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GULF STATES MARINE FISHERIES COMMISSION

FIFTH ANNUAL REPORT
1953 - 54

To The
CONGRESS OF THE UNITED STATES
And To The
GOVERNORS AND LEGISLATORS
of
ALABAMA
FLORIDA
LOUISIANA
MISSISSIPPI
TEXAS

**FIFTH ANNUAL REPORT (1953-54) OF THE
GULF STATES MARINE FISHERIES COMMISSION**

To The

CONGRESS OF THE UNITED STATES

And to the

GOVERNORS AND LEGISLATORS

of

**ALABAMA
FLORIDA
LOUISIANA
MISSISSIPPI
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

312 Audubon Building

New Orleans 16, Louisiana

GULF STATES MARINE FISHERIES COMMISSION

ROSTER—OCTOBER 1954

Hermes Gautier
Chairman

William J. Hendry
Vice-Chairman

W. Dudley Gunn—Secretary-Treasurer
Ellen S. Hoover—Office Secretary

★
COMMISSIONERS

ALABAMA

Earl M. McGowin, Director,
Alabama Department of Conservation,
Montgomery, Alabama
Thos. A. Johnston, III, Senator,
State of Alabama, Mobile, Alabama
W. C. Holmes, M. D.
Foley, Alabama

FLORIDA

Charles W. Bevis, Supervisor
Florida Board of Conservation, Tallahassee, Florida
D. C. Jones, Jr., Representative
State of Florida, Naples, Florida
William J. Hendry,
Okeechobee, Florida

LOUISIANA

L. D. Young, Jr., Executive Director,
Louisiana Wildlife and Fisheries Commission
New Orleans, Louisiana
C. C. Burleigh, Senator,
State of Louisiana, Franklin, Louisiana
Donald G. Bollinger,
Lockport, Louisiana

MISSISSIPPI

Walter J. Gex, President,
Mississippi Seafood Commission,
Biloxi, Mississippi

Hermes Gautier, Senator,
State of Mississippi, Pascagoula, Mississippi

Louis Simmons,
Biloxi, Mississippi

TEXAS

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

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

Travis Bailey,
Rockport, Texas

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

SUCCESSIONS ON THE COMMISSION DURING THE YEAR

Travis Bailey vice Lawrence A. Kurtz

COMMISSION OFFICERS ELECTED OCTOBER 22, 1954

FOR YEAR 1954-55

Chairman: Mr. Gautier

Vice-Chairman: Mr. Hendry

STANDING COMMITTEES
ROSTER - - OCTOBER, 1954

COMMITTEE TO CORRELATE FISHERIES LAWS

- A. J. Harris, Jr.**, Assistant Attorney General,
Alabama Department of Conservation,
Montgomery, Alabama
- Mary Schulman**, Assistant Attorney General,
State of Florida, Tallahassee, Florida
- Warren M. Simon**, Attorney,
La. Wildlife and Fisheries Commission
New Orleans, Louisiana
- Reece O. Bickerstaff**, Attorney
Mississippi Seafood Commission,
Gulfport, Mississippi
- Erma Baker**, Attorney,
Texas Game and Fish Commission, Austin, Texas

COMMITTEE TO CORRELATE RESEARCH AND
EXPLORATORY DATA

- Harold C. Loesch**, Marine Biologist
Alabama Dept. of Conservation, Bayou La Batre, Ala.
- F. G. Walton Smith**, Director
Marine Laboratory, University of Miami,
Coral Gables, Florida
- Percy Viosca, Jr.**, Marine Biologist
La. Wildlife and Fisheries Commission
New Orleans, Louisiana
- A. E. Hopkins**, Director
Gulf Coast Research Laboratory,
Ocean Springs, Mississippi
- Cecil W. Reid**, Director,
Division of Coastal Fisheries
Texas Game and Fish Commission, Rockport, Texas

ACKNOWLEDGEMENT

In submitting this fifth 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 five 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

William J. Hendry, Vice-Chairman

W. Dudley Gunn, Secretary-Treasurer

COMMISSION ACTIVITIES
OCTOBER 1953 - OCTOBER 1954

The Commission met three times during the past year in two regular sessions and one special session. Below is a summary of principal decisions reached at the several meetings:

Edgewater Park, Mississippi (January 21-22, 1954). The primary purpose of this special meeting, which was mentioned in the fourth annual report as having been scheduled, was to consider a final draft shrimp research program.

Resolutions:

To: Secretary of Interior requesting participation of U. S. Fish and Wildlife Service in a shrimp research program involving the establishment of useful and adequate statistics, sampling the catch for size and species composition, development of marking techniques, differentiation of species and stocks at all ages, an ecological study including mechanisms which transport larvae into inside waters and general ecology of nursery grounds, maintenance of records of man-made and natural changes in the physical environment, purchase and maintenance of laboratory equipment, and administration and publication of results; such projects to progress for specified periods and at estimated expenditures of \$554,000 first year, \$454,000 second and third years, \$354,000 fourth and fifth years, and \$264,000 each succeeding year.

To: Commissioners of Gulf States Marine Fisheries Commission requesting contact with their respective state delegation in Congress asking support of legislation to make federal funds available for further study of the Red Tide problem.

To: Director of U. S. Fish and Wildlife Service requesting exploratory fishing emphasis be placed on shrimp during the current calendar year's' operation of the **Oregon.**

New Orleans, Louisiana (March 18-19, 1954). Commission Chairman requested to have statements prepared for presentation at Congressional hearings in Washington favoring passage of

S-2802-Saltonstall, to make available to Department of the Interior additional funds for such projects as the shrimp research program and others.

To coordinate Red Tide research, a committee of three was appointed from agencies concerned with the studies, the Marine Laboratory of the University of Miami, the University of Florida, and the U. S. Fish and Wildlife Service.

San Antonio, Texas (October 21-22, 1954)

Resolutions:

- To: Director U. S. Fish and Wildlife Service recommending an economic survey of the Gulf States shrimp industry.
- To: Executive and legislative branches of federal government requesting the locating of a weather ship station in the Gulf of Mexico.
- To: Executive and legislative branches of federal government recommending extension of the cooperative state, federal and industry shellfish certification program to include all shellfish offered for sale in the several states.
- To: Secretary of Interior recommending appointment by name of three representatives from the fishing industry of the Gulf States to an industry advisory committee to advise in the formulation of policy, rules and regulations pertaining to requests for assistance, and other matters in connection with Public Law 466, 83rd Congress (S-2802).

No action taken regarding proposed change in U. S. Maritime Administration General Order 59 to permit chartering of fishing craft to aliens for periods of not more than six months without obtaining prior approval of said Administration.

In addition to routine functions in the interim between meetings during the past year the Commission prepared and presented statements at Congressional hearings in support of legislation intended to further encourage the distribution of fishery products, and for other purposes, as outlined in S-2802 and H.R. 7641, the former becoming Public Law 466-83rd Congress, 2d Session.

The Commission took no official action on H.R. 9584, which proposal concerned protection of the rights of vessels of the United States on the high seas and in territorial waters of foreign countries because of it having been presented in the interim between meetings. Information related to the mentioned resolution, which has become law, was gathered and transmitted to the member states for such action as they might individually deem expedient in the matter.

A comparative digest of numerous fishery laws and regulations in effect in the member states was prepared by the Commission, following the 1954 state legislature sessions, for study by the Commissioners.

The Commission served during the year as the coordinating medium in the gathering of information from Gulf States' scientists for transmittal to the Fish and Wildlife Service for use in the preparation of a state of knowledge chart of Gulf of Mexico fishes.

STATE ACTIVITIES

OCTOBER 1953 - OCTOBER 1954

The Commission is pleased to present in resume principal activities for the past year, and plans, of the marine fishery administrations of the compacted states as furnished by those agencies, the directors of which agencies are members of the Commission. The several administrations continue to broaden the scope of programs involving fishery investigations and fishery development in an effort to successfully handle the many problems which the expanding Gulf fishery presents. Information resulting from the various programs continues to be exchanged between the member states which greatly assists the Commission in the furtherance of its objectives.

Alabama—Research emphasis continues to be placed on the shrimp program started in Mobile Bay during the summer of 1953 with material being collected monthly from twelve bay and twelve shore stations. Data thus far analyzed indicate a possible peak in abundance of brown shrimp in the bay in July with the per pound count ranging from sixty to eighty-eight except for the extreme lower end of the bay where the shrimp

were larger. By August it appears the count will average fifty per pound except in the northwestern area of the bay. In both years white shrimp abundance has peaked in August. The general pattern of movement of small brown shrimp has been fairly well defined but that of the white shrimp requires more study. Pink shrimp have been taken occasionally in an area of the lower end of the bay and in the Ammunition Dump channel during the winter months. Information obtained from the shrimp study resulted in an extension of the open season in 1954. A project involving the taking of fish by small mesh nets in the rivers emptying into Mobile Bay to determine the advisability of permitting use of such nets will be carried through the calendar year. A survey expected to give indication of the effects of dead shell dredging on marine life is progressing. Due to the cresting of the Alabama and Tombigbee Rivers at approximately the same time in 1953 and the resulting twenty percent of the expected oyster crop, shells suitable for planting were not available. However, approximately 15,500 barrels of seed oysters from the right of way of the Dauphin Island bridge were reset by private owners and the Division of Seafoods through contract to prevent possible destruction. With an excellent spat set in 1954 a return to normal production is expected. During the year a 36 foot shrimp type boat was added to the patrol fleet. The minimum size of oysters is currently set by regulation at 2 3/4 inches, such regulation having been made possible by the 1953 legislative session which lowered the minimum size from 3 inches to 2 5/8 inches and provided authority for the Director of Conservation to set intermediate measurements. Other legislative action lower the legal possession limit of shrimp for non-commercial use from 50 pounds to 25 pounds and provides for strict adherence to commercial shrimping laws but no license fee. Non-resident seafoods motor transport license tax was reduced to conform with the resident tax.

Florida—A second ocean-side laboratory at the Marine Laboratory, University of Miami, is expected to be completed in January 1955. The Fisheries Section of the Laboratory which carries on research for the Florida State Board of Conservation will occupy the building when completed. During the past year biological work on the mullet, red snapper, scallop and blue crab fisheries was continued by the laboratory. It is anticipated re-

ports on the mullet, red snapper and shrimp will be released in November 1954 and presented at the annual Gulf and Caribbean Institute meeting. Research on the blue crab has centered on the study of a potential soft shell crab fishery along the west coast of Florida. Red Tide investigations were intensified during the year with the Marine Laboratory, University of Miami, the University of Florida and the U. S. Fish and Wildlife Service carrying on separate but coordinated studies of the problem. In August 1954 the Marine Laboratory published a 117 page report summarizing the scientific finds in which meteorological, oceanographic and biological data were correlated with known outbreaks of the Red Tide along the southwest coast of Florida. The Oyster Division of the Board of Conservation has conducted a rather thorough oyster rehabilitation program in all oyster producing areas of the State. Many of the non-commercial producing beds have been rehabilitated through the planting of dead shell and other cultch materials. An experimental oyster research plot consisting of some six acres located in Franklin County is expected to provide information relative to production, growth rates, cost and other experimental data of value to the industry. Biologists of the Marine Laboratory accompanied exploratory fishing cruises by the industry to survey new grounds for shrimp in both Florida and Cuban waters. New gear developments in both the snapper and mackerel fisheries were tested with promising results. Although Food and Drug laws do not yet permit the use of antibiotics in food, the laboratory has continued its study of these chemicals, finding the keeping time of shrimp to have been lengthened and bacterial count reduced. The installation of a business machine card system for compilation of landings has increased accuracy and reduced cost. A marketing survey covering salt water resources was completed during the year. The declaration of mullet in storage when season closed December 15, 1953, and the movement of inventories during closed season being possible only by Board permit, contributed to an improved market when season opened.

Louisiana—The Louisiana Wildlife and Fisheries Commission vessel, **Anna Inez**, which is assigned to the Commercial Seafood Division, continued during the year with the collection of data in the sectional study of Lake Pontchartrain. The mass of data which has been collected in pursuance of this program

is in the process of treatment by the Department of Biology, Tulane University. Some results of early observations in this complete analysis of the fisheries of the Lake and the many factors which influence the fisheries are expected to be published during the coming year. Technological research on the shrimp and other fishery products has been contracted to Louisiana State University. The various research programs which have been initiated by the Commercial Seafood Division since the completion of its organization in March 1953 have been incorporated into a 20-year master program of research now in the final stage of completion. The **Anna Inez** has seen further service during the year in explorations. A biologically significant find of a nursery grounds was made near the mouth of the Mississippi River which contained the three best known commercial species of shrimp. Another important project undertaken by the vessel was that of locating debris lying on bottoms in areas regularly frequented by the shrimp trawl fleet, such explorations having been accomplished through the use of installed sea-scanning equipment. Other projects of interest contemplated during the coming year include: reproduction and distribution of 73 charts of Louisiana costal waters, which charts were recently prepared by the Louisiana State University for the Office of Naval Research; a full-scale economic survey of the fisheries which will require several years for completion; publishing of an enlarged fish dealers' directory to include the oyster dealers; continued cooperative work with the Scripps Institute of Oceanography in studies currently being made in Louisiana waters; and continued effort to obtain better weather observations for the benefit of the fishermen. The Oysters and Water Bottoms Division continues with its program of growing seed oysters in reserved areas for supply to lease holders without cost. During the past year, the Division obtained \$100,000 by legislation, in addition to \$50,000 appropriated from the Oyster Seed Ground Fund by the Louisiana Wildlife and Fisheries Commission, to obtain additional fresh water from the Mississippi River at the entrance of Bayou La Moque. Construction of the spillway is expected to start in the late spring of 1955. The result of this construction will be a greatly increased oyster production in those parts of Plaquemines and St. Bernard Parishes lying east of the River. The planting of oyster shells for cultch is a continuing project of the Division. Results from the Lake

Borgne area and Sister Lake plantings have been splendid. Final report of the three year biological study of Louisiana oyster areas has been rendered. The Division was active in the formulation of regulations pertaining to the conduct of geological and geophysical explorations in the outer continental shelf area adjoining the Louisiana seaward boundaries. Such regulations, designed for the protection and conservation of aquatic life in the area, were agreed to by both the State of Louisiana and the U. S. Department of Interior.

Mississippi—The Gulf Coast Research Laboratory at Ocean Springs, official marine headquarters for both the Seafood Commission and the State Institutions of Higher Learning, could not progress the shrimp investigation started during 1953 because of budget limitations and lack of personnel but did make considerable progress on several important projects. In an effort to increase oyster production 67,000 barrels of shells were planted in May and June 1954. The catch of seed oysters was very excellent and growth has been so surprising that it is expected that many of them will be harvested this winter at an age of less than nine months. The plantings were made primarily on grounds which had not been producing previously. The bases for the location of the grounds were the lower salinity than in formerly producing areas, and also an extensive analysis of the bottom materials. On the outer grounds where the salinity has been extraordinarily high throughout the year the conchs really thrived and little or no production of oysters is expected. Studies on conchs in the laboratory have been related to salinity tolerance and the means by which conchs destroy oysters. Studies have been made on the effects of the purple dye which is frequently secreted by conchs when they attack oysters from the bill. Geological work on the nature of bottoms in almost all parts of Mississippi Sound and tributaries from the point of view of physical, chemical and biological analyses were made. A report has just been completed and is ready for publication on two years of this work. The results indicate clearly the difference in the nature of bottoms suitable for oysters and those suitable for shrimp and other organisms. A manuscript on the habits and distribution of all fishes found on the Gulf Coast of Mississippi has been almost completed. As many species as possible are illustrated so that they may be identified readily. The 1954

Legislature authorized the Mississippi Seafood Commission to grant up to \$75,000 for construction of a new laboratory—classroom building (\$60,000), and a shrimp trawler (\$15,000). The Commission transferred this fund to the State Building Commission which is now asking for bids on both units. A law was passed by the same session of the Legislature which extends to non-resident fishermen the same fishing privileges as apply to resident fishermen and without the payment of additional license fees.

Texas—The Game and Fish Commission through its Coastal Fisheries Division has divided the entire coastal area into districts and a biologist is to be assigned to each of the districts. It is felt that under such an arrangement more progress can be made since each biologist will become more familiar with his area, knowing more of populations, production, changes that occur and harvests. The survey of the lower Laguna Madre which was started in 1951 has continued from November 1953 after a one year's lapse. Projects in progress and planned for this body of water include fish tagging; salt water pond experiments with fish and shrimp; oyster cultivation in the comparatively fresh waters of the Arroyo Colorado; a survey of the live shell populations of the district; collection, identification and listing of flora and fauna; and a survey of the effects of a proposed causeway and channel to connect Port Mansfield and Padre Island. A total of 3,750 fish have been tagged in the upper Laguna Madre, 855 being small black drum. Salinities in the area have been low during the year and the bivalve mollusks upon which black drum feed are again building up, vegetation is more abundant and a return to normalcy in this known nursery ground is taking place. An ecological survey was made of the east Galveston Bay area to determine biological, physical and chemical conditions prior to the cutting of the pass through Bolivar peninsula. The purpose of this survey was for a comparison of bay conditions to determine the results of the entrance of Gulf waters through the pass. The examination of factors influencing productivity of the natural oyster reefs of Galveston Bay is a continuing project as is industrial waste studies. Experimental transplants of crabs and fish continue in effort to determine ages at which transplanting from salt to fresh water can best be accomplished, and the poundage a given area

can produce and at what cost. Planned is a fish cultural station of 40 acres minimum to study life histories, food habits, reproduction, pollution and other phases which have to do with production. A survey of the State's dead shell deposits by use of hydrosonic instruments is expected to start in November 1954. A biologist has been assigned to the study of reefs and shell dredge sedimentation. A program expected to determine loss of shrimp and fish life in connection with the shrimp trawl fishery was started during the year.

U. S. FISH AND WILDLIFE SERVICE ACTIVITIES

OCTOBER 1953 - OCTOBER 1954

The Fish and Wildlife Service has continued its activities of fishery and oyster investigations, and exploratory fishing throughout the past year. The first part of this section contains summaries of these endeavors as furnished by the several activities. The second part of this section is a reprint of statement of Public Law 466 projects approved as of September 10, 1954 and prepared for the October 21-22, 1954 meeting of the Commission by the Fish and Wildlife Service.

FISHERY INVESTIGATIONS

The surface waters of the Gulf of Mexico which lie beyond the continental shelf are not as rich as those over the shelf. This fact stands out as all of the preliminary work on the **Alaska** collections was completed during the past year. The total volume of planktonic animals caught over the shelf was about three times that caught over the deep waters. When these plankton samples were sorted, there were four times as many fish larvae and fifty times as many fish eggs over the shelf as beyond. The north Gulf waters seemed to be the most prolific, with the discharge area of the Mississippi being the richest in this area.

A hitherto unknown zone of potentially high productivity of fisheries products is suggested by preliminary studies of the chemical data collected by the **Alaska**. The samples from depths between 100 and 500 fathoms show unexpectedly high concentrations of certain sugars. Since these are definitely associated with

photosynthesis, it is possible that the water of this zone supports a complete food chain, providing forage for such fishes as tuna, snappers, and deep water shrimp. The Branch of Commercial Fisheries concurs in this suggestion. In this connection, it must be remembered that the offshore waters of the Gulf and Caribbean are some of the clearest, if not the clearest, in the world; hence the possible penetration of sufficient light into these depths to support photosynthesis.

Efforts to solve some of the riddles of the Florida Red Tide have resulted in the Gulf Fisheries Investigations' ability to culture the causative organism (**Gymnodinium brevis** Davis) in mass culture in the laboratory. The cultures were heavy enough to kill fish in controlled experiments. This work has contributed much to an understanding of the natural factors responsible for the Red Tide and has made it possible to plan experiments for determining the feasibility of control.

The Red Tide studies have also provided valuable information on growing food organisms to be used in controlled experiments on the growth and survival of the young of such important commercial species of marine animals as shrimp.

OYSTER INVESTIGATIONS

The program of the Pensacola Laboratory has been devoted primarily to evaluation of completed research projects and preparing them for publication. Detailed plans have been drawn up for research to be conducted with funds provided by Public Law 466. The program is expected to get underway soon with the assignment of new personnel.

Preliminary work on the construction of a more efficient drill trap demonstrated its possibilities, but research is required to find more attractive baits. Investigations are continuing on the biology of the drill.

Investigation of the life history of the boring clam, **Martesia**, has been terminated successfully this fall with larval cultures which were carried through metamorphosis. Larvae raised in the laboratory were maintained for 23 days, at which time they passed from the free-swimming stage and attempted to burrow into cement-board plates. The duration of larval life and the

setting stage have not been reported previously. Observations of the breeding cycle and larval cultures demonstrate that the larvae are infectious to oysters primarily in the fall and that the free-swimming stage lasts about three weeks. Presumably under the more suitable conditions of the natural environment, the free-swimming stage is of shorter duration.

In a cooperative research project with laboratories along the Atlantic Coast, 2000 hard clams were planted in Pensacola this spring. These seed clams are hybrids of the New England and Gulf species of **Venus**. It is expected that simultaneous observations on these clams at different geographic locations will demonstrate whether one of these is especially suited for introduction along the Gulf Coast.

Observations on the setting of marine organisms interfering with oysters have been terminated after five successive seasons, and a report on observations of setting rates of oysters during four consecutive years including location of spat, effects of different types of cultch, and the interfering action of barnacles was completed. This research was reported in abstract at scientific meetings and is now being prepared for publication.

The cooperative use of the Pensacola laboratory facilities with the Shellfish Sanitation Laboratory, Sanitary Engineering Center of the Public Health Service, during the past year has been mutually advantageous, resulting in operational economies and a more concerted attack on some of the problems of the Gulf oyster industry.

EXPLORATORY FISHING

The specific objectives for the exploratory fishing and gear research program in Pascagoula in 1954 were: to complete Florida west coast continental shelf shrimp exploration together with a summary report of shrimp exploration up to the present time; to make exploratory drags for deep-water shrimp; and to begin a survey for the possibilities of long-line tuna fishing in the Gulf of Mexico.

Cruises 21 and 22 on the west coast of Florida during the period from March 2 through April 23 were devoted to shrimp trawling over areas that had hitherto received inadequate ex-

ploration. A total of 113 drags were made during this period, 100 of them on the continental shelf. Shrimp were taken on only a few of these drags and when present were found in quantities too small to be of commercial use. Thirteen drags were made in deep water southwest of Dry Tortugas. Here good catches of deep-water shrimp (**Hymenopenaeus robustus**) were made.

Reports on all of the **Oregon's** Gulf shrimp exploration up to the present time have been published. The earlier period, 1950 through 1951, was covered in Fishery Leaflet 406 and a continuation for the period 1952-1954 was published in the October 1954 issue of Commercial Fisheries Review.

Long-line fishing for yellow fin tuna began with cruise 23 on May 6 and has continued. Catches of yellowfin tuna were made indicating widespread distribution of the species beyond the limits of the continental shelf in the Gulf of Mexico. Best catches were made in or near the currents of the central Gulf of Mexico but some yellowfin tuna were taken in all deep water areas of the Gulf. The 1954 exploration showed that yellowfins were present in the Gulf from May to mid-October, the closing time for this report, and that the average weight of these fish taken on long lines was slightly over 100 pounds. Altogether, 78 sets of long lines were made through October, 1954.

**PUBLIC LAW 466 PROJECTS APPROVED BY THE
U. S. FISH AND WILDLIFE SERVICE AS
OF SEPTEMBER 10, 1954**

BIOLOGICAL RESEARCH AND INVESTIGATIONS

Maine Herring Investigation (\$74,000). A study of New England herring populations will be undertaken to discover reasons for the fluctuations in abundance and to develop means of predicting the catch. This will be a cooperative investigation conducted with the Exploratory and Gear Development unit. Headquarters for the activity will be at a point on the Maine Coast.

North Atlantic Fisheries (\$205,000). A study of flounder, sea scallop, whiting, and ocean perch fisheries will be undertaken to determine the condition of these fisheries in order to devise methods of conserving the fisheries and to obtain information for the use of the industry concerning supplies of fish and shellfish, and trends of the fisheries. These activities will be carried on from the Service's Woods Hole, Mass., laboratory.

Oyster Investigations (\$75,000). Studies of the oyster fisheries of the Atlantic and Gulf Coasts will be conducted to learn more about seed-oyster production, control of drill damage, and other possibilities for improved cultivation of these shellfish. These activities will be conducted from Milford, Conn.; Annapolis, Md.; Pensacola, Fla.

Gulf of Mexico Shrimp Investigations (\$80,000). The shrimp populations of the Gulf will be studied to determine the effects of environmental changes on shrimp production, in order to provide information necessary to maintain the production of these shellfish. Headquarters for this activity will be at Galveston, Texas.

Red Tide Investigations (\$20,000). This amount will supplement and strengthen studies being conducted to determine the combination of environmental factors which "trigger-off" blooms of *Gymnodinium brevis*, the organism which causes extensive fish kills in west coast Florida waters. Headquarters for these investigations are Fort Myers, Fla.

Pacific Sardine, Anchovy, and Mackerel Investigations (\$125,000). Co-operative research will be conducted to determine reasons for the recent decline in the sardine fishery and to learn the distribution, abundance, and reasons for fluctuations in the numbers of sardine-like fish in Pacific Coast waters. Studies of the anchovy and mackerels will be carried on concurrently. Headquarters for the staff in this research will be at LaJolla, California.

North Pacific Albacore Investigations (\$234,000). Biological, oceanographic and fishing studies will be conducted to locate and determine abundance of albacore tuna in waters north and west of Hawaii. The project will be conducted from the Service's laboratory at Honolulu, T. H., and will be coordinated through the Pacific States Marine Fisheries Commission.

ADMINISTRATION

Administration Services (\$91,500). Inauguration of the expanded research program authorized by P. L. 466 will require additional employment and expenditures in the Service's Division of Administration in Washington, D. C., and in the various regional offices for increased fiscal, personnel, and similar administrative activities.

Construction Surveys and Engineering Studies (\$43,000). Surveys and engineering studies will be made to develop plans for the construction of fishery laboratories at Woods Hole, and Boston, Mass.; Pascagoula, Miss.; and Seattle, Wash.

EXPLORATORY FISHING, STATISTICAL, TECHNOLOGICAL, EDUCATIONAL, MARKET DEVELOPMENT, AND ECONOMIC RESEARCH AND SERVICES

Exploratory Fishing and Gear Development:

Maine Herring Exploration (\$76,000). An exploratory fishing and gear research program will be undertaken for the purpose of increasing her-

ring production in cooperation with a biological research program. This activity will be based at a suitable point on the coast of Maine.

North Atlantic Explorations (\$160,000). A program will be carried on to find new fishing grounds off the New England Coast, and to develop improved fishing methods. This activity will be based at Boston, Mass., and will utilize the Service's technological research vessel **Delaware**.

Commercial Fishery Statistics:

The collection and dissemination of commercial fishery statistics will be expanded and expedited in many parts of the country. The monthly and annual economic and biological statistical surveys of the domestic fisheries will be issued more promptly; coverage will be strengthened in areas where the collection of data has been weak; and a program will be established for the collection of detailed statistics on the shrimp industry in the South Atlantic and Gulf States. Supervision of the surveys, publication of the data collected, and contracts for special field surveys will be handled from Washington, D. C., at a cost of \$53,000. Personnel assigned to conduct the statistical surveys will be stationed in the following localities:

Atlantic Coast (\$33,000):

Gloucester, Mass.
Providence, R. I.
Solomons, Md.
Beaufort, N. C.
Beaufort, S. C.
Brunswick, Ga.
Coral Gables, Fla.

Mid-West (\$13,000):

Ann Arbor, Mich.
La Crosse, Wisc.
New Orleans, La. (head-
quarters employee will
survey lower Mississippi
River)

Gulf Coast (\$60,000):

Key West, Fla.
Fort Myers, Fla.
Tampa, Fla.
Pascagoula, Miss.
Biloxi, Miss.
New Orleans, La.
Houma, La.
Morgan City, La.
Galveston, Texas
Aransas Pass, Texas
Brownsville, Texas

Pacific Coast (\$6,000):

Astoria, Ore.
San Pedro, Calif.

Technological Studies:

Gulf And South Atlantic Oyster Research (\$40,000):

A program to develop the most suitable methods for handling, freezing, and packaging Southern oysters in the Gulf and South Atlantic producing areas. The research will be conducted under contract by qualified laboratories and at the Service's College Park, Maryland, laboratory.

Economic Research (\$143,000):

Consumption of fishery products will be studied in public eating places, institutions, etc., which serve 60 million people daily, in order to obtain information useful in increasing markets for fish and shellfish.

Comprehensive economic surveys, similar to that prepared on the domestic tuna industry, will be made for other important fisheries, such as shrimp, scallops, Maine sardines, etc., to indicate trends and strengthen their competitive position. These studies and surveys will be supervised from Washington, D. C., and include a very large amount of contract research with qualified research organizations in the economic field.

Fishery Education and Market Development:

There will be an expansion of the school lunch, locker, and special marketing activities, and inauguration of a program for the development of foreign markets for fishery products. These funds are in addition to the \$175,000 that the Service received as a result of legislation now superseded by P. L. 466. This brings the total for this activity to \$300,000. Employees to be assigned to these new activities will be stationed in the following localities:

Atlantic Coast (\$101,500):

College Park, Md.
Washington, D. C.
Atlanta, Ga.
Coral Gables, Fla. (contract
with University of Miami)

Pacific Coast (\$16,000):

Seattle, Wash.
San Pedro Calif.

Gulf Coast (\$7,500):

New Orleans, La.

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The initial allocation of \$1,831,500 of \$3,000,000 to be made available under the terms of Public Law 466-83rd Congress for Fish and Wildlife Service programs and contract research during the fiscal year 1954-55 will make possible the implementation of a number of programs previously requested by the Commission.

The Commission adopted a resolution in January 1950 requesting the Congress to appropriate funds necessary for continued operation of the Fish and Wildlife Service laboratory at Pensacola. It is gratifying to note that provision has been made in the initial allocations of Public Law 466 funds for an expanded oyster research program at Pensacola.

It is also of interest to the Commission to be advised that a part of the shrimp research recommended in January 1954 is to be undertaken during the current federal fiscal year and that such work is expected to provide basic information for further subject studies.

That the current appropriation for Red Tide studies is being supplemented is likewise of interest to the Commission since it adopted a resolution in January 1954 seeking additional funds for such investigations.

It is hoped that the funds earmarked for a construction survey at Pascagoula will result in the exploratory and gear development activity being provided with needed additional facilities.

The importance of gathering and publishing fishery statistical data has been long recognized by the Commission and the subject of resolutions adopted in January 1950 and October 1952 and transmitted to the marine fishery administrations of the several states.

With Fish and Wildlife Service supplementing the fishery statistical effort of the several states by providing eleven statistical agents for the Gulf, it is hoped data on the catch can be compiled for addition to the now available figures on landings, also that poundage production per unit of effort can be determined for shrimp and other fisheries.

The Commission in July 1950 requested by resolution that the Fish and Wildlife Service provide a full-time technologist to work exclusively in the Gulf area, and on problems peculiar to the area, and that the technologist be furnished with an adequately equipped mobile laboratory. It is hope the technological research to be done on the oyster will prove the beginning of a technological program which will be extended to include other Gulf fisheries problems.

The Commission is also pleased to note that funds are being made available for economic research. An economic survey of the important shrimp industry was suggested in October 1951. A resolution adopted in October 1954 requested the Fish and Wildlife Service to provide industry with such a survey.

In the aggregate the fisheries of the Gulf of Mexico continue to show a year to year increased production and value. It appears that with the continued expansion of many of the presently prosecuted fisheries, and with prospect exceedingly promising for the development of a commercially important tuna fishery, and possibly offshore bottom, sardine and other fisheries, the curve is likely to continue upward. Since fishery research problems seem to increase in proportion to production, the Commission recognizes the importance of the Fish and Wildlife Service receiving the mentioned additional funds for its cooperative work with the Gulf States.

PEAT, MARWICK, MITCHELL & CO.

Certified Public Accountants

Hibernia Bank Building

New Orleans 12, La.

July 15, 1954

ACCOUNTANT'S 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, 1954 and the 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, 1954 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.

THE GULF STATES MARINE FISHERIES COMMISSION

Statement of Income and Expenses

Year ended June 30, 1954

Income:

Member states contributions received:

Alabama	\$ 1,000.00
Florida	3,500.00
Louisiana	5,000.00
Texas	4,000.00

13,500.00

Member state contribution receivable

1,000.00

Total income

14,500.00

Expenses:

Salaries	\$10,045.65
Traveling	1,719.98
Rent of office	1,080.00
Stationery, printing and supplies	469.75
Telephone and telegraph	505.93
Postage	96.64
Electricity	75.89
Accounting	175.00
Insurance	240.38
Depreciation	496.96
Sundry	70.68

Total expenses

14,976.86

Excess of expenses over income

476.86

Resources of the Commission, June 30, 1953

10,234.75

Resources of the Commission, June 30, 1954

\$ 9,757.89

Statement of Resources

June 30, 1954

Cash		
Receivables:		\$ 6,802.32
State of Mississippi (fiscal years ended June 30, 1953 and 1954)	\$ 2,000.00	
Traveling advance	250.00	2,250.00
	<hr/>	
Meter deposit		10.00
Prepaid insurance premiums		93.97
Equipment — at cost less allowance for depreciation, \$1,729.54		771.35
		<hr/>
		9,927.64
Less accounts payable		169.75
		<hr/>
		\$ 9,757.89
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THE GULF STATES MARINE FISHERIES COMMISSION

Supplementary Information to Accounts

June 30, 1954

(1) Cash receipts (see accompanying statement)				\$13,500.00
Cash disbursements:				
Expenses (see accompany statement)	\$14,976.86			
Adjustment for expenses not representing cash outlay:				
Increase in prepaid insurance	\$ (6.66)			
Increase in accounts payable	169.75			
Depreciation	496.96	660.05	14,316.81	
Excess of disbursements over receipts				816.81
Cash balance June 30, 1953				7,619.13
Cash balance June 30, 1954				6,802.32
Comprised as follows:				
National American Bank of New Orleans — checking account				6,794.02
Petty cash				8.30
				\$ 6,802.32

(2) Equipment:

	Cost	Depreciation	Net
Balance at beginning of year:			
Automobile	\$ 1,645.80	994.35	651.45
Furniture and fixtures	855.09	238.23	616.86
	<u>2,500.89</u>	<u>1,232.58</u>	<u>1,268.31</u>
Depreciation allowance for year	—	496.96	(496.96)
Balance at end of year:			
Automobile	1,645.80	1,405.80	240.00
Furniture and fixtures	855.09	323.74	531.35
	<u>\$ 2,500.89</u>	<u>1,729.54</u>	<u>771.35</u>

- (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 1954-55

Salaries	\$10,200.
Travel	1,525.
Rent	1,080.
Stationery, Office Supplies and Printing	522.
Telephone & Telegraph	458.
Postage	110.
Electricity	80.
Accounting	225.
Insurance	250.
Depreciation	500.
Miscellaneous (Sundry)	125.
Furniture, Fixtures & Maintenance	25.
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	\$15,100.
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Approved by the Commission October 22, 1954.