GULF STATES MARINE FISHERIES COMMISSION

TENTH ANNUAL REPORT
1958-1959

To The

CONGRESS OF THE UNITED STATES

And To The

GOVERNORS AND LEGISLATORS

Of

ALABAMA
FLORIDA
LOUISIANA
MISSISSIPPI
TEXAS

ACKNOWLEDGEMENT

In submitting this tenth annual report the Commissioners wish to express their most sincere gratitude for the splendid cooperation of the members of the Congress and the Governors and Legislators of the compacted States. The Commission fully appreciates that such measure of success as has been attained in the past ten 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,
Hermes Gautier, Chairman
Walter O. Sheppard, Vice-Chairman
W. Dudley Gunn, Secretary-Treasurer

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OF THE

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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
312 Audubon Building
New Orleans 16, Louisiana

GULF STATES MARINE FISHERIES COMMISSION

ROSTER — OCTOBER 1959

Hermes Gautier
Chairman

Walter O. Sheppard
Vice-Chairman

W. Dudley Gunn, Secretary-Treasurer

Emily C. Carr, Office Secretary

* COMMISSIONERS

Alabama

William C. Younger, Director,
Alabama Department of Conservation,
Montgomery, Alabama

Will G. Caffey, Jr., Senator
State of Alabama,
Mobile, Alabama

W. C. Holmes, M. D.,
Foley, Alabama

Florida

Ernest C. Mitts, Director,
Florida State Board of Conservation,
Tallahassee, Florida

Walter O. Sheppard, Representative,
State of Florida,
Fort Myers, Florida

Vern Merritt,
Tarpon Springs, Florida

Louisiana

Rudolph P. Easterly, Director,
Louisiana Wild Life and Fisheries Commission,
New Orleans, Louisiana

E. J. Grizzaffi, Representative,
State of Louisiana,
Morgan City, Louisiana

A. O. Rappelet, Senator,
State of Louisiana,
Galliano, Louisiana

Mississippi

Chester Delacruz, President,
Mississippi Sea Food Commission,
Biloxi, Mississippi

Stanford E. Morse, Jr., Senator,
State of Mississippi,
Gulfport, Mississippi

Hermes Gautier,
Pascagoula, Mississippi

Texas

Howard D. Dodgen, Executive Secretary,
Texas Game and Fish Commission,
Austin, Texas

Jimmy Phillips, Senator,
State of Texas,
Angleton, Texas

Wilson Southwell,
San Antonio, Texas

* Order of listing - Administrator - Legislator -Governor's Appointee

SUCCESSIONS ON THE COMMISSION DURING THE YEAR

Claude D. Kelly	vice	Robert Folsom
William C. Younger	vice	Claude D. Kelley
Will G. Caffey, Jr.	vice	Garet Van Antwerp, III
Rudolph P. Easterly	vice	F. Lamar Clement

COMMISSION OFFICERS ELECTED OCTOBER 16, 1959
FOR YEAR 1959-60

Chairman: Hermes Gautier succeeding Howard D. Dodgen

Vice-Chairman: Walter O. Sheppard succeeding Hermes Gautier

STANDING COMMITTEES

ROSTER — OCTOBER 1959

Committee to Correlate Fishery Laws **(Committee 1)**

Committee To Correlate Research And Exploratory Data **(Committee 2)**

Shellfish Committee **(Committee 3)**

Estuarine Technical Coordinating Committee **(Committee 4)**

Committee Membership

I. B. Byrd (4)
Alabama Department of Conservation,
Montgomery, Alabama

Howard H. Eckles (4)
Bureau of Commercial Fisheries,
Washington, D. C.

Theodore B. Ford (4)
Louisiana Wild Life and Fisheries Commission,
New Orleans, Louisiana

Gordon Gunter (2-3-4)
Gulf Coast Research Laboratory,
Ocean Springs, Mississippi

Walter A. Gresh (4)
Bureau of Sport Fisheries and Wildlife,
Atlanta, Georgia

W. L. Holland, Jr. (4)
Alabama Department of Conservation,
Montgomery, Alabama

Robert M. Ingle (3-4)
Florida State Board of Conservation,
Tallahassee, Florida

Joseph C. Jacobs (1)
Assistant Attorney General,
Tallahassee, Florida

Howard T. Lee (2-3-4)
Texas Game and Fish Commission,
Rockport, Texas

Howard T. Odum (4)
University of Texas Institute of Marine Science,
Port Aransas, Texas

Cleburne A. Schultz (4)
Mississippi Game and Fish Commission,
Jackson, Mississippi

Warren M. Simon (1)
Louisiana Wild Life and Fisheries Commission,
New Orleans, Louisiana

F. G. Walton Smith (2)
Marine Laboratory, University of Miami,
Coral Gables, Florida

T. Upton Sisson (1)
Mississippi Seafood Commission,
Biloxi, Mississippi

Lyle S. St. Amant (3-4)
Louisiana Wild Life and Fisheries Commission,
New Orleans, Louisiana

Paul E. Thompson (4)
Bureau of Sport Fisheries and Wildlife,
Washington, D. C.

Seton H. Thompson (4)
Bureau of Commercial Fisheries,
St. Petersburg Beach, Florida

Percy Viosca, Jr. (2)
Louisiana Wild Life and Fisheries Commission,
New Orleans, Louisiana

H. Eugene Wallace (4)
Florida Game and Fresh Water Fish Commission,
Tallahassee, Florida

COMMISSION ACTIVITIES

OCTOBER 1958 - OCTOBER 1959

The Gulf States Marine Fisheries Commission met twice during the past year. The regular spring session was held at New Orleans, Louisiana, March 19-20 and the annual fall session at Corpus Christi, Texas, October 15-16.

Special sessions of the Estuarine Technical Coordinating Committee were held at each of the Commission meetings. A sub-committee of that committee met at Ocean Springs, Mississippi, January 21 for the purpose of planning for the preparation of an annotated bibliography of unpublished estuarine research in the Gulf of Mexico. The bibliography was completed in October and has been distributed to fishery agency and university libraries. Supplements thereto will be supplied in October of each year.

During the year, each state marine fishery agency represented on the Estuarine Technical Coordinating Committee completed maps of the estuarine areas within its state. The maps (U.S.C. & G.S. series at scale of 1:80,000) contain as much of the following information as is presently available:

1. List of major estuarine areas
   a. location
   b. surface acreage
2. Maps
   a. aerial
   b. vegetative
3. Broad average hydrological features
   a. salinity range
   b. temperature range
   c. depth range
   d. bottom type
   e. river flow
4. Important fish and wildlife species and their value
   a. commercial fishery
   b. sport fishery
   c. wildlife
5. Other uses
   a. navigation
   b. mudshell and minerals
   c. waste disposal

d. use as industrial cooling water
e. industrial use in extraction processes
f. recreational (other than fish and wildlife)

6. Developmental status
   a. projects completed
   b. projects under construction
   c. projects authorized
   d. projects proposed

It is likely that the estuarine maps will be reproduced and compiled into a single Atlas which would facilitate handling in both the laboratory and the field. If so compiled the Atlas could be made available to interested individual workers and groups.

Meeting at New Orleans, January 22, was a special technical committee which was appointed by the state marine fishery administrators on the Commission. The purpose of this meeting was to review the present state of knowledge of a large segment of the shrimp fishery of the Gulf and to consider the making of recommendations on its management. As a result of the conference, the Commission published, and distributed in March, Informational Series No. 2—The Shrimp Fishery Of The Gulf Of Mexico (Rio Grande River to St. Marks, Florida). This revision of Information Series No. 1 was published by the Commission as information to the governors, legislators and marine fishery administrators of the several compacted states, and for such consideration as may be deemed appropriate in the development of laws and regulations pertaining to the shrimp fishery of their respective states.

The Committee To Correlate Research and Exploratory Data met at New Orleans, January 23 to study present fishery statistical reporting with the view of improving the system. The recommendations of the committee were presented and discussed at the March meeting of the Commission, as were the results of other committee meetings which have been previously mentioned.

A special committee composed of one representative from each of the member states and the Bureau of Commercial Fisheries met at Rockport, Texas, October 14 for the purpose of developing a coordinated program for the stain marking of shrimp along the seaboard of the Gulf. The staining technique, which was developed under a Saltonstall-Kennedy grant, has since been successfully field-tested by the Bureau in Florida and

Texas. With regard to the marking program, the Commission has approved the following:

1. All states wishing to participate in the shrimp staining program are requested to provide funds to properly insure best results on the return of stained shrimp.
2. Since there are strict limitations on the number of experiments that can be performed at the same time without confusion of results it is recommended that the Director of the Galveston Biological Laboratory assign colors of dyes as needed by species of shrimp, size of shrimp and month of staining. No releases should be made without prior reference to him.
3. Because of the limitation on the number of simultaneous experiments, no experiment should be planned for release of less than 10,000 shrimp.
4. The Commission should examine available data and define sizes of shrimp for separate broods in order to permit simultaneous use of the same color on both small and large shrimp of the same species in different localities.

It is expected that this program, designed to produce needed shrimp migratory and other data, will be implemented early in the current year.

The Commission published and distributed during the year, Technical Summary No. 1—The Sea Trout Or Weakfishes Of The Gulf Of Mexico. It is believed the basic information contained in this publication can be of considerable assistance to state marine fishery legislative committees and state fishery agencies in management considerations of the fishery.

At the October meeting of the Commission, a resolution was adopted which recommends that effort be made in resolving the problems besetting the shrimp industry of the United States. Over-supply arising out of an extremely large increase in shrimp importations was cited as a basic problem of the industry.

The Commission continues the rotation of regular meetings from state to state and schedules two such meetings each year. The next regular session will be held at Mobile, Alabama, March 16-17, 1960, and the fall session at St. Petersburg Beach, Florida.

Each year the Commission is furnished reports by the state and federal cooperating agencies for inclusion in the Annual

Report. The pages which follow present in summary certain 1958-59 activities thought to be of general interest, of the Alabama Department of Conservation, the Florida State Board of Conservation, the Louisiana Wild Life and Fisheries Commission, the Mississippi Seafood Commission, the Texas Game and Fish Commission, the U. S. Bureau of Sport Fisheries and Wildlife, and the U. S. Bureau of Commercial Fisheries. Information resulting from the various research programs is freely exchanged among the agencies either directly or through the Commission.

STATE ACTIVITIES

OCTOBER 1958 - OCTOBER 1959

ALABAMA

In past years the Department of Conservation has created two snapper banks off the Alabama coast. The first one, at Gulf Shores, is located where it was originally planned. The second one, off Dauphin Island, has scattered from the original area, but the isolated scatterings furnish good snapper fishing to party boats and others able to locate them.

A Navy surplus drydock was purchased by sportsmen and towed to a point nine miles south southwest of Sand Island Light. It was submerged and anchored in eighty feet of water. It has already proven to be attracting snapper and good catches are being made.

In May 1959 the Department of Conservation contracted with the Gulf Coast Research Laboratory to do management work with regard to the oyster, fisheries, and mudshell industries.

1. In connection with this program, the Seafoods Division planted 1,000 barrels of steamed shell in early September for the purpose of determining the feasibility of fall planting. At the time of this writing (September 22) it appears that a large catch of spat has been made already. If later investigations demonstrate the worth of this program, it will give an additional period in which to plant shell. In the fall and winter young oysters are much less subject to predation than in the spring and summer. This experiment may provide an indication of the need for a different time of the year for shell planting in the South.

2. It is proposed that shell planting in Alabama will be expanded, but that, conversely, the more expensive seed planting program will be commensurately curtailed.

3. The filling and construction of a private air strip on the west side of the causeway inside of Dauphin Island has been approved. This will necessitate the removal of a large number of seed oysters now living in the area. These will be removed under superivsion of the Division at the expense of the contractors for the air strip.

4. An experimental study of spat collection of oysters was initiated during the summer of 1959 and is continuing.

5. The available localities for the dredging of buried oyster shell (mudshell) have been examined with all possible thoroughness up to the present and such examinations will be continued. The Seafoods Division has held in mind the possible destruction of living reefs, the possible undesirable sedimentation of certain areas, the availability of this important resource of Alabama, and also the possible rehabilitation of reefs silted over by natural and man-made operations.

6. In connection with the whole oyster program the Division is seriously considering a new administrative measure relating to the return of shell to the water. The present law requires that fifty percent of all shucked shell be returned for replanting onto the bottoms, and this law presumes that such plantings will be in the season following the harvesting. The seafood inspectors and biologists have noted that many of the harvested oysters have smaller oysters upon their shells. No final conclusion has been reached, but we propose to set up some standard under which shells with attached smaller live oysters upon them shall be returned immediately after shucking to the reefs. The Division is of the opinion that this immediate replanting will be more beneficial than a later one when all the attached young oysters are dead.

7. Biologists of the Gulf Coast Research Laboratory studied the situation in Little Lagoon, where one boat was carrying on commercial fishery operations. This lagoon covers several square miles in area and it is a nursery ground for many small fish. The area available to commercial boats is quite small and the operation at present is miniscule compared to the supply of fishes.

8. Due to the fact that most of the shrimp in Mobile Bay are found to be white shrimp, this area was opened to fishing by day and closed by night. In Mississippi Sound, where brown shrimp are predominant, the area was opened to night shrimping and closed by day. Whether or not this system of management was the cause, shrimp production in Alabama has been considerably higher than in previous years.

9. With regard to shrimp sizes the Seafoods Division is in favor of raising the limit of small shrimp from fifty to sixty-eight to a pound, purely as a management and law enforcement problem. It has been the Division's experience that during the period of availability of either the brown or white shrimp,

shrimp up to the lower size are caught and are then thrown overboard dead because they are not up to the legal requirements. However, this matter is in the discussion stage and will be given serious consideration in the future.

10. All menhaden boats have been kept out of Mobile Bay. Such boats are welcome in the offshore Gulf and the Mississippi Sound portion of Alabama.

With the advent of the new administration in the State of Alabama all seafood laws have been enforced as rigidly as possible. The officials of the Seafoods Division do not approve of a number of these laws and some thirty bills requiring a change in such laws have been presented to the present Legislature.

FLORIDA

Research work of the Florida State Board of Conservation continues to be carried on through contracts with the Marine Laboratory of the University of Miami and by the Board's laboratory at St. Petersburg.

Research Performed
by the
University of Miami Marine Laboratory

Trout and Tarpon Studies

The trout studies were originated on the Florida east coast four years ago but for the past year and one half have been concentrated along the west coast of the state. Growth, reproduction, migrations and food are under study. There appears to be significant differences between *Cynoscion nebulosus* on the east and west coasts in that the trout on the latter coast reach maturity at a smaller size and are of smaller average adult size. The tagging has been successful and has relieved certain doubts concerning the ability of various people to discover an internal tag. A complete evaluation of the fishery is probably a year away but it can be said, however, that migration, in general, is very much restricted. In this regard, the speckled trout is similar to the snook and mullet, both having been subjects of previous tagging studies.

The tagging of tarpon in the upper west coast areas continues.

Shrimp Biology

The tagging of shrimp in the Tortugas area has yielded information on growth, migrations, and mortalities. Almost

twenty-eight percent of the Peterson tags put on have been recovered. This is an important fact in itself because it shows the degree to which the Tortugas grounds are presently prosecuted. Recovered tags indicate that the southern tip of the peninsula is at least one of the nursery grounds. Tags have also shown a random movement with a net drift on the grounds in a northwesterly direction. Growth data from these studies is being published.

Florida Bay Estuary

The compiling of a description of this estuary has continued through the year with primary effort being directed at a determination of the basic ecological parameters in and around Coot Bay. One of the points to have been developed in this study is an indication that in waters of lower salinity registers the pink shrimp *Penaeus duorarum,* leaves the inshore areas sooner and at a smaller size. Next year the entire work will be reported upon formally in a publication.

Crab Studies

Many compounds and semisolid vehicles were employed in an attempt to develop a synthetic crab bait but none were successful. Of the natural products tested, salted fish produced the best results. Biological and other data on the crab continued to be accumulated in an effort to determine the cause of crab kills which occur from time to time.

Research Performed
by the
St. Petersburg Marine Laboratory

Shrimp

Studies are continuing on the basic biology of the pink shrimp. These studies, including such processes as growth, migrations, reproduction and feeding activities, have been expanded to include minor species of shrimp. It is expected that information to be gained from investigating the minor species will contribute to a better understanding of the pink shrimp.

Preliminary analysis of Tortugas data is in press and will be available as a Department of Conservation Technical Bulletin. A northerly and northwesterly migration of shrimp is indicated in the controlled area, as is the case on the fishing

grounds proper. Shrimp appear to move through the controlled area to a destination in deeper water. Apparently, they grow as they migrate. All of the data to be presented in the summary publication supports the theory that protection of shrimp during early developing stages results in greater pounds of landings.

Parasites

Parasites and diseases of fish and shrimp continued to be investigated during the year. Taxonomic and life history studies on parasites of all fishes indigeous to Florida salt water is one phase of the program. The same information is being accumulated on commercial shrimp from North Carolina to Nicaragua.

Red Tide

An evaluation of data collected in 1957 will go to press in the near future. The following conclusions can be drawn from the data at this time:

1. Aeroplane reconnaissance is an extremely valuable adjunct in studying oceanographic phenomena of this type.
2. Cold and windy weather was probably the cause of Red Tide departure in November 1957.
3. Several hydrographic features that have been casually observed by aerial survey, and partially checked by boat sampling, appear to be worth detailed study. The patterns of water masses as they emanate from passes appear to be intimately related to Red Tide dynamics.
4. Sampling since 1957 has revealed a few minor elevations of *G. breve* counts along the coast from Clearwater to Fort Myers, but no serious concentrations. When this relatively negative data is combined with all other positive and negative findings, and correlated with various meteorological information, it is highly probable that a greater accuracy can be expected in making predictions and in understanding Red Tides. Several rewarding efforts in this direction have previously been made.

Other Studies

The study of coastal aquatic plants is yielding much valuable information associated with the nursery grounds of fishes and shrimps. In more recent months, emphasis has been placed upon algae and spermatophytes. The estuarine and reef fishes

of the Tampa Bay area have been subjects of biological study during the past year.

Oyster Division

The plantings made of 200,400 bushels of oyster shell at carefully selected sites in Apalachicola Bay during the 1958 planting season were highly successful and will be heavily fished this fall. No shell was planted in the summer of 1959. The pilot shell and oyster plantings of 1957 in Citrus, Wakulla and Walton Counties were successful, and did result in small new beds. An unusual amount of fresh water resulted in a less than heavy set in Walton County.

LOUISIANA

The Division of Oysters, Water Bottoms and Seafood of the Louisiana Wild Life and Fisheries Commission, through its Commercial Seafood Section, has continued to lay emphasis on shrimp fishery research. This was considered necessary for a proper interpretation of the factors contributing to the recent decline and current restoration of the white shrimp population. The last production peak of this species occurred during 1953-54, after which there was a rapid decline. The low point of recent years occurred in 1957, when production of white shrimp was about 10% of normal. Recovery began in 1958.

After an analysis of the many factors which have been blamed for the decline of the white shrimp population, it would seem that only two bear serious consideration; overfishing, which could conceivably have upset the balance of nature to the disadvantage of that species; and the extended drouth in the Mississippi River drainage area which resulted in prolonged salt water intrusions and which drastically altered the estuarine nursery grounds.

The drouth first became evident in the fall of 1952 and continued until the spring of 1957, at which time the rains came and continued unabated until the present time. Thus, three successive summers have elapsed since the breaking of the drouth.

The new Louisiana shrimp law became effective during the summer closed season of 1958 and has been effective for two successive summers. Although rigid enforcement of this law was deemed necessary as a management tool by the industry, fishery administrators, and biologists alike, it has increased the difficulty of interpreting the shrimp statistics.

Suffice it to say that pressure on the nursery ground stocks was at an alltime low during July and August 1958, and rigid enforcement was again the rule this past summer. Thus, the increasingly larger crops of white shrimp during 1958 and 1959 were gathered during a shorter period and with much less effort and expense. In view of these circumstances, it seems inconceivable that some part of the increased white shrimp landings was not the result of this protective management.

The white shrimp peak harvest of 1953-1954 lagged some three years behind the peak of the wet weather period of 1949-1951. A serious decline was first noted in 1956, two years after the low point in the dry weather period. The low point in white shrimp production during 1957 came two years after the centerpoint of the drouth, but three years after it had caused its greatest river-flow deficiency. It actually occurred after the drouth was broken.

During the four-year 1953-1956 low water period, the water shortage in the combined flows of the Mississippi-Atchafalaya outlets averaged 186,808 c.f.s. below the mean for the past 44 years. The highest previous shortage was during the alltime low water period of 1930-1931, when the annual deficiency below the 44-year mean was even greater and averaged 218,747 c.f.s. This earlier deficiency, however, was for a two-year period, whereas the recent drouth lasted four years. As a result, the total deficiency of water flowing into the northern Gulf through the Mississippi-Atchafalaya outlets during the recent 4-year drouth was 1.8 times the magnitude of the total deficiency during the alltime low water period.

After the drouth of 1930-31, shrimp production, which was practically all white shrimp, reached a low point in 1932, which lasted through 1933. Gross production during the period was virtually independent of the number of operating units. Although the number of trawls increased by 43% in 1933 over 1932, gross production increased only by 10% during the latter year.

Still earlier, shrimp production began to rise after the alltime flood of 1927 without an increase in the number of operating units. It reached a peak during 1929, and during the following year, 1930, 21% less boats harvested only 6% less shrimp.

An analysis of the data seems to indicate that a lag two years or more may occur between the high and low points of

the river-flow curves and the correlated high and low points in white shrimp production. In other similar periods, the data is confused by complicating factors. An example is the opening of new fishing grounds in outside waters by Florida-type boats with their larger gear in 1940.

In order to correlate biological changes on the nursery grounds with the population changes of shrimp, crabs, menhaden and other estuarine species, our study of the smaller organisms involved in the food chains of the commercial species has continued. As the smaller organisms are not commercialized, they provide better clues to fundamental ecological changes, than does our study of the commercialized species.

During the past year the progress of the Oyster Section has deviated from that normally expected because much time has been spent in supervising the building of the new laboratory at Grand Terre Island and in locating and purchasing equipment and supplies for the new structure. At present the building is in its final stage of construction and should be available for occupancy by November 1, 1959. Much of the equipment has been purchased and is stored waiting the completion of the building. In designing the laboratory, space and equipment has been provided for outside agencies and visiting researchers. It is hoped that the various universities in the area will make use of the facilities and that federal or state preparing to do research on the Louisiana coast will make the laboratory a base of operations.

The basic research program on oyster growth and mortality, oyster drill biology and control, hydrographic studies, and the effects of industrial pollution on oysters was carried on at a reduced rate because of space limitations and interruptions caused by a massive shell planting operation. Of interest to some may be the studies of the resistance of South Carolina oysters to the fungus *D. marium.* Through the cooperation of Bears Bluff Laboratories, Wadmalaw Island, South Carolina, seed oysters from that state are being grown and compared to Louisiana oysters of the same age. Though too early to determine definite results, it appears that the South Carolina stock will survive the summer with less mortality than Louisiana oysters. Growth in both groups appears comparable at this stage of the study.

Shell planting for oyster cultch was carried out in May and June on the largest scale ever attempted in Louisiana. Fifty

thousand cubic yards of shells were planted in two areas. The largest planting, consisting of 35,500 yards of clam shells, was carried out in Black Bay and initial studies of the area indicate it to have been highly successful. In much of the area the set ranged as high as 92% and the average is expected to exceed 80%. A second planting of reef oyster shells in the Lake Borgne area was less successful, evidently because of unexpected below normal salinities.

Mississippi packers replanted 20% of their total oyster catch for the 1958-59 season, which is in accordance with Louisiana regulations. This planting amounted to 7,357 barrels of shells. These were planted without cost to Louisiana, except for supervision, and were placed in Bay Boudreaux surrounding Little Raccoon Island. Recent inspection has shown a good set has been obtained from this planting.

Even though the shell plantings by the state were large and successful, it is of great importance that this past year saw the initiation of shell plantings by two private individuals. In these cases supervision and technical advice was furnished by the State of Louisiana, but all expenses were borne by the individual oyster grower. It is believed that future shell plantings should be encouraged to follow this pattern. In time each grower or a group of oyster men may have a private and dependable supply of seed.

The oyster section in addition to its regular program has actively cooperated in shrimp research and with various shrimp and oyster research being carried out by Louisiana State University at Baton Rouge.

MISSISSIPPI

The Gulf Coast Research Laboratory opened a branch laboratory at Grand Isle, Louisiana, during the past year. Work at Grand Isle is being carried out at a shore station and with a large shrimp boat, the Black Orchid. Ten stations have been established and are visited twice a month. At each one bottom sample is taken with a Petterson grab and a biological dredge. Plankton tows are made at mid-depth and at the surface and a trawl haul is made with a regular balloon trawl. Water samples and temperatures are taken and the larger components of the fauna are counted, weighed, and measured. A preliminary examination of aliquot samples of the plankton is made in the laboratory and the total sample is kept. Dried and wet samples

of the bottom sediments are also retained. This work will be carried on for at least a full year and it will constitute one of the more complete samplings of the fauna of the offshore waters of the United States. Fouling samplers are also being attached to platforms in the Gulf and these will be removed and examined at intervals of one month, three months, and one year.

Collections of data on young menhaden in the Biloxi Bay area was continued through the summer months. A final report on one phase of the menhaden investigation was submitted to the Bureau of Commercial Fisheries at Galveston, Texas, entitled: A Study Of The Percentage Of Menhaden And Other Fishes Caught Around The Mouth Of The Mississippi River And In Mississippi Sound In Menhaden Purse Seines. This report extends the range of *Brevoortia smithi* to Louisiana waters. Nearly ninety-eight per cent of the purse seine catch is the Gulf menhaden, *Brevoortia patronus*. Sixty-two species other than menhaden make up the remainder of the catch. Over ninety per cent of the other fishes found in its study are striped mullet, croakers, spot, gizzard shad, hardhead cat, gafftop cat, white trout, butterfish, sand trout, and pinfish. Mullet and croakers were the most abundant species.

In May work was begun at the Laboratory on a collection of mollusks from Margarita Island for the Sociedad de Ciencias Naturales La Salle of Venezuela. A paper compiling information on all marine mollusks of the State of Mississippi is in preparation. During the year a trip was made to the Florida Everglades to make a collection of Pliocene mollusks. A collection of invertebrates from Port Isabel, Texas, collected by biologists of Pan American College was examined and identified.

During the summer all existing physical and chemical data on the bays and sounds of Mississippi was worked up at the request of the Estuarine Technical Coordinating Committee of the Gulf States Marine Fisheries Commission.

Forty-three students enrolled in the various courses taught at the 1959 summer school, as follows:

Marine Invertebrate Zoology	13
Marine Zoology for Teachers	7
Marine Vertebrate Zoology	8
Marine Botany	3
Problems in Zoology	5
Marine Geology	4
Problems in Sedimentation	3

In addition to the regular students, twenty-five high school students from Louisiana participated in a program at the Laboratory under the direction of a Louisiana State University faculty member. These were outstanding high school science students from twenty Louisiana high schools. They came to the Laboratory in groups of five and each group spent two weeks making field trips, attending lectures and collecting specimens to take back to their respective schools. In attendance at the summer session were ten workers on National Science Foundation grants from Alabama, Louisiana, Mississippi and Arkansas. Most of these people completed work which will lead to published papers. The station and its facilities were completely occupied during the beginning of the summer. For this reason the Board of Trustees of the Institutions of Higher Learning authorized plans for expansion in the way of buildings and facilities.

During the summer of 1959 a fish kill in the Bayou Casotte area of Pascagoula occurred. This was studied by Laboratory personnel and biologists of the State Game and Fish Commission. This kill was accompanied by a bloom of a green flagellate and it was concluded that the kill resulted from low oxygen concentrations at night and not from poisonous qualities of the plankton.

Oyster production along the Mississippi coast declined seriously and no canning stock was produced in Mississippi during the past season. The only oyster production came from the tonging grounds off Pass Christian. No shell was planted in Mississippi during the year by the Mississippi Seafood Commission or packers; however the latter replanted 20% of the 1958-59 catch from Louisiana waters, which is in accordance with that state's regulations.

A program in oceanography was set up during the year and the Laboratory was represented at the International Oceanographic Congress recently held at New York.

During the spring of 1959 the Department of Conservation of the State of Alabama contracted with the Laboratory to carry on managerial work for its Seafoods Division.

TEXAS

The general program of the Marine Division of the Texas Game and Fish Commission as outlined in last years report has been continued and enlarged during fiscal 1958-59.

The employment of college students as summer assistants was carried into this third year. Five have been employed each summer. Each of the first two years resulted in full time employment of two of the assistants and one of this years group is to join the permanent staff as the year ends. One of the chemists from the upper coast has transferred to the Inland Fisheries Division.

A statistical agent has been employed to implement an improved method of commercial landing reports which will give a measure of effort expended per unit of catch. In connection with this program a meeting was held with representatives of other Gulf states and the U. S. Fish and Wildlife Service. A survey conducted during the last fiscal year in Texas revealed much information about the harvest through sport fishing. However, it is generally acknowledged that the commercial landing figures are inadequate and in need of a thorough revision. This is being attempted with the last few weeks of this year. A more detailed report on the new system will be included next year after one year of operation.

Studies intended to measure the catch of the non-commercial salt water fishermen was completed during the past year. This study was a statewide survey of fishing habits and the catch of redfish, speckled trout, flounder, and drum off the Texas coast conducted by the personal interview method. Only resident non-commercial fishermen were contacted.

The survey revealed the following information:

1. With an estimated Texas population of 9,350,000 some 32% are fishermen.
2. Twenty-five percent (25%) of these, or 748,000, fished in Texas coastal waters during the survey period.
3. Only 539,000 fishermen were successful in catching one or more of the forms studied.
4. Pounds of fish are tabulated as:

Speckled trout	20,905,000
Redfish	9,199,000
Drum	4,343,000
Flounder	2,577,000

5. In addition a rough estimate of 3,000,000 pounds of shrimp is allotted to this fishery.
6. The average fisherman:
   a. fished nine times during the year;

b. fished five hours each trip;
c. fished from a boat;
d. fished with rod and reel;
e. averaged 1.6 pounds of fish or shrimp per hour effort;
f. landed more redfish in September than any other month;
g. caught speckled trout equally well in June, July and August;
h. was most successful in October when seeking flounder;
i. brought in his best catch of drum in October.

It was reported last year that 200 junked car bodies were dumped in a restricted area some five or six miles southeast of Port Aransas in water ten fathoms deep. Skin divers have made visual observations on this first Texas artificial fishing reef. Their reports confirmed the presence, in the area of the car bodies, of quite a variety of typical reef inhabitants. In March of 1959 an additional 400 car bodies were placed on this reef at a cost of $12,437.50. In addition reefs were constructed near Freeport and Port Isabel in May and June respectively. At each of these locations 600 car bodies were dumped at a cost of $17,736 per reef. Visual records of divers at the two most recent reefs indicate a very promising year for fishermen trying these sports.

Almost fifty light-weight fiberglass buoys were placed on selected fishing sites in various bays. Reports from sport fishermen indicate that this innovation has been well received and is a program that should be continued and expanded.

A new general shrimp law known as the Texas Shrimp Conservation Act was enacted by the 56th Legislature in Regular Session and became law on May 20, 1959 when approved by the Governor. The tedious arguments presented to the Legislature by various special interests have resulted in an act which is very difficult to enforce and which, although basically sound, will have very little beneficial affect on the shrimp populations.

Elimination of the spring open season as recommended will be of some help; however, raising the daily catch limit of bait dealers by one hundred pounds and allowing bait to be of any size will almost entirely neutralize such benefits. Failure to remove the count limitation on shrimp taken for human consumption is resulting in thousands of pounds of undersized dead

shrimp being thrown back into the bays and gulf. Bays which for years had been fished only with ten foot trawls now have a large trawl open season for four months in addition to the year round limitation of twenty-five foot wide bait trawls. This increased pressure, with the attendant culling of shrimp beyond what is needed for bait will do considerable harm to stocks of shrimp which are predominately juveniles.

It is likely that some changes in this law will be proposed in the next session. Several industry people have indicated that such would be the case. By that time of the imperfections of this act (Article 4075b V.A.C.S.) will have been determined and more explicit language will remove them.

Another area in which various interests appear to conflict has received considerable attention. This has to do with use of the bay bottoms. Close supervision of the operations of mud-shell producers has reduced the friction between this group and the oyster fishermen in the area of greatest activity (Galveston Bay). Increasing demands of other industries for structural locations, pipeline routings, channels, spoil disposal areas and other uses have created more complex problems. All of these pressures combine to somewhat reduce the biological productivity of the bays while the fishing pressure continues to increase due to an expanding population with more leisure time than ever before and a greater demand for recreational outlets. It is anticipated that mapping of surface oyster reefs, pipeline routes, and buried mudshell reserves will shortly be accomplished so that an index or starting point for close coordination with other interests will be available.

Remedial construction at Rollover Fish Pass was completed in May of ths year. Both sides of the pass have now been protected with interlocking sheet steel piling and stone rip-rap. In addition two steel piling weirs cross the channel just south of the bridge and at the gulf mouth. These structures, protected by stone rip-rap aprons, will control the bottom depth. Dredging of Cedar Bayou is nearing completion as the final date of the contract period (September 17, 1959) approaches. High tides have already pushed over the crest of the small bar left at the gulf mouth and are sweeping the entire length of the re-shapped channel. Assistance was rendered to engineers studying the feasibility of a bay-to-gulf pass through Mustang or Padre Islands.

A new bulletin on the oyster fishery has been completed and has been sent to the printer. In March 1959 some 16,000 cubic yards of washed mudshell was placed in two areas of Galveston Bay adding about ten acres of surface area to the total in that region.

Office laboratory space has been acquired in Seadrift through lease agreement and in Port Arthur through the purchase of a portable one room building.

U. S. FISH AND WILDLIFE SERVICE ACTIVITIES

OCTOBER 1958 - OCTOBER 1959

Bureau of Sport Fisheries and Wildlife

Activities of the Bureau of Sport Fisheries and Wildlife as they relate to Gulf fisheries have been confined primarily to examination of specific civil works projects. The increasing competition for coastal lands and waters by agriculture, industry, and urban expansion depicts the necessity for further detailed, coordinated efforts toward multiple-use planning by federal, state, and local interests.

Significant investigations scheduled and being coordinated through the Branch of River Basin Studies include:

NAVIGATION PROJECTS

Mississippi River-Gulf Outlet; Barataria Bay Waterway, and Freshwater Bayou navigation projects, Louisiana; and the West Coast Intracoastal Waterway, Caloosahatchee to Anclote, Florida. Each above project is located within or would influence sizable areas of consequential value to certain fisheries. Accordingly, the requirement for sound recommendations to integrate fisheries preservation measures into project construction is demanding.

The Gulf Outlet channel route will be south of Lake Borgne. Pilot channel construction is being completed by contract segments. To date, recommendations to reduce and contain dredging spoil silt within ponding areas have been incorporated into the segment contract specifications. In addition to the pilot channel investigations, detailed hydrological and vegetative studies have been initiated.

The proposed alignment of the Freshwater Bayou navigation channel resulted in a major landowner interest undertaking a study to evaluate effects of the project and recommending an alternate route through Vermilion Bay. This recommendation concurs with one previously submitted to the construction agency by this Bureau.

Barataria Bay Waterway investigations are being initiated. A major problem here, as in the Gulf Outlet project, will be payment for project damages to privately managed oyster production areas. The project authorization requires the local sponsor to hold the United States free from damage.

The Bureau's recommendations on the Intracoastal Waterway project include realignment of a channel segment around a fishing area and establishes spoil deposition criteria.

Hurricane Protection Projects

The proposals under consideration for providing hurricane protection to Lake Pontchartrain and vicinity would, without inclusion of specific fisheries measures, alter the volume and period of salt water exchange and associated factors within the lake. Again, the magnitude of possible effects and the variety of fisheries involved require an investigation commensurate in scope with existing and potential values. Such investigations, including coordination of fisheries factors into a model study being conducted by the construction agency, are underway.

Restoration Projects

The Freshwater Introduction below New Orleans project report recommending a regulated introduction of fresh water from the Mississippi River into selected shallow coastal bay and marsh areas has been reviewed by the construction agency. The Bureau's report recommended inclusion of this work as a mitigation feature of the Mississippi River and Tributaries project review report to provide for construction funds at MRT project cost. Congressional authorization of this proposal outside of the MRT project would establish construction for the single purpose of fish and wildlife, thereby requiring local project sponsorship and associated cost participation. In consequence, the construction agency's action on this proposal will be significantly important to local interests.

Bureau of Commercial Fisheries

In carrying out the purposes of the Fish and Wildlife Act of 1956, the Bureau of Commercial Fisheries maintains a regional office in St. Petersburg Beach, Florida, to direct and coordinate the work in the Gulf states of two major biological laboratories, an exploratory fishing and gear research station, a technological laboratory, a statistical center and market news office, three market development offices, and a fishing vessel loan office.

Gulf Fishery Investigations, Galveston Biological Laboratory

The Galveston Biological Laboratory is carrying out research on shrimp, red tide, industrial fishes, estuarine ecology and the effects of certain engineering projects on fishery resources.

Shrimp

The tracing of pink shrimp migrations through the recapture of individuals marked with colored vital stains was successfully continued in the Everglades-Tortugas area. In Galveston Bay several thousand brown shrimp were marked in May and released in Clear Lake. Many were recaptured in Clear Lake and on their passage to the sea. Several were retaken offshore as far south as Freeport.

At Galveston, also, an intensive study is being made to determine the abundance and species of larval shrimp entering the inside waters at different seasons, and experiments are being made to determine the tolerance of brown and white shrimp to various combinations of salinity and temperature.

The Marine Laboratory at the University of Miami has completed under contract with the Bureau a study and report on the size-depth relationship of the Tortugas pink shrimp, and, under a new contract, is studying the larval stages of the pink shrimp.

Funds have been appropriated for construction of a seawater system to study the methods and feasibility of shrimp farming.

Industrial Fish

The extent and value of the fishery for industrial fish has been assessed. It is rapidly expanding and holds great promise of aiding existing fisheries in two ways: (1) by furnishing offseason raw material and employment to the established menhaden fishery, and (2) by providing a means of utilizing the fishing capacity of the shrimp trawlers during periods of the year when shrimp are scarce. The industry is presently fishing chiefly inside the 20 fathom curve in Mississippi Sound and off the Mississippi River delta, taking about 100 species of fish. The products are canned pet food, fishmeal for stock and poultry feed, frozen mink feed and fish oils.

Red Tide

The intensive ecological study of Tampa Bay and adjacent waters, initiated after last year's red tide symposium, has already disclosed new facts: (1) the incidence of *Gymnodinium breve* was higher in off-shore waters than in estuarine situations during the colder months (the organism was located 60 miles off the Florida coast), and (2) phosphorus, which is important to the growth of the red tide organism, accumulated during the winter in the open waters of Tampa Bay in concentrations which exceeded that of the contributing drainage systems.

Engineering Projects

The Office of River Basin Studies in the Bureau of Sport Fisheries and Wildlife prepares the final consolidated Fish and Wildlife Service reports on surveys of engineering projects constructed by federal agencies or under federal license. However, the Bureau of Commercial Fisheries is responsible for research relating to the commercial fisheries in such projects. This responsibility is being discharged in three ways:

1. By reviewing reports prepared by the Office of River Basin Studies on marine or tidal waters, or on projects which will affect the volume or seasonal regime of discharges of rivers emptying into marine waters.

2. By short period asignment of scientific personnel to work with River Basin personnel in making short-term surveys of projects.

3. By furnishing supervision and guidance for contract research performed on larger projects.

The Galveston laboratory is currently supervising contract research by the Texas A. and M. Research Foundation on the effects on fisheries of the Mississippi River-Gulf Outlet Project of the Corp of Engineers.

Oyster and Clam Research, Gulf Breeze Biological Laboratory

This laboratory has now completed eleven years of continuous observations of the time and intensity of oyster setting in Santa Rosa Sound along with comparable data for salinity and water temperature. The first decade of these records is being processed for publication. Wide natural fluctuations in spat fall occur without apparent cause. There is little indication of

progressive change in the environment and occasional increases in the amount of oyster set appear to be related primarily to increased amounts of fresh water drainage from the land. Interpretations are difficult because many of the data on spatfall are at variance with those in other areas. As an aid to better interpretation of the local data, a cooperative program has been arranged with four Atlantic Coast laboratories to gather comparative spatfall data in the same manner as is done here.

A new non-toxic water-pumping system was completed during the year and investigations of the relationship between oyster activity and trace elements or compounds which may be of importance in the natural environment are being continued and emphasized. Observations on organic substances believed to be carbohydrates showed them to be uniformly present in local water in very low concentrations, far below what were considered minimal threshold values a decade ago when they were believed to have a controlling influence on the pumping rate of oysters. The study indicates the pumping rate to be independent of the concentration of carbohydrate in the water.

Studies on growth and survival of New England hard clams, *Mercenaria,* transplanted to Florida, have been conducted for the past eight years. These obervations show that growth in the South is at least two to as much as seven times as fast as that in nothern areas where clams are profitably harvested and that the early rapid growth of New England seed clams begins to taper off in the fourth year. The usefulness of lindane as a means of controlling crab predation in experimental clam plots has been demonstrated during the past year. Since large numbers of seed clams can now be cultivated artificially in the laboratory and the high predation rate due to two types of crabs and three snails in the Gulf area can now be sufficiently reduced by means of suitable fencing and poisoned bait, it is reasonable to suggest that clam farming here is economically feasible.

In further studies on the control of *Thais,* the oyster drill, the program developing methods for using a parasite or disease as a biological control is progressing steadily. Studies on the worm *Parorchis,* which parasitizes *Thais,* show that it is present in small numbers throughout the Gulf coast. The worm's life cycle involves an adult stage in the intestine of shore birds and larval life in the drill where it invades and destroys the gonad. Observations indicate that under favorable conditions, drills

may become castrated within two to three months following experimental infection and remain so for at least two years. Work is underway to determine suitable methods for increasing the natural incidence of the parasite in controlling drills.

Increasing reports of oyster mortalities associated with fungus infections in various areas caused initiation of a long-term study to determine whether South Carolina seed oysters, which may be resistant to fungus disease, continue to be resistant when transplanted to this endemic area and to determine the possibility of breeding fungus-resistant strains of oysters.

A limited investigation indicates that sodium cyanide, a useful tool in fresh water rough fish control, may be substituted for rotenone in estuarine and marine waters with the additional advantage of permitting recovery of live fishes from treated waters, but, for obvious safety reasons, should be used only in relatively small enclosed or semi-enclosed areas where recovery of live fishes is the primary objective.

Exploratory Fishing and Gear Research, Pascagoula Fisheries Laboratory

During the interval October 1958 to September 1959, exploratory work was initiated or continued on the following projects: experimental snapper trawling, snapper trap design and production, sardine-like fish survey, utilizing mid-water trawls and lampara seines, exploratory bottom trawling for industrial fish with roller rigged fish trawls, distant water shrimp explorations (NE coast of South America), deep water trawling (300 to 1850 fathoms), and underwater shrimp trawl studies, utilizing SCUBA divers and underwater camera equipment.

A total of 978 stations were completed during this period by the Oregon, Silver Bay and George M. Bowers.

Snapper Trawling

The Silver Bay continued snapper trawling explorations during this period, and completed 409 stations on the Continental Shelf of the NE Gulf and the Campeche Bank. Major effort was expended in the Campeche area where preliminary explorations had revealed the possibility of commercial trawl catches of red snapper. Two simulated commercial scale cruises to this area produced a total of 45,704 pounds of marketable snapper and grouper.

The operation of the snapper trawling gear was considered to be excellent, and, although operations were conducted on rough and broken bottom, only occasional minor rips and tears resulted. A summary report is currently being prepared on the Snapper Trawling Explorations and will be available in the near future.

Snapper Traps

The George M. Bowers and Oregon completed underwater television studies of snapper traps in action. Direct obervations of the reaction of snapper to various types of traps and trap openings resulted in modifications which increased the trap's efficiency. A follow-up cruise was made by the Silver Bay in an attempt to determine the catch efficiency of trawls vs traps in a given area. Preliminary results indicate that the bottom trawl is a more efficient method for capturing this species. A summary report is currently being prepared and will be available for publication in the near future.

Sardine-like Fish Survey

The Oregon completed four midwater trawl cruises in which 192 stations were occupied. The Continental Shelf from Brownsville, Texas, to Cape Romano, Florida, was explored for subsurface school fish with best catches confined between the 8 and 20 fathom depth range. Forty- and sixty-foot square nylon midwater trawls were used in the fishing trials. A direct reading electrical depth telemeter was installed and test fished. Preliminary results suggest that the telemeter is a practical and valuable tool which greatly facilitates midwater trawling operations. Significant catches (up to 1200 lbs. per hour) of midwater fish were taken in the Mississippi delta area only.

The George M. Bowers completed four lampara seine cruises in the NE Gulf during the winter of 1958-59 in an effort to determine the availability of thread herring, sardines, etc. to this type of gear. Three different types of lampara seines were used during the operations; i.e. a 150-fathom cotton West Coast lampara bait seine, a 285-fathom Manryo modified South African lampara seine, and a 213-fathom Manryo lampara seine which was subsequently developed as a result of fishing trials completed with the first two types. Only moderate success was achieved during daylight sets. The results of limited trials with light attraction techniques in conjunction with the lampara

seine were promising and will be further explored in the future.

Exploratory Bottom Trawling for Industrial Fish

In January 1959 the Silver Bay completed a bottom trawling cruise to obtain additional seasonal information on the occurrence of demersal industrial fish in the north Gulf. Trawling operations were conducted primarily on rough bottom areas presently shunned by the local "scrap fish" trawlers. The results indicate that industrial fish stocks are available beyond the range of the present fishery and can be exploited with modified trawling gear.

Distant Water Shrimp Exploration (NE Coast of South America)

The Oregon completed a 50 day exploratory shrimp trawling cruise to this area in which 149 stations were occupied between the North coast of Trinidad and Cayenne, French Guiana. Operations were confined chiefly to the 20-50 fathom depth range. Large pink shrimp were taken over extensive stretches of the coast in the 25 to 50 fathom depth range. Brown shrimp were found to be more spotty in occurrence. Heaviest concentrations were found along the coasts of British Guiana and Surinam. Catches as high as 576 pounds per night of 6- to 10-count heads-on pink shrimp were taken.

Bottom conditions were found to be suitable for shrimp trawling gear throughout the area. Limited operations in 180 to 200 fathoms off North Trinidad revealed the presence of large (15-count) Royal Red shrimp.

Deep Water Trawling Trials

Limited deep water trawling trials were conducted by the Oregon and Silver Bay in an attempt to perfect trawling techniques in the deeper waters of the Gulf (300 to 1850 fathoms). These cruises were designed primarily to gather information that will be necessary to fish these depths. Though no significant catches were realized from these depths much valuable information regarding the technical aspects of gear design and gear handling techniques were obtained.

Underwater Shrimp Trawl Studies

The George M. Bowers devoted three cruises to underwater shrimp trawl studies utilizing SCUBA divers and underwater

camera equipment. Fifty-five hundred feet of 16 mm movie film was taken. Primary objective of this work is to evaluate the comparative efficiency of chain doors vs bracket doors, various amounts of weight on the footrope, various headrope flotation devices, bridle lengths and the reaction of the trawl to varying towing speeds. The results to date have been interesting and informative. This work is to continue throughout the next year and is expected to result in information which will permit optimum gear design and efficiency.

TECHNOLOGY

Two regular functions are now being performed by the technological laboratory at Pascagoula. These are (1) technological research and (2) seafood inspection and certification service. During the year, seven species of herring and sardine-like fishes were used in experimental canning operations, and determination was made of the chemical analysis of the more common species of industrial fish. Bacteriological analyses have been completed on several seafoods, and research has been initiated to solve the problem of can blackening of seabob shrimp. In addition, the laboratory has provided technological advisory service to the fishing industry.

STATISTICS

As in the past, a general survey was completed to ascertain the volume, value and number of fishermen and operating units engaged in making the catch of commercial fish by U. S. nationals in the Gulf of Mexico. A detailed statistical survey of the shrimp fisheries of the Gulf was made to obtain information on effort, area of capture, species breakdown, size and value. A change in the grid system for reporting the catch of shrimp was effected to facilitate the analytical work presently carried on at the Galveston laboratory.

Several forms used by the Bureau have been changed to permit the use of high speed machines as labor saving devices and hasten the release of fishery statistics. Studies in methods of speeding up the collection and processing of statistical data continue. The results of the new card used in tabulating fishermen and operating unit data by machine were encouraging, and other changes will be effected during the next year to facilitate its use further.

Monthly landings bulletins developed in cooperation with

the states are continuing to be issued for each of the Gulf states.

Market News

The Market News Service activities in the Gulf area include the publication of a daily Fishery Products Report, a monthly summary, and an annual summary of landings of fishery products for selected areas in the Gulf of Mexico. These reports are mailed currently upon request to the industry and other interested parties.

Market Development Activities

An active program was carried on during the year by the Bureau's Market Development Offices located in Jacksonville, Pascagoula and Dallas. In the annual fall government-industry promotion known as "National Fish 'N Seafood Week," special emphasis in the Gulf states was placed on such locally produced fish as Spanish mackerel, mullet, red snapper, oysters and crabs. Retailers, distributors and brokers in the area reported sales increases ranging from 30 per cent to 450 per cent. In addition, there were special Lenten promotions featuring mullet and Spanish mackerel, both of which were caught in record numbers during the year. Other market development activities included 69 fish cookery demonstrations to professisonal food service audiences in the Gulf states, development of recipes through the operation of a test kitchen staffed by a full-time home economist; and preparation of exhibits featuring the nutritional value of fish and shellfish for display at restaurant and other food service conventions.

Loans

The Fishery Loan Program is based upon a revolving fund of $13 million primarily for financing, refinancing, repair and replacement of fishing vessels and equipment. To date, the regional loan office has received 80 applications for loans, amounting to nearly $2 million from the Gulf area. Of these, 37 were approved for $933,471. Currently, there are 22 loans in existence on Gulf fishing vessels. There have been 2 withdrawals, 2 foreclosures, and 11 loans are now being processed.

PEAT, MARWICK, MITCHELL & CO.

Certified Public Accountants

Hibernia Bank Building

New Orleans 12, La.

ACCOUNTANTS' REPORT

Commissioners

The Gulf States Marine Fisheries Commission

New Orleans, Louisiana

We have examined the statement of income and expenses of The Gulf States Marine Fisheries Commission for the year ended June 30, 1959 and related statement of resources as of that date. 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.

In our opinion, the accompanying statements of income and expenses and resources present fairly the results of the financial transactions of The Gulf States Marine Fisheries Commission for the year ended June 30, 1959 and its resources at that date, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Peat, Marwick, Mitchell & Co.

New Orleans, Louisiana
July 8, 1959.

THE GULF STATES MARINE FISHERIES COMMISSION

Statement of Income and Expenses

Year ended June 30, 1959

Income:		
Member states contributions:		
Alabama		$ 1,000.00
Florida		3,500.00
Louisiana		5,000.00
Mississippi		1,000.00
Texas		4,000.00
Total income		14,500.00
Expenses:		
Salaries	$11,733.35	
Publication expense	1,167.51	
Traveling	933.62	
Rent of office	1,080.00	
Stationery, printing and supplies	340.29	
Telephone and telegraph	415.86	
Postage	164.21	
Electricity	100.46	
Accounting	225.00	
Insurance	259.48	
Depreciation	450.06	
Meeting expense	147.53	
Payroll taxes	195.98	
Sundry	21.88	
Total expenses		17,235.23
Excess of expenses over income		(2,735.23)
Resources of the Commission, June 30, 1958		4,523.44
Resources of the Commission, June 30, 1959		$ 1,788.21

Statement of Resources — June 30, 1959

Cash (note 1)	$	904.86
Traveling advance		250.00
Meter deposit		10.00
Prepaid insurance premiums		128.80
Equipment—at cost less allowance for depreciation, $1,851.40 (note 2)		494.55
	$	1,788.21

(For notes see accompanying supplementary information to accounts)

THE GULF STATES MARINE FISHERIES COMMISSION

Supplementary Information to Accounts

June 30, 1959

(1) Cash:

Cash receipts (see accompanying statement)			$14,500.00
Cash disbursements:			
Expenses (see accompanying statement)		$17,235.23	
Adjustment for expenses not representing cash outlay:			
Increase in prepaid insurance	$ 8.02		
Depreciation	(450.06)	(442.04)	16,793.19
Excess of (disbursements) over receipts			(2,293.19)
Cash balance June 30, 1958			3,198.05
Cash balance June 30, 1959			$ 904.86

Comprised as follows:

National American Bank of New Orleans checking account	$ 885.20
Petty cash	19.66
	$ 904.86

(2) Equipment:

	Cost	Depreciation	Net
Amount at beginning of year:			
Automobile	$1,436.38	718.19	718.19
Furniture and fixtures	909.57	683.15	226.42
	2,345.95	1,401.34	944.61
Depreciation allowance for year	—	450.06	450.06
	$2,345.95	1,851.40	494.55
Amount at end of year:			
Automobile	$1,436.38	1,077.29	359.09
Furniture and fixtures	909.57	774.11	135.46
	$2,345.95	1,851.40	494.55

(3) Fidelity bond insurance carried—$10,000.00 each on chairman, vice-chairman and secretary-treasurer of the Commission.

BUDGET

GULF STATES MARINE FISHERIES COMMISSION

Fiscal Year 1959-60

Salaries	$11,900.00
Publications	450.00
Travel expenses	1,200.00
Rent of office	1,080.00
Stationery, printing, supplies	375.00
Telephone and telegraph	350.00
Postage	150.00
Electricity	100.00
Accounting	225.00
Insurance	260.00
Meeting expenses	100.00
Payroll taxes	243.00
Sundry	20.00
Furniture and fixtures	175.00
Depreciation	450.00
	$17,078.00

(Approved October 16, 1959)