts, from both government and private industry, did a survey to determine those U.S. products that would have the greatest potential abroad. There is also a new-product exposure program. The Department of Commerce publishes a commercial newsletter that is sent periodically to commercial offices in foreign service posts. It now contains an expanded new-products section which manufacturers can use as a means of introducing new products throughout the world. There are, however, some standards which must be met in order to qualify: (1) the product must be genuine, offering something new, and (2) it must be exportable. Many new products are picked up for promotion on the Voice of America, also.

Among other services offered by the Department of Commerce is the specialized trade missions which are essentially small groups of persons, well organized, with a specific objective in view. Their overall purpose is (1) to find new markets, (2) to identify new customers for U.S. businessmen, and (3) to develop more export sales. These missions are carefully planned so that data are analyzed to identify potential customers. Itineraries and product lines are carefully selected and the mission is tailored to meet the needs of the specific plan.

These and many other foreign trade opportunity services are offered to industry in an

effort to help develop foreign markets. If you have a fishery product that you believe qualifies in any of these areas, or if you develop a new product that you think will sell in a foreign country, the Department of Commerce stands ready to assist with its many foreign services.

Mr. Ed. Smith, Market Specialist, National Marine Fisheries Service, Pascagoula, Mississippi, discussed the reasons for exploring foreign markets for our underutilized species. One reason is the attitude of the American market. There is a basic reluctance of domestic markets to accept what is called an underutilized species. Therefore, we look to foreign markets for use of these resources.

At a Gulf States Marine Fisheries Commission meeting in Gulf Shores, Alabama, approximately 6 years ago, we announced the contract of 30,000 pounds of mullet roe to France for \$1.50 per pound. This was the first successful attempt to sell fish to foreign markets from this region, except for shrimp canners. Since that time the market has expanded to the Orient with increased prices of from \$2.75 per pound to \$3.00 per pound with the possibility of obtaining \$3.50 per pound this season.

The industry is concerned about the future of mullet because of some of the same problems given here for other products.

With the introduction of surimi from croaker there followed problems of acquiring the product. The problems of producing roe mullet in quantities to supply the product also arose. All species have some export market potential overseas. National Marine Fisheries Service can help obtain a buyer for your product.

Without financial assistance the U.S. producer is unable to think "big" as is the case with foreign buyers. Foreign buyers think in terms of tons; our producers think in pounds. Financial assistance is needed to close this gap. Fishermen who have confirmed contract orders for a specific amount of fish go into a bank for help and are unable to secure funds. Farmers, on the other hand, can get financial assistance from all sorts of sources on speculation only. New sources of money are needed for the fishermen.

Steamship rates are inconsistent and often not quoted. For example, it costs more to ship fish than any other form of protein. Salmon

does have a commodity rate, however. To ship fish to Tokyo we must have an established commodity rate.

Several underutilized fish have microconstituents that do not present problems to foreign markets but develop many problems in the domestic market.

Problems are developing all along the Gulf Coast with respect to bans on the nets used by commercial fishermen. This reflects the indifference of people to fish. Even though no one eats eels there exists the problem of net bans to obtain the product. Asiatic clams have similar problems. If we cannot use the nets to catch these fish, a foreign fishing company could be issued a permit to harvest underutilized fish in out-of-state waters using the very same nets, or more sophisticated versions, under the eyes of American fishermen who are banned from using those very same nets. If he is strangled before he can even catch the fish, an export market can never be developed for these underutilized species.

There are surplus supplies of fish that can be sold overseas. The commercial fishing industry is in dire need of public interest and support in eliminating or removing any of the obstacles that have been pointed out.

**Dr. Brian Rothschild**, National Marine Fisheries Service, Washington, D.C., described how a model interrelates to all of the complexities in fishery policy decisions. He discussed three areas of concern to the policy maker: (1) a descriptive review of a model; (2) what a model is used for, and (3) how a model can be used in fishery policy.

A model was described as a bookkeeping device which uses equations to give answers to fishery questions. It is a simplification of the real world utilizing equations rather than full-scale real-work situations to answer those questions. The input and output figures indicate where data needs exist and require that the right questions be asked about how to best manage the resource.

Dr. Rothschild used a simple example of a fishery model to show what they are and what they can be used for. Utilizing supply-and-demand data, a determination can be made about what might be expected of the market relative to price, available fish, etc.

Finally he related how models which incorporate such things as management practices,

new markets, agents, technology, joint ventures, etc., can be used by councils, states, federal government to arrive at better decisions about fishery policy.

**Mr. Robert Knecht**, Coastal Zone Management, Washington, D.C., pointed out how in some instances Coastal Zone Management (CZM) grant funds might be used to support fishery-related activities.

A general discussion was given of how CZM grants to states have been used. The money was mainly for two purposes: (a) planning assistance funding, and (b) management assistance funding. The Act passed in 1972 was not just for the dry and damp portions of the coastal states, but can include the territorial sea as well. To date 99% of the money is used for land planning efforts, however, planning for elimination of conflicts between uses of living marine resources are also eligible for funds. CZM funds may be used for plans, closing information and data gaps in the territorial sea as well as the shoreline.

Mr. Knecht made it clear that he understood the concern of some state agency people that the Office of CZM awarding grants to the state marine resource agency might lead to a takeover of responsibility by another department of the state government. He stated, however, that the Washington offices would only consider the programs agreed upon by the marine resource agency of the state. The ideas and needs of plans must be initiated from the state marine resource agency itself, not from the Washington office or the state CZM office.

Some funds from CZM are used for marine fishery problem-solving in North Carolina and Massachusetts.

The uses for CZM funds must be related to the basic charge of the Act. An example of this might be found in conflict resolution between states, state and federal governments, states and councils, recreational and commercial interests over use of particular areas. These funds are available on a 80% federal-20% state ratio.

A question was asked concerning the feasibility of the Gulf States Marine Fisheries Commission obtaining funds from CZM for use in the Gulf Territorial Sea planning. The answer was that the funds would be to individual states, but if they all agreed the



Commission could be their agent to coordinate the planning.

Current funding for planning and development terminates September 30, 1979, then funds for management will be more applicable.

**Captain Armand Annan**, charter boat operator, Orange Beach, Alabama, stated that the reasons fishermen are not catching as many fish as they used to are water pollution and overfishing.

The pollution is from industrial plants dropping chemicals and waste water into the Gulf.

Overfishing is caused by the commercial as well as the recreational fishermen. All groups want their share. Capt. Annan said it was like a turnip patch in which all are harvesting turnips but no one is planting. Therefore, he feels, we need fish sanctuaries or havens, as in the case of artificial reefs, outside; closed fishing areas inside to allow the fish to spawn and grow without fishing pressure applied by anyone.

Some commercial trawlers are destroying the fish habitat and therefore reducing the population.

**Mr. Clyde Richbourg**, seafood producer, Pensacola, Florida, talked about some of his problems, goals and ideals in fisheries. He noted the fishing industry provides a needed service to needy people. In addition, fishing produces wealth along with farming, mining and lumbering. These resources must be utilized wisely.

This nation is blessed with an abundance of natural resources. However, the fishing industry has not grown or expanded as it has in other nations. Imported goods are far too high. We need to produce the fisheries products we consume. A reason for this trend is increased regulation which causes the use of inefficient gear.

He questioned whether this was intelligent management. In summary he recommended we not close areas nor limit efficiency where the need for such has not been proven.

**Mr. Vernon Ballard**, representing the Red Lobster Inns of the United States, spoke about the need for seafood at a reasonable price to the consumer.

The point he made was one which is often overlooked. When a fisherman is reduced to the most inefficient gear, there is the tendency

to produce poorer quality.

Most of the rules and regulations that are promulgated are aimed at the harvester and the processor. The consumer has an interest and rights also. What is needed is a management scheme that prevents overfishing and yet affords the consumer his fair share of quality products.

**Mr. Robert Jones**, Executive Director, Southeast Fisheries Association, Tallahassee, Florida, related his views on research and its relationship to the fishing industry and general public.

In the wake of the loss of traditional fishing grounds, type and quantity of gear being limited, or outlawed, is the need for practical research transferred to the user in a realistic form.

Some of the practical research needs are more in-plant and vessel engineering studies, new product development, waste disposal, research distributed in lay language, market research and awareness of applicable research in other states.

Thus, a transfer of technological and marketing information to the fishermen and plant operators is needed. Some is being done but not enough.

**Dr. David Veal**, Sea Grant Advisory Service, Biloxi, Mississippi, briefly described the services of Sea Grant. Sea Grant's major function is service or information oriented. They acquaint the general industry with the potential that exists. Sea Grant, as well as other agencies, helps by offering the services of an economist, market specialist, food technologist, as well as federal information on such things as the Small Business Administration (SBA). If the industry requests their help, they are more than happy to assist.

**Mr. Joe Blanchard**, Florida Game and Fish Commission, spoke on "A Fishery Utilization Project." The Florida project on Lake Okechobee allows the harvest and selling of game fish by commercial fishermen. Twenty-five years prior to this project, the harvest by commercial fishermen of this vast renewable resource was stopped by the sport fishermen. Since that time, and after seven years of research, the sport fishing interests were convinced that the harvesting by commercial fishermen would not harm the resource. Twenty-two million pounds is the potential for commercial harvest. Prior to this program,

only 400,000 pounds were taken by the sport fisherman.

The program is well monitored. Higher use for the rough or underutilized species is a problem. However, this does show how the commercial fishermen can help the sport fishermen with the consumer and the general public receiving the ultimate benefit.

**Mr. Walter M. Tatum**, Marine Resources Division, Ala. Depart. of Conservation and Natural Resources, Dauphin Island, Alabama, chaired a panel-type discussion on the recreational

fisheries of the Gulf. The panel, which gave a similar presentation at the American Fisheries Society meeting in Canada, consisted of scientists and managers from each of the five gulf states. Each presentation was approximately 10 minutes, followed by a question and answer period. One of the major problems that surfaced from the panel discussion was the need for comprehensive gulf-wide recreational statistics. Texas was noted as having possibly the best initial system on which to base models.

## MEETINGS/ACTIVITIES OF EXECUTIVE DIRECTOR

### *Gulf States Marine Fisheries Commission Meetings*

28th Annual Fall Meeting, Mobile, Alabama  
October 1977  
Special Call Meeting, New Orleans, Louisiana  
January 1978  
28th Annual Spring Meeting, Brownsville,  
Texas – March 1978

### *Gulf of Mexico Fishery Management Council*

November 1977 Orlando, Florida  
January 1978 Biloxi, Mississippi  
February 1978 Tampa, Florida  
March 1978 New Orleans, Louisiana  
July 1978 Denver, Colorado  
September 1978 Corpus Christi, Texas

### *Gulf State- Federal Fisheries Management Board*

Board Meeting, Mobile, Alabama,  
October 1977  
Menhaden Implementing Committee,  
New Orleans, Louisiana, December 1977  
Shrimp Implementing Committee,  
New Orleans, Louisiana, December 1977  
Board Meeting, Brownsville, Texas  
March 1978  
Menhaden Tagging Mortality Study,  
New Orleans, Louisiana, May 1978

### *Marine Fisheries Advisory Committee (MAFAC)*

October 1977 Washington, D.C.  
February 1978 Washington, D.C.  
May 1978 Washington, D.C.

### *State Fish and Game Directors Meeting*

April 1978 Washington, D.C.

### *Industry Meetings*

National Shellfish Institute  
Atlanta, Georgia, November 1977  
American Shrimp Congress, Houston, Texas,  
December 1977  
Louisiana Shrimp Association  
New Orleans, Louisiana, December 1977  
Southeastern Fisheries Association  
Ft. Lauderdale, Florida, June 1978

### *Eastland Implementation Meetings*

November 1977 Washington, D.C.  
January 1978 Washington, D.C.

### *Other*

November 1977  
Meeting with NMFS Regional Director regarding  
NMFS Regionalization, Tampa, Florida  
December 1977  
Meeting with Bureau of Land Management  
representatives regarding Underwater Water  
Obstructions, New Orleans, Louisiana  
December 1977  
Lunch with Governor Cliff Finch of Mississippi,  
Jackson, Mississippi  
April 1978  
Presented testimony before House Merchant  
Marine and Fisheries Committee regarding  
PL 88-309, Washington, D.C.  
May 1978  
Presented testimony before House Merchant  
Marine and Fisheries Committee regarding  
Endangered Species Act, Washington, D.C.

## ASSISTANT TO THE DIRECTOR'S MEETING ACTIVITIES

### *Gulf of Mexico Fishery Management Council*

June 1978 New Orleans, Louisiana  
June 1978 New Orleans, Louisiana  
Regional Council Meeting  
July 1978 Key West, Florida  
September 1978 New Orleans, Louisiana  
September 1978 Houston, Texas

### *Gulf State-Federal Fisheries Management Program*

Spotted Seatrout and Red Drum Subcom-  
mittee, New Orleans, Louisiana  
September 1978

### *Industry Meetings*

Shellfish Institute of North America  
New Orleans, Louisiana, June 1978  
National Shellfish Institute  
New Orleans, Louisiana, June 1978

### *Other*

June 1978  
Shrimp Task Force Meeting, Louisiana State  
University, New Orleans, Louisiana  
June 1978  
Regional Office of NMFS regarding a briefing of  
Regional Office activities, St. Petersburg, Florida

**ALABAMA DEPARTMENT OF CONSERVATION  
AND NATURAL RESOURCES**

**Marine Resources Division**

**FISH MIGRATION STUDY**

More than 2,000 fishes were tagged in an effort to obtain information on migratory patterns. Tag returns for snapper tagged in shallow water (20 to 25 feet) demonstrated a seasonal migration to deeper waters (60 to 120 feet) when water temperature declined. Tag returns from snapper tagged in 60 to 90 feet of water demonstrated little movement. Tags returned this fiscal year from species other than red snapper have not been sufficient in number to delineate migratory patterns.

**EVALUATION OF U.S. ARMY CORPS OF  
ENGINEERS PUBLIC NOTICES**

A total of 311 U.S. Army Corps of Engineers Public Notices were investigated by Division personnel. Written comments relative to these inspections were submitted to the State Lands Division for forwarding to the Corps. Efforts were made to coordinate field inspections and written comments with the Game and Fish Division of the Alabama Department of Conservation and Natural Resources, with the National Marine Fisheries Service, and with the U.S. Fish and Wildlife Service.

**LAW ENFORCEMENT ACTIVITIES**

A total of 256 arrests were made on seafood violations. The enforcement's concentration on oversize trawls in inside waters and the high fines imposed by the courts for this violation in 1977 resulted in fewer violations of this regulation during 1978. A district court judge declared Alabama's regulation prohibiting netting on Gulf beaches from May 15 to September 15 unconstitutional. This ruling has been appealed to Circuit Court and is still pending. As a result of the dismissal of cases made for violations of this regulation, the conviction rate dropped from 96% during 1977 to 84% in 1978.

**OYSTERS**

No shell planting was done by the Marine Resources Division for the third consecutive year because of lack of capital outlay funds. Oyster production remained high from shell planting in 1975 and from excellent sets on natural cultch material. Many areas producing harvestable oysters during 1977 and 1978 had not been productive for 10 or more years because of poor annual spat sets. Areas planted with clam shell from 1972-75 under PL 88-309(4b) funds were evaluated. Rangia clam shell provides better cultch material than mud shell and is preferred over shop shell by the fishermen because of the production of single oysters.

Alabama oysters were transported to and spawned in Maryland to provide oyster spat for planting in Bon Secour Bay. Spat (0.5 million) are being reared to planting size in raceways at the Claude Peteet Mariculture Center, Gulf Shores, Alabama, and will be planted in the fall of 1978. Spat grew from 0.008-inch to 0.5-inch from June 1978 through September 1978 in raceways.

**SHRIMP**

The shrimp monitoring program started in May 1977 was continued throughout this fiscal year. This program includes beam trawl samples to assess postlarvae distribution and 16-foot trawl samples to assess juvenile shrimp size and distribution in inside waters. Management was improved and areas were opened and closed based on the sampling program. A small tagging program was initiated in the fall of 1977 using 2,000 white shrimp raised in ponds at the Claude Peteet Mariculture Center. These shrimp were released into Mobile Bay. Tag numbers and lengths were recorded at the time of release and compared to the lengths of the shrimp upon recapture. To date only

12 tags have been returned. Record growth was 85 mm in 232 days. The greatest distance of capture from the release site was at Deer Island in Mississippi, 65 miles from Mobile Bay, after 283 days. The shrimp biologist continued as liaison to the shrimp management plan for the Gulf of Mexico Fishery Management Council.

Commercial landings from January through August of 1978 were 1.3 million pounds less than the same period in 1977 but exceeded the period in 1976 by 1.7 million pounds.

#### FISH CULTURE

During the fiscal year pond culture experiments were conducted with Gulf killifish (bull minnows), red drum (redfish), pompano, rainbow trout, and the South American blue shrimp. Additionally, female red snappers were spawned with an injection of human chorionic gonadotropin (250 international units [IU]/pound body weight).

Gulf killifish production in brackish water ponds was enhanced by two management techniques — utilization of Spanish moss spawning mats in spawning ponds, and higher stocking densities in grow-out experiments. At least 82,500 juvenile killifish were produced in the spring of 1978 by transferring only 50 mats from two 0.2-acre spawning ponds stocked with adult killifish (1,000 fish/pond) to one 0.2-acre hatching pond. At a high stocking density (101,250 fish/acre) and fed a commercial minnow feed, the juveniles grew from 0.004 ounce to marketable size of 0.07 ounce in 52 days with mean survival of 82%, feed conversion of 1.9, and production of 382 pounds/acre. Investigation of the fall spawn of Gulf killifish indicates additional potential for pond production of the baitfish.

Survival was 100% and production totaled 2,020 pounds/acre for red drum reared from 0.3 to 0.5 pound in 72 days in a grow-out pond. Although parasites killed some red drum during a 144-day nursery pond study, production of red drum was 1,167 pounds/acre with survival of 67%, 1.1 to 1 feed conversion, and 0.3 mean weight.

South American Blue shrimp postlarvae stocked at a low density (10,000 shrimp/acre) grew fast averaging 36–40 count heads-on in only 61 days. Experiments investigating higher

densities are suggested for future experiments. Comparable growth rates were obtained for the shrimp in polyculture with pompano, and yield and survival of shrimp in polyculture exceeded values in monoculture.

#### ANADROMOUS FISH

During the year 1,016,120 striped bass fingerlings were released into the coastal waters of Alabama. Fry received from South Carolina were reared to fingerling size at the Claude Peteet Mariculture Center. An additional 250,000 were obtained from the U.S. Fish and Wildlife Service. A total of 3.4 million striped bass have been released into Alabama coastal waters since 1974. Recreational and commercial catches of striped bass are becoming more frequent and fish up to 44 pounds have been caught.

#### ARTIFICIAL REEFS

The Marine Resources Division constructed three fishing reefs in the Gulf of Mexico from 1,200 tons of concrete culvert and 18 metal lifeboats. Excellent catches of snapper were reported from the concrete culverts sunk off Dauphin Island in less than one year after sinking. Maintenance of buoys has been a continuous problem in offshore waters.

#### ADMINISTRATIVE

The Director of the Marine Resources Division serves on the Alabama Coastal Area Board and as the Commissioner's designee to the Gulf States Marine Fisheries Commission, the Gulf of Mexico Fishery Management Council and the Gulf State-Federal Fishery Management Board. Division biologists provided input into the various fishery management plans in preparation under the Gulf of Mexico Fishery Management Council.

Creel limits were established on the recreational catch of speckled trout, redfish and red snapper to 50, 25, and 25 fish/person/day, respectively, with a 2-day possession limit. Minimum size limits were established at 12 inches for speckled trout, 8 inches for red snapper and 14 inches for redfish with not more than two redfish exceeding 36 inches in length. A regulation was signed to prohibit cooning oysters in excess of 50/person without a commercial oyster license.

## FLORIDA DEPARTMENT OF NATURAL RESOURCES

### Division of Marine Resources Bureau of Marine Science & Technology

Bureau personnel participated in reviews of various phases of the Coral-Coral Reef, Reef Fish, Stone Crab, Lobster, Billfish and Swordfish Management Plans. Florida Department of Natural Resources Marine Research Laboratory data (published and unpublished) were made available for development of the draft plans. Bureau personnel organized a 1-½ day "Colloquium on the Biology and Management of Red Drum and Seatrout" which was sponsored by the Gulf States Marine Fisheries Commission. Additionally, a biologist prepared the Florida section for the bioprofiles on red drum and seatrout.

A total of 13,253 king mackerel were tagged from 1975-1978; more than 800 tags have been returned. In cooperation with the National Marine Fisheries Service, 108 king mackerel were tagged off Beaufort, North Carolina, for additional assessment of migratory routes and seasonal occurrence of king mackerel stocks. One tag was returned from

Mexico. Returns from Mexico and Texas demonstrate that mackerel tagged off Ft. Pierce migrate long distances and the stocks are actually an interstate resource.

A lobster-tagging program in the middle and upper Florida Keys was initiated, and the final segment of a 3-year study to evaluate deployment techniques and effectiveness of artificial habitat collections for spiny lobster postlarvae was completed.

Collections and/or analyses for several multiyear projects continued: snapper and grouper life history studies (age, growth, mortality, reproduction, spawning areas, etc.) for management planning; the occurrence of groupers, seabass, drum and croakers on the West Florida Shelf; the occurrence, distribution and ecology of soft corals, hard corals, and penaeid shrimp taken during Project Hourglass, a 28-month systematic sampling program on the West Florida Shelf; and stone crab population dynamics on southwest Florida.

## LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES

### Seafood Division

The principal programmatic responsibilities of the Seafood Division involves the protection, management, development and understanding of Louisiana's vast coastal and marine areas and the renewable resources produced therein. The Division is directly responsible for the management of this area and its related harvest which produces approximately 20% of the total U.S. commercial fishery tonnage. Our annual production of commercial fishes exceeds one billion pounds with a value of \$200 million after processing. The direct economic gain at dockside to the fishing industry is approaching \$100 million annually. Our principal commercial fisheries include shrimp, oysters, menhaden, crabs, and finfish.

In addition to this vast commercial fishery, some 240,000 recreational fishermen are also dependent upon this Division to maintain the stability of the natural resources supporting their interests. In managing and protecting these natural resources, we directly serve some 24,000 commercial shrimpers, 57 shrimp plants and 12 canneries; 41 oyster-shucking houses, 7 oyster canneries; 8 menhaden plants; and numerous developing crab-packing houses.

At the Division's Marine Laboratory on Grand Terre Island, experiments continued on length/weight relationships and gonadal conditions of spotted seatrout, red drum, black drum, and king and Spanish mackerels. Additionally, numerous field trips, tours, and lectures were given to visiting college and high school classes.

A study to determine the volume of ground-fish and shellfish landed and discarded by commercial shrimpers was initiated. Additionally, we are determining the seasonal species composition and the sizes of the discarded fish.

Striped bass were raised in ponds at the

Grand Terre laboratory for release in the Barataria Bay complex. Approximately 48,000 fingerlings were stocked in the Barataria Bay system as part of a statewide restocking program.

Triangulation stations (monuments) were placed in the coastal zone for the purpose of providing permanent markers from which oyster surveys could be made. A total of 130 monuments were placed during the 1977-1978 fiscal period. These monuments control approximately 20,000 water bottom acres.

A study of commercial finfish in coastal Louisiana was completed. Objectives of this study were to estimate relative abundance of spotted seatrout and red drum, to determine seasonal and areal abundance, and to delineate movement and migration. Results are in press.

A survey of the recreational shrimp and finfish harvest in Vermilion Bay and its impact on commercial fishery resources continued. Preliminary results indicate high rates of effort by the recreational group on both shrimp and finfish.

A white and brown shrimp mark-recapture program was initiated in cooperation with Louisiana State University and the National Marine Fisheries Service, for the purpose of obtaining growth data and to quantitatively define this growth rate. An alternate objective is to determine natural mortality. Approximately 40,000 white shrimp and 42,000 brown shrimp were tagged and released.

The brown pelican reintroduction program, initiated in 1968, was continued. One hundred Florida pelicans were placed on the Chandeleur Island chain located in southeastern Louisiana. It appears that this group of birds has established a colony on this group of islands, and mortality (to date) has been low.

## MISSISSIPPI MARINE CONSERVATION COMMISSION

Landings of commercial marine finfish and shellfish in Mississippi during fiscal year (FY) 1977-78 amounted to 251.1 million pounds valued at \$22.8 million, representing a 3.5% increase in volume and a 3.7% decrease in value over the previous fiscal year. Total finfish landings were 237.6 million pounds valued at \$11.7 million, an increase of 3.8% and 3.5%, respectively. Menhaden comprised 98.3% of the total finfish landings and accounted for 86.6% of the finfish value. Shellfish landings amounted to 13.6 million pounds valued at \$10.8 million, representing a decrease of 2.2% in volume and 12.2% in value in comparison with 1976-1977. Shrimp accounted for 72% of the total shellfish landings and 82.5% of the shellfish value. Overall, total volumes and values for both finfish and shellfish were similar for FY 77 and FY 78, although there was considerable difference in the catch of certain individual species. The following is a brief summary of each of the major fisheries in Mississippi for fiscal year 1978.

### MENHADEN

Menhaden landings in FY 78 were 233.7 million pounds, an increase of 3.8% in volume over FY 77. The value increase was \$10.1 million compared to \$9.8 million in FY 77, an increase of 2.6%. The menhaden catch for the entire Gulf was very high. Landings for the first six months were up 79% over the first six months of 1977. Production of menhaden meal, solubles and oil was well above production in 1977. The oil yield from the 1978 catch was up over 40% compared to that of 1977. Oil yields ranged from 12 to 14 gallons per thousand fish in 1978. Yields for meal and solubles were 70 to 72 tons per million fish and 9 to 12 gallons per thousand fish, respectively.

### SHRIMP

Heads-on landings of shrimp were 9.8 million pounds representing a value of \$8.9 million, a

decrease of 10.0% and 16.4%, respectively, as compared to the record catch in FY 77. Average dockside value dropped from \$0.98 per pound in 1977 to \$0.91 per pound in 1978. Brown shrimp comprised 77% of the total penaeid shrimp catch. The 1978 season opened on June 19. Analysis of data collected by Gulf Coast Research Laboratory Fishery Assessment and Monitoring personnel originally indicated that the shrimp would be of sufficient size to open the season on June 12; however, results of sampling completed June 7-9 indicated a movement of relatively small shrimp into the area and the opening date for the season was delayed to June 19.

### OYSTERS

Landings of 1.3 million pounds of meats valued at \$1.4 million were down 29.7% in volume but up 4.4% in value over the same period in FY 77. The majority of the oysters were utilized by firms producing raw shucked oysters. Prices were markedly higher than the previous year due to a decline in production.

In efforts to replenish and revitalize the oyster fishery, the Mississippi Marine Conservation Commission relayed 19,600 barrels of oysters from restricted areas to approved state reefs. Fifteen thousand six-hundred (15,600) barrels were transferred to the Pass Christian Reef and 4,000 barrels were transferred to an area off the old White House pier in Biloxi. This area, now known as White House Reef, held a small quantity of oysters previous to the transfer operation and has now become a productive reef. Future transfers to this area should continue to enhance production.

In addition to oysters relayed by the Mississippi Marine Conservation Commission, another 15,945 barrels of oysters were relayed by lease holders to private bedding grounds. Of these oysters transferred by the lessees, 11,710 barrels were transferred from the Biloxi area and the remaining 4,235 barrels were moved from the Pascagoula area.



## CRABS

Landings of hard-shell blue crabs were dramatically increased in FY 78. These landings amounted to 2.5 million pounds, valued at \$538.9 thousand, representing a 97.3% increase in volume, and a 56.7% increase in value. Average dockside value per pound dropped from \$0.27 per pound in 1977 to \$0.22 per pound in 1978. Hard-shell blue crabs were present in sufficient quantities to warrant the processors placing crabbers on limits during portions of the crabbing season. Soft-shell crab landings in FY 78 were 4,400 pounds valued at \$1,100.

## EDIBLE FINFISH

Landings of edible finfish were 4.3 million pounds valued at \$1.6 million, an increase of 5.6% in both volume and value over FY 77. There were some dramatic changes in catches of certain individual species. The most notable and significant example was the increase in the catch of red drum. Landings of red drum were 382.1 thousand pounds as compared to 105.2 thousand pounds in FY 77. This represents an increase of 263%. This increase, which accelerated in the second half of 1978, has caused considerable concern among fishermen and those involved in fisheries management as well. The bulk of redfish harvested were by purse seiners. This increase in red drum harvest was caused to some extent by restrictive legislation in other Gulf states which placed heavy pressure on the species in Mississippi waters.

Mississippi gill netters reaped good harvests of both spotted seatrout and mullet. Spotted seatrout landings were 213.7 thousand pounds, an increase of 27.5% over FY 77. Mullet catches amounted to 1.2 million pounds representing an increase of 48% over FY 1977. Increased mullet landings were due in part to a greater market demand for both fresh and smoked mullet. The most notable decline in the catch of any of the more important edible finfish was that of Spanish mackerel. Catches of this species declined from 268.3 thousand pounds to 67.8 thousand pounds, a decrease of 75%. Catches of the Atlantic croaker were also down, with FY 78 landings of 314.6 thousand pounds as compared to 573.5 thousand pounds in FY 77, a decrease of 45%.

## RECREATIONAL FISHING

Sportsfishing followed the usual seasonal fishing patterns. There were many large catches of red drum in the vicinity of the barrier islands. Anglers took advantage of the artificial reefs created by sunken Liberty Ships to land catches of snapper, grouper, spadefish and several other species. Inshore fishermen had a good year landing considerable numbers of kingfish, croakers, spotted seatrout, "rat" reds and sheepshead.

Saltwater sportsfishermen contribute significantly to Mississippi sales and income through the purchase of bait, tackle, boats, motors and other items associated with this sport. Unfortunately, adequate data on the marine recreational catch is not available. There is presently no accurate list of marine recreational fishermen in Mississippi because the state does not require a saltwater fishing license. It would be wise to consider the possibility of requiring marine recreational anglers to purchase licenses similar to those required by freshwater fishermen. In the long run, it would be of direct benefit to the fishermen in two respects: (1) it would provide badly needed data on the number of people involved in marine recreational fishing in the state; and (2) it would provide additional funds for research needed to provide information with which to better manage both recreational and commercial fisheries.

## ENFORCEMENT ACTIVITIES

The enforcement personnel of the Mississippi Marine Conservation Commission made 186 arrests in FY 78 which resulted in \$9,493 in fines. Of these arrests, 155 resulted in convictions which represents an arrest/conviction percentage of 83. The remaining 31 arrests have not yet been acted upon.

In FY 77 there were 251 arrests of which 81% resulted in fines amounting to a total of \$10,699. The average fine in FY 77 was \$42.63; whereas, in FY 78 the average fine was somewhat stiffer at an average of \$61.26. When the remaining cases in FY 78 are acted upon, the fines will more than likely exceed those collected for FY 77.

The majority of arrests were made in relation to shrimping activities. The most frequent violations were for shrimping in closed waters

and use of illegal gear. A number of arrests were made for illegal oystering as well. Patrols were stepped up during the first part of June to prevent harvesting of shrimp before they

reached the legal size of 68 per pound. In addition, patrol efforts were increased in restricted areas to prevent the illegal harvest of "polluted" oysters.

## TEXAS PARKS AND WILDLIFE DEPARTMENT

### COASTAL FISHERIES

Two major programs – finfish and shellfish – provide important management information on finfish and shrimp population abundance, recreational and commercial harvests of all species, fish propagation, oyster reef rehabilitation and blue crab populations. Data from these studies are made available for use in the coastal areas. Branch personnel also worked with the General Land Office, Texas Department of Water Resources, University of Texas Marine Laboratory, Texas A&M University Extension Service, Gulf and South Atlantic Fisheries Development Foundation, National Marine Fisheries Service, Texas Coastal and Marine Council and Texas A&M Moody College in cooperative programs.

### FISHERY MANAGEMENT

This was the first year for implementation of provisions contained in the "Red Drum Conservation Act" of the 65th Texas legislature. This Act provides a daily recreational bag limit of 10 red drum and a possession limit of 20 fish, with no more than two exceeding 35 inches in length. For commercial fishermen, a special red drum license (\$50) is required to catch red drum for sale and a 200-pound daily catch limit was established for the first year. Beginning October 1, 1978, a commercial fish quota of between 1.4 to 1.6 million pounds has been established by the Commission for the eight Texas bay systems and the Gulf of Mexico.

In October 1977, the Commission adopted regulations that prohibited the use of nets and trotlines in coastal regulatory waters from 1:00 p.m. on Friday through 1:00 p.m. on Sunday for the conservation of red drum and spotted seatrout. The Commission also adopted rules to open Hynes Bay in Calhoun County to the use of 6-inch stretched-mesh nets to promote the harvest of underutilized species; and to allow the use of unbaited hooks spaced

no less than 6 inches apart on trotlines in waters no more than 2 feet deep in Baffin Bay, Alazan Bay, and their tributaries each day of the week from November 1 through March 31 to allow the harvest of black drum.

In May 1978, the Commission adopted a regulation requiring that each initial sale of saltwater fishes be recorded on a form supplied by the Department in order to monitor the commercial harvest of fishes and the catch quota for red drum from each Texas bay system and the Gulf of Mexico.

In July 1978, the Commission approved the use of 3-inch stretched-mesh nets in Hynes Bay; the use of up to 10 bottom lines each day of the week throughout the year in Baffin Bay, Alazan Bay, and their tributaries; and the use of unbaited hooks spaced no less than 6 inches apart on trotlines in waters no more than 2 feet deep in Baffin Bay, Alazan Bay, and their tributaries. These changes were to allow the harvest of additional poundages of black drum and underutilized species. The Commission also adopted a commercial harvest quota for red drum of 1.4 million pounds for the period of October 1, 1978 through September 30, 1979. To prevent waste in the blue crab resource the Commission adopted a 5-inch minimum-size limit on blue crabs and a limit of 300 crab traps per fisherman. They also ruled that crab traps be marked with the owner's name, address, and license number. In Aransas County, traps may not be placed within 200 feet of a marked navigable channel.

### FINFISH PROGRAM

Investigation, conservation, and enhancement of coastal finfish resources are the major goals of the finfish program. To manage effectively the finfish resources, technical information on the various species must be furnished to the Commission. Finfish populations must be monitored to ascertain relative abundance, distribution, and species composition. Harvest

data must be obtained from recreational and commercial fishermen to determine catch trends in each saltwater bay system and the Gulf of Mexico.

The third year of the bay finfish monitoring program was completed in September. Estimates of trends in finfish abundance for Galveston, East Matagorda, Matagorda, San Antonio, Aransas, Corpus Christi, Upper and Lower Laguna Madre bay systems were gathered in a highly structured and standardized sampling program. A total of 256 experimental gill net, 1,078 trammel net, 462 bag seine, 462 push net, and 21 rotenone samples were completed.

Fish tags were attached to over 2,000 fish that were released in the area of capture. Fishermen returned over 600 recapture tags during this year valued at about \$1,000. Return of these tags provides important information on movement, territoriality, behavior, and growth of important recreational and commercial fish.

In addition to completing all scheduled field sampling, a scientific paper based on the results of previous sampling was presented at each of the Southeastern Association of Fish and Wildlife Agencies, and the American Fisheries Society annual meetings. One management report was published by the Department as well as one magazine article.

The fourth annual sport and commercial finfish harvest monitoring program was completed in August. Information on recreational fisheries gained in this study included the size of the seasonal harvest of each species in each bay system; average length and weight of fishes landed; species composition of catches; catch-per-hour; number of manhours spent fishing; and success ratio of fishing parties. The poundage of fishes taken monthly in each bay system by commercial fishermen was also tallied, along with the average size of each species and the catch-per-unit of effort.

The marine culture and enhancement program is located at the Palacios Marine Fisheries Research Station and the Port Aransas Marine Laboratory. At Palacios, four red drum were spawned earlier in the year and 6,000 fingerling red drum were reared. About 1.4 million black drum fry were spawned. The initial goal of this program is to rear up to 3 million red drum fingerlings per year for stocking in coastal bay systems and the major effort

during the latter part of the year was to obtain brood stock for use in controlled light-temperature manipulations to induce spawning in the laboratory.

Preliminary work on age and growth of red drum and spotted seatrout at the Palacios facility indicates the scale method of aging is reliable for both species in Texas waters. The ability to age a fish gives meaningful information for effective management.

#### SHELLFISH PROGRAM

The goal of the shellfish program is to preserve, manage, utilize and, where possible, to expand the shellfish resources of the state of Texas.

Brown and white shrimp, blue crabs and the American oyster are the major shellfish in Texas. These species are closely monitored by biologists to determine relative abundance, growth rates, movements and other factors that will aid in their management.

Shrimp landed in Texas constitute our most valuable commercial fishery with the 1977 value to the fishermen exceeding \$125 million. The 91.6 million pounds reported in 1977 ranked it as the third best production year in history. Total poundage was exceeded only in 1967 and 1972. Brown shrimp generally account for 70 to 80% of the annual poundage.

Each spring the growth of brown shrimp is monitored in order to recommend the starting date for the Gulf closed season. The season allows some of the brown shrimp leaving the bays to reach a larger size before harvest. In 1978 there was no indication of an early migration from the bays and early closure (before June 1) was not recommended.

A two-year evaluation of Texas shrimp laws in the Gulf was completed. In general, the laws which provide protection for small shrimp appear to be working well. However, more protection would be afforded to brown shrimp if waters could be closed farther offshore during the spring season. The statutory closed season from December 15 through February 1 appears to coincide well with the major emigration of small white shrimp.

An extensive shrimp tagging program in cooperation with the National Marine Fisheries Service in Galveston was initiated to provide data on migration, growth and mortality of

brown shrimp stocks in Gulf waters. Over 45,00 shrimp were tagged off the lower and central coast of Texas.

Bottom longlines were tested in the Gulf from aboard the Department's vessel *Western Gulf*. This study is being done to determine if unutilized fish species are present in commercial quantities. The major species captured in samples along the central coast has thus far been the Atlantic sharpnose shark.

Blue crab studies were initiated in 1977-78 to monitor a growing Texas fishery. The 1977 landings, about 8.2 million pounds, represented a record harvest. The purpose of the study is to determine the magnitude of the commercial fishery, regulatory needs, provide biological trend data, and to investigate methods of assaying fishing pressure in various bay systems.

The oyster program provides management for the private oyster lease operations and monitors the condition of public reefs in Galveston Bay. For many years, public reefs in Galveston Bay have provided the bulk of the Texas oyster harvest. However, since 1974, oyster spat setting throughout the bay has been very poor.

A joint study of oyster spawning and setting was initiated with personnel from Texas A&M Moody College. This study was designed to examine possible trouble spots in the life cycle of the oyster in order to determine causes for poor setting. Investigations have shown that a significant spring spat occurred in 1978. The study will be continued, however, to provide information on spawning success, survival of the spat, effects of transplanting seed oysters and placement of cultch to enhance reefs.

Two new oyster leases were added to the 25 active leases in Galveston Bay. Almost 63,000 barrels, a new record, were harvested from the leases in 1977.

#### SEAFOOD MARKETING

The 65th Legislature appropriated funds for the seafood marketing activity to be conducted by Texas A&M through an interagency contract. The University conducted about 100 educational programs and demonstrations throughout the state, distributed over 2 million pieces of educational materials, consisting of recipes and brochures, conducted four seafood

development projects, prepared over 36 newspaper and magazine articles, and produced five major publications. Considerable effort focused on the promotion and expansion of shrimp and underutilized species of fish as well as the education and encouragement of greater consumption of Gulf fish products.

#### OTHER ACTIVITIES

As a member of the five-state Gulf States Marine Fisheries Commission the Department participated in interstate fisheries management discussions and in cooperating in the preparation of a profile for red drum and spotted seatrout in the Gulf of Mexico. A profile on the blue crab fishery was completed in March 1978.

Under PL 94-265, the Fisheries Management Conservation Act, the United States' jurisdiction over fisheries was extended seaward 200 miles. Fisheries are managed by the Gulf of Mexico Fisheries Management Council composed of members from each of the five states. Each conservation agency from these states, and the National Marine Fisheries Service, provide technical assistance to the Council. Department staff members last year provided approximately 7 man-months of assistance to the Council as noted in the table below.

Assistance to Gulf of Mexico  
Fishery Management Council  
Fiscal Year 1978

Month	Hours worked	Month	Hours worked
September	42	March	106
October	41	April	66
November	75	May	78
December	52	June	141
January	98	July	147
February	87	August	127
		<b>Total</b>	<b>1,050</b>

The Council has under preparation fishery management plans for reef fish, billfish, shrimp, groundfish, coastal migratory pelagic fishes, coastal herring, shark, coral, swordfish and spiny lobster. Such plans will provide for better protection and management of these fish stocks and also prohibit foreign fishing unless there is a declared surplus.

## GULF STATE--FEDERAL FISHERIES MANAGEMENT BOARD

Four meetings of the Gulf State-Federal Fisheries Management Board were convened during calendar year 1977 as follows:

- January 19    – New Orleans, Louisiana
- March 18     – Biloxi, Mississippi
- June 22      – New Orleans, Louisiana
- October 18/19 – Mobile, Alabama

Major accomplishments of the Board during this reporting period were the adoption and implementation of the Gulf menhaden and shrimp management plans which were developed under State-Federal Fisheries Management program (S--FFMP) contracts with the Mississippi Marine Conservation Commission. The plan development exercise for menhaden utilized the skills of a large task team comprised of state, federal, university and industry representatives which met at monthly work sessions in New Orleans. The shrimp plan development team was similar in composition except there was no industry representation. To offset this factor, at least one work session was scheduled in each of the five Gulf states for the express purpose of obtaining industry input. This procedure was productive from the standpoint of developing plans acceptable to the large representative cross section involved.

After adoption, the Board established advisory committees as prescribed in the plans, and implementation committees to develop procedures for activating the plans. The Menhaden Advisory and Implementation Committees met on several occasions and developed actions that were later adopted by the Board. These were: (1) to change the closing date of the Gulf menhaden fishing season; (2) to prepare a procedural process for implementing the menhaden plan; and (3) to develop and prioritize studies for initiation during fiscal year 1978. A brief description of these actions follows.

The Menhaden Advisory Committee suggested the Board take appropriate action to extend the closing date of the menhaden fishing season in the Gulf from the second Tues-

day in October to the Friday following the second Tuesday in October. This was an economic consideration that would allow the vessels to operate during the full week of season closure. Previously, fishermen failed to conduct operations during the final week because it was not worth the effort to gear-up for only two days of fishing. Upon the recommendation of the Board, Alabama, Louisiana and Mississippi secured the appropriate legislation to effect this new regulation. Florida and Texas regulations were sufficiently flexible so that no change was necessary.

The Menhaden Implementation Committee (now known as the Menhaden Management Committee) developed a proposed set of procedures for implementing the menhaden management plan. These procedures have been endorsed by the Board and consist of a 3-phase process to formalize the current data bank, define the elements of the proposed system, and to test the system developed. Two studies have subsequently been proposed to effect the implementation process. These studies received a high priority by the Board and are included among the proposals scheduled for initiation in fiscal year 1978.

Six proposed studies were reviewed and approved by the Board as priority efforts to utilize fiscal 1978 S--FFMP funds. They consist of four menhaden studies, one shrimp study, and one study for the development of a management planning profile. The proposed descriptive titles of these studies are:

1. Menhaden Tagging Mortality Study.
2. Pilot Study for Menhaden Catch/Effort Log.
3. Formalization of a Menhaden Information Data Bank.
4. Simulated Implementation of the Menhaden Management System.
5. Shrimp Recreational Fisheries Statistics – Data Collection and Analysis.
6. Development of a Management Planning

Profile for Spotted Seatrout and Red Drum in the Gulf of Mexico, U.S.

Procedures are currently being developed to establish the Gulf States Marine Fisheries Commission as the prime contractor for the above studies and for all future S—FFMP contracts in the Gulf. The initiation of such a contracting procedure will increase the involvement of the Commission in S—FFMP activities and provide a better mechanism for developing and implementing fisheries management plans in the territorial sea. By proceeding in this

manner, the activities of the Commission would complement those of the Regional Fisheries Management Councils to provide an effective system for addressing the management of the fisheries throughout the extent of their range.

The Board held its election of officers at the June 22 meeting in New Orleans. William H. Stevenson (Director, NMFS Southeast Regional Office) was unanimously reelected as Chairman and Lyle St. Amant (Assistant Secretary, Louisiana Wildlife and Fisheries Commission) was unanimously reelected as Vice-Chairman.

**SOUTHEAST REGION**  
**NATIONAL MARINE FISHERIES SERVICE**  
**National Oceanic and Atmospheric Administration**  
**U.S. Department of Commerce**

**INTRODUCTION**

This report highlights the fiscal year activities and accomplishments of the various National Marine Fisheries Service (NMFS) organizations geographically located in the southeastern portion of the United States. As active partners in the effective management and utilization of marine resources of western central Atlantic and Caribbean, they have contributed directly to the economic welfare of the people of the United States. These contributions, as well as the close working relationship with the three Regional Fishery Management Councils located in the southeastern region, combined to significantly advance the cause of fishery resource management, development, and utilization.

The Southeast Fisheries Center has continued to implement its major reorganizational effort begun in FY 77 to meet the responsibilities of extended jurisdiction. There has been a significant management change that allowed Harvey Bullis to devote his efforts as a full-time senior scientist to develop an International Fisheries Management Program in the southeast. His departure as Center Director leaves a difficult challenge for William Fox who has been selected as the new Center Director.

The organizational and managerial structure of the Southeast Regional Office was unchanged during FY 78.

Due to reduced funding this year, the Port Aransas Laboratory (Texas) was closed. This facility has been loaned to the University of Texas on an interim basis for fisheries research.

**SOUTHEAST REGIONAL OFFICE**  
**St. Petersburg, Florida**

**Fisheries Development Division**

Considerable emphasis has been placed on integrating developmental activities of the food

technology laboratory at Charleston, South Carolina, with the Southeast Region and the fisheries development programs of the Gulf and South Atlantic Fisheries Development Foundation. The Foundation continues to grow as the number of associate memberships increases and funding materializes.

The Financial Assistance Branch is preparing to celebrate its 300th Fishing Vessel Obligation Guarantee in October and is processing its 380th application. The program is running at an annual rate of approximately 150 applications and shows no sign of letup. The Branch also processed 107 new Capital Construction Fund agreements in FY 78, depositing \$9.3 million in their accounts, with \$36.8 million in objectives. During this period, 45 new Fishermen's Protective Act agreements were issued.

The Commercial Services Branch has completed a successful year of participation in the Foundation's Midwest Marketing Program whereby a number of coastal species (e.g., mullet, croaker, Spanish and king mackerels, gray trout, bluefish, oysters, blue crab, rock shrimp) have been successfully introduced into midwestern and other northern markets. Considerable new business on a continuing basis has developed. Emphasis has also been shifted towards export markets where southeastern species have more immediate potential for expansion.

The newly organized Fisheries Development Analysis Branch has been actively developing its analytical capability in cooperation with the newly organized Regional Office Information Management and Analysis Branch, Technical and Information Management Service (TIMS) staff in the Southeast Fisheries Center and its Market News staff. The Branch has also provided considerable economic and business



analysis to the various fishery management plans being developed under the Gulf and South Atlantic Councils.

The Fisheries Development Division has added a Recreational Development Services Branch to its existing three branches. The new branch is in the process of establishing broad constituency interface and is developing a program development plan for marine recreational fishing.

#### **Fisheries Management Division**

##### **State-Federal Fisheries Management Program.**

The south Atlantic program continued determining the economic impact of vessel mobility in the shrimp fishery, and continued establishing a catch/effort statistics system for shrimp. Programs were funded in the Gulf area to implement phases of the Shrimp and Menhaden Fishery Management Plans (FMP). These included:

1. a survey of the shrimp recreational fishery;
2. catch/effort studies on menhaden;
3. development of a profile on the trout and red drum fisheries;
4. menhaden tagging mortality study;
5. development of a menhaden data bank;
6. simulated implementation of the menhaden management system.

The Gulf States Marine Fisheries Commission was established as the prime contractor for all state-federal studies in the Gulf area involving NMFS funding.

##### **International.**

The Mexican Government approved applications allowing 14 U.S. snapper/grouper vessels and 127 shrimp vessels to fish in Mexico's 200-mile economic zone.

##### **Marine Mammals and Endangered Species.**

Nearly 100 persons from public and private sectors met in Tampa, Florida on May 26 and 27, 1978, to review and modify a Draft Plan for Marine Turtles for the Southeast Region. The Fisheries Management Division assumed full responsibilities for the Turtle Program effective July 1, 1978.

##### **Fishery Management Plans.**

Public hearings were held on amendments to the preliminary management plan for bill-

fishes and sharks. The plan is being revised for the 1979 fishing season. Several other draft fishery management plans were reviewed during the past year. Due to gear conflicts between stone crab and shrimp fishermen, an FMP for stone crabs in the Gulf of Mexico will be finalized and implemented in FY 79.

#### **Law Enforcement Division**

A total of 18 Japanese longline vessels operated in the Gulf of Mexico Fishery Conservation Zone (FCZ) between February and July 1978. Sixty-two (62) boardings were conducted by NMFS agents resulting in the issuance of 14 citations and 2 notices of violations. During August 1978, one Japanese longliner was seized by Special Agents of the Southeast Region in the Panama Canal Zone for alleged fishery violations occurring prior to the vessel's departure from the FCZ. The vessel posted a \$500,000 bond before departing for its home port.

Two Mexican shrimp trawlers were seized for alleged violations of the Fishery Conservation and Management Act (FCMA) during July 1978. These vessels were observed fishing in waters north of the U.S./Mexican border off the coast of Texas.

Preliminary discussions on a joint Federal/State FCMA enforcement program were held with all coastal states, Puerto Rico and the Virgin Islands. Immediate problems were identified, i.e., communications, federal funding, training of state officers and procedures for case processing. One person in each state law enforcement agency was designated as the initial FCMA enforcement coordinator. Follow-up training sessions for state officers were completed in Puerto Rico and the Virgin Islands.

Fourteen (14) cases were initiated under the Marine Mammal Protection Act including two criminal cases currently pending trial in Key West, Florida. Two hundred thirty-three (233) cases were initiated under the Endangered Species Act resulting in three criminal convictions and 6,323 items being forfeited to the U.S. In addition, three Lacey Act cases were initiated during this period resulting in two criminal convictions.

## **Environmental and Technical Services Division**

### **Environmental Assessment Branch.**

During the past year, we received for review 5,986 applications for permits to perform work in navigable waters, 52 environmental impact statements, 93 federal water development projects, and 1,223 permit applications for discharge of various pollutants into U.S. waters under the Environmental Protection Agency's National Pollutant Discharge Elimination System Program. We also reviewed and commented on 15 draft documents concerning Coastal Zone Management plans being developed by coastal states, Puerto Rico and the Virgin Islands.

### **Information Management and Analysis Branch.**

In May 1978, the Information Management and Analysis Branch was formed as part of the Environmental and Technical Services Division. The purpose of this branch is to facilitate information flow among the partners in the southeast involved in the conservation, management, and use of the living marine resources. Initial efforts upon formation involved planning for the future and the activation of the word processing unit to increase the output of information from the Regional Office. A primary target in FY 78 was getting the Councils included in the Southeast Fisheries Information Network as full participants. Efforts were also started to improve the Regional Office efficiency in disseminating information to all partners. The Information Management and Analysis Branch performed studies to determine ways for the Regional Office to cope with the increasing workloads without additional personnel.

### **Grant Administration Program Branch.**

This branch is responsible for assisting states with the execution of grants funded under the Commercial Fisheries Research and Development Act (PL 88-309) and the Anadromous Fish Conservation Act (PL 89-304). The eight south Atlantic and Gulf states included in the Southeast Region obligated \$1,011,000 in PL 88-309 funds on 35 projects in FY 78. In addition, Alabama, Georgia, Louisiana, Mississippi, North Carolina and South Carolina obligated \$141,200 under the PL 89-304 program.

## **SOUTHEAST INSPECTION OFFICE**

St. Petersburg, Florida

The objective of the Southeast Inspection Office is to provide a voluntary fishery products inspection service to the fishing industry in the Southeast Region and thereby assist the industry to improve and upgrade the sanitation of their plants and the quality of their products.

Six fishery processing plants operating under the voluntary inspection program located in Georgia and the Atlantic coast of Florida produced 19,265,454 pounds of fishery products, of which 12,522,545 pounds were inspected. In addition, two processing plants in the Atlantic States Marine Fisheries Commission (ASMFC) area participated in the Sanitarily Inspected Fish Establishment (SIFE) program under which only the plant itself is inspected for sanitation with no products federally inspected.

Sixteen fishery processing plants, operating under the voluntary inspection program located in the four Gulf states and the west coast of Florida, produced 80,733,454 pounds of fishery products of which 21,739,000 pounds were inspected. In addition, five processing plants in the Gulf States Marine Fisheries Commission (GSMFC) area participated in the SIFE program.

The Fishery Products Inspection and Safety Division assists industry in the production of high quality fishery products, certifies the grade and other pertinent factors of such products to bear USDC inspection marks, and assists in the maintenance of good sanitation and hygienic practices in plants under federal inspection.

Lot inspection services are provided in Miami and Tampa, Florida; Pascagoula, Mississippi; Brunswick, Georgia; New Orleans, Louisiana; and in Dallas and Brownsville, Texas.

The costs of these services are paid for by the participating firms.

## **NATIONAL SEAFOOD QUALITY AND INSPECTION LABORATORY**

Pascagoula, Mississippi

The laboratory provides technical and analytical support services to the USDC fishery products inspection program and conducts audits of same. It conducts and coordinates

chemical, physical, microbiological, public health, nutritional, engineering and food processing research studies to provide measurements and standards of seafood quality handling. It also coordinates development of guidelines for industry quality control programs, good manufacturing practices (GMPs), and provides input to the Codex Alimentarius Commission in developing and establishing International Codes of Practice and microbiological specifications for seafoods. It is also responsible for fishery products label and specification approval and for the execution of a salmonella control program for fish meal. The programs of the laboratory are divided into two broad areas: laboratory services, and technical services.

#### SOUTHEAST FISHERIES CENTER Miami, Florida

The NMFS Southeast Fisheries Center (SEFC) is comprised of the Center Director, his staff, and seven supporting laboratories. The Center headquarters are located in Miami, Florida, near the coastal geographic center of the area of its responsibilities. The principal area in which SEFC is responsible for NOAA/NMFS research extends from the U.S./Mexican border through the Gulf of Mexico and the Caribbean Sea to the Atlantic coast of South America (to the southern extent utilized by U.S. fishermen) and up the U.S. Atlantic coast to Cape Hatteras, North Carolina. It has national responsibilities for fisheries engineering research, the application of remote sensing and satellite technology to national fisheries problems, and U.S. research on the Atlantic bluefin tuna. In the order of their location, from west to east, the SEFC laboratories are:

1. Galveston Laboratory, Galveston, Texas.
2. National Fisheries Engineering Laboratory, Bay St. Louis, Mississippi.
3. Pascagoula Laboratory, Pascagoula, Mississippi.
4. Panama City Laboratory, Panama City, Florida.
5. Miami Laboratory, Miami, Florida.
6. Charleston Laboratory, Charleston, South Carolina.
7. Beaufort Laboratory, Beaufort, North Carolina.

The Port Aransas Laboratory, Port Aransas, Texas, was closed this year due to reduced funding. The facility is being used by the University of Texas for fisheries research under a cooperative agreement.

The Charleston Laboratory was completed and occupied in March 1978. All functional activities and responsibilities of the College Park Laboratory, College Park, Maryland, were transferred to Charleston.

A regional data processing system was activated in April 1978. The central processor is a Honeywell computer, owned by the U.S. Civil Service Commission, and located at Macon, Georgia. The Regional Office, the Center and the seven laboratories are connected directly to this computer. The Regional Office and SEFC laboratories have been provided with a variety of terminal equipment to utilize the data stored in the computer and much of the activity at the Miami, Galveston and Beaufort laboratories depends on the use of this computer data.

NOAA Assistant Administrator for Fisheries, Terry Leitzell, selected Dr. William W. Fox, Jr., Chief, Oceanic Fisheries Resources Division, NMFS Southwest Fisheries Center, La Jolla, California, as the new Center Director.

Research programs concentrate on groups of like fishes. Each program makes an effort to collect catch and fishing effort, socio-economic, and environmental data, and biological samples in areas where the fish occur. In the laboratory, each program conducts fishery analyses of samples and evaluates field data to determine age, growth, maturation, sexlife, food habits, migration patterns, stock densities, etc. These data are placed into the computer data base and then used to describe the stocks of fish and shellfish, to determine the population dynamics of the stocks and to develop models that will permit predictions of maximum sustainable yield (MSY) and optimum yield (OY).

The *Oceanic Pelagic* program studies Atlantic bluefin tuna and billfishes. Bluefin tuna research is directed at tagging, aging, catch effort, and catch composition studies of U.S. fisheries. The *mackerels and bluefish* program initiated studies on the age, growth, and food habits of king mackerel, Spanish mackerel and bluefish. The *shellfish* program handles research on all shellfish species except

shrimp which are handled by a separate program.

The *menhaden and herrings* program continued research on Gulf and Atlantic menhaden. A summary paper was published on age, size, and catch in the Gulf menhaden fishery since the initiation of the Gulf research program in 1964.

The *shrimp* program is responsible for research on shrimp in the Gulf of Mexico, south Atlantic and Caribbean Sea. Major resources presently under investigation are the white and brown shrimp stocks in the western Gulf of Mexico and the brown and pink shrimp stocks of northeastern South America.

In July 1977, a major white shrimp study was initiated. Over 40,000 white shrimp were tagged and released monthly from July through November in the Caillou Lake area of Louisiana. An additional 8,000 were tagged and released offshore.

In the spring of 1978, a brown shrimp tagging study was begun. Almost 40,000 brown shrimp were tagged and released in May, June and July in the Caillou Lake area. An additional 15,000 brown shrimp were tagged offshore in June and August.

The *reef fish* program was initiated this year to concentrate research resources on fish which inhabit rough bottom and reef areas on the Continental Shelf. Life histories, population dynamics, food, feeding habits, kinds and numbers of fish are some of the data collected and analyzed about snappers, groupers, grunts, porgies, and tilefish.

The *groundfish* program consolidates research on groundfish and the industrial bottomfish fishery in the Gulf.

A shrimp fleet discard survey which began in 1976 will end this year. The survey is recording the ratio of finfish to shrimp in shrimp catches and the species composition of the finfish discarded.

The *marine mammals and endangered species* program is gathering information on sea turtles and porpoises. The incidental capture of sea turtles by shrimp trawls operating in the coastal waters of South Carolina

and Georgia was documented.

Work commenced on the development of an excluder panel for shrimp trawls to significantly reduce the capture of sea turtles. Trawls tested in fishing areas populated with shrimp and turtles resulted in turtle capture decreases while shrimp losses were minimal.

The *habitat protection* program is gaining a better understanding of basic ecological principles and processes and applying this understanding to the evaluation of existing and proposed environmental impacts in estuarine and coastal waters of the southeast and Gulf.

SEFC currently has four fisheries development programs: shellfish, groundfish, coastal finfish, and menhaden.

The *shellfish development* program is identifying and researching factors which impact on supply quality, safety and value of shellfish products.

The *groundfish development* program research was directed at increasing the shelf life of whole, headed and gutted fish and fillets.

The *menhaden development* program is working to provide information on new development options to upgrade the current industrial uses of menhaden to uses which have a higher market value and to permit menhaden oil to be used in products consumed by humans.

The *coastal finfish development* program is concerned with underutilized species such as round and thread herrings, anchovies, Spanish sardines, mackerel and mullet and increasing their consumption by humans.

In addition to the research and development programs, there are two special programs that contribute to the other programs: contaminant assessment and aquaculture.

The *contaminant assessment* program is developing information on the identity, levels and significance of biological and chemical contamination of important commercial and recreational species of fish and shellfish.

The *aquaculture* program goal is to encourage the development of public and private aquaculture for selected species of fish.

## GULF OF MEXICO FISHERY MANAGEMENT COUNCIL

Tampa, Florida

The Gulf of Mexico Fishery Management Council was mandated by the Fishery Conservation and Management Act of 1976 (PL 94-265), with the responsibility of developing management plans for the fishery resources of the Gulf of Mexico. The Council, under this Act, develops management plans and proposed management measures for the fisheries occurring in the Fishery Conservation Zone (FCZ), which is the area seaward of the states' territorial seas and which extends to 200 miles seaward of the shoreline.

The Gulf Council usually meets once a month in one of the coastal states of the Gulf of Mexico. The Executive Director of the Gulf States Marine Fisheries Commission or his alternate serves on the Gulf Council as a nonvoting member.

In the report year of the Commission, the Gulf Council moved from an administrative and organizational operation to management plan development. At present the Gulf Council has prepared or is in the process of preparing management plans for nine groups or species. They include stone crabs, groundfish, reef fish, shrimp, coastal migratory pelagics (mackerel), sharks, coral, spiny lobster and coastal herring.

In the last quarter of 1977, the Council reviewed Cuban regulations on U.S. recreational fishing in Cuban waters.

The Council recommended the joint development of plans for spiny lobsters (Gulf lead) and calico scallops (South Atlantic lead). Coral resources were to be developed separately.

In the first quarter of 1978, the Council approved a sociological study contract for groundfish and the goals and objectives for a shark plan were adopted. The Secretary of

Commerce approved the annual report from the Council. In addition, the Council met with Mexican fishery officials and discussed joint cooperation. In other actions, the Council sent recommendations to the National Marine Fisheries Service on economic and sociological data needs. During the March meeting, enforcement operations and the observer program were reviewed. Goals and objectives for coral, spiny lobster and coastal herring management plans were adopted.

In the second quarter, National Marine Fisheries Service (NMFS) was designated as primary developer for the stone crab plan. The Council agreed to arbitration to solve the boundary dispute between the South Atlantic and the Gulf councils. In later action, the Council negotiated with Secretary of Commerce representatives on restrictions that should be placed on Cuban shark-fishing permits. The foreign observer program in the Gulf was critically reviewed and suggestions for changes were made.

In the third quarter, a contractor for the spiny lobster plan was selected; Council approved a study designed to determine the quantity of mackerel fallout from commercial nets; and gave NMFS the lead in preparing a profile on coastal herring resources. A vessel enumeration system was approved which is simply identification from state registration systems of how many and what size craft are fishing in the FCZ and territorial seas. A voluntary questionnaire can be used to obtain information on specific fishery participation.

John Mehos was reelected as Council Chairman and Dr. Ted Ford was elected Vice-Chairman for the following year.

CHARLES EDGAR RASOR  
CERTIFIED PUBLIC ACCOUNTANT  
BILOXI, MISSISSIPPI

20th  
February  
1979

To the Commissioners  
Gulf States Marine Fisheries Commission  
c/o Mr. Charles H. Lyles  
Executive Director  
P. O. Box 726  
Ocean Springs, Mississippi 39564

Gentlemen:

We have examined the balance sheet of Gulf States Marine Fisheries Commission as of September 30, 1978, and the related statement of revenues, expenses and changes in fund balances for the fiscal year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As explained in Note 3 of the Notes to Financial Statements (Exhibit C) certain funds received under the Eastland Resolution Study Grant may be subject to reduction upon Federal Audit.

In our opinion, subject to the adjustment, if any, which may result from the matter referred to in the preceding paragraph, the accompanying financial statements present fairly the financial position of Gulf States Marine Fisheries Commission at September 30, 1978 and the results of its operations and changes in fund balances for the twelve months then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding fiscal year.

A separate management letter containing our observations pertaining to the internal administration of the Commission's financial affairs will be furnished to the Executive Director.

Respectfully yours,

  
Charles Edgar Rasor  
Certified Public Accountant

CER:cl

## BALANCE SHEET

Gulf States Marine Fisheries Commission  
Ocean Springs, Mississippi

September 30, 1978

ASSETS

Cash		\$ 87,309.25
Furniture, fixtures and equipment	\$ 8,801.61	
Automotive equipment	5,570.43	
Total	\$ 14,372.04	
Less: Accumulated depreciation	4,378.85	9,993.19
Total		\$ <u>97,302.44</u>

LIABILITY

Payroll taxes withheld and accrued		\$ 1,157.33
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FUND BALANCES (Exhibit B)

Operating Fund	\$ 79,103.11	
Eastland Fund	10,002.35	
State-Federal Fisheries-Studies and Analysis Fund	( 1,836.10)	
State-Federal Fisheries-Council Fund	( 1,169.89)	
State-Federal Fisheries-Management Fund	10,045.64	96,145.11
Total		\$ <u>97,302.44</u>

See the accompanying Notes to Financial Statements (Exhibit C).

STATEMENT OF REVENUES, EXPENSES AND  
CHANGES IN FUND BALANCES

Gulf States Marine Fisheries Commission  
Ocean Springs, Mississippi

For the Fiscal Year Ended September 30, 1978

	<u>Operating Fund</u>	<u>Eastland Fund</u>
<b>REVENUES:</b>		
Member states appropriations:		
Alabama	\$ 7,500.00	
Florida	15,000.00	
Louisiana	15,000.00	
Mississippi	15,000.00	
Texas	15,000.00	
Grants		
Interest	<u>2,321.16</u>	
Total revenues	\$ <u>69,821.16</u>	
 <b>EXPENSES:</b>		
Salaries	\$ 23,561.57	\$
Auto	502.66	
Dues and subscriptions	267.50	
Insurance	551.00	
Maintenance and repairs	187.31	
Meetings	642.78	
Office supplies and expense	1,603.72	26.58
Postage	809.21	
Professional fees	952.00	
Taxes - payroll	1,486.19	
Telephone	1,972.40	
Travel and entertainment	4,698.43	967.14
Depreciation	<u>1,080.00</u>	
Total expenses	\$ <u>38,314.77</u>	\$ <u>993.72</u>
 Excess of revenues over (under) expenses	 \$ 31,506.39	 \$ ( 993.72)
Fund balance, October 1, 1977	<u>47,596.72</u>	<u>10,996.07</u>
Fund balance, September 30, 1978	\$ <u><u>79,103.11</u></u>	\$ <u><u>10,002.35</u></u>



<u>State-Federal Fisheries Studies and Analysis Fund</u>	<u>State-Federal Fisheries Council Fund</u>	<u>State-Federal Fisheries Management Fund</u>	<u>Combined</u>
	\$	\$	\$ 7,500.00
			15,000.00
			15,000.00
			15,000.00
			15,000.00
	11,796.74	10,836.87	22,633.61
	<u>11,796.74</u>	<u>10,836.87</u>	<u>2,321.16</u>
	\$	\$	\$ 92,454.77
\$	\$ 8,695.10	\$	\$ 32,256.67
			502.66
			267.50
			551.00
			187.31
		246.60	889.38
	1,982.77		3,613.07
			809.21
			952.00
			1,486.19
	999.99		2,972.39
1,836.10	793.77	5,143.53	13,438.97
	495.00		<u>1,575.00</u>
\$ <u>1,836.10</u>	\$ <u>12,966.63</u>	\$ <u>5,390.13</u>	\$ <u>59,501.35</u>
\$ (1,836.10)	\$ ( 1,169.89)	\$ 5,446.74	\$ 32,953.42
		<u>4,598.90</u>	<u>63,191.69</u>
\$ <u>(1,836.10)</u>	\$ <u>( 1,169.89)</u>	\$ <u>10,045.64</u>	\$ <u>96,145.11</u>

See the accompanying Notes to Financial Statements (Exhibit C).

NOTES TO FINANCIAL STATEMENTS

Gulf States Marine Fisheries Commission  
Ocean Springs, Mississippi

September 30, 1978

Note 1 - Summary of Significant Accounting Policies

- (a) The accounting and reporting practices of the Commission conform to generally accepted accounting principles applicable to governmental units applied on a consistent basis between periods. The accrued basis of accounting is followed with these modifications:
  - (1) Revenues from member states' appropriations are recorded when received in cash.
- (b) Depreciation of furniture, fixtures, equipment and the commission vehicle is calculated using the straight-line method.

Note 2 - Organization

Gulf States Marine Fisheries Commission was created with the consent of the 81st Congress of the United States, granted by Public Law 66, approved May 19, 1949, authorizing an interstate compact relating to the better utilization of the fisheries of the Gulf of Mexico. Parties to the agreement are the states of Alabama, Florida, Louisiana, Mississippi and Texas.

Note 3 - Eastland Resolution Study Grant

In June, 1975, the Commission received a grant-in-aid award entitled "Eastland Resolution Study" from the U. S. Department of Commerce. The grant provides for the survey of Federal agencies concerned directly or indirectly with the fishing industry for the period from June 1, 1975 to December 1, 1976 for an amount not to exceed \$200,000.00.

The Commission has allocated an aggregate of \$20,000.00 of indirect costs to this grant. That amount is subject to reduction upon Federal audit as provided in the grant.

NOTES TO FINANCIAL STATEMENTS

Note 4 - State-Federal Fisheries Management Program

Effective August 15, 1975, the Commission entered into a contract with the U. S. Department of Commerce to provide administrative support of the State-Federal Fisheries Management Program in the Gulf of Mexico coastal states. The total contract, as amended, is not to exceed \$100,000.00.

Note 5 - State-Federal Fisheries Council Support Program

Effective this fiscal year under review, the Commission entered into a contract with the U. S. Department of Commerce to provide administrative support of the State-Federal Fisheries Council in the Gulf of Mexico coastal states. The total contract is not to exceed \$20,000.00. The contract expires September 30, 1978.

