

GULF STATES MARINE FISHERIES COMMISSION

Clearwater, Florida
Fort Harrison Hotel
Wedgewood Room

October 20 (Thursday) & October 21 (Friday), 1955

P R O G R A M

(Mr. Hermes Gautier, Commission Chairman, Presiding)

9:30 AM CALL TO ORDER
ROLL CALL
INTRODUCTIONS

ADDRESS Honorable Richard W. Ervin, Attorney General
State of Florida

Introduction by Honorable Ernest Mitts, Director
Florida State Board of Conservation

ANNOUNCEMENTS

REPORT OF CHAIRMAN

SUMMARY REPORTS: STATE WORK DURING THE YEAR, INCLUDING RESEARCH,
EXPLORATIONS, EDUCATION AND OTHER PROGRAMS:
(PANEL PRESENTATIONS BY STATE ADMINISTRATION STAFF MEMBERS)

<u>Alabama</u>	Chairmen, Messrs: Perry Prescott, Montgomery
<u>Florida</u>	Robert M. Ingle, Tallahassee
<u>Louisiana</u>	R. Lee Eddy, Jr., New Orleans
<u>Mississippi</u>	Gordon Gunter, Ocean Springs
<u>Texas</u>	Cecil W. Reid, Rockport

DISCUSSION FOLLOWING EACH PRESENTATION

ADJOURNMENT

12:45 PM COMMISSION LUNCHEON: GARDEN TERRACE
(All conferees and their wives are cordially invited)

2:00 PM LADIES TOUR OF GLADIOLUS FIELDS, NURSERIES AND ORANGE GROVES:
(Please contact Mrs. Hendry)

2:00 PM PUBLIC LAW 466 PROGRAMS: (PANEL PRESENTATIONS)

Work Plan Of The
Industry Advisory
Board

Messrs: A. J. Wegmann, Gulf Board Member,
Pass Christian

Summary Of Approved
Gulf Programs

H. H. Eckles and R. T. Whiteleather
Fish & Wildlife Service, Washington

DISCUSSION FOLLOWING EACH PRESENTATION

2:45 PM SUMMARY REPORTS: GULF FISH AND WILDLIFE SERVICE WORK DURING THE YEAR:
(PANEL PRESENTATIONS BY FISH & WILDLIFE SERVICE PROJECT LEADERS)

Fishery Explorations

Messrs: Harvey R. Bullis, Jr., Pascagoula

Gear Development

R. F. Sand, Coral Gables

Menhaden Research

Edgar L. Arnold, Jr., Galveston

Shellfish Research

Philip A. Butler, Pensacola

Shrimp Research

Albert W. Collier, Galveston

Statistical Program

Charles H. Lyles, New Orleans

DISCUSSION FOLLOWING EACH PRESENTATION

4:15 PM NEW FISHERY LAWS RESULTING FROM THE 1955 STATE LEGISLATIVE SESSIONS:
(PANEL PRESENTATIONS BY MEMBERS OF THE COMMITTEE TO CORRELATE FISHERIES
LAWS)

Alabama

Messrs: A. J. Harris, Jr., Montgomery

Florida

Miss Mary Schulman, Tallahassee

Texas

Cecil W. Reid, Rockport
(Substituting for Miss Erma Baker)

DISCUSSION FOLLOWING EACH PRESENTATION

ADJOURN TO EXHIBIT TABLES

ADJOURNMENT FOLLOWING VISIT TO EXHIBIT TABLES

COMMITTEE MEETINGS

FRIDAY (OCTOBER 21)

8:30 AM SLIDE VIEWS OF MOST COMMON OF GULF FISHES, WITH COMMENTS:
Dr. Royal D. Suttkus, New Orleans
(Questions are invited during this showing of slides)

8:50 AM BIOLOGICAL RESEARCH NEEDED ON THE FIN FISHES AND CRUSTACEANS OF
THE SEVERAL STATES: (PANEL PRESENTATIONS BY MEMBERS OF THE
COMMITTEE TO CORRELATE RESEARCH AND EXPLORATORY DATA)

<u>Alabama</u>	Messrs: Harold C. Loesch, Bayou La Batre
<u>Florida</u>	Clarence P. Idyll, Coral Gables
<u>Louisiana</u>	Percy Viosca, Jr., New Orleans
<u>Mississippi</u>	Gordon Gunter, Ocean Springs
<u>Texas</u>	Howard T. Lee, Houston

DISCUSSION FOLLOWING EACH PRESENTATION

9:30 AM OYSTER BIOLOGICAL RESEARCH, REEF DEVELOPMENT, AND OTHER WORK NEEDED TO
BE DONE, IN THE SEVERAL STATES: (PANEL PRESENTATIONS BY MEMBERS OF THE
SHELLFISH COMMITTEE)

<u>Alabama</u>	Messrs: Harold C. Loesch, Bayou La Batre
<u>Florida</u>	Robert M. Ingle, Tallahassee
<u>Louisiana</u>	Lyle S. St. Amant, New Orleans
<u>Mississippi</u>	Gordon Gunter, Ocean Springs
<u>Texas</u>	Howard T. Lee, Houston

DISCUSSION FOLLOWING EACH PRESENTATION

CONCLUDING THOUGHTS ON HOW OYSTER PRODUCTION CAN BE INCREASED:
Mr. James N. McConnell, New Orleans

10:10 AM COMMENTS FROM INDUSTRY CONCERNING EXPLORATIONS, GEAR DEVELOPMENT,
TECHNOLOGY, AND OTHER PROGRAMS NEEDED TO STRENGTHEN THE POSITION OF
THE GULF FISHERIES: (PANEL PRESENTATIONS)

Messrs: Leon S. Kenney, St. Petersburg
Harry F. Sahlman, Fernandina Beach
Al J. Wegmann, New Orleans and Coden

DISCUSSION FOLLOWING EACH PRESENTATION

10:50 AM SOME THOUGHTS REGARDING THE FUTURE TRAINING OF STUDENTS IN THE
MARINE SCIENCES: (PANEL PRESENTATIONS)

The Vocational Level Messrs: Charlie Bevis
Tallahassee

The Undergraduate and
Graduate Levels F. G. Walton Smith
Coral Gables

DISCUSSION FOLLOWING EACH PRESENTATION, AND DISCUSSION OF FEDERAL
AID IN THE TRAINING OF NEEDED PERSONNEL FOR THE COMMERCIAL FISHING
INDUSTRY

11:20 AM FINAL ADJOURNMENT

11:30 AM EXECUTIVE SESSION

GULF STATES MARINE FISHERIES COMMISSION
312 Audubon Building
New Orleans 16, Louisiana

M I N U T E S

SIXTH ANNUAL MEETING, OCTOBER 20-21, 1955
Clearwater, Florida
Fort Harrison Hotel

OFFICIAL ATTENDANCE OF COMMISSIONERS:

	<u>PRESENT</u>	<u>ABSENT</u>
<u>ALABAMA:</u>	Garet Van Antwerp, III W. C. Holmes	William H. Drinkard
<u>FLORIDA:</u>	Ernest Mitts David C. Jones, Jr.	William J. Hendry
<u>LOUISIANA:</u>	L. D. Young, Jr. Donald G. Bollinger	C. C. Burleigh
<u>MISSISSIPPI:</u>	Hermes Gautier Louis Simmons	Walter J. Gex, Jr.
<u>TEXAS:</u>	Travis Bailey	Howard D. Dodgen Jimmy Phillips
<u>PROXIES FOR MEETING PROPER:</u>	Mary Schulman R. Lee Eddy, Jr. Howard T. Lee Cecil Reid	(For William J. Hendry) (For C. C. Burleigh) (For Howard D. Dodgen) (For Jimmy Phillips)
<u>PROXIES FOR PART EXECUTIVE SESSION:</u>	Robert M. Ingle Mary Schulman	(For Ernest Mitts) (For David C. Jones, Jr.)
<u>STAFF:</u>	W. D. Gunn, Secty-Treas.	

COMMISSION COMMITTEE MEMBERS PRESENT

A. J. Harris, Jr., H. C. Loesch, Mary Schulman, Robert M. Ingle,
Lyle S. St. Amant, Percy Viosca, Jr., Gordon Gunter.

STATE GOVERNMENT REPRESENTATIVES PRESENT

A. J. Buquet, Richard W. Ervin, Sidney Landry, Barnett B. Larrimore
James N. McConnell, W. R. Neblett, W. L. Werlla.

FEDERAL GOVERNMENT REPRESENTATIVES PRESENT

Edgar L. Arnold, Jr., Joe Bell, Harvey Bullis, Jr., Philip A. Butler, Charles R. Chapman, Albert W. Collier, Howard H. Eckles, John E. Evans, Charles Lyles, Reidar F. Sand, Richard Whiteleather, William B. Wilson.

REPRESENTATIVES OF INDUSTRY, STATE UNIVERSITIES AND OTHERS PRESENT

Charlie Bevis, Heber Bell, Leon S. Kenney, David Lord, James L. McConnell, Don McKee, Charles Rice, Harry F. Sahlman, Al J. Wegmann, Neil C. Hulings, Clarence P. Idyll, Dale F. Leipper, R. W. Mensel, Verome E. Stein. Cliff Townsend, Royal Suttikus.

GENERAL SESSION, OCTOBER 20, 1955

Mr. Gautier, Commission Chairman, called the meeting to order at 10:10 AM and after brief introductory remarks requested the Secretary to call the roll of Commissioners. Introductions followed.

The Chairman introduced Mr. Mitts who in turn introduced Mr. Richard W. Ervin, Florida Attorney General. Mr. Ervin officially welcomed the group to the State of Florida and in his prepared address spoke of the seaward territorial claims being made by many nations, some of 200 miles, and the need for a world-wide agreement on international boundaries.

Mr. Gautier next reviewed the progress made during recent years in the development and study of the fisheries of the Gulf of Mexico. He praised the Gulf States' fisheries administrations, the universities of the member states, and the Fish and Wildlife Service for their fine work and urged a continuance of the splendid cooperative efforts.

Messrs. Harris of Alabama, Ingle of Florida, Eddy of Louisiana, Gunter of Mississippi, and Reid of Texas formed a panel to present in summary activities for the past year, including research, explorations, education and other programs, of the fisheries administrations of the several member states.

Mr. Harris said he would leave matters of a biological nature for Mr. Loesch to cover later in the program. An attempt by the Department of Conservation to create artificial snapper reefs has produced some encouraging early results, according to the speaker. He explained that the Department purchased 200 old auto chassis last year and dumped them from 6-8 miles offshore from Baldwin County, Alabama, in 70-80 feet of water; suitable bottoms having been found prior to dumping. One month after dumping, he said, small snappers were found around the artificial reefs and a year later one boat caught about 1000 pounds. The speaker mentioned that the old chassis cost about \$1,850 and the barge service in hauling and dumping approximately \$1,200. Another important project of the Department was said by Mr. Harris to have been the planting of 94,578 barrels of oyster shells during the year on the public reefs of Alabama; the cost of shells being \$10,000 and planting expense being a little over \$24,000. He said the Department planted seed oysters last year but none during the current year. The shell planting was said to have been one of the largest yet undertaken by the Alabama Department of Conservation.

With reference to activities of the Florida Board of Conservation, Mr. Ingle said he would mention those programs in effect or planned which he thought would be of interest to the other states and give more details should anyone have questions during the discussion period. He said that Florida accidentally created fishing reefs two years ago in the Cedar Keys area in an unsuccessful attempt to catch young oyster spat on pine saplings. About a year ago old tile, bricks and pieces of concrete were dumped in the area, according to the speaker, and results have been very good. Mention was made of the rapid growth of the 39 Florida coastal counties and the corresponding increase in fisheries problems. He said an agents correspondence course covering fishery biological and legal problems have been arranged to supplement courses offered in two agent training schools; all to better equip Board of Conservation field personnel to handle such problems. Other endeavors were said to include the employment of an economist to visit hospitals, schools, fairs, in interest of developing a wider acceptance of mullet through instruction in cooking. Mention was made of a program designed to attract new fishing interest to Florida which had resulted in securing a branch of a firm that supplies oysters to the Campbell people for stew, and a Chesapeake Bay crab meat packer. Due to lack of shells, planting was postponed for the year but it was said a stepped-up program was anticipated for next year. Work being done by the Board's research agency, The Marine Laboratory of Miami University, include, according to Mr. Ingle, mullet, snook, sailfish and tarpon studies; shrimp net mesh experiments, shrimp technological research; and in cooperation with the Fish and Wildlife Service, marketing research, a survey to determine the value of the Florida sports fishing industry, and a fishery statistical program. An educational film to show fishermen and fish house operators the basic fundamentals of caring for the catch was said to be in production.

In preliminary remarks Mr. Eddy said that he would undertake only to summarize the activities of his division, the Division of Commercial Seafoods of the Louisiana Wild Life and Fisheries Commission. He said the work of the division continues along the various lines originally planned. Mention was made of the promotional activities of the Industrial Services Section in attending restaurant association conventions and displaying an exhibit especially prepared to develop interest in the qualities of Louisiana shrimp. A review is being made of fisheries laws, according to Mr. Eddy, with the view of determining the intent of the law at the time of enactment and further determining if the law effects the situation at present as it was intended to at the time of enactment. With reference to the scientific program of the Division of Commercial Seafoods, such studies as gear efficiency; food preservation; and the preparation of a bibliography of Louisiana fishes for which there is no existing market, were enumerated. According to the speaker, research contracts have been awarded local universities not only with the view of obtaining needed data but with the hope more local students would become interested in obtaining graduate degrees in the marine fisheries. Cooperative work with the Scripps Oceanographic Institute and the Woods Hole Institute was summarized. In conclusion, Mr. Eddy said that the work of Industrial Services had received such favorable recognition he expected the section's activities to be considerably expanded in the future.

Dr. Gunter said he had only been associated with the Gulf Coast Research Laboratory for one and a half months and that while he had developed some plans for future work he was not ready to summarize them at the moment. He told of a recent publication titled "Sediments of the Mississippi Sound", this being the result of several summers work by the author to determine bottom characteristics around oyster reefs. A study of the fishes of Mississippi Sound was said to be progressing and about half completed. Work on the conch is being carried on in the Laboratory with the view of determining the manner in which the animal attacks the oyster. Other work mentioned included: a survey of the Gulf's shore with particular attention to mosses; collection of mollusks and sampling to determine edible qualities; letting of bids for a new student laboratory to cost around \$75,000, by the Mississippi Seafood Commission; and the letting of a contract for an oyster channel near the Louisiana line. A total of 80,700 barrels of oyster shell were said to have been planted during the past summer; plantings at various locations along the Sound but principally at St. Joe where 60,000 barrels were set out. In conclusion, Dr. Gunter said the St. Joe planting had done so well it was expected steam stock would be available, conditions being favorable, by January or February.

Mr. Reid said that the pass cut some 22 miles east of Galveston last spring had brought new species of fishes from the Gulf into Galveston Bay and more shrimp; these findings having resulted from checks made before and after the pass was created. He said the pass had widened due to heavy tides to the extent the bridge spanning the pass and some nearby homes are threatened with destruction. The pass, he added, may have to be closed at least temporarily until pilings can be placed to better control the waters of the pass. It was said information gained is of considerable value as a request has been made for a Padre Island pass and that consideration is being given to the reopening of a pass near Rockport. According to Mr. Reid the reef shell people in the Galveston area had offered to supply shell for reef building if the Texas Game and Fish Commission would supply a barge (cost about \$60,000) and do the work of depositing the shell. He said field work continued along the lines previously reported; that due to the work load on the sectionally located biologists it had been necessary to station another biologist in the field. The Commission's series of T-V films is about completed and the one on the marine fishes of Texas is already completed, the speaker said. In conclusion, a strip showing shell deposits was passed around and explained by Mr. Reid. He said the recording of reef shell deposits had been discontinued until a vessel which will minimize the flow of bubbles can be completed; bubble formations having interfered with the taking of pictures of the deposits.

Prior to the Chairman opening for discussion Mr. Eddy mentioned he purposely did not cover work of the Division of Oysters and Water Bottoms, Louisiana Wild Life and Fisheries Commission, and suggested that Mr. McConnell tell of the work of his division. Mr. McConnell said that activities of the division would be summarized Friday morning during the Shellfish Committee panel.

In discussion, Mr. McConnell inquired as to the price paid in Alabama for shell, to which Mr. Harris replied, 10¢ per barrel for shell and 26¢ for planting.

Mr. Gautier remarked that the Alabama shell price seemed comparatively low and added that the Mississippi Seafood Commission retains ownership of 50% of shell harvested in Mississippi. Mr. Harris said Alabama retains 30%.

Mr. Gautier inquired as to growth of Alabama oysters. Mr. Landry said Cedar Point oysters are generally ready for steam stock nine months after shell planting and in 16-18 months ready for harvesting. In some areas of Louisiana, Mr. McConnell said a 3" oyster was available in 10-12 months.

Mr. Wegmann asked about Alabama's program to develop oyster producing areas, which had formerly been barren. Mr. Harris said 1,800 acres had been leased by the Department from a private party, the parcel containing three small islands and about 40 acres of State property in the center of the circle, and that the acreage which had been planted, is now open for harvest and that the yield is good. He added that the program of developing new reefs will continue.

On inquiry from Mr. McConnell, Mr. Reid said the Texas hydrosonic shell deposit instrument showed depth of water, depth of mud and silt, and thickness of the reef.

Mr. McConnell asked Mr. Reid to repeat what he had said with reference to the cooperative plan of the Galveston dredge shell industry and the Texas Game and Fish Commission, which he did, and added that the industry had in previous years done some shell planting in the area and stood the entire cost of such projects.

With no response to the Chairman's inquiry as to further discussion, Mr. Gautier called on the Secretary for announcements. The morning session was adjourned at 12:15 PM.

The Commission acted as host for a luncheon in the Fort Harrison Wedgewood Room. There was no speech making scheduled for the luncheon hour.

The lady guests at the Commission meeting were favored with a "coffee" given by Mrs. David Jones during the morning and in the afternoon toured Clearwater, Clearwater Beach and the surrounding area; visiting orange groves gladiolus fields and other places of interest.

The afternoon session was called to order at 2:00 PM and Messrs. Wegmann, Eckles and Whiteleather were invited to the panel table for considerations of Public Law 466 (Saltonstall-Kennedy Act) programs.

Mr. Wegmann spoke first and on the subject of the work plan of the Fish and Wildlife Service, American Fisheries Advisory Committee, of which he is a member. By way of introductory remarks, Mr. Wegmann spoke of the importance of the Committee and said a great amount of good could be accomplished through a proper application of Saltonstall-Kennedy funds. He added, the committee should give very careful thought before passing on any action taken by the Fish and Wildlife Service or take any action itself. The Committee, with its 19 members, was thought by Mr. Wegmann to be too large. He said it was his belief the Committee should have one member from the Gulf, Atlantic, Pacific, Great Lakes, and one central member; making a total of five;

that a smaller group would function better. As further thoughts in connection with the functioning of the Committee, the speaker suggested: The Fish and Wildlife Service arranging for the Committee to have longer to study projects already approved or suggested for consideration before meeting; and that the Committee be given the power to disapprove projects whether they be already approved by Fish and Wildlife Service or suggested by the Service or the Committee. Mr. Wegmann said the Committee should always think of the good to be derived for the country as a whole in the selection of projects and not of certain areas, and added that, although he might feel a great need for some particular work on the Gulf, he would be inclined to go along with another suggested project if a choice had to be made of the two, and in his opinion the other was best for the entire country. In closing, the speaker said he would like to see a majority of the Saltonstall-Kennedy funds channeled through the universities to encourage more students to follow courses leading to degrees in the fishery sciences; then added, he firmly believed the American Fisheries Advisory Committee would accomplish a great deal of good. Any criticisms which he might have made during his presentation, Mr. Wegmann asked to be considered as constructive ones.

Before proceeding with further consideration of the Saltonstall-Kennedy Act and projects, the Chairman recognized the Secretary-Manager of the Clearwater Chamber of Commerce, Mr. Paul Fight, who extended a cordial welcome to the group.

In discussion, Mr. Eddy inquired of Mr. Wegmann if Saltonstall-Kennedy allocations had been made and contracts in existence prior to the first sitting of the Advisory Committee.

Mr. Wegmann said, as he understood it, \$600,000 of the original \$3,000,000 were unexpended when the Committee first met. He said contracts, in some instances, were to be carried into the 1956 fiscal year.

Mr. Whiteleather said the July (1954) legislation provided for an advisory committee and that the establishing of a 19 man committee takes a long time because of the necessity of covering a large industry such as the fisheries and on a national scale. He said government security checks and other things attributed to the length of time required to completely formulate the Advisory Committee. It was the Service's feeling, according to Mr. Whiteleather, that they would be derelict in their duty if the monies were not allocated for research sorely needed by industry while the Committee was being established; adding, he was sure that was what the Advisory Committee would have wanted done during the six-seven months interim period. The speaker said that those projects for which allocations were made had been requested by industry many times and the reason the projects had not been inaugurated before was because of the lack of funds. He concluded in saying that the Service was not attempting to cut the Committee out of any of its defined functions or policies in making the allocations of the funds of which total approximately \$700,000 remained at the time the Committee first met.

Mr. Wegmann commented that the allocation of funds was the first consideration and the Committee was the second consideration. He added, that when the Committee first met, those funds not allocated of the first year's total were earmarked for what the Committee determined to be capital expenditures.

It was said the Department of the Interior was convinced of the Committee's belief that it was not the purpose of the bill that the funds be spent for capital outlay, such as restoration of buildings or the erection of new structures, but for research purposes, such as fish and shell predator investigations, determination of what is hurting the fisheries industry, and others.

Mr. Young asked Mr. Whiteleather if he would elaborate on his remarks concerning government security checks; what kind of security checks would be made for recommendations from various states, people in the fishing industry and state departments; people who are certainly well known and well recommended. Were security checks made on all of the people recommended for appointment to the Committee, he inquired.

Mr. Whiteleather said the Fish and Wildlife Service has nothing to do with security checks, that some federal regulations had gone into effect in the last few years that required people, who would come into position which would advise the federal government on policy, to be checked. He said it was just a government regulation and one which Service employees had been subject to for a long time.

Mr. Young told Mr. Whiteleather he still had not answered his question; that he would like to know if a check was made on all people who were recommended for appointment to this Committee, and if such a check was made when was the check made. Mr. Young added, he understood public law requires security checks and that people named to the Advisory Committee were checked, but, he said, you (Mr. Whiteleather) also say that it took several months to name the Committee and indications might be to us that the Committee was on paper some several months before being named and checks underway on these particular individuals. Continuing, Mr. Young inquired, what about the other recommendations that were made throughout America for appointment to this Committee to the Fish and Wildlife Service.

Mr. Whiteleather replied that security checks were not made on everybody who was recommended. He said there were many recommendations and after the selection of 19 names made, then those were checked.

Mr. Young said Mr. Whiteleather had answered his question and added that he thought then by checking the records of those people who were actually named to the Committee, it could be determined just when the Committee was selected.

Mr. Eddy said he understood Mr. Whiteleather to say the Secretary of the Interior selected the names and formed the Committee. He said he had some correspondence that indicates Secretary McKay recommended names to the Director, Fish and Wildlife Service. Mr. Whiteleather was then asked by Mr. Eddy if Mr. Farley was the one who made the selections that finally appeared as the Committee.

In answer, Mr. Whiteleather said that the selections were made by the Secretary of the Interior. He said many recommendations were made.

Mr. Eddy then said, you do know that neither Mr. Farley nor Mr. McKay submitted any names to you?..... you had no voice in it at all?

Mr. Whiteleather said that he had no voice in it.

Mr. Eddy remarked then that it was not likely any division chief in the Fish and Wildlife Service had a voice in selecting the Committee. Mr. Eddy added that just how the Committee members were selected was what they had wanted to know. He said they had some trouble getting Mr. Wegmann on the Committee, having to bring congressional pressure to bear, and wondered if that was the practice throughout the country.

Mr. Whiteleather answered saying he did not know about that but thought the Committee well represented industry in a cross-section of the country. Mr. Young told Mr. Whiteleather he was not complaining about the Committee or the Committee's members. He added that he thought the Fish and Wildlife Service had a good Committee and that they are heartedly endorsing it in favor of all of them, but, he continued, he did question that so much time should have been consumed in naming the Committee when it could have been named two, three, or four months before it was. Mr. Young also said he supported Mr. Wegmann in his contention that had the Committee been appointed earlier they would have had an opportunity to study the allocations for several months and fit them into the Service's fiscal operation. In conclusion, Mr. Young stated he wholeheartedly agreed with Mr. Wegmann in that the Committee should have more authority in the allocation of funds. Mr. Whiteleather said he would not disagree that an earlier appointment of the Committee would have been advisable but they did the best they could on it. He continued, saying, that the Committee was established to advise the Secretary of the Interior on policy and regulations pertaining to requests for assistance under the Saltonstall-Kennedy legislation; that there is no place in the legislation where it says that the Committee shall approve individual contracts, that it is illegal for a group of policy advisors to the government to make specific approvals or disapprovals. Mr. Whiteleather said that they in the Fish and Wildlife Service accept the general policy recommendations of the Secretary's Committee and that it is pretty well documented that they have followed those general policies of the Committee.

Mr. Wegmann said he would like to repeat, as far as he remembered, the exact words of Messrs. Orme Lewis, Farley and Chaney, the latter being a legal representative, on opening the first meeting of the Committee. He said the Committee was told they had no power to allocate funds; that they had power only to recommend and that there was no guarantee that the recommendations would be carried through; that the determination of the allocation of the funds and determination of the right or wrong of recommendations by the Committee would be disposed of by the Secretary of the Interior himself, who could disagree or discard every recommendation, contrary to the Committee's wishes; that the Secretary of the Interior in accordance with his own ideas or with the ideas of the staff of the Department, make allocations. Continuing, Mr. Wegmann said, he was taken back when he learned of what the Committee was expected to do; that he went to the meeting with great hopes and with the thoughts of making very responsible decisions. He said he thought he had wasted time; that all of them had wasted money that could have been well utilized for a better purpose if they had remained at home and all expenditures of these funds been made by the office of the Secretary of the Interior. In concluding, Mr. Wegmann said it to be his opinion that the Committee in its present form is a useless one.

Mr. Wegmann referred to a paper in hand and stated he would like to read an opinion of the United States Attorney General, not that of the Fish and Wildlife Service, concerning requirements of committees appointed to work with governmental agencies. It was said that there must be a statutory authority for the employment of such committees; that there must be an administrative finding that it is necessary to utilize such committees to perform certain statutory duties; that the agenda for such committees

in their meeting must be initiated and formulated by the government; that the meeting to be held must be at the call of and under the chairmanship of the full government official; that full and complete minutes of these meetings must be kept; that appointments of sub-committees must be purely advisory and any determination of action to be taken must be made solely by the government representative.

Mr. Sahlman asked a question but was away from the microphone at the time. Whatever Mr. Sahlman's question was, Mr. Wegmann answered by saying that when the motion arose at the meeting and a request was made that they go into executive session they were told it was against the statutes of the United States to meet in a closed session unless a representative of the government was present at the discussion. He continued by saying if you have a committee and you are chairman thereof and four of the members of that committee feel they would like to discuss something that you are bringing up and they would like to do so in closed session it would be necessary for a government representative to be present.

Mr. Bollinger inquired of Mr. Wegmann if he had any idea as to what proportion the \$2,400,000 was for specific purposes.

Mr. Wegmann stated that the various allocations were listed in a pamphlet which he held up, the same having been distributed earlier in the afternoon session. Mr. Wegmann went on to say it would take considerable time to evaluate each of the items. He added that in his opinion 30 days study would be beneficial before a meeting and before any action was taken to determine the value of each particular project, and to this he added that it was difficult to get an idea over to 19 men where it is not so difficult to get it over to five men.

Mr. Wegmann was asked by Mr. Eddy if he thought any of the contracts might be the result of favoritism, or the result of certain pressures, or the presence of lobby groups. Continuing, Mr. Eddy said he noted particularly in the pamphlet that the National Fisheries Institute received an allocation of \$30,000 for research concerning the development of voluntary standards which amount was twice as much as any of the universities received for the same research. He also asked of Mr. Wegmann if he thought the National Fisheries Institute because of its strength as a lobby had anything to do with the allocation of the money in such a large quantity.

Mr. Wegmann answered that he could not answer the question because he did not know.

Mr. Eddy then said that he was merely asking for an opinion which Mr. Wegmann might care to give him in private if he did not prefer to say it publicly.

Mr. Wegmann then said he might answer by saying that he was opposed to any private, or fisheries, association being given a contract to do work under the Saltonstall-Kennedy Act that can be accomplished just as well, or perhaps better, by a university. He then added that he believed money could be saved if already established institutions, with their personnel and equipment, were given contracts.

Mr. Eddy then remarked that he thought there were a great many things concerning the allocations with which fault could be found but that there was no doubt a great deal of good had been accomplished.

Mr. Wegmann agreed with Mr. Eddy's remarks.

Mr. Wegmann was then asked by Mr. Eddy if in his opinion more good would be accomplished than evil if this were continued to be conducted in the same manner in the future.

Mr. Wegmann replied by saying he thought that if this were conducted in the same manner in the future as it has been in the past there will be, not a willful waste, but it would automatically follow that there would be a waste of some of the monies that are so solely needed for the good of all. He said that the monies could be utilized to a far better advantage in a manner whereby the Committee as a whole was given an opportunity to evaluate the projects, to study them, to recommend and to agree fully on the expenditures. Mr. Wegmann then added, he believed that if such a procedure was followed it would be very much like a meeting of the board of directors of a large corporation where they are ever thoughtful and careful to analyze any action taken because they are a committee of a few who have the destinies of many in their hands. He added he did not feel he should be held accountable for something he had no part in creating.

Mr. Eddy asked Mr. Wegmann if it was then his belief that the interest of the fisheries and the public would be better served if the manner in which the Saltonstall-Kennedy funds are being handled, after thought and study, were changed.

In answer to this question Mr. Wegmann said that the entire set up should be changed in a manner that would be in keeping with the thought and purpose of the establishment of the fund, and that no particular individual, or no particular department, and not even the Committee itself, should be given the authority or the right to say this is it and this is what it shall be. He added, that there should be a meeting of all minds after a thorough discussion and understanding and what that meeting of all minds considered to be the best, then do it and stand upon it.

Mr. Sahlman said he would like to answer Mr. Eddy's question as to the NFI project because unfortunately Mr. Wegmann was not at the last Committee meeting. He said there was absolutely no objection by anyone of the 16 members that were present at the meeting to that particular project. He added, that Colonel Farley at the time asked each and every member to express his views on that particular project and none had any objection to it. He asked Mr. Eddy if that answered his question.

Answering Mr. Sahlman, Mr. Eddy stated that he merely asked for an opinion on why more money was allocated to the National Fisheries Institute, which he knew to be a private association, and not so much to any of the several universities all of which enjoyed very good academic standing.

Mr. Sahlman said he did not believe any member of the Committee could answer that question other than express his own idea and that he would like to express his in saying that he did not think there was any lobbying done on that particular project of the National Fisheries Institute because he probably would have heard something about it at the meeting.

Mr. Eddy thanked Mr. Sahlman for his opinion.

Mr. Whiteleather said that he would like to state for the record that the NFI had not walked away with all of the money. He then referred to the pamphlet and mentioned a number of contract agencies and amounts of money received by the agencies.

Mr. Eddy said he did not mean to imply that NFI received more money than any other agency, private or otherwise, that he merely used for comparative purposes those universities listed immediately under the NFI with a common title Development of Voluntary Standards. He then added that we know that NFI has sponsored, along with SOATA, the development of voluntary standards and the

acceptance to the development of voluntary standards. Mr. Eddy concluded in saying that he did not know just what was meant by voluntary standards but he did know that it had not met with high acceptance all over the Gulf area and that he had found that those people who subscribed to voluntary standards are invariably the membership of those two institutes. Mr. Whiteleather commented that such a discussion of matters related to the Saltonstall-Kennedy Act was the very kind of thing the Fish and Wildlife Service was looking for.

With no further discussion forthcoming, the Chairman asked Mr. Whiteleather to proceed with his part of the panel presentation which was to summarize approved Gulf programs under Public Law 466 administered by the Branch of Commercial Fisheries.

In compliance with the Gulf States Marine Fisheries Commission request made at the Montgomery meeting (March 1955), Mr. Whiteleather said the Service had prepared exhibits indicating programs and allocations for work in the Gulf area with use of Saltonstall-Kennedy funds, and also, a comparative exhibit of programs and allocations in other areas. Since Mr. Whiteleather's talk referred to various parts of exhibits which had been passed to the conferees, these exhibits are being made a part of these minutes in lieu of outlining here references made by the speaker.

Mr. Whiteleather referred to the new exploratory station and technological laboratory, saying the Service had appreciated for a long time the need for these facilities but monies had not been available for the new construction. He explained the construction cost of approximately \$150,000 would be drawn from regular funds derived from a supplemental appropriation and not from Saltonstall-Kennedy funds. An architect's drawing of the proposed building was passed around. It was added that the City of Pascagoula had deeded to the Fish and Wildlife Service a very desirable parcel of property for the building and that construction would start in the very near future. Mr. Whiteleather said the construction of a 73 foot vessel to be used exclusively for gear development was well underway at a Tampa shipyard. He said the vessel, which will cost in the neighborhood of \$80,000, will operate out of the Miami gear development station and will handle national problems related to gear. In conclusion, the regrets of Director Farley in not being able to attend the Clearwater meeting, due to an overseas assignment, were expressed by Mr. Whiteleather.

There were no questions on the call for discussion and Mr. Eckles proceeded with that part of the panel presentation concerning work being done or planned by the Branch of Fishery Biology. The speaker first referred to the progress made in biological research in the Gulf area in the past six years and went into some detail regarding ecological conditions existing in the Gulf. A brief summary of programs made possible through use of Saltonstall-Kennedy funds followed with references being cited in the several exhibits prepared for the occasion by the Service. As previously mentioned, the exhibits are included in these minutes, and are herewith attached.

Mr. Eckles briefly covered progress being made in the Red Tide studies through Saltonstall-Kennedy fund expenditures. The Chairman invited discussion but there was none.

Mr. Gautier next introduced a panel of Fish and Wildlife Service project leaders, including; Messrs. Bullis, Sand, Arnold, Butler, Collier and Lyles, and announced the subject to be summary reports of work during the year.

Mr. Bullis, in summarizing activities of the Gulf exploratory fishing effort, said the Oregon had made 10 cruises during the year, spending 183 days at sea. He said five cruises were devoted to long-line fishing for tuna, four to deep water shrimp dragging, and one to field trials of underwater television gear. There will be a change from exploratory type long-line fishing for tuna, to commercial effort, according to Mr. Bullis. In fact, he said, one purely commercial cruise was made in August during which time 14 days of fishing resulted in the taking of over 29 tons of yellowfins. It was said that commercial effort will likewise be made in the red shrimp fishery in deeper Gulf waters. To present, Mr. Bullis said, the best result of dragging for red shrimp was 770 pounds for one night. The Pascagoula office was said to be active in furnishing information to fishermen who visit the office; preparing films to illustrate gear functioning; booking fishermen for passage on cruises of the Oregon, when possible; sending of Gulf specimens to universities and museums; employing as Fishery Aids, students of the marine sciences, when possible; and loaning gear for exploratory work to a limited degree. In concluding, the speaker praised the Louisiana Wild Life and Fisheries Commission for the long-line tuna fishing explorations which have been undertaken by the Albacore. It was said that the larger type shrimp vessels are good prospects for entering the long-line tuna fishery, and the work of the Albacore is furnishing valuable information on what can be expected of this type vessel. There was no discussion.

Speaking on the subject of gear development, Mr. Sand said the establishing of gear research centers was being done by a number of nations. The selection of Miami as a site for the center was said to have been based on conditions of both climate and clearness of waters, the presence of many species of fishes, and the varied fishery operations of the area. The use of gear without very much change over the years was pointed to by the speaker as being largely due to the lack of visual operation of the gear in action. The use of underwater photography and television will be one of the major approaches toward gear testing and development, it was understood, and the new gear research vessel under construction will be equipped to do this work. The vessel, due for delivery December 1, will be assigned to the newly authorized deep water shrimp explorations off the Florida east-coast until April 1, when it will then be assigned to the gear research center to proceed with the gear development program. No discussion followed.

On the subject of menhaden research, Mr. Arnold began with a brief summary of the relative value of the United States menhaden fishery, some habits of the fish, gear used in capture, use of the product, and other background information. He said the two species of Gulf menhaden will be studied both in the laboratory and the field and that the rearing of menhaden in the aquarium would permit detailed anatomical work at various ages, and also, permit physiological studies and growth observations under controlled conditions. In the field, Mr. Arnold said, spawning

seasons and areas would be determined and that field studies would also include such work as scale sampling, checking length frequencies, and others. He said a tagging program may be undertaken later but that the relative abundance of menhaden at present did not indicate a current need for such work. In conclusion, the speaker said that much valuable information was available in the Alaska and Oregon files and that these data would be taken from the files as the program progresses. No discussion followed.

Dr. Butler said the \$25,000 received from Saltonstall-Kennedy funds had doubled the budget of the Pensacola laboratory, that through locating this program at Pensacola practically all of the additional funds could be used for technical assistance and research equipment. He said the allocation had permitted the employment of three new biologist, one chemist, two aids, and the allowing of two or three fellowships to graduate students at universities. He mentioned Florida State and Texas A & M. The projects at the laboratory were said to have increased from three to eight. Dr. Butler divided the program into two major objectives, mentioning the request of the Commission for oyster predator work as one. In this research the drill will be studied from a standpoint of both mechanical and biological control. The second major objective was understood to be that of learning more about the ecology of oysters in the Gulf in order to identify those factors responsible for a superior commercial product; both in quality of meat and quantity produced. According to the speaker work has already begun in northwest Florida on a survey of bottoms to learn which are most susceptible to oyster culture. In about two years it is expected all water bottoms along the Gulf will have been checked and figures made available on the location of oyster reef acreage thought best for production. No discussion followed.

With regard to shrimp research, Mr. Collier said the program was progressing nicely but had not been in operation long enough for any conclusions to have been reached. He stated the anatomical work on the shrimp at Tulane; the histological studies by Texas A & M; the tagging procedures at the University of Texas; and the environmental, physical and biological, and physiological, studies at the FWS Galveston laboratory were all well organized and headed by competent scientists. The speaker said laboratory and field studies are now directed toward two objectives; first, through information on the shrimp life history, growth rates and reproduction, and response to fishing pressure, measures can be formulated and adopted which will produce a maximum yield with a minimum of fishing effort; and secondly, a clear understanding of shrimp physiology, food requirements, and environmental requirements to furnish information essential to successful propagation for possible use in pond farming.

The statistical program for the Gulf, according to Mr. Lyles, had been delayed somewhat due to being unable to fill vacancies; however, he said, all positions were now filled, including, Key West, Fort Myers, Tampa, Pascagoula, Biloxi, New Orleans, Houma, Morgan City, Galveston, Aransas Pass and Brownsville. He said with all positions filled the collection of statistical data in detailed form for all states on the Gulf would be speeded up and improved. The speaker thanked the several states for their cooperation in helping to fill the positions and offered to work closely with state statistical personnel. There was no discussion.

The Chairman introduced Miss Schulman and Messrs. Harris and Reid as panelist for presentations of new fishery laws which had resulted from the 1955 state legislative sessions.

Miss Schulman of Florida said no new laws were passed by the 1955 session of the legislature; that in 1953 a saltwater fishery code was offered but so many changes were made that the code as presented was hardly recognizable in the form finally passed by the legislature. She said it was expected a model code would be presented at the 1957 session.

Mr. Harris of Alabama said only one law was passed at the 1955 session, this law being the establishment of a saltwater sports fishing license fee of \$1.15 for residents and non-residents using a cane pole, and \$2.15 for residents and non-residents using rod and reel. He said the legislature named the tarpon as the state fish of Alabama. Mr. Harris also told of a ruling of the Alabama Supreme Court which reversed a decision of the Mobile Circuit Court in favor of the authority of the Director of Conservation to permit at his discretion the dredging of oysters. According to the speaker, the Department permitted a firm to dredge seed oyster for transplantation from a reef in 12-14 feet of water. The dredging was ordered stopped after two days work by a temporary injunction requested by the Mobile Bay Seafood Union, he said, and following a hearing the injunction was made permanent. Mr. Harris said the Department viewed the incident as an injunction against the Department, hence the matter was presented to the higher court.

The Texas legislature passed only one of many marine fisheries bills entered into the 1955 session, according to Mr. Reid who substituted for Miss Baker of the Commission's Legal Committee. This law, it was said, placed the minimum size of trout at 12 inches, redfish at 14 inches, and flounders at 12 inches, applying to commercial fishing in the three lower Texas counties. Mr. Reid said another item of legislation of interest to the Game and Fish Commission was introduced and which, had it passed, would have lengthened the spring and summer closed season on the taking of shrimp from inland waters.

With no discussion forthcoming, Mr. Gautier called upon the Secretary for announcements, as the afternoon session was at an end (4:45 PM).

At 5:00 PM the delegates motored to the Clearwater Beach docks to visit the Louisiana Wild Life and Fisheries Commission vessel Albacore which had made the trip from New Orleans. The vessel was opened for visitors during its stay and was visited by many tourist and local people, many of whom had never been on a shrimp trawler type vessel, and most of whom had never seen a large yellowfin tuna, such as was caught enroute and displayed in the ice bunker of the vessel. Another large yellowfin was presented to the Clearwater Chamber of Commerce and it is understood members of Chamber enjoyed the fish at luncheon October 21. Mr. Eddy was asked to appear on an evening T-V show where he explained long-line fishing for tuna, and Mr. Murphy appeared on a daytime radio program to invite visitors to the vessel, both engagements having been arranged by the Clearwater Chamber of Commerce.

Returning from Clearwater Beach the delegates enjoyed a skin diving film which gave many close-up and interesting views of schooling fishes and squid.

FRIDAY (OCTOBER 21)

The morning session was called to order at 9:00 AM. Mr. Gautier introduced Dr. Suttikus of Tulane University who proceeded with showing slide views of the most common of the Gulf fin fishes. Along with showing of the slides, which were photographed from original drawings prepared by Dr. Suttikus and members of his staff, a question and answer period was provided following the showing of each specimen. The slides were intended to give background to the next panel presentation in which the Committee to Correlate Research and Exploratory Data was to be asked to express its views relative to biological research needed on the fin fishes and crustaceans of the Gulf.

Mr. Gautier introduced Messrs. Loesch of Alabama, Idyll of Florida, Viosca of Louisiana, Gunter of Mississippi, and Lee of Texas as participants on the mentioned panel.

Mr. Loesch said information on the Mobile Bay shrimps was being collected but more information was needed on natural mortality, stocks available, migrations, growth rates, and supplemental data on gear. He mentioned that a survey had been made which involved the taking of fish by small mesh nets in the rivers emptying into Mobile Bay to determine the advisability of permitting the use of such nets and that much valuable data for use in other fishery projects had been secured. It was added that a phenomenon, described as a jubilee, occurred at times on the east shore of Mobile Bay, during which various species of fishes appeared in great numbers, and that this unusual occurrence would be investigated.

Speaking of research needed in Florida, Dr. Idyll said there were 60 odd species which were thought to be of sufficient importance to be listed in their monthly landings record pamphlet. He said there were 16 species which he thought should be investigated or further investigated but did not read the list. According to the speaker, the Marine Laboratory had carried on mullet research for five or six years and had enough data to make some recommendations on management of the fishery, but added that their data were not complete. Other species mentioned on which varying amounts of information is available were said to be; the red snapper, snook, tarpon sailfish, lobster, crab, and shrimp. He said work was to be done by a graduate student on the mackerels, and another was to undertake speckled trout studies. Research has begun, said Dr. Idyll, on learning more about small shrimp in the Key West area; such investigations including: where they occur, seasonal distribution, and escape with use of various size meshes.

Mr. Viosca said that the Commercial Seafood Division of the Louisiana Wild Life and Fisheries Commission was proceeding on planned projects with Tulane University under contract doing fishery biological research and Louisiana State University doing basic work in limnology and bacteriology. Mr. Viosca went on to say that he had been concentrating on brackish water problems, had done some work on the speckled trout, but was giving primary attention to the white shrimp. The speaker referred to the blackboard plottings of curves which illustrated growth rates of white shrimp at set

intervals during the year. He said another year of observation was needed before the growth rate of the white shrimp could definitely be stated. Mr. Viosca said the subject of oysters would be covered by Dr. St. Amant later in the program.

Mr. Gunter said it appeared production of brown and pink shrimp was increasing in all states with the possible exception of Louisiana; that the increase was possibly due to higher salinities but that the matter should be studied. It was suggested that people working on fin fishes papers, mentioning an Alabama party and a Mississippian doing papers on the fin fishes of their respective states, and Dr. Suttkus working on Lake Pontchartrain fishes, should get together and prepare a paper for publication of fishes of the north Gulf of Mexico. He said Mississippi was interested in the work being done on menhaden by the Fish and Wildlife Service, adding, the Ocean Springs laboratory had no plans for menhaden research. Dr. Gunter said, while the suggestion was not biological in character, he thought it would be worthwhile to look into anchovies and sardine-like fishes resources and their commercial possibilities.

Mr. Whiteleather asked if Dr. Gunter's reference was to offshore species; to which Dr. Gunter replied that there were some in Mississippi Sound, some not far offshore in the Gulf, and perhaps more farther out in the Gulf. Mr. Whiteleather said, if the Commission had a viewpoint, on such investigations, the Service would like to know about it.

Mr. Viosca stated he had found quite a few in Breton and Chandeleur Sounds. Mr. Gautier said to Mr. Whiteleather that Mississippi would introduce an anchovy and sardine-like fishes resolution at the executive session asking the Service to undertake certain research of the species.

Mr. Eddy inquired of Mr. Whiteleather what species he planned to look into. The latter referred the question to Dr. Gunter, saying he did not know. Dr. Gunter mentioned an offshore species (the biological name for which was not clearly recorded) which is silver striped and on which mackerel feed. An inshore species of anchovy referred to as Mitchelli was also mentioned.

Mr. Eddy said there was no market for the Mitchelli.

Dr. Gunter mentioned the Harengula clupeiola and said it was more like the pilchard.

Mr. Eddy asked as to the abundance west of the Mississippi River, to which Dr. Gunter replied he thought the species was in most abundance off the Florida coast.

Mr. Bullis was suggested by Dr. Gunter as being better informed than himself on the distribution by species in the Gulf.

Mr. Bullis said they had some information on the anchovies and sardine-like fishes but their information came mostly from trying to make bait for tuna fishing or incidental to shrimp trawling. He said Anchoa hepsetus had been found both off and inshore, and added that this species had been taken by the Oregon at night some 200 yards off the north point of Chandeleur Island. Mitchelli had been found way off shore, he said, and suggested the shrimp trawl must have caught them as it passed through the water.

Mr. Bullis also said they had some pictures in Pascagoula indicating supplies of these fishes in mid-water. With use of a trap net, he said, the Oregon had taken two or more tons at a time while bait fishing.

Mr. Eddy inquired to what end the research would be directed, to which Dr. Gunter replied it would be his suggestion to develop gear to determine

if the fish could be caught in commercial quantities, and to determine if they could be used for food.

Mr. Eddy remarked that new business might be stimulated.

Mr. Whiteleather said the technological laboratory to be built in Pascagoula could handle a part of the work, and added that a new and profitable industry may develop.

Mr. Lee said the Game and Fish Commission had broken-down the Texas coast into six geographical areas and stationed a biologist in each of the areas, the area locations being; Port Arthur, Galveston, Palacios, Rockport, Corpus Christi and Harlingen. He said general ecological conditions were being studied in each area and that while no work was being done on shrimp at this time, investigations are underway on the speckled trout, and red and black drums. Concluding, Mr. Lee stated they expect to do work on the foods that these fishes eat.

The Shell Fish Committee composed of Messrs. Loesch, Ingle, St. Amant, Gunter, and Lee was introduced for panel presentations on oyster biological research, reef development, and other work needed to be done in this category.

Mr. Loesch said much of the details concerning Alabama shell plantings during the year had been covered by Mr. Harris earlier in the program. He said that because of other duties he had not been able to visit the planted areas as much as he would have liked to but added that bottom conditions had been mapped. The speaker went on to say he would like to see an Alabama project of planting sample areas. He said he thought all should bear in mind that it is easier to increase volume on producing reefs through planting shell than to bring in new areas.

No oyster reef rehabilitation work was done during the year in Florida, according to Mr. Ingle. He said when meat is taken from the shell, the shell immediately become state property and added that shell now being collected plus some they hope to get from Alabama should meet next season's requirements. The speaker said the building of the Jim Winthrop dam at the confluence of the Flint and Chattahoochee Rivers will provide a steady supply of water the year round and will greatly help oyster production in the Apalachicola Bay area, which area had been shrinking in production because of predator infiltration caused by abnormally high salinities. In order to promote the leasing of oyster bottoms, he said more information will be gathered concerning these salinity tolerances and predators. It was added that much of this work will be accomplished at the Board's St. Petersburg laboratory which was recently acquired from the University of Florida. At this point Mr. Ingle asked Dr. Mensel, Florida State University, to say a few words concerning a program recently undertaken by his department through a Saltonstall-Kennedy allocation. Dr. Mensel said their work was to make a thorough study of certain area ecological conditions and to evaluate predators. A Florida State graduate student was said to be working on a thesis concerning factors influencing mortality in the high salinity areas. In conclusion Mr. Ingle said it was possible in the years to come that many oyster producers in the Chesapeake Bay and middle Atlantic States would undertake planting in the Gulf area if the decline in spat fall in those areas continued and he suggested

that all states consider the matter of producing seed oysters on a large scale basis to meet possible increased demands.

Dr. St. Amant said that the Division of Oysters and Water Bottoms of the Louisiana Commission had spent three months in a survey of contamination in Calcasieu Lake, being assisted by the Louisiana Board of Health. In open bays, he said, it had been found oil contamination had traveled from 3000/4000 feet from the source; in narrow channels, and canals even further, in one case up to about 6,000 feet. Another project was said to be the undertaking of a check on lack of production on seed grounds. Dr. St. Amant also said his division was trying to outline a long range program which according to their current thinking should include a study of the basic ecological and hydrographic conditions on the oyster producing reefs, with particular reference to the bays. Another part of the program would be, it was said, one of searching for fresh water to alleviate the increased salinities. It was added that 35,000 barrels of shell were planted this year and that a follow-up check was being made. It was also said his division was cooperating with the Commercial Seafoods Division in the making of seismographic observations, and with Louisiana State University in furnishing specimens required for laboratory examinations and tests in connection with technological work on oysters, this being a Saltonstall-Kennedy project at the university.

Dr. Gunter stressed the importance of studying the oyster reefs as a whole, as a community of animals. He said this was done by a German zoologist on the European oyster reefs in the North Sea as early as 1870 but it had never been done in this country. Five years ago, it was said, an oyster could not live on St. Joe reef (Mississippi) due to fresh water but that now it is a good producing area. In ecological studies, Dr. Gunter said they hoped to definitely correlate oyster production in various areas, variations in quality, basic diseases, incidents of mortality, and effects of industrial activities such as dredging and canaling.

In discussion period Mr. Eddy remarked that climatological changes had occurred through thousands of years; that dry cycles had occurred in the past and will in the future; that the survival of the oyster in its habitat, since it ranges back and forth with these changes, has probably to some extent depended upon the presence of some substance on which the spat could fall. He then inquired of Dr. Gunter if he thought that those shell reefs, which are presently in high salinity condition and barren of oysters, would secure oysters if the cycle was to change and the water became brackish, and in a similar manner, those shell reefs which were barren of oyster under a wet cycle, due to the presence of too much fresh water, would secure oysters with a change of cycles, and if true, did he not think that reduction of the areas through promiscuous dredging of shells would endanger future spat fall areas.

Dr. Gunter said that might be true but there was another problem. He added that there apparently has been a movement "in" due to levies, and if true some outside reefs are gone for good.

Mr. McConnell said it was his understanding some reefs may have 10-12 feet of shell in depth. He added that he thought it would be advantageous to the oyster fisherman for the 10-12 feet of shell to be removed and the money

derived from the sale of the shell spent to increase production in a much more productive area where a crop could be produced each year, this being in the case of reefs where the sub-surface becomes covered with oysters only every ten to twelve years.

In reply Dr. Gunter said that every reef presents a different situation. He said some criteria should be set up; how thick is the reef, how much shell is on it, how much can be gotten out of it, if the reef is productive only now and then how often will it be productive and when productive how many oysters can be harvested. Dr. Gunter added that he had long advocated that the mud or reef shell people be required to plant shell back in an area from which they are taken. He said that procedure would not make a reef 10-12 feet thick in shell but would make a good oyster growing reef under many conditions.

Mr. McConnell commented that at the mouth of the Atchafalaya there are very thick reefs which at times come out of water, and that he believed with a proper degree of dredging the reefs could be left in better condition due to dredging.

Dr. Gunter said this had happened in Texas.

With regard to ecological changes, Mr. Viosca mentioned the possibility of the digging of large drainage canals to have caused certain changes which are now being experienced. He said the canals allow fresh water to be flushed out quickly to sea and that this may be the reason for the creeping in of salt water especially as it had occurred during the present period of drought.

Mr. Lee said the Texas Game and Fish Commission had one biologist stationed in the principal Texas oyster producing area, Galveston Bay. The oyster producing area, Matagorda Bay area, was said to have a small production. According to the speaker, the Galveston scientist is currently studying reef populations; checking area and conditions of various reefs with reference to size of shells; counting spat and checking growth rates; and correlating findings with hydrographic data. He said some work had been done to determine the size barge best suited for shell planting in the cooperative shell planting program with the Texas mud shell dredging people. In conclusion, Mr. Lee cited as needed research: locating producing seed oyster areas and building-up the supply; determining time, conditions, and areas in which planting could be made; building new reefs and extending presently producing reefs, some of which work Texas has already been undertaking

The Chairman called upon Mr. McConnell for concluding thoughts on how oyster production could be increased. Mr. McConnell said he would like to alter somewhat the title of his remarks and speak briefly on the subject of encroachment from industry. He displayed a map which showed main gas distributing lines and laterals as they are now situated and those presently planned by the gas companies. He spoke of the effects of canals and agreed with Mr. Viosca that much fresh water was being lost in rapid drainage. The speaker explained that the Louisiana Commission was interested in getting additional fresh water, and also, in increasing shell bedding facilities. He said he hoped to have information next year on whether or not it was better to collect spat in September than during the hot summer months; adding, that he believed they would find September spat would catch up with the May set after Christmas.

Mr. Lyles inquired if the Bonnet Carre spillway were to be opened if it would supply needed fresh water.

Mr. McConnell said sports fishermen using Lake Pontchartrain had previously objected to the opening of the spillway.

Dr. Gunter explained that the Corps of Engineers did not open the spillway unless they had to. He said it silts itself up. Another thing, he added, is that when the Mississippi River is high fresh water is not needed and it would not flow through the spillway when fresh water is needed. He went on to say: that there are 35,000 square miles of flood plain in the Mississippi River; that the levees are now over 2,500 miles in extent, from Cairo, Illinois, to the mouth of the River; that the levees cut off all of the basins on each side, all of the swamp land, and run all of the silt down through the mouth of the River; and that the flushing process proceeds as rapidly as possible. In conclusion, Dr. Gunter said it would be particularly beneficial to the State of Louisiana and a lot of its low country if the Mississippi River had been allowed to spread out as was formerly the case.

The next panel was to have been composed of three members of the Fish and Wildlife Service Industry Advisory Committee, Messrs. Kenney, Sahlman, and Wegmann; their subjects being one of comments from industry concerning explorations, gear development, technology, and other programs needed to strengthen the position of the Gulf fisheries. The gentlemen said that since things they had in mind had already been covered, it would be of no advantage to hear from them.

Mr. Gautier next introduced Messrs. Bevis and Clare Idyll: to express their thoughts regarding the future training of students in the marine sciences; the former concerning the vocational level, and the latter the undergraduate and graduate levels. Both spoke only briefly on their respective subjects with each pointing out the need for instruction in the several fields. Each of the gentlemen expressed an interest in federal funds being made available in a manner as suggested in the Payne Bill which was introduced in the last session of the Congress but not acted upon.

In closing the session, the Chairman expressed the gratitude of the Commissioners for the subjects and discussions, slides, film, and exhibits. He also expressed the appreciation of the Commissioners and delegates for the receptions provided by the Marine Laboratory, University of Miami, the evening of October 19 and industry of Pinellas County the evening of October 20. The meeting was adjourned at 12:20 PM and the Chairman asked that the Commissioners assemble at 12:30 PM for a short executive session.

Prepared by: W. Dudley Gunn
Secretary-Treasurer

WDG-c

SUMMARY OF MATTERS OF GENERAL INTEREST RESULTING FROM THE EXECUTIVE SESSION
OF THE GULF STATES MARINE FISHERIES COMMISSION MEETING, CLEARWATER, FLORIDA,
OCTOBER 20-21, 1955

William J. Hendry, Okeechobee, Florida was elected Chairman for the ensuing year. Donald G. Bollinger, Lockport, Louisiana was elected Vice-Chairman.

A resolution was adopted endorsing the action of the Louisiana delegation in referring to the state attorneys general of the five Gulf states for appropriate action in the matter of non-compliance of the United States Weather Bureau with certain features of Public Law 121, which earmarks \$96,000 for the operation of a weathership station in the Gulf of Mexico.

Of general interest to the fishing industry, a resolution was adopted requesting the Department of Interior, Fish and Wildlife Service, to furnish information on the availability and abundance of sardine-like fishes and anchovies in the offshore waters of the Gulf of Mexico adjacent to the states of Alabama, Florida, Louisiana, Mississippi and Texas, to determine the commercial potentialities of such species with reference to human and animal consumption, and other purposes; and to determine the most efficient and economical gear with which to capture these fishes.

Another resolution directed to the U. S. Fish and Wildlife Service requests a program which would furnish information relative to the effect on water bottoms and aquatic life resulting from seismographic or geophysical activities and explorations, and all development operations for gas, oil and/or other minerals.

Proposed legislation concerning ~~the~~ federal aid in student fisheries education was discussed at the meeting but no action was taken by the Commission pending further study of the subject.

The next regular meeting of the Commission will be held on the Mississippi coast, March 15-16, 1956.

Prepared by: W. Dudley Gunn
Secretary-Treasurer

WDG-c

M I N U T E S

EXECUTIVE SESSION, CLEARWATER, FLORIDA, OCTOBER 20-21, 1955

The Chairman, Mr. Gautier, called the executive session to order at 12:30 PM and asked if it was desired that the minutes of the March 17-18, 1955, Montgomery meeting be read. Mr. Eddy moved that the minutes be approved without reading; Mr. Van Antwerp seconded. On vote by states the motion unanimously passed.

The Secretary distributed and read a financial statement which reflected the Commission's financial position at the close of business September 30, 1955. The statement is first attached.

A comparative analysis of expenses was distributed, such statement containing a forecast of expenses, or suggested budget, for the fiscal year 1955-56. The statement is second attached.

A resolution which would bring Commission employees under the Social Security Act was distributed and discussed. The resolution is third attached.

Dr. Holmes moved, and Mr. Bollinger seconded, that the above mentioned financial statement; the forecast of expenses or budget; and the Social Security resolution, be adopted as presented. On vote by states the motion unanimously passed.

With reference to resolutions expressing the appreciation of the Commission for courtesies extended during the Clearwater meeting, the Secretary suggested the following: The Florida Board of Conservation; The Marine Laboratory, University of Miami; the Clearwater Chamber of Commerce; the Tampa Bay Commercial Fisheries Industries; and the Clearwater Sun. In addition to the above, Mr. Harris mentioned Mr. Bert Thomas' ~~first~~ absence from his first Commission meeting and suggested an appropriate letter be written by the Secretary expressing the Commission's regrets for his being unable to attend the Clearwater meeting. Mr. Gautier suggested a similar letter be prepared and sent to Mr. Hendry. The suggested resolutions and letters were covered by a motion made by Mr. Eddy and seconded by Mr. Reid. On vote by states the motion unanimously passed. The resolutions are fourth, fifth, sixth, seventh and eighth attached and in the order named above.

The Secretary stated that in the rotation plan for meetings, Mississippi was in line for the next regular meeting which would occur March 15-16, 1956. Mr. Gautier said the Mississippi Delegation would meet with the Secretary and select a meeting place on the coast.

The Chairman recognized Mr. Eddy who said that the U. S. Weather Bureau had not complied with the mandate of Congress that a weathership be stationed in the Gulf and for which service \$96,000 had been appropriated in the last session of the Congress. He said the hurricanes are predicted very well by the Bureau but that the unpredicted winter storms of short duration but high intensity were the source of much damage. Mr. Eddy read from two resolutions for consideration by the Commission, the first read is ninth attached and the second follows:

WHEREAS, the 84th Congress - 1st Session passed an appropriation bill for the Department of Commerce and related agencies, H. R. 6367 and this bill became Public Law 121; and

WHEREAS, in this bill was an amendment to include \$96,000 "for the operation of a vessel in the Gulf coast areas to give earlier and better warnings for these coastal waters which will be of particular benefit to the fishing industries and installations offshore oil drilling and production." (Senate Report No. 512 - 84th Congress - 1st Session - Page 10); and

WHEREAS, the United States Weather Bureau has failed to carry out the mandate of Congress by taking substitute, expensive and impractical plans for the weathership; and

WHEREAS, repeated efforts by the Louisiana Wild Life and Fisheries Commission and other interested agencies have failed to accomplish the immediate establishment of the weathership as directed by Congress;

RESOLVED, that the Gulf States Marine Fisheries Commission request the Attorney General of each of the compacted states to take appropriate action against the Department of Commerce, the U. S. Weather Bureau, its responsible agency, to assure that Gulf weathership

(Note: the wire recorded some interferences in parts of Mr. Eddy's reading of the resolution but the foregoing is believed by the Secretary to be substantially correct. Several words were missed at the end which is indicated by dotted lines).

Following a brief discussion of the two resolutions, Mr. Eddy moved for adoption of the resolution which was first read and which is ninth attached to these executive session minutes. Mr. Van Antwerp seconded the motion. On vote by states the resolution was unanimously adopted.

The subject of the Payne Bill (S-2379) was presented by the Chairman for next consideration. Copies of the bill, Senator Payne's statement on introducing the fishery education bill, and resolution concerning the bill as proposed by the Louisiana Delegation on the Commission, had been previously distributed.

The resolution was proposed by Mr. Eddy and seconded by Mr. Young.

Mr. Bailey said that while he favored the principals of the bill he was opposed to such an educational program being financed and handled by federal government. He said, such a program could be recommended by Mr. Reid or Mr. Dodgen and if it could not be handled by the University of Texas,

Texas A & M, or some other school, then the Game and Fish Commission probably could handle the program. Mr. Bailey pointed to the discussion of the previous day concerning the lack of authority of the Industry Advisory Committee in the expenditure of Saltonstall funds and added that if the federal government contributed to the education of biologists it would have control of the program. Mention was made of the recognition by the oil companies, manufacturers and others of the need for properly trained personnel which had resulted in scholarships being given for student training in those fields. He suggested that the fishing industry, sports as well as commercial, might do the same; adding that he thought such a program could be promoted within the state and the federal government left out.

Mr. Eddy said he concurred with Mr. Bailey's statements in that federal participation was not desired. He said he wondered though if we could keep the federal government out by not participating in the program. It was added by Mr. Eddy that he would be glad to withdraw the resolution, if the Commission wished to think about what Mr. Bailey had said, and hold it in abeyance until everybody had reached a decision in the matter. He said he did not personally like the idea of associating too much with the federal government in any enterprise but did not want the Payne Bill pushed through.

Mr. Young contributed that should the Payne bill pass without, for instance, 50-50 participation on the part of the state in administration, the state would have no control over the program. He said he understood the bill would come up early in the next session of Congress and inquired of the Secretary if he knew if the bill was awaiting committee action now. The Secretary replied he did not know the present status of the bill but had the feeling it would be presented in some form early in the session and probably not have very much opposition due to the apparent good following acquired. He pointed to the number of senators co-sponsoring the bill.

Mr. Young said the bill would probably pass without any amendment at all and that the amendment in question may have little or no effect if it had reached that point in Congress.

Mr. Eddy commented that they were thinking how can you minimize federal intervention in industrial activities if you have no administrative influence; and added, if the bill is amended to include, make provision, for state participation financially, we might be able to hold the reins in some device or other.

Mr. Young referred to Dingell-Johnson and Pittman-Robinson saying that while the two programs are not always in accord as would be liked in his state the set-up was more ideal than to have the Fish and Wildlife Service just come into the state and take over the entire administration of those developments, that it was a pretty fair arrangement as it is. He said he personally thought Saltonstall should have been similarly set-up, and added, if we are going to have an education bill we should try to protect whatever little part of our foot we can get in the door. Concluding, Mr. Young said if they go ahead and adopt a bill without giving the state some in, we can look forward to Fish and Wildlife Service, the Department of Interior or whoever will administer the bill, coming into Louisiana and just taking over and running the program.

Mr. Reid said he would like to add that during the coming year Texas is due to receive about \$800,000 from Dingell-Johnson and Pittman-Robinson, \$300,000 from the former and \$500,000 from the latter. He said the last session of the legislature placed a ceiling on the amount of money his department could spend and they stood to lose funds because of the matching of the federal funds clause incorporated in the Dingell-Johnson Act. Mr. Reid added that the funds belong to each state and should be turned over to the state for spending as desired because the money belonged to the peoples.

Mr. Young mentioned the \$375,000 provided in the Payne Bill for vocational education to be an insignificant amount as far as a federal appropriation is concerned and said there was nothing to prevent the Appropriations Committee recommending to Congress, even later in the session, that this be increased to one, one and a half, or two million, or any amount they choose, by merely writing it into the Administrations's fiscal appropriations bill. He added that he thought probably the writers of the bill had that in mind in writing it because \$375,000 for an educational program was only a drop in the bucket as to what is needed throughout America.

Mr. Eddy commented he still believed if the bill passed without state participation the states would have no control, but with state participation the states would have some administrative control.

There was an exchange of thoughts around the table but none appeared distinctly on the wire, then Mr. Young said that he being the person seconding the resolution, would suggest that action be held in abeyance if it were the feeling of the Commission that it did not want to officially go on record at the present time. In which event, he suggested that the Secretary keep in close touch with Congress and advise as to whether or not immediate action is necessary, in which case, the administrative agencies of the several states could adopt resolutions to go to Congress, and further, that the administrative agencies could keep in close touch with the congressional delegation members of each state.

The Secretary stated if it were the wish of the Commission he would start checking on the matter and keep the Commissioners advised.

Mr. Young said he thought the matter sufficiently important to consider a special meeting of the Commission if necessary and invited the Commissioners to meet in New Orleans should such a meeting be called by the Chairman.

It was then agreed that the resolution be held in abeyance and that the Secretary get as much information as possible on progress of the Payne Bill, or similar fisheries educational legislation, and pass the information as quickly as possible to the state administrator Commissioners.

Following is copy of resolution offered for consideration by Mr. Eddy:

"WHEREAS, the Senate of the United States is considering the Payne Bill (S-2379): "To promote the fishing industry in the United States and its Territories by providing for the training of needed personnel for such industry" and

"WHEREAS, the Louisiana Wild Life and Fisheries Commission has notified Senator Payne of Maine and Senator Long of Louisiana, of their support of this Bill, if amended, and

"WHEREAS, an amendment providing for fifty percent (50%) matching funds by the participating States has been suggested, and

"WHEREAS, those States participating under this amendment would administer the program within their own States:

"Be it Resolved, therefore, that the Gulf States Marine Fisheries Commission meeting in Clearwater, Florida, October 20, 1955, do indorse this resolution, and

"Be it further Resolved that copies of this resolution be sent to Senator Payne and co-sponsor Senators; Senate Committee on Interstate & Foreign Commerce; Congressional Delegations of all maritime and coastal states."

Mr. Gautier recognized Mr. Young who read a resolution prepared for consideration of the Commission. The resolution is tenth attached to these minutes and concerns a request that the Fish and Wildlife Service undertake a program of determining the effects to water bottoms of geophysical activities and explorations and all development operations for gas, oil and/or other minerals.

Mr. Van Antwerp seconded Mr. Young's motion for adoption of the resolution. All states voted favorably for adoption.

Mr. Gautier read a resolution which concerns a request to the Fish and Wildlife Service for explorations and research into the sardine-like and anchovy populations of the Gulf. The resolution is eleventh attached.

Mr. Eddy, speaking of the anchovies and sardine-like fishes of Louisiana, said they knew such things as growth rates, seasonal migrations and others, and he would like to know what the Fish and Wildlife service intend to find out.

The Secretary said his interpretation of the resolution was that information on the life histories of the fishes was not requested.

Mr. Gautier said the Oregon had taken as much as 20,000 pounds of the fishes in one night and since there was a shortage of sardines in Maine and possibly other uses for sardines than canning, he thought the possibilities were worth looking into.

Mr. Ingle said they knew nothing about the sardine-like fishes or anchovies in Florida; that a number of species washed up at Sarasota during the last Red Tide that they had not known to be in their waters.

Mr. Ingle moved for adoption of the resolution. Mr. Eddy seconded. Upon vote by states the resolution was adopted.

The Chairman recognized Mr. Van Antwerp who said he wished to present two resolutions for consideration. The first resolution, he said would serve to clarify a matter concerning the election of Commission officers with regard to the filling of vacancies which might occur during the term of office. He then read the resolution. The resolution is twelfth attached to these minutes.

Mr. Van Antwerp moved for adoption. Mr. Bollinger seconded. Upon vote by states the resolution was unanimously adopted.

Mr. Van Antwerp next proposed a resolution which would increase the salary of the Secretary-Treasurer from \$7,200 to \$7,800 per year. The resolution is thirteenth attached to these minutes.

Mr. Van Antwerp moved for adoption. Mr. Young seconded. Upon vote by states the resolution was unanimously adopted.

The Secretary-Treasurer expressed his appreciation for the kind remarks contained in the resolution and for the increase in salary.

Mr. Gautier stated all other business had been completed and opened the session for the election of officers for the ensuing year.

Mr. Lee nominated Mr. Hendry for the office of Commission Chairman. Mr. Van Antwerp moved that nominations be closed and Dr. Holmes seconded the motion. On vote by states the motion unanimously carried and Mr. Hendry was declared by Mr. Gautier to be the new Commission Chairman.

Miss Schulman nominated Mr. Bollinger for the office of Commission Vice-Chairman. Mr. Van Antwerp moved that nominations be closed and Dr. Holmes seconded the motion. On vote by states the motion was unanimously carried and Mr. Bollinger was declared by Mr. Gautier to be the new Commission Vice-Chairman.

Mr. Bollinger expressed his appreciation to the Commission for having been elected Vice-Chairman. Mr. Hendry, who was unable to attend the meeting because of illness, was notified by telephone at his Okeechobee home. He likewise expressed his appreciation and asked the Secretary to thank each of the Commissioners for him.

Many fine things were said around the table of Mr. Gautier's devotion to the service of the Commission since its inception and especially during the two years he had served as Commission Chairman. In response Mr. Gautier told of the wonderful possibilities open to the Commission and pledged his support of the body in its future undertakings.

With no response forthcoming on call for further business, Mr. Gautier declared the Clearwater, Florida, October 20-21, 1955 meeting adjourned.

Prepared by: W. Dudley Gunn
Secretary-Treasurer

GULF STATES MARINE FISHERIES COMMISSION

FINANCIAL POSITION
CLOSE OF BUSINESS, SEPTEMBER 30, 1955

Cash in Bank	\$ 13,781.15	
Petty Cash & Stamps	<u>10.51</u>	\$ 13,791.66
Checks Outstanding		<u>220.35</u>
Balance		\$ 13,571.31

Membership Dues Account:

Florida	(Due 7/1/55)	Paid		
Louisiana	(" 7/1/55)	"		
Alabama	(" 10/1/55)	Unpaid	\$ 1,000	
Mississippi	(" 7/1/55)	"	1,000	
Texas	(9/1/55)	"	<u>4,000</u>	\$ 6,000.00
Amount to be available for operating expenses thru 6/30/56 \$ 19,571.31				
Estimated expenses 10/1/55 thru 6/30/56 <u>11,000.00</u>				
Estimated balance 6/30/56 <u><u>8,571.31</u></u>				

COMPARATIVE ANALYSIS OF EXPENSES

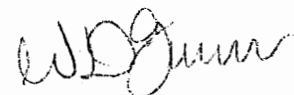
	<u>Expenses 1954-55</u> <u>Per Annual Audit</u>	<u>Forecast of</u> <u>Expenses 1955-56</u>
Salaries	\$ 10,109.08	\$ 10,200.00
Travel	1,325.02	1,325.00
Rent	1,080.00	1,080.00
Stationery, Office Supplies and Printing	565.63	560.00
Telephone & Telegraph	483.87	480.00
Postage	112.18	115.00
Electricity	92.75	92.00
Accounting	175.00	225.00
Insurance	244.27	245.00
Depreciation	327.26	90.00
Meeting Expense	279.08	275.00
Social Security		96.00
Miscellaneous (Sundry)	<u>29.16</u>	<u>30.00</u>
	\$ 14,823.30	\$ 14,813.00

A RESOLUTION

RESOLVED by the Gulf States Marine Fisheries Commission
that all employees of this commission be henceforth covered by
the Social Security Act.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.




W. D. Gunn
Secretary-Treasurer

A RESOLUTION

RESOLVED that the Commissioners of the Gulf States Marine Fisheries Commission express to Mr. Ernest Mitts, Director, Florida Board of Conservation, and to other individuals of that agency, their most sincere appreciation for the very cordial hospitality and the many courtesies extended during the course of the Commission meeting in Clearwater, Florida, October 20-21, 1955.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.

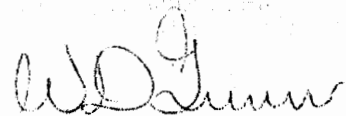

W. D. Gunn
Secretary-Treasurer

A RESOLUTION

RESOLVED that the Commissioners of the Gulf States Marine Fisheries Commission express to Dr. F. G. Walton Smith and Dr. Clarence P. Idyll of The Marine Laboratory, University of Miami, their most sincere appreciation for the very lovely reception tendered them and delegates on the evening of October 19 in the Blue Room of the Fort Harrison Hotel in Clearwater, Florida.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.




W. D. Gunn
Secretary-Treasurer

A RESOLUTION

RESOLVED that the Gulf States Marine Fisheries Commission express to the Clearwater Chamber of Commerce its most sincere appreciation for the many favors extended during the course of the October 20-21, 1955 meeting of this body held at the Fort Harrison Hotel in Clearwater, Florida.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida



W. D. Gunn
Secretary-Treasurer

A RESOLUTION

RESOLVED that the Commissioners of the Gulf States Marine Fisheries Commission express to Messrs: Heber Bell of Harry H. Bell & Sons, Pass-A-Grille, Florida; Leon Kenney of Pinellas Seafood Company, St. Petersburg, Florida; and Charles Rice of John's Pass Fish Company, St. Petersburg Beach, Florida, their most sincere appreciation for the very lovely reception tendered them and delegates on the evening of October 20th in the Colonial Room of the Fort Harrison Hotel in Clearwater, Florida.

* * * * *

The foregoing Resolution was adopted by Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.



W. D. Gunn
Secretary-Treasurer

A RESOLUTION

RESOLVED that the Gulf States Marine Fisheries Commission express to the Clearwater Sun its most sincere appreciation for the very fine coverage given the October 20-21, 1955 Commission meeting held at the Fort Harrison Hotel in Clearwater, Florida.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.



W. D. Gunn
Secretary-Treasurer

RESOLUTION

WHEREAS, the Louisiana Wild Life and Fisheries Commission actively supported the program for a Weather Ship in the Gulf of Mexico; and

WHEREAS, the Gulf States Marine Fisheries Commission endorsed this program by resolution in San Antonio, Texas, October 22, 1954; and

WHEREAS, Congress passed H. R. 6367 with amendments to include \$96,000 "for the operation of a ship in the gulf coast areas to give earlier and better warnings for these coastal waters which will be of particular benefit to the fishing industries and installations offshore oil drilling and production." (Senate Report No. 512 - 84th Congress - 1st Session - Page 10); and

WHEREAS, the United States Weather Bureau has failed to comply with the Provisions of Public Law 121 by the following methods:

1. Attempting to establish observers on merchant ships which do not enter the formative area in the Central and Western Gulf.
2. Attempting to enlist support for establishment of a Radar Station ~~at~~ the Mexican Continent.
3. Rejecting the offer of Texas A & M Research Foundation and the State of Louisiana to charter their vessels for an experimental program lasting six months.
4. Continuing to advocate the expensive hurricane hunter Aircraft Reconnaissance for the Gulf of Mexico.
5. Failing to comply with the express wish of the Congress for the establishment of a floating Weather Station in the Gulf of Mexico.

BE IT RESOLVED, therefore, that the Gulf States Marine Fisheries Commission meeting in Clearwater, Florida, October 20-21, 1955, endorses the action of the Louisiana Delegation in referring this matter to the States Attorneys' General of the five Gulf States for whatever may be appropriate action; and

BE IT FURTHER RESOLVED that copies of this Resolution be sent to the President of the United States, Vice-President of the United States, Speaker of the House of Representatives, Senator Holland of Florida, the Senatorial and the Congressional Delegations of both Houses of the Congress, the Governors of the five Gulf States and the Attorney General of each of the five Gulf States.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.



W. D. Gumm
Secretary-Treasurer

A RESOLUTION

RESOLVED that the Gulf States Marine Fisheries Commission requests the Department of the Interior, Fish and Wildlife Service, to institute at its earliest possible convenience a program which will include such projects as will furnish information relative to the availability and abundance, by species and by seasons, of sardine-like fishes and anchovies in the offshore waters of the Gulf of Mexico adjacent to the states of Alabama, Florida, Louisiana, Mississippi and Texas; to determine the commercial potentialities of such species of fishes with reference to human and animal consumption, and other purposes; and to determine the most efficient and economical gear with which to capture such fishes.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.



W. D. Gunn
Secretary-Treasurer

A RESOLUTION

RESOLVED that the Gulf States Marine Fisheries Commission requests the Department of the Interior, Fish and Wildlife Service, to institute at its earliest possible convenience a program which will include such projects as will furnish information relative to the effects to water bottoms and aquatic life resulting from seismographic or geophysical activities and explorations and all development operations for gas, oil and/or other minerals.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.



W. D. Gunn
Secretary-Treasurer

A RESOLUTION

WHEREAS at the last annual meeting held at San Antonio, Texas, a resolution was adopted providing that after the year 1954-55 the Chairman and the Vice-Chairman of the Commission be elected for terms of one year and that the offices be rotated from State to State but no provision was made for filling vacancies which might occur during the term of office;

BE IT RESOLVED that whenever a vacancy occurs in the office of Chairman or the office of Vice-Chairman during the term of office of such officers, the delegation of the State then holding such office shall designate a successor to serve the unexpired term, and such successor shall be confirmed in office by vote of the Commissioners at the next regular or special meeting following such action by the State affected by the vacancy.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.



W. D. Gunn
Secretary-Treasurer

A RESOLUTION

WHEREAS the Secretary, Mr. W. Dudley Gunn, has served in such capacity since the creation of the Commission and has done an outstanding job, and the Commission deeply appreciates and recognizes the great value of the services rendered to the Commission by the Secretary, and further recognizes that such services warrant appropriate compensation and feels that the present salary of the Secretary is not commensurate with the quality of services rendered;

BE IT RESOLVED that beginning with the month of November, 1955, the Secretary shall be paid a salary of \$7,800.00 per annum divided into equal monthly installments.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, October 21, 1955, at a regular meeting held at the Fort Harrison Hotel in the City of Clearwater, Florida.


W. D. Gunn
Secretary-Treasurer

GULF STATES MARINE FISHERIES COMMISSION

Memorandum: Clearwater Meeting, October 20-21, 1955

Messrs: Drinkard, Van Antwerp, Holmes, Mitts, Jones,
Hendry, Young, Burleigh, Bollinger, Gex,
Gautier, Simmons, Lodgen, Phillips, Bailey

Attached are the general and executive session programs and some reference material.

It is believed the general sessions Thursday and Friday will develop a pretty good picture of the work which has been accomplished by the member states and the federal government during the past year, as well as, give an insight into fisheries work in the planning stage. It is probable some information of value will come out of the Commission's committee panels and those scheduled for industry. With the meeting program being built around the informal type panel presentations, with each presentation being followed by a discussion period, it is hoped a full participation by all conferees will result.

With reference to some subjects of interest to the Commission:

WEATHERSHIP - Latest information on this subject will be presented on the States' Panel Thursday morning by Louisiana. The latest letter to the Commissioners on the subject is dated July 12.

PUBLIC LAW 466 PROGRAMS - Your secretary was instructed at the Montgomery meeting to ask the Fish and Wildlife Service to provide an outline of all approved Saltonstall-Kennedy programs at future Commission meetings. Mr. Farley advised September 29 that the outline would be available at the Clearwater meeting.

MENHADEN BIOLOGICAL RESEARCH - A Montgomery resolution asked FWS to include the Gulf in this program. The FWS will report on progress of Gulf menhaden biological research Thursday afternoon.

COMMISSION SHELLFISH COMMITTEE - This committee, added to the Commission's committee roster at Montgomery, will take part in the Friday morning session.

INDUSTRY PANEL - Those on this Friday morning panel are on the FWS Industry Advisory Board. Being on the Board these gentlemen doubtless have made a close study of the subjects to be considered.

Mississippi will present a resolution concerning research on the Gulf sardine-like fishes and anchovies during the discussion period of this panel. The resolution will be further considered at the executive session.

Page #2, Memorandum: Clearwater Meeting, October 20-21, 1955

FEDERAL AID IN TRAINING FISHERIES PEOPLE - The presentations should open interesting discussion of fisheries vocational and academic training.

Attached is S-2379 (Payne and others), 84th Congress - 1st Session, and the Payne Statement. This bill was not voted upon but probably will be presented early in the next Session of Congress.

Louisiana will present a resolution on this subject during the discussion period of this panel. The resolution will be further considered at the executive session.

EXECUTIVE SESSION

Attached are:

Executive Session Program.

Financial Statement; close business September 30, 1955.

Comparative Analysis of Expenses, including 1955-56 forecast of expenses approved by the Chairman and Vice-Chairman.

A suggested resolution if Commission favors employees being covered under the Social Security Act . . . (Commission cost \$144. per year. Nov.-June cost \$96).

Memo concerning the election of Commission Chairman and Vice-Chairman as decided upon at the San Antonio meeting, October 21-22, 1954.

Commission Rules and Regulations.

W. D. Gunn
10/14/55

(M-21)

MONTGOMERY, ALABAMA

March 17-18, 1955

GULF STATES MARINE FISHERIES COMMISSION

Montgomery, Alabama
Dinkler-Jefferson Davis Hotel
Civic Room

March 17 (Thursday) & March 18 (Friday) 1955

P R O G R A M

(Mr. Hermes Gautier, Commission Chairman, Presiding)

- 9:30 AM CALL TO ORDER
ROLL CALL OF COMMISSIONERS
INTRODUCTIONS
WELCOME: Mr. William H. Drinkard of Alabama
- 10:00 AM FISH AND WILDLIFE SERVICE PROJECTS APPROVED FOR THE GULF OF MEXICO IN INITIAL APPROPRIATIONS, PUBLIC LAW 466:

GENERAL STATEMENTS: BRANCH OF COMMERCIAL FISHERIES PROJECTS
Mr. A. W. Anderson, FWS, Washington

GENERAL STATEMENTS: BRANCH OF FISHERY BIOLOGY PROJECTS
Mr. Howard H. Eckles, FWS, Washington
- 10:30 AM THE SHRIMP RESEARCH PROGRAM: ITS SCOPE AND PROGRESS
Panel: Messrs Albert Collier, FWS, Galveston (Presiding)
Joseph Young, Tulane U., New Orleans
Gordon Gunter, U. of Texas, Port Aransas

DISCUSSION
- 11:00 AM THE GULF FISHERIES STATISTICAL PROGRAM: VALUE OF DATA TO BE COLLECTED, AND PROGRESS TO DATE
Mr. Charles Lyles, FWS, New Orleans
- 11:30 AM THE OYSTER INVESTIGATION PROGRAM: PROGRESS TO DATE AND VALUE TO OYSTER INDUSTRY ON THE GULF
Dr. Philip Butler, FWS, Pensacola

DISCUSSION
- 11:55 AM ADJOURNMENT
- 12:30 COMMISSION LUNCHEON (Civic Room)

ADDRESS:
Honorable James E. Folsom
Governor of Alabama

- 1:30 PM THE GULF OYSTER TECHNOLOGICAL PROGRAM: INFORMATION EXPECTED TO BE DEVELOPED FROM VARIOUS STUDIES
 Panel: Messrs Charles Butler, FWS, Washington (Presiding)
 E. A. Fieger, La. State U., Baton Rouge
 Milton Fingerman, Tulane U., New Orleans
- 2:00 PM THE ECONOMIC SURVEY OF THE SHRIMP INDUSTRY: INFORMATION TO BE OBTAINED FOR THE BENEFIT OF INDUSTRY, AND PROGRESS TO DATE
 Mr. Richard Kahn, FWS, Washington
- DISCUSSION
- * * * * *
- 2:30 PM THE RED TIDE PROGRAM: Mr. D. C. Jones, Jr., of Florida, Presiding
- RECENT DEVELOPMENTS IN LABORATORY AND FIELD STUDIES,
 PARTICULARLY AS THESE APPLY TO RED TIDE CONTROL
 Mr. Albert Collier, FWS Gulf Fishery Investigations, Galveston
- RED TIDE FINDINGS DURING THE PAST YEAR
 Dr. F. G. Walton Smith, The Marine Laboratory, U. of Miami,
 Coral Gables
- DISCUSSION
- 3:00 PM PLANKTON COMPOSITION: (AN EXHIBIT PREPARED BY THE FWS GALVESTON LABORATORY)
- 3:20 PM ADJOURNMENT
- 3:30 PM VISIT TO CAPITOL OF ALABAMA AND OTHER PLACES OF INTEREST
- 6:00 PM ENTERTAINMENT (Jefferson Room)

FRIDAY (MARCH 18)

- 9:30 AM ADDRESS: Mr. John L. Farley, Director
 Fish and Wildlife Service, Washington
- 10:00 AM TUNA LONG-LINE FISHING: (A MOVIE IN COLOR TAKEN ABOARD THE OREGON) AND
 OUR LATEST APPRAISAL OF GULF YELLOW-FIN TUNA
 Mr. Harvey Bullis, FWS, Pascagoula
- DISCUSSION
- 10:40 AM A REPORT ON THE AVAILABILITY OF SO-CALLED TRASH FISHES IN THE GULF OF MEXICO
 Mr. Stewart Springer, FWS, Pascagoula
- DISCUSSION

11:05 AM SHOULD SHRIMP AND GAME FISHES BECOME MORE OR LESS ABUNDANT
AS PRESSURE INCREASES ON THE SO-CALLED TRASH FISH FISHERY?
Dr. Gordon Gunter, Institute of Marine Science,
U. of Texas, Port Aransas

DISCUSSION

11:30 AM THE MENHADEN FISHERY OF THE UNITED STATES
Mr. Fred C. June, FWS, Newark, Del.

DISCUSSION

11:55 AM ADJOURNMENT FOR LUNCH

1:30 PM SALTWATER FARMING: ITS POTENTIALITY FOR THE GULF OF MEXICO
Mr. Howard H. Eckles, FWS, Washington

DISCUSSION

2:00 PM MR. CHARLES MURPHY, LOUISIANA WILD LIFE AND FISHERIES COMMISSION,
NEW ORLEANS, HAS ARRANGED FOR A SHOWING OF THE MOVIE "WEATHERMEN
OF THE SEA" AND WILL LEAD A DISCUSSION OF THE EXTENT OF PRESENT
GULF WEATHER REPORTING, POSSIBLE FURTHER NEEDS, AND THE PROGRESS
OF CURRENT WEATHERSHIP LEGISLATION.

DISCUSSIONS :

SHRIMP IMPORTATION AD VALOREM TAX,
AND OTHER RECENTLY INTRODUCED LEGISLATION

OTHER SUBJECTS ANYONE WISHES TO PRESENT

2:55 PM ADJOURNMENT

3:00 PM COMMISSION EXECUTIVE SESSION (Civic Room)
SCIENTISTS' SESSION (To be announced)

4:00 PM FINAL GENERAL SESSION

4:30 PM FINAL ADJOURNMENT

GULF STATES MARINE FISHERIES COMMISSION
312 Audubon Building
New Orleans 16, Louisiana

M I N U T E S

REGULAR MEETING, MARCH 17-18, 1955
Dinkler-Jefferson Davis Hotel
Montgomery, Alabama

OFFICIAL ATTENDANCE OF COMMISSIONERS:

	<u>PRESENT</u>	<u>ABSENT</u>
<u>ALABAMA:</u>	William H. Drinkard Garet Van Antwerp, III W. C. Holmes	
<u>FLORIDA:</u>	Ernest C. Mitts D. C. Jones, Jr. William J. Hendry	
<u>LOUISIANA:</u>	C. C. Burleigh	L. D. Young, Jr. Donald G. Bollinger
<u>MISSISSIPPI:</u>	Hermes Gautier	Walter J. Gex, Jr. Louis Simmons
<u>TEXAS:</u>		Howard D. Dodgen Jimmy Phillips Travis Bailey
<u>PROXIES:</u>	W. S. Werlla R. Lee Eddy Hermes Gautier Howard T. Lee Howard T. Lee	(For L. D. Young, Jr.) (For Donald G. Bollinger) (For Walter J. Gex, Jr. 3/18) (For Howard D. Dodgen) (For Travis Bailey)
<u>STAFF:</u>	W. D. Gunn, Secty-Treas.	

COMMISSION STANDING COMMITTEE MEMBERS PRESENT

Legal: A. J. Harris, Jr., Mary Schulman
Scientific: H. C. Loesch, F. G. Walton Smith, Percy Viosca, Jr.

STATE MARINE FISHERIES REPRESENTATIVES PRESENT

I. B. Byrd, Frank L. Haynes, Graham Hixon, George M. Kyle, Sidney Landry
James N. McConnell, T. E. McKinney, Charles Murphy, I. R. Parker, John
Rockwell, Lyle S. St. Amant.

FEDERAL GOVERNMENT REPRESENTATIVES PRESENT

A. W. Anderson, Harvey Bullis, Chas. Butler, Philip A. Butler, Geo. L. Canaday Pat W. Close, Albert W. Collier, Howard H. Eckles, John L. Farley, Walter Gresh Wm. C. Herrington, Willis King, Charles Lyles, Leo M. Martin, C. H. Richardson, Stewart Springer, Walter H. Stolting, A. J. Suomela, Ray S. Wheeler.

FORMER COMMISSIONERS, REPRESENTATIVES OF INDUSTRY, STATE UNIVERSITIES AND OTHERS PRESENT

Bert Thomas; Charles H. Bevis, W. P. Clark, Leon S. Kenny, Max Lawrenz, A. J. Wegmann; Harry Bennett, C. G. Bookhout, C. C. Broadhead, E. A. Fieger, Milton Fingerman, Gordon Gunter, Jacqueline Hynes, Clarence P. Idyll, I. C. Kitchin, James B. Lackay, Dale F. Leipper, J. C. Mackin, R. W. Menzel, E. Louis Pierce, Royal Suttkus, Joseph Young; George A. Averitt, Murray A. Battles, Brooks Holleman, Philip Lilly, Thomas Mathews, James McConnell, Jr., W. S. Morrell, Tom Murphy, Ted Pearson, Marvin Pixton, Jr., G. W. Ponder, Otto E. Simon, W. Roy Smith, Floyd H. Wooley, John M. Tyson

GENERAL SESSION, MARCH 17, 1955

(A number of papers presented at this and the March 18 session have been mimeographed and accompanying these Minutes in Section II)

Mr. Gautier, Commission Chairman, called the meeting to order at approximately 9:45 AM and following brief introductory remarks requested the Secretary to call the roll of Commissioners. Introductions followed.

A cordial welcome to Alabama was extended by Mr. Drinkard.

Wdy
The Chairman announced that the morning session and part of the afternoon session would be devoted to reports of Fish and Wildlife Service Projects which had been approved for the Gulf in initial appropriations of Public Law 466 funds. Mr. A. W. Anderson was introduced. His general statements concerning FWS, Branch of Commercial Fishery projects appear in Section II, of these Minutes, pages 28-30. With no response to the Chairman's entertaining of a discussion period, Mr. Anderson was thanked for his projects summary and the program proceeded.

Secretary
Mr. Howard H. Eckles next presented general statements relative to FWS Branch of Fishery Biology projects authorized under the terms of Public Law 466. This paper appears in Section II of these Minutes, pages 31-33. There were no questions asked of Mr. Eckles.

Next on the program was a panel presentation of the shrimp research program, its scope and progress, with Messrs. Albert Collier, FWS, Galveston; Joseph Young, Tulane University, New Orleans; and Gordon Gunter, University of Texas, Port Aransas, participating. Papers were not presented and do not appear in Section II. A resume of the panel's comments on the subject follows:

Collier
Mr. Collier, presiding, said the shrimp research program was being approached from three points of view; that more was wanted to be known about the shrimp as an individual animal; that the shrimp would be studied as a unit in its environment; and that information would be gathered to indicate how this animal responds to man's effort at harvesting. He said the Galveston Laboratory studies of the shrimp would involve its behavior, its nutritional requirements, and its response to controlled physical conditions. It was added that quite a bit of environmental material was already available due to the Alaska survey and that use was being made of the Oregon's work. In addition, it was stated that much basic information on raising marine micro-organisms in the laboratory had been learned from red tide investigations, which knowledge served in feeding experiments on larvae shrimp.

Je
Dr. Young stated that the Tulane contract calls for anatomical work on the shrimp and that they expected to work out in thorough detail everything they could find out about the animal both internally and externally. He said he would restrict his activities in the greatest detail to the white shrimp but also for clarity and other purposes do some work in other species that are prominent in the catch. Dr. Young further stated that drawings would be made which would be available to anyone wishing to know what was in and outside a shrimp. It will not be necessary, he stated, for the Galveston Laboratory to take time out to do anatomical work; that the Tulane project would result in the Service laboratory being able to proceed with studies concerning nutrition, growth, hormones that control shedding, and others. The work will also be of value to the states, he pointed out, in that it would assist in the differentiation of stocks found in their waters. In an elaboration of this point, on suggestion from Mr. Collier, Dr. Young said it might be possible for them to find a definite pattern on pigmentation on the outer shell of shrimp which would greatly assist field men in the identification of the species.

Gordon
Dr. Gunter spoke on the project of tagging of shrimp, which project has been contracted by FWS to the Institute of Marine Science, University of Texas, Port Aransas. He said it is possible anatomical work will help them to know what can be done to a shrimp in the way of tagging. We are not sure, he added, but are looking forward with some hope to the description of the anatomy that may show what can be done to a shrimp so that he will survive and carry a tag in his natural life in the water. The benefits of tagging, according to Dr. Gunter, are several: it can be told where the shrimp go; it can be told if shrimp mix indiscriminately and scatter all over the bottoms of the Gulf, then it can pretty well be concluded that they are not divided into separate races or groups, while if they do not mix, but various shrimp in certain areas are only restricted to those areas then that is pretty good presumptive evidence that there are individual races and groups; if the tagging process is relatively benign the natural mortality rate of the shrimp can be followed, which is important in controlling or governing exploitation, and at the same time the growth rate of shrimp can be determined. He said he considered such information necessary to the developing of proper laws for exploitation of the fishery.

In answer to questions by Dr. Bookhout, Dr. Gunter said they hoped to develop a method of marking shrimp with a tattoo or with some vital stain which would remain for a while and not be harmful to the shrimp, such marking being considered an improvement over the stick or pin tags.

Jus
Mr. Harris asked the percentage of recovery of tagged shrimp. Dr. Gunter said there was some information on this subject which he did not have personally but that it was included in the Lindner report which is presumably coming out pretty soon. In assisting Messrs Lindner and Anderson with their tagging work in the Gulf on the Texas coast in the '30's, Mr. Collier said he recalled the overall return of tagged shrimp to have been about 3%, but in some locations the figure ran as high as 50%. In answer to Mr. Harris question as to the greatest distance from point of tagging recovery had been made, Dr. Gunter said he remembered reading in the Lindner manuscript where one recovery was made on the Florida eastcoast approximately 150 miles, maybe a bit more, from point of tagging in Georgia. Mr. Collier added that the Lindner-Anderson tagging was done in the bays and outside but not beyond the 10 fathom curve since that was about the seaward limit of the shrimp fishery in the Gulf at that time.

Charlie
Mr. Charles Lyles, who has charge of the statistical program for the Gulf as authorized by FWS with the use of Public Law 466 funds, presented a progress report and mentioned the value of data to be collected. As part of his presentation, Mr. Lyles pointed to a map which divides the entire Gulf into statistical areas from which catches will be recorded. The Chairman opened for discussion but no questions were asked. The report is included in Section II of these Minutes, pages 34-36.

Phil
Speaking next on the program was Dr. Philip Butler, who told of the work under way and projected for the Pensacola Laboratory, Fish and Wildlife Service. Section II of these Minutes contains a resume of Dr. Butler's paper, pages 37-38.

Jus
In the discussion which followed Mr. Wegmann inquired as to the mortality rate when oysters are moved from one reef to another. Mr. McConnell said the Louisiana oystermen had experienced much success in bedding in September, October and November. He stated the oysters were placed on hard mud bottoms and grew rapidly enough for harvest of steam oysters in February. Mr. Wegmann said there were certain old reefs and certain polluted areas in Mobile Bay from which oysters could be transplanted to new reefs and that he expected to make such a suggestion to the Alabama Department of Conservation.

At the conclusion of the discussion period, Mr. Gaudier told of the fine work which had been accomplished by the late Dr. A. E. Hopkins in increasing oyster production in Mississippi.

The Chairman expressed the thanks of the Commission for the Alabama Department of Conservation having printed the meeting programs, which in addition to the agenda, contained Gulf fishery statistics based on release by FWS for the year 1952, and copy of the Gulf States Marine Fisheries Compact.

el
Mr. A. J. Wegmann expressed his appreciation for the Commission's recommendation to the Department of the Interior that he be elected to serve on the FWS Industry Advisory Committee. He said he had been elected to serve on the Committee and wanted to assure the Commission that he would represent not one but all of the Gulf States to the best of his ability and go along with any good suggestions that might be made for the entire United States of America. Mr. Wegmann added that he would definitely oppose any selfish motives by any individual or group of individuals. He said he had not yet been called into a meeting but was ready at any time as he was anxious to review programs which had been authorized under Public Law 466 to the present and to discuss future expenditures. In conclusion, Mr. Wegmann stated he had for years favored an educational program in the fisheries industry from the man who fishes in the water to the man who produces and sells the product.

In adjourning the morning session at 11:50 AM, Mr. Gautier extended a cordial invitation to all to attend the Commission seafood luncheon, which was scheduled for 12:30 PM in the Jefferson Davis' Civic Room.

Following the luncheon, Mr. Gautier introduced Mr. Drinkard who in turn presented Mr. Murray Battle, guest speaker for the occasion. Mr. Battle, who is legal advisor to Governor James E. Folsom, expressed the sincere regrets of the Governor in his being unable to attend the luncheon and address the group. Mr. Battle told of Governor Folsom's great interest in the fisheries and of the signing of the Gulf States Compact aboard the Dixie in Mobile Bay in July 1949, at which meeting the Governor was host to representatives of several states. A total of eighty attended the luncheon.

Coming up for first consideration at the afternoon session was the subject: "The Gulf Oyster Technological Program: Information Expected to be Developed from Various Studies." The Chairman introduced for the panel presentation, Messrs. Charles Butler, FWS, Washington, who presided; A. E. Fieger, La. State University, Baton Rouge, and Milton Fingerman of Tulane University, New Orleans.

Mr. Butler said the program was designed to develop answers to some of the problems of the southern oyster, the answers to which it was hoped would lead to an extension of present markets. He also stated the development of new products would be tried, such products as are uniquely suitable for the oysters grown in the Gulf area. (Secretaries Note: Mr. Butler covered in part, two papers which he had prepared. In order to develop a complete picture of this important research, the papers are being attached to Section II, of these Minutes, pages 39-42.)
las.
Butler

Dr. Fieger summarized the oyster work to be done by Louisiana State University, as follows: Determination of the variation in the length to the time of year harvested, through laboratory examination of samples. Samples, 3 from Louisiana, 2 from Mississippi and 2 from Alabama have been sent to College Park. The Louisiana Wild Life and Fisheries Commission will supply oyster samples from known locations for variation determinations at LSU. It is hoped the samples will yield more information when studied, on what is a fat and what is a lean or thin oyster.
Ea.

Effort will be made to develop methods of preservation which will result in a product of better quality and extend the storage life of the oyster. It is Dr. Fieger's observation that fresh oysters or fresh shucked oysters suffer a loss in quality when stored for various periods until they reach the consumer. Plan is to freeze by various methods to determine way to prevent dripping when thawed. Bacterial count will be made at various stages in the shucking plant. A chemistry study of vitamins and amino acid content will be made to relate the count, if possible, to the quality.

McConnell Dr. Fingerman's contribution on the subject is summarized immediately following the Butler papers in Section II of these Minutes, pages 43-44.

Jim In discussion, Mr. McConnell suggested to Dr. Fieger that tests be made to determine if a saline solution treatment of oysters after shucking would cause the oyster to retain its flavor through various periods of storage. Commenting on brown spots on certain oysters, Mr. McConnell said the New Orleans market preferred this type, commonly referred to as "cock oysters", and added, that such oysters, which run high in glycogen content, are produced on many reefs in some areas of Louisiana at certain times of the year. Dr. Philip Butler said they had observed that oysters grown in absolute darkness do not have the brownish pigment, while those grown in sunlight will to a certain percentage produce the color. This condition was attributed to certain genetic factors. Mr. McConnell suggested that determinations be made on the minimum amount of washing oysters could have and still give ample protection to public health, this in interest of preserving the taste of oysters.

Mr. Hendry served as meeting Chairman during the shrimp economic survey and red tide presentations which followed.

Stolting Mr. W. H. Stolting, FWS, Washington, was introduced to present information relative to the progress of the economic survey of the shrimp industry and to explain the benefits of such a survey to be derived by industry. An outline of subject paper is included in Section II of these Minutes, pages 45-46.

Lee In discussion Mr. Eddy pointed to such conditions in the shrimp industry as the loss of export markets, the increased cost per unit of production, and the increase in the total fishing effort, as contributing to an unstabled market, and asked Mr. Stolting his views as to the wisdom or logic of a free trade policy under such conditions. Mr. Stolting referred to the question of being one of policy. He said the survey would include studies to determine if foreign competitors have a definite advantage over our producers. Also, that it was planned to get as much information as possible on the nature of foreign shrimp resources. Additionally, information would be gathered on exports, how our products are faring in foreign markets. He went on to say that it was their job to set the facts down and supply them for the information of industry, state and federal legislators, state people on the fishery commissions and the general public so that they can draw their own conclusions as to the wisdom of our foreign trade policy and if they feel anything has to be done, then they would be the ones to act.

Mr. Eddy then asked Mr. Stolting if he would assume from his experience that by free admission of foreign products on the market already taxed with respect to local production, that the situation would not be aggravated. Mr. Stolting said definitely yes, it would be aggravated by any increase in imports.

Mr. Wegmann asked, what effect, if any, upon the economic structure of the shrimp market might speculation have its effect. He qualified the statement by adding that if you get a semi-glutted condition locally, then you get a pouring-in of foreign products, which, of course, tends to decline that market more, then the speculators jump in and buy that product at a very cheap price. Mr. Stolting replied that there was no question but that when unnatural factors come into a market there would be aggravation but that he would expect that those aggravations would only be of a short duration. In the long run, he said, they would not exert any significant effect on supply and demand conditions. Mr. Wegmann then said that excepting the fact where the speculator has consumed the glutted market and then in times when the production normally falls off and the demand arises, then the speculator begins unloading at a price cheaper than shrimp can be produced. He further stated that this situation, as far as he knew, did not exist until the heavy importation of shrimp from foreign countries began, within the last ten years, which jumped from approximately 5,000,000 pounds in one year to, within ten years, perhaps 50,000,000 to 60,000,000 pounds. Adding that this brought about a condition in the general market which helped to stunt the normal price rise and fall with normal conditions. Additionally; that there is no longer a question of supply and demand; that the supply is always in evidence but the demand is not; also, that the demand sometimes is curtailed by a high priced product. Mr. Wegmann asked in conclusion if that was not correct. Mr. Stolting replied that there is no question but that unusual conditions of that kind will affect consumers reaction, too, and added, that over the long run he was always impressed that speculators can not manipulate the market Mr. Wegmann spoke of, selling at a low price to under cut domestic producers. He said the speculators' resources would finally become exhausted, so he could not see how conditions of that kind would have any permanent effect. Mr. Stolting continued by saying that to him, over a long period of time, factors like growth in population will be the thing that really counts, and adding to demand. On the production side, he said efficiency and cost of production will be important factors. In conclusion, he added, that these things mentioned about foreign shrimp coming in and being sold at a lower price may happen occasionally but that over the long run it would be the consumer who would set the price and that producers would adjust accordingly in ratio as to their respective abilities to adjust the demand.

Mr. Wegmann added that when people are accustomed to a certain standard, it is very difficult to ask them to lower that standard as a result of something that could possibly be controlled. Mr. Stolting said that was a subject one could get far afield in. He added that the Service would have some definite figures on cause which may be of help in connection with the problem discussed.

The Red Tide Program panel consisting of Messrs D. C. Jones, Jr. (Presiding), Albert Collier, Fish and Wildlife Service, Galveston, and F. G. Walton Smith, University of Miami, Coral Gables, was next presented.

Denke
Mr. Jones thanked the Commission for having requested financial assistance for the FWS to study the red tide problem, which he referred to as being a very serious one for Florida and one which effected both the economy of the fisheries and tourist trade. He said the Florida Department of Conservation had allocated funds from the dead shell fund to the Marine Laboratory, University of Miami, and some to the Engineering College, University of Florida, to carry on subject research. Mr. Jones stated he was appointed chairman of a committee by the Florida Legislature, December 1954, to study the red tide problem and help coordinate the work at the state level. He assured the Service representatives present that Florida would carry its part of the load, and said the Legislature to convene April 5 would get some recommendations from the referred to committee.

Walter
Speaking of the FWS work, Mr. Collier said surveys continue over the area from St. Petersburg south. The tide organism, according to the speaker, has been progressively disappearing from north to south since last year's outbreak, and, at present none is to be found north of Everglades; at Everglades only a few. He said study is being made of the possibility that the organism lurks around the Ten Thousand Islands in which area the tide is now present but in small concentrations. It was stated drift bouys which have sufficient displacement beneath the water to prevent wind from carrying them, were being used for current flow studies. The mast of the bouys have wires running to the wings, the wires having attached aluminum ribbons. The ribbons make radar targets, which work up to two miles, and the drifting bouys can thus be charted in their course by radar. Mr. Collier said offshore Gulf waters contain a significant amount of copper; that seawater was found in laboratory tests to be most poisonous to the organism. He said it may prove feasible to control the organism with crop dusting planes scattering copper sulphate dust over infected areas. Sodium sulphide, which appears in inshore waters in higher concentration than offshore, promotes the growth of the organism, he said. It was added that explosive growths had been produced in the Laboratory from the juice of decaying fish and the normal production rate was increased ten time by this treatment. From the point of view of control, the speaker stated, they wanted to know: (1) where the bug hangs out; (2) what conditions will cause its rapid multiplication; (3) when it is likely to happen, then localize by dusting and prevent first fish being killed.

Walter
Dr. Smith said the recent work by The Marine Laboratory had been directed toward the prediction of outbreaks, and the determination of a pattern of outbreaks. If the outbreaks are numerous at one time, he said, such outbreaks are awfully difficult to control. If the outbreak is localized and travels along certain currents, the problem can be better controlled, according to Dr. Smith. Because of the lack of funds the oceanography work on the problem was limited to a six months period but during that time several lines of attack were followed. Through hydrographic observations it was found that bodies of water leaving passes, such as Boca Grande, retain identity for sometime and it was possible passes might be the focal points. It was also found according to the speaker that a large eddy extends from the Ft. Myers area to north of the Tampa area; that it travels counter clockwise, going north along the coast, thence westerly to sea, and then south again. The eddy varies in strength and can possibly explain variations in the pattern of red tide, he said. Continuing, it was stated, that a number of private and chartered boats and yachts had

Calton
cooperated in placing drift cards afloat over a wide area so that information could be gained on the direction of drift of dead fish. The knowledge gained of surface drift currents can play an important part in prediction where fish will drift on the beach, when local wind conditions are studied. Dr. Smith also said that currents lying offshore tend to concentrate surface water and would therefore concentrate red tide water. In conclusion, the speaker said, that postal cards had been distributed at various points along the coast and that their people would be notified of any outbreaks; also, that this system ties in with the FWS system and in the event of outbreaks a coordinated attack would be launched. Mr. Jones called for questions but none were asked.

Mr. Collier was called upon for an announcement regarding the plankton composition exhibit which was prepared by the Galveston Laboratory and set up in the rear of the meeting room. The first day's session adjourned to view the mentioned exhibit, which display proved highly interesting to the conferees.

Shortly after 4:00 PM a motorcade of some twelve cars, with state police escort, left the hotel for a visit to the capitol and other points of interest in the area.

Returning from the tour, the Commissioners met with Mr. Wm. C. Herrington, State Department, for a discussion of things of international fisheries character. Upon Mr. Herrington's request the discussion was off the record.

Starting at 6:00 PM the Commissioners and their guests were entertained in the Jefferson Room of the Jefferson-Davis. Among other refreshments enjoyed at this informal gathering were approximately fifty pounds of red shrimp which were caught by the Oregon on its most recent cruise.

Friday (March 18)

Farley
Opening the Friday morning session, Mr. Gautier introduced Mr. John Farley, Director, Fish and Wildlife Service. The Chairman told Mr. Farley that the Commission appreciated very much his attendance at the meeting and especially so since he had flown from Montreal in order to be present that morning. Mr. Farley before proceeding with his prepared address, which is included in Section II of these Minutes, pages 47-49, expressed his pleasure in being down South and recalled a number of interesting and delightful experiences he had enjoyed in past years while in this section. Mr. Gautier extended a most cordial invitation to Colonel Farley to attend future meetings of the Commission.

Next on the program was a showing of a movie in color of tuna longline fishing in the Gulf of Mexico. Mr. Harvey Bullis, Fish and Wildlife Service, Pascagoula, supplied the commentary during the showing.

Following the presentation, Mr. Bullis gave a paper on the subject: "Our Latest Appraisal of Gulf Yellow-fin Tuna." The paper is included

Harvey

Morrell
in Section II of these Minutes, pages 50-53.

In discussion Mr. W. S. Morrell, Orange Beach (Alabama) Deep Sea Fishing Association asked Mr. Bullis if note was made of the species of fishes found in the stomachs of tuna which had been caught and if the species varied as to seasons. Mr. Bullis replied that records are made of all stomach contents and that there was a large variety of deep sea species catalogued; also that, there seemed to be no seasonal variation.

Stew
"A Report on the Availability of So-called Trash Fishes in the Gulf of Mexico" was next presented from a prepared paper on the subject by Mr. Stewart Springer of Fish and Wildlife Service, Pascagoula. In discussion Mr. Morrell asked Mr. Springer if squid, small flounders and spots were classified as trash fish, to which the latter replied that they would be considered so when taken in the shrimp trawl fishery. Mr. Morrell stated that some species which may be classified as trash are important to the food of the sports fish off the Alabama coast, mentioning that ling, appearing from May through July offshore, have cat fish and sea robbins in their stomachs; that spanish and king mackerel will show 75% have eaten squid; that red fish eat menhaden in the fall, also croakers, and small flounders when menhaden are not available. The paper, pages 54-59, these Minutes.

Jordan
Dr. Gordon Gunter of the Institute of Marine Science, University of Texas, Port Aransas, was introduced to present a paper titled: "Should Shrimp and Game Fishes Become more or Less Abundant as Pressure Increases on the So-called Trash Fish Fishery." Dr. Gunter's paper on this subject appears in Section II of these Minutes, pages 60-64.

In discussion Mr. Morrell explained that the distance from the east side of Mobile Bay to Perdido Bay was only about 28 miles, of which some 24 were good for fishing, that at times 6 to 10 trash boats would be concentrated in a 3 mile area, then asked if it was detrimental to sports fish to have the concentration of trash boats working the small area. Dr. Gunter replied that there was no information, no indications, that trash fish taken causes the sports fish to leave the area because of the lack of food.

Bill
Jordan
Mr. Drinkard said that the fishermen, and all of the people of Alabama who go to the coast to fish, complain that trash fishing is doing away with the game fish. It was added that trash fishing boats come in so close you could throw a rock at them, that he counted 27 boats in one night right off Gulf Shores. Dr. Gunter added that the water out there is full of fish, right into shore. Mr. Drinkard stated that it is said before the boats come-in fish can be caught but after they leave out in the next two or three days there are no fish. Dr. Gunter said that had been heard many times but it was a hard matter to prove it and to relate it up. He added, that the ordinary man will make some very fast connections between the phenomenon that he observes and what is going on, that all fishermen do it. He went on to say that it may be so and may not. According to Dr. Gunter, his general thesis is that we have no evidence that it is so, that there is any sharp connection, that he did not think for instance that trash fish fishing has as much effect as shrimp fishing and that they had been supporting that for years, adding, he thought the trash fish fishing is rather small in comparison

Bully
Dr. Holmes said he had been fishing the waters at Gulf Shores for 35 years, that fishing had always been good until the last couple of years and not only in boats but off the beach. Immediately after the trash boats came there, he said, sport fishing diminished. He added, that people who had come to Gulf Shores for years are going elsewhere to fish, and said, trash fish boats come in so close they butt the piers built out from the beach.

Gordon
Dr. Gunter pointed out that the same process is going on elsewhere, saying the Texas coast is getting full of people and full of boats. He estimated there are 1000 times the fishermen of 20 - 30 years ago. He could not prove it, he said, but he thought possibly some of our sports fish populations are declining a little. Dr. Gunter added that some of the correlations which had been made might be doubtful. You might lay it on those trash fishermen it may be right but it might not be.

J. June
In years gone by you could go to most any point on the Louisiana coast and catch fish, Mr. McConnell said. Today if you stop on any of those points you will find that some outboard motor has been there before you, he added. Mr. McConnell believes everyone should take into consideration the tremendous increase in fishing activities over the entire Gulf coastline. He said more and more people have gone into sport fishing and with the aid of outboard motors are able to move from point to point rapidly, and that this might be an explanation for the sports fishermen having trouble catching fish.

Pixton
Mr. Marvin Pixton of Gulf Shores said he realized fishing has its place in industry but asked if the boats could not fish in a little deeper water than inside the bar along the beach. He summed up the problem: trash fish boats are detrimental to the tourist trade because they come up close to the beach and endanger the lives of swimmers; the boats will haul in nets loaded with fish within 100 feet of a pier where tourist, who are not familiar with the industry, are fishing and without success; plant life in pockets over the bar is thrown into suspension by the nets and washes into the beach, the gobs of which frighten the children.

Gordon
Dr. Gunter said there is certainly plenty of fish farther out; that he would not presume to tell the State of Alabama how to run its business but that certainly if the sports fishermen object to the boats coming in close to shore, then that operation is already damaging the fishery whether or not taking the fish causes any trouble; that it would be up to the State to put in some regulations, about a half mile or a quarter of a mile, whichever they think is proper and have the boats stay farther out.

Pell
Mr. Drinkard said people in public life have to pay attention to public opinion, whether it is right or wrong. Complaints have come not only from the coast but from Birmingham and other points. He added that some 300 - 400 such letters were in his files. Dr. Gunter said in a case like that he thought it would be proper to ask the fishermen to move farther out. Mr. Drinkard asked if he would say, about 2 miles and to this Dr. Gunter replied that he did not know the types of boats involved, how good they were, or anything about the economics of the fishery. He said it was a matter deserving study.

Mr. Drinkard asked Mr. Gautier about the Mississippi law, to which the latter replied it was 1 mile off the coast.

Bill
Mr. Drinkard said he told a group at Gulf Shores last summer that they should not take the situation into their own hands, that he would do something about the problem when he went into office. Now, he said, I want to do what is right. Mr. Gautier said, that as Dr. Gunter suggested, you have that right. He added that it so happens most of the trash fish brought into Pascagoula to the canning plants come from the Horn Island area, the heaviest fished area on the Mississippi coast; that boats from Bayou La Batre find the best sports fishing right around Horn Island pass and Dauphine Island pass and that was where most of the trash fish are takenalong the fringe of the Gulf on the outside of the bay.

Lee
Mr. Eddy told Mr. Drinkard that they, from Louisiana, were in complete sympathy since they had the same problem many times. He said he did not think the matter should be presented to the scientists; that the particular area should be evaluated with respect to its industrial value or its recreational value. In the State of Louisiana, he said, the Grand Isle area is of high recreational value and in that area industrial fishing operations are restricted since the public good seems to be best served in that manner. Mr. Eddy suggested it was entirely up to Alabama to make its own evaluations, and added, if you consider that, and the majority of people in Alabama think the recreational value is higher, which is a matter for your decision, then you have justification for opening the area, or closing it, or restricting it, in whatever manner you consider in the public's interest. He concluded by saying that in Louisiana they had handled the matter as stated and resolved the whole issue, and have no more difficulties.

In conclusion of the discussion Mr. Gautier commented that Dr. Gunter brought out very definitely that the croaker and other trash fish possibly eat the same food as shrimp and that there might be some advantages as well as disadvantages to take into consideration of the subject.

"The Menhaden Fishery of the United States" was the next topic for consideration. Mr. Howard Eckles, FWS read a paper prepared by Mr. Fred C. June, who will direct the newly authorized menhaden biological studies centering at the Service Beauford, N. C. laboratories. The paper appears in Section II of these Minutes, pages 65-67.

Howard
In discussion the Secretary asked Mr. Eckles if the Gulf stocks of menhaden would be included in the biological research program, who said that present plans do not include any work in the Gulf of an extensive nature, that it included only looking into the general areas and the amounts of production. He said it was not felt with the size of the initial program that the Service had the facilities and personnel to tackle the whole job at once so the main concentration is being made along the Atlantic coast.

Bill W.
Mr. Werlla pointed out that menhaden ranks next to shrimp in value in the Gulf area; that there are ten plants, including Florida, with a

Review.
valuation of about \$10,000,000; that production continues to increase and that an extension of the program to the area would be welcomed. Mr. Eckles recommended that the research committee of the Commission consider a study of menhaden. Inquiry was made by Mr. Werilla as to production in 1954, to which Mr. Eckles replies it amounted to 1,8 million pounds in 1954 for the Gulf and Atlantic, there being no menhaden fishery on the Pacific. He did not recall the break down between Gulf and Atlantic 1954 production.

See
Mr. Eddy stated a great deal of fundamental work had been done by Tulane University in Louisiana and asked Mr. Eckles if there was some possibility money could be made available from the Saltonstall Bill for the universities to construct an investigative program, which would be cooperative with the FWS, for the expressed purpose of studying the trash fish industry and menhaden; were there any funds remaining or had all been expended. Mr. Eckles said he could not say finally how funds from the Saltonstall Bill will be allocated but did know that a certain amount is now available to the Gulf, which may be marked for shrimp. That enough money is available for a sizeable program on shrimp, he felt confident, and it was his suggestion that this money now available be examined to see if the menhaden populations along the Gulf Coast could be looked into. His recommendation, as a biologist, would be a three to four year initial survey to find out what course a survey should take. There are at the present time sufficient funds to do that, he concluded.

Mr. Eddy suggested that Dr. Suttkus tell the group what Tulane had done in its study of menhaden.

Reyes
Dr. Suttkus said he had in the past had numerous conversations with Mr. Harvey Smith, who has a great deal invested in the menhaden industry on both the Atlantic and Gulf coasts, and that Mr. Smith had told him the Atlantic and Gulf menhaden fisheries were entirely different, that methods applied in one area cannot be applied in the other and that he had to go to considerable experimentation in developing new methods for the Gulf area. There are several species involved in the Gulf menhaden industry, according to Dr. Suttkus, the Atlantic species being different from the two species which are in the northern part of the Gulf. Just what part these two species play in the menhaden industry in the Gulf, he said he did not know and was not sure that anyone does. Referring to the work done by Tulane in the estuarian areas in Louisiana and some in Mississippi waters, it was said one species is involved east of the Mississippi River while the other appears to be more restricted to the western part of Louisiana and over on the Texas coast, although they do not occur together. In Lake Pontchartrain, Dr. Suttkus said there is an extensive area where menhaden larvae come into and grow to about 100 millimeters or more in length by the end of the summer. He said the Lake is a rearing grounds for young and as far as he knew there were no concentrations of older menhaden. Referring further to the work being done; scale samples have been taken and length of measurements recorded; and sampling is done periodically to see where the young are concentrated, which is important to plotting the routes of movement to and from the open Gulf. In conclusion, Dr. Suttkus said they were nearing the completion of a two year's study and he hoped to get some of this in print in the near future.

Done

Mr. Jones inquired of the Secretary if a current percentage breakdown of Saltonstall fund allocations to Gulf research was available, to which the Secretary replied that a summary of all initial allocations announced by the Service September 10, 1954 were included in the Commission's fifth annual report. He said there had been later allocations, mentioning the menhaden program as one, but did not know of others which might have been made very recently. Mr. A. W. Anderson spoke briefly on the subject and said as soon as he returned to Washington a summary of all Commercial Fisheries and Fishery Biology programs would be prepared and sent to the Commission's New Orleans office for distribution. Mr. Anderson explained the difficulty of showing an area breakdown of the allocations because of the overlapping of projects from one area to another. Mr. Jones stated he realized the difficulty of such a breakdown but asked that the summary be such that it could be seen if the Gulf is getting its share of the funds. He added that he did not know if any funds remained for expenditure during the current fiscal year and was surprised to have learned on Thursday that the Industry Advisory Committee had not met to offer its advice on the allocations. Mr. Farley said allocations to date had been made for those fishery problems judged to be in worse need of assistance. Mr. Jones stated he was not questioning the distribution of funds that had been made, adding, he thought the research programs wonderful. He explained that his interest was in the states on the Gulf getting their fair share of the funds and since he realized such monetary deposits could be subjected to a lot of pressure, suggested a full report of the allocations be available for review at each Commission meeting. Mr. Wegmann told Mr. Farley he wanted to do his part and was ready to attend a meeting at any time.

Secretary

Farley

The Friday morning session was adjourned at approximately 12:15 PM for lunch.

The Commission tendered a luncheon for the lady folks with Mrs. A. J. Harris, Jr., acting as hostess. Others in attendance included: Mrs. W. H. Drinkard, Mrs. Jacqueline Hynes, Mrs. W. J. Hendry, Mrs. J. B. Lackey, Mrs. H. J. Lee, Mrs. C. H. Lyles and Mrs. Percy Viosca, Jr.

James

The afternoon session was called to order shortly after two o'clock and Mr. James McConnell proposed that the Commission appoint a shellfish committee to be composed of one scientist from each of the five member states, the duties of which committee would be to meet and study the shellfish problems of all of the member states. The Resolution appears on page 23, of these Minutes. Mr. Gantier said he thought such a committee could do a needed work and asked Mr. McConnell if the committee would also handle matters concerning dead reef shells, to which the latter said he thought it should. Mr. Eddy moved for adoption of the Resolution; Dr. Holmes seconded. Alabama, Florida, Louisiana and Texas voted for adoption; Mississippi not voting due to lack of quorum.

Re

Mr. Eddy was recognized by the Chairman to present a Resolution, which reads as follows:

"WHEREAS, the ownership and regulatory rights and powers of the Five Gulf States in its natural resources including fish, shrimp, crab, oysters and other marine animal and plant life was recognized and quit-claimed by the Tidelands' Act of Congress approved May 22, 1953, Public Law 31, 83rd Congress, and is not limited.

See
"WHEREAS, persistent efforts have been made by representatives of the Federal State Department to negotiate a Fisheries Treaty with Mexico which would be implemented by Federal Law and regulations and would deprive the Five States of their proprietary and regulatory powers of their Fisheries in the off-shore waters and Gulf Areas within their boundaries, to the irreparable loss of the ability of the people to change intolerable conditions by peacefully petitioning their local governments.

"BE IT RESOLVED, that the Gulf States Marine Fisheries Commission oppose the making of any Fishery Treaty, Convention, Compact or agreement which does not specifically provide that the Right of the Five Gulf States to regulate their Aquatic Resources is not limited."

See
Commenting on the Resolution, Mr. Eddy said Mr. Herrington of the State Department had appeared before the Commission on three occasions and on each occasion had presented the proposition of agreeing with Mexico with respect to the fisheries, particularly the shrimp fisheries, to the end that peaceful relations would be enjoyed with that country. He stated that on one occasion the proposition was to prevent further seizures of American shrimping vessels; on another, it was in interest of a reciprocal agreement; and on this last occasion, it was presented in the light of conservation. An attempt has been made, he added, to subvert academic research to political expediency. The grounds today was that you need not be alarmed because this will only effect areas commonly fished by both the signatory parties to the Pact or Convention, Mr. Eddy continued, but they overlooked one fact, that the presence of one Mexican vessel in the territorial waters of the United States would make that a joint fishery. Still another fact was cited as overlooked, or not presented in its strongest light, that a treaty being the supreme law of the land can only be enforced by the United States Government, and it can only be implemented by the United States Army, Navy, and Coast Guard. It was said that the terms of the provisions are very enforce-ful on the parties, at least the members of the United States, the citizens of the United States, and its respective state citizens. Mr. Eddy said the treaty would become the supreme law of the land, applicable to all, and that there would be no recourse if a treaty were ever executed specifically mentioning a resource. Twice there were some objections, he said, but on two occasions attempts were made to have the Commission adopt resolutions approving the treaty; however, it was added, rather than run the risk of loss of unanimity in the resolution they backed down. On this occasion, Mr. Eddy said objections had grown and realizing a resolution had little chance of passing, the March 17 evening executive session ended without any action being taken. He added that he thought it an appropriate time for the Commission to take a positive stand, and concluded in saying that if any of the five Gulf States were in favor of the treaty, Louisiana did not blame them for it; but that Louisiana did not want to lose the regulatory powers over its aquatic resources, the full extent of which resources were not yet known, but that the value of the shrimp fishery was well known.

Kimmer
Mr. Gautier stated that at the executive session March 17, Mr. Herrington made a report with reference to a treaty with Mexico; that when he made the report the Commission had already had notice from the State of Louisiana that in the event the Commission approved such a treaty Louisiana would automatically withdraw from the Compact. Mr. Gautier said Mr. Herrington did not ask the Commission to endorse a treaty March 17 and that there was nothing pending with regard to the State Department requesting endorsement of a treaty. The possibility of a conservation study in the open Gulf, or maybe going on into Mexican waters, which might require a treaty if the Fish and Wildlife Service are going into that study, was cited as possibly necessary by Mr. Gautier, but he said, the State Department was not asking the Commission to endorse a treaty at this time. It was added that when the proposal came up that positive action be taken against any treaty, the executive session adjourned and nothing further was done. In conclusion, Mr. Gautier said that he did not see where the Commission should be involved in a matter that the State Department might later on want to take up in reference to a treaty concerning research work in Mexican waters when they are not calling upon the Commission to endorse it.

Holmes etc
Mr. Gautier said the Resolution was before the Commission and asked if the states wished at that time to take positive action. Mr. Werlla suggested that the Commission do so. Dr. Holmes stated a caucus on the subject was desired, to which all agreed. Mr. Burleigh suggested that the session proceed with the program as scheduled while the Commissioners were retired for the caucus, and to this the Commissioners agreed.

Dale
Dr. Dale Leipper, Chairman of the Committee on Marine Sciences of the Southern Regional Education Board, was called upon. Reporting on the Committee's meeting at the Dinkler-Jefferson Davis, Wednesday, March 16, Dr. Leipper said the meeting was attended by scientists from various southern universities having marine laboratories; those from the Gulf area being, Miami, Florida, Florida State, Mississippi Board of Higher Education, Louisiana State, Texas, and Texas A & M. He said the Committee is undertaking the preparation of a publication which will detail activities of the universities, industries and other agencies in interest of the marine fisheries. Other plans laid at the meeting, according to Dr. Leipper, included those of conducting seminars to better acquaint students with marine biological populations.

Hawley
Mr. Eckles was introduced to speak on the subject of the potential for saltwater farming in the Gulf area. The paper prepared by Mr. Eckles, and Mr. Wm. F. Carbine, also of Fish and Wildlife Service, is included in Section II of these Minutes, pages 68-74. In presenting the subject reference was made to a map which indicated various coastal areas along the Gulf which seemed suitable for saltwater farming.

P. 12
In discussion Mr. Viosca stated he had observed that ponds which have been stocked by hurricanes have produced larger than average fish such as flounders, trout and croaker. He said, because of the lack of high tides, ponds on the Gulf would have to have water pumped in. There is an abundance of artesian water at various places on the Gulf coast, he added, and there is a good possibility of some of these waters substituting for seawater. He said crabs, mullet and various other species do well in such waters. A problem to saltwater farming will be the predators, such as raccoons and heron, it was said. He mentioned the possibility of importing a species of (Secretary believes he called it tlapido) which was a good food and game fish and which eats both animal and vegetable matter, but is susceptible to water falling below sixty degrees.

Charlie
Canaday
The Chairman introduced Mr. Charles Murphy of the Louisiana Wild Life and Fisheries Commission, stating he had worked hard in interest of a needed weathership service in the Gulf. Following a brief opening statement Mr. Murphy introduced Mr. George Canaday, Marine Specialist of the New Orleans U. S. Weather Bureau office, Mr. Canaday's paper concerning the extent of present Gulf weather reporting appears in Section II, of these Minutes, pages 75-77.

Mr. Murphy stated the present status of interest in a weathership for the Gulf of Mexico to be excellent. He said Mr. Thompson of Louisiana introduced a bill requesting a permanent weathership station for the Gulf in the last Congress and in the new Congress presented a similar bill, HR 198; that Messrs. Boykin of Alabama, Colmer of Mississippi and Kilgore of Texas had introduced like bills into the House, as well as had Mr. Eastland into the Senate, and that it was expected Florida as a delegation would approve the legislation. He added that the radio, television and newspapers had given thorough coverage on the matter, and the Chambers of Commerce at Mobile, Biloxi, Gulfport, New Orleans, Houma, Morgan City and on to Brownsville were in accord with the need for a weathership station. In conclusion, Mr. Murphy stated that Congressional hearings had been tentatively set for within the next month, April, and it was hoped a representative from each of the Gulf States and one from this Commission would participate in the hearings.

Dubby
Lee
Dr. Holmes inquired if the weathership was to do rescue work or act entirely as a weathership. Mr. Eddy stated the chief advantage of having a weathership in the Gulf is not to detect existing storms as the distances traveled by those storms are very short and any warning is always insufficient. Formative weather information is desired, he said; adding that the Gulf area is equal to a greater part of the southern states in which there are 150 weather stations that report daily the weather phenomena on which Mr. Canaday, Dr. Leipper and weather consultants base their predictions, such predictions being of great value to the farmer as well as the fisherman. With more accurate forecasting, Mr. Eddy said, the fishermen of the Gulf States could proceed to sea and stay out longer periods; the farmers would know better when to cut their hay if they can predict rain with greater accuracy; and the oil companies would not have to suffer partial shut-downs of offshore rigs if they knew more accurately whether or not a storm was forming. The Gulf area is the source region for 95% of the weather we experience and if a weathership station is established in the Gulf we will at last have some intelligence regarding formative weather, he added.

J.e.
Dr. Holmes said he was of the impression the Gulf had a weathership. Mr. Eddy replied that he thought Dr. Holmes was referring to a Coast Guard vessel believed to have a code name of "Mike", which vessel makes routine weather reports as does any maritime unit or vessel at sea, but it was added, such reports of conditions are not such that the meteorologist can base an accurate prediction in the overall picture.

Dale
Dr. Leipper cited other advantages of a weathership maintaining a fixed position in the center of the Gulf. He said it would be of great importance to all of the coastal fisheries because it would be known if the Gulf was warmer this year than last; whether the Gulf Stream had shifted a little to the east or west in the Gulf. The eddy, he explained, that comes through the Yucatan Channell and over through the Florida Straits probably controls the whole circulation of the Gulf and is probably related to the deep sea fisheries, and to the little coastal eddy off Florida mentioned Thursday by Dr. Walton Smith. In conclusion Dr. Leipper said it was his belief that this anchor point of fixed ocean observations in the middle of the Gulf of Mexico is just about equal in importance to the weather observing qualities.

The recently introduced shrimp importation ad valorem tax was next presented for discussion and the Chairman called on the Secretary for a summary of some of the considerations which previously have been given the subject of shrimp imports, quotas and tariffs, by the Commission and others. The summary given by the Secretary follows:

"Commission adopted resolution (Brownsville January 11-12, 1951) recommending to Congressional Delegations Gulf States that quotas be established on all shrimp imported into the United States.

Secretary
"Meeting held at National Shrimp Cannerns and Packers Ass'n. offices, New Orleans, April 2, 1951, which included their group, Texas Shrimp Ass'n., Nat'l Cannerns Ass'n., State Dept., Pacific tuna and sardine and other representatives. It was decided at this meeting that tariff legislation would have better chance of passing than quota legislation and all agreed to work for the former. A representative was appointed to work in Washington and elsewhere in interest of tariff legislation.

"April 5, 1951, Texas M.Cs., Messrs Benson (HR 3546) Lyle (HR 3551), and Thompson (HR 3555) introduced legislation providing for a 15% ad valorem on shrimp importations. May 14, 1951, Mr. Willis (La.) made a speech in the House in support of his bill (HR 4064) which provided for a 35% ad valorem on such imports.

"The matter was presented at the N. F. I. Boston meeting, April 8-12, 1951. Arguments were heard both for and against a shrimp tariff and as a result N. F. I. took no position. It was suggested at the meeting that an international fisheries institute be established where common problems of the industry could be discussed. A preliminary meeting between U. S. and Mexican interests was held at the convention.

"Meeting at Pensacola, April 19-20, 1951, the Commissioners heard arguments for and against a tariff. The Commission was asked to change its original recommendation for quotas to a request for a tariff. The Commission decided the matter was deserving of further study.

"Representatives of the Texas Shrimp Association and the Mexican National Chamber of the Fishery Industry met in Mexico City in July 1951 for consideration of forming an international association which would have as its objective the expanding of the American shrimp market through advertising, quality control, improved merchandising and research. The group met in Galveston, August 22, 1951, and formulated plans for an international organization of shrimp producers to be known as the Shrimp Association of the Americas. The Market News Bulletin which carried these notices stated the Texas Shrimp Association would no longer advocate quotas or import duties on Mexican shrimp.

"The National Shrimp Cannery and Packers Association continued with its effort to obtain tariff legislation.

Scty
"The subject was again discussed at the Commission's October 18-19, 1951 meeting with both those for and against a tariff being heard. The Commission suggested to industry that an economic survey of the shrimp industry be made by an impartial agency, such as the Fish & Wildlife Service, since such a survey would do much toward bringing closer together the thinking of industry. It was then learned that FWS was busy on the tuna survey, directed by Congress when it passed an interim tuna import tariff, and would be until January 1, 1953. Although industry present agreed as to the need for a survey, one segment thought the need to be in addition to a tariff. No survey was started.

"No shrimp tariff legislation was passed in 1951 and none since. Legislation introduced last year was not voted upon. Introduced into the 84th Congress are HR 205 (Thompson-La) and HR 265 (Colmer-Miss.) These identical bills introduced January 5 provided for a 35% ad valorem. We have not been advised of other similar bills having been introduced.

"We do not know whether or not the two schools of thought still exist in the shrimp industry."

Lee
In discussion Mr. Eddy said Representative Thompson of Louisiana had submitted the shrimp importation tax bill to Congress at the solicitation of industry and he supposed Representative Colmer of Mississippi introduced a similar bill at the request of industry. When reference was made to industry in Louisiana and Mississippi, he said, he referred to nearly 50% of the shrimp industry in the Gulf area including the country of Mexico; that production figures indicate industry lies in those two states. The non-support of this competitive, protective or ad valorem tariff has come from areas which supposedly represent industry also, it was stated. To date the dominant forces contrary to the protective tariff and favoring better relations with Mexico have been from the minor aspects of the industry, he added, and has been primarily activities of two fishery associations, the Southeastern Fisheries Association and the Shrimp Association of the Americas.

The Secretary announced that no agenda had been arranged for a meeting of the scientists, time for which had been provided on the program; that the reason for such provision was it was thought since so many state, federal and university scientist were to be in attendance they might like to get together. He said he had talked with a number of the scientist but none had said they had anything to present, and added, he could secure a meeting room quickly if such a session was desired. There was no response.

Review

The Chairman recognized Mr. Werlla who offered a Resolution requesting the Secretary of the Interior to call an early meeting of the Fish and Wildlife Service Industry Advisory Committee so that said Committee could study the programs which had been approved and become acquainted with all facts and allocations of funds. Mr. Werlla moved for adoption of the Resolution; Mr. Burleigh seconded. All five states voted for the Resolution which appears on page 24 of these Minutes.

Lee

Mr. Eddy requested the Chairman to call for a vote on the Resolution he had proposed earlier in the afternoon and on which the caucus had been held, and added, that the Commission had refused to take a stand in defense of State Rights.

The Chairman called for a vote by states on the proposed Resolution. Only two of the three members of the Alabama Delegation were in attendance; Dr. Holmes favored adoption and Mr. Drinkard opposed adoption. Louisiana and Mississippi voted for adoption. Florida and Texas voted against adoption.

A question as to voting procedure at Commission meetings arose and the Secretary was asked to read from the Rules and Regulations on the subject:

"Article III. Quorum and Voting

Secretary

"Section I. Voting in any meeting shall be by states. The vote of each state shall be determined by the majority of its Commissioners. Commissioners present from a state may cast the vote for the state, provided two of the members from that State be agreed. Upon the request of any Commissioner, a recess shall be declared by the Chairman for the purpose of allowing that state to caucus for a reasonable length of time in order to determine its vote on any specific issue. If there is present only one Commissioner from a state, he shall cast the vote for that state, provided he has the proxy of one other member from his state. The representation at any meeting by three or more states shall constitute a quorum for the Commission of a whole. The representation by two or more states having an interest in any species of fish shall constitute a quorum at such meeting of the Commissioners, called for the purpose of considering such interest."

Mr. Gautier declared a tie vote on the proposed resolution.

Review

Mr. Hendry proposed a Resolution expressing the sincere thanks of the Commission for the kind hospitality extended by the Alabama Department of Conservation during the course of the meeting. Mr. Eddy seconded the motion and added that the Montgomery meeting had been quite a change from past meetings and that at future meetings he believed more would be accomplished by the Commission. He suggested that the Chairman and Secretary formalize meetings in the future, that every Commissioner be completely acquainted with the rules of order that will govern meetings. The Resolution appears on page 25, of these Minutes.

With no further business to be presented at the afternoon session the Chairman expressed the appreciation of the Commission for the large and interested attendance and adjourned the session at shortly after five.

EXECUTIVE SESSION

The Chairman opened the executive session a few minutes after closing the general session and asked if it was desired that the Minutes of the October 21-22, 1954, San Antonio meeting be read. Dr. Holmes moved that the Minutes be approved without reading and as rendered by the Secretary; Mr. Drinkard seconding. On vote by states the motion was unanimously passed.

The Secretary gave the following financial report as of February 28, 1955.

Balance in Bank	\$14,077.13
Less checks outstanding	233.76
	<hr/>
	13,843.37
Plus Petty Cash	15.22
True Balance	<hr/>
	\$13,858.59

Anticipated balance at close of fiscal year, June 30, 1955, approximately \$ 8,500.00

Secretary

The matter of menhaden biological research was next discussed. It was generally agreed that the research program authorized by the Fish and Wildlife Service with use of Saltonstall funds should be extended to include the Gulf menhaden fisheries and that such work could be handled by the universities on a contract basis. The Secretary prepared a rough draft of a Resolution in this connection. Mr. Eddy moved for adoption; Mr. Hendry seconding. On vote by states the Resolution was unanimously adopted. It appears on page 26 of these Minutes.

Coming up next for discussion was the matter of the fall regular meeting. The Secretary stated it was Florida's turn and that the October dates would be the 20th and 21st. It was agreed that the Florida Delegation would select the site and advise the Secretary.

A Resolution was offered by Mr. Eddy as follows:

"Be it resolved that this Commission avail itself of the offer of the Commercial Seafoods Division of the Louisiana Wild Life and Fisheries Commission to determine the total membership of trade associations pertinent to the fisheries to the end that these pressure groups can be evaluated in the consideration of their petition relating to industrial problems."

See

The Resolution was not voted upon since it would be necessary for Mr. Eddy to have the approval of the Louisiana WLF Commission for the work. It was agreed by the Commissioners that such a survey was desirable.

The Chairman said ground at Pascagoula had been offered to the Fish and Wildlife Service and he was hopeful the Service would take advantage of the offer and construct a building for the Exploratory Section.

Secretary
The subject of trash fish fishery was presented by the Chairman for discussion but there was no discussion, and no action taken. No action was taken with regard to shrimp imports or any other pending legislation.

The Secretary read a letter from Mr. Dave Wallace, Director of the Oyster Institute of North America which advised that no bill had yet been presented in the Congress regarding Shellfish Certification, which matter was the subject of a Resolution adopted at the last Commission meeting, San Antonio, October 21-22, 1954.

Speaking of the westership legislation the Secretary said that support could possibly be gained in the Tampa Bay area and south by contact with the Joint Chambers of Commerce of that section and that he would write the Sarasota party who asked the Commission's support when funds were needed for red tide work in 1953.

Tide
During the course of the Montgomery meeting a separate session was held by Florida and Fish and Wildlife Service people directly concerned with the red tide problem. The group requested the Commission Chairman to dissolve the committee appointed at the New Orleans, March 1954, Commission meeting so that the group could appoint a committee. Those expected to serve on the new red tide committee include Messrs. Ernest C. Mitts, D. C. Jones, Jr., F. G. W. Smith, J. B. Lackoy and Albert Collier.

Mr. Farley was invited to and sat through a part of the executive session. He told the Commissioners of his interest in having attended the meeting and his recognition of the needs of the Gulf area.

With no further business offered for consideration, the Chairman adjourned the session at approximately 6 PM.

Prepared By:



W. D. Gunn
Secretary-Treasurer

A RESOLUTION

Gunn

WHEREAS, the Gulf States Marine Fisheries Commission is compacted to promote the better utilization of the fisheries, marine, shell and anadromous, of the seaboard of the Gulf of Mexico, and

WHEREAS, a research and exploratory data committee is presently functioning correlating marine fisheries information, and

WHEREAS, the problems confronting the shellfish industry are of grave and immediate concern to this industry, and

WHEREAS, a committee of five scientists on shellfish would be of benefit to the industry and the commission

THEREFORE, BE IT RESOLVED, that the Gulf States Marine Fisheries Commission do appoint such a five man scientific committee, and

BE IT FURTHER RESOLVED, that the Shellfish committee be composed of one scientist from each of the five gulf states to meet and study the shellfish problems of all of the member states.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, March 18, 1955, at a regular meeting held at the Dinkler-Jefferson Davis Hotel in the City of Montgomery, Alabama

W. Dudley Gunn
W. Dudley Gunn
Secretary-Treasurer

Bill W.

A RESOLUTION

RESOLVED that the Gulf States Marine Fisheries Commission recommends the calling for an early meeting of the Industry Advisory Committee of the Fish and Wildlife Service so that the Committee may study the programs which have been approved and become acquainted with all facts and allocations of funds.

BE IT FURTHER RESOLVED that a copy of this Resolution be transmitted to the Secretary of the Department of the Interior.

* * * * *

The foregoing Resolution was unanimously adopted by the Gulf States Marine Fisheries Commission, March 18, 1955, at a regular meeting held at the Dinkler-Jefferson Davis Hotel in the City of Montgomery, Alabama.

W. Dudley Gunn

W. Dudley Gunn
Secretary-Treasurer

A RESOLUTION

Beck H.

RESOLVED that the Commissioners' of the Gulf States Marine Fisheries Commission express to Mr. William H. Drinkard, Director, and Mr. A. J. Harris, Jr., Attorney, of the Alabama Department of Conservation, and to other individuals of that agency, their most sincere appreciation for the very cordial hospitality and the many courtesies extended during the course of the Commission meeting in Montgomery, Alabama, March 17-18, 1955.

* * * * *

The foregoing Resolution was adopted by the Gulf States Marine Fisheries Commission, March 18, 1955, at a regular meeting held at the Dinkler-Jefferson Davis Hotel in the City of Montgomery, Alabama

W. D. Gunn
W. D. Gunn
Secretary-Treasurer

A RESOLUTION

*Executive
Deety -
Lee -
Bill H*

RESOLVED that the current Fish and Wildlife Service Biological research program on menhaden be extended to include the menhaden fishery of the Gulf States and that funds for such studies be allocated on a contract basis to universities of the Gulf States.

BE IT FURTHER RESOLVED that a copy of this Resolution be transmitted to the Secretary of the Department of the Interior.

* * * * *

The foregoing Resolution was unanimously adopted by the Gulf States Marine Fisheries Commission, March 18, 1955, at a regular meeting held at the Dinkler-Jefferson Davis Hotel in the City of Montgomery, Alabama.

W. Dudley Gunn

W. Dudley Gunn
Secretary-Treasurer

PAPERS AND RESUMES OF PAPERS PRESENTED AT THE GULF STATES
MARINE FISHERIES COMMISSION MEETING, MONTGOMERY, ALABAMA,
MARCH 17-18, 1955

SECTION II OF MEETING MINUTES

(COPY)

GULF STATES MARINE FISHERIES COMMISSION
Montgomery, Alabama
Dinkler-Jefferson Davis Hotel
March 17-18, 1955

"BRANCH OF COMMERCIAL FISHERIES PROJECTS APPROVED FOR THE GULF OF MEXICO IN INITIAL APPROPRIATIONS UNDER THE SALTONSTALL-KENNEDY ACT (68 Stat. 376)"

A. W. Anderson
U. S. Fish and Wildlife Service
Washington, D. C.

The Branch of Commercial Fisheries has a number of programs underway which are financed from funds made available under the Saltonstall-Kennedy Act (68 Stat. 376). Some of these programs are being carried out in the Gulf area and are of direct interest to the Gulf fishing industry. Others are being conducted on a national scale but the results will have a direct or indirect application to the Gulf fisheries.

The Gulf States Marine Fisheries Commission has suggested that a number of projects in the commercial fisheries field be undertaken with Saltonstall-Kennedy Act funds. The Department of the Interior has approved allotments of funds for most of these projects. For example, we have well underway an expansion of our statistical coverage of the shrimp fishery in the Gulf of Mexico. More current and more detailed information will soon be available on shrimp landings throughout the Gulf. For additional details on this program you have only to wait for the presentation on this subject by Charles Lyles a little later this morning. He is in direct charge of the program and has his headquarters in New Orleans.

Another project endorsed by the Commission is an Economic Survey of the Shrimp Industry. This project is also well underway. It will be discussed in detail at this afternoon's session by Walter Stolting who is Assistant Chief of the Branch's Economic and Cooperative Marketing Section and has headquarters in Washington.

A third project which has been of interest to the Commission is the conduct of technological research into the freezing of Southern oysters. Funds have been allotted for this project and contracts have already been let to three Southern universities for the conduct of certain phases of the research. The panel discussion this afternoon on this subject will develop full information on this subject. Charles Butler, Chief of the Branch's Technological Section, with headquarters in Washington, will speak for the Branch in the panel discussion.

In addition to these projects in which the Commission has expressed particular interest there are a number of other programs which will aid the Gulf fisheries.

(Anderson, #2)

Our technological program, for example, includes two major projects in the fish oil and fish meal field. These projects are being conducted, in part, in our four technological laboratories throughout the country, and in part by contract with well qualified research units in universities and in private foundations. Our project on fish oil involves basic research into the composition of the product with the expectation of uncovering new uses for the components of fish oil. We hope there will be a greater demand for these products and they will bring higher prices. Our project involving fish meal is directed toward developing an index of quality for fish meal which will permit a quick evaluation of the nutritional qualities of the product. Development and acceptance of such a test will permit both producers and buyers of fish meal to operate on a sounder basis. The Gulf area is a substantial producer of fish oil and fish meal and can be expected to benefit substantially from the successful conclusion of this research.

Also in the technological field is the basic research we are conducting toward the development of voluntary standards for fishery products. This work is being conducted on a broad basis in our various laboratories and by contract research. It is directed particularly toward the developing of tests which will permit the ready evaluation of fishery products for which standards will be established. The first work is being done in the field of fish sticks since the Fish Stick Committee of the National Fisheries Institute has requested that the Service establish and promulgate standards for fish sticks and make available an inspection and certification service. A country-wide survey is in progress at the moment to determine the industry's wishes with respect to standards for additional products. The Service is confident that the establishment of voluntary standards for fishery products represents a great forward step which will improve the quality of fishery products considerably and be of great assistance in stabilizing markets and trade. Whatever is done in this field cannot help but benefit the Gulf industry, at least indirectly.

An allied project in the Economics field is the research we are conducting on a national basis into the consumption factors which determine the utilization of fishery products. These studies, including a great deal of contract research, will determine consumer preferences of housewives, public eating places, institutions, etc. The results will assist in determining where new markets should be sought and direct processing and distribution into more efficient channels. The work will include the major Gulf fishery products and provide information of assistance to their processors and distributors.

In the statistical field we have a small national project which is directed toward improving the coverage of our monthly cold storage statistics and expediting the issuance of the monthly bulletins. Any improvements we are able to make will be of considerable importance to the Gulf shrimp industry because of the very great use the shrimp industry makes of freezing and cold storage warehousing.

(Anderson, #3)

In the marketing field we have contracted with the University of Miami's Marine Laboratory for a fishery marketing survey of Florida in an effort to find a solution for the marketing problems encountered by the local producers.

In the Gulf area as a whole we are continuing our School Lunch Program. It is concerned with the introduction of fishery products into school lunches. Our Home Economists develop recipes especially for school lunch use and demonstrate the preparation of fishery products according to these recipes before groups of school lunch supervisors, cafeteria cooks, and managers. The Home Economists are detailed as required from our College Park, Maryland, laboratory. In addition, we have Fishery Marketing Specialists with headquarters in local areas, who aid the schools in securing the proper kinds of fish at reasonable prices, and who acquaint the distributors with the needs of the schools. One firm in Alabama found School Lunch business so profitable it employed one man to devote his full time to making school lunch contacts. Local fish dealers are so pleased with the results of the program that they make it a practice to furnish free fish for all of our demonstrations. Fishery Marketing Specialists in the Gulf area are located in Fort Worth, Texas, and New Orleans, Louisiana.

School lunch programs have been carried out in recent years in all of the Gulf States except Texas. No school lunch demonstrations are scheduled for the Gulf States this year but we will be participating in school lunch workshop projects in Mississippi, Texas, and Florida.

In the educational field the Service has recently concluded an agreement for another shrimp picture. This one will be entitled Shrimp Tips From New Orleans. The industry finances the cost of the picture but it is produced under Service supervision. The Service also has the responsibility for nationwide distribution. A second industry picture now in production deals with the use of outboard motors in the commercial fisheries. It includes scenes taken in the Gulf fisheries for shrimp and mullet where outboard motors are used.

* * *

The above listing of projects includes practically every field of research and services in which the Branch is engaged. We believe that Gulf of Mexico problems have received an equitable allotment of funds and that the results which may be expected from the projects outlined will be of lasting benefit to the fishing industry in the Gulf area.

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GULF STATES MARINE FISHERIES COMMISSION
Montgomery, Alabama
Dinkler-Jefferson Davis Hotel
March 17-18, 1955

"BRANCH OF FISHERY BIOLOGY PROJECTS APPROVED FOR THE GULF OF MEXICO IN
INITIAL APPROPRIATIONS UNDER THE SALTONSTALL-KENNEDY ACT (68 Stat. 376)"

H.H. Eckles
U. S. Fish and Wildlife Service
Washington, D. C.

The Gulf States Marine Fisheries Commission became a formal compact of the Gulf States over five years ago. Since the first formal meeting we have been privileged to meet with the Commission to report on progress and results of biological research which the Service has been doing here in the Gulf. We have been pleased to note expansion of state programs and we have been proud to participate in the research which the Commission has sponsored.

I know you are most interested in what the future holds for biological research on oysters and shrimp and how this work will benefit Gulf fishing interests.

However, before describing this work perhaps I should comment on our present and past research so as to acquaint those of you who are not familiar with it.

The Service's biological research in the Gulf consists of three investigations.

1. Oyster research is conducted from Pensacola under the direction of Dr. Philip Butler. His work is concentrated on the biology of Gulf oysters and the affects of the oyster drill and other predators upon Gulf oyster production.
2. Gulf fishery studies are carried out from Galveston under the direction of Al Collier. The primary work of the Galveston laboratory for the past 4 years has been a productivity study of the Gulf. Results of cruises with the research vessel Alaska are now in the final stages of analysis. The area close in shore around the northern Gulf has been found to be the richest in fish eggs and larvae. Areas of high and low chemical nutrients have been defined. This work will provide a basis for future studies to obtain an understanding of the mechanisms responsible for fisheries production in the Gulf.
3. The Service's third research job in the Gulf is investigation of the causes of Florida's red tide and development of methods to

(Eckles, #2)

predict and control red tides. Field studies are conducted from Fort Myers. The research vessel Kingfish is used for patrol and sampling for signs of red tide outbreaks.

Through the research which has been completed since the Commission was established, we are confident that we have a firm basis for expanded fishery research, particularly work on the shrimp fishery which has been of primary interest to the Commission.

Now I wish to comment on the Saltonstall-Kennedy Projects which are underway and which are of primary importance to Gulf fisheries.

Dr. Butler now has the means to increase the intensity of research on oyster predators; particularly on biology of oyster drills, and to determine if drill control is economically feasible. Similar research on oyster predators is being conducted at Milford, Connecticut and Annapolis, Maryland as well as at Pensacola. Research results obtained at these other laboratories will also be of value to oyster problems here. A contract has just been completed with Florida State College to study the oysters of Apalachicola Bay. This work will supplement Dr. Butler's research at Pensacola.

Shrimp research will be the main job of the Galveston laboratory in future years.

You will recall that several of the biologist from the Commission drew up a program for shrimp research last year when we met at Edgewater Gulf, Mississippi. We now have an opportunity to undertake the first and major parts of this program.

Collection of vital statistics necessary for later biological studies has been started. Research to develop techniques necessary for identification of shrimp stocks has been started through contracts with the Institute of Marine Sciences of the University of Texas and Tulane University. Dr. Gunter will direct the work for the Institute of Marine Sciences and will conduct experiments to develop marking techniques necessary to follow movements of individual or groups of shrimp. Work at Tulane will consist of a description of shrimp anatomy with particular emphases upon differences which may occur in shrimp from different areas. This work will be described in greater detail later in the program.

At Galveston we plan to conduct a type of research which we believe will pay off and which is a logical step before undertaking wide scale field operations. This is experimental biology in the laboratory to determine what shrimp require in the way of food and an environment to develop and grow. This consists of growing shrimp of all stages and sizes under controlled conditions to learn what temperature, salinity, food and chemical relationships are selected by the shrimp as they are held in aquaria. Results of such laboratory studies will be compared with field observations and will be used

(Eckles, #3)

as a guide to locate areas where shrimp larvae are undergoing development.

Red tide research is contributing greatly towards developing techniques which will aid in studies of shrimp biology. This research has been progressing well. Recent developments both in the laboratory and field studies will be explained by Mr. Collier later in the day. Addition of funds to the red tide program has made it possible for us to step-up control research. We have a stock pile of copper sulphate on hand and Mr. Wilson is experimenting with copper in other forms in the laboratory at Galveston.

Finally, I wish to express our appreciation and pleasure for the opportunity to meet with the members of the Commission and to discuss research problems and progress with the biologists here today.

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"PROGRESS IN ESTABLISHING A NEW STATISTICAL SYSTEM IN THE GULF OF MEXICO"

Charles Lyles
Fish and Wildlife Service
New Orleans, Louisiana

The rapid expansion of the shrimp industry since World War II created many problems in production, processing and marketing. The heavy drain on this resource as a result of expansion caused some concern in industry and government lest the resource be overfished. Requests for funds for continued study of problems within industry were numerous but the strain on our economy by other commitments reduced the possibility of obtaining funds. This situation changed somewhat when funds were made available under the Saltonstall-Kennedy Bill for a more detailed study of the shrimp and this industry. Among the items in the expanded program is better collection of statistics so as to reflect the true condition of the shrimp fishery.

Most of you present are as familiar with the need for fishery statistics as myself. Surely if you are seriously engaged in the problems of management of a fishery, you are aware of the need to determine the difference between fluctuation in abundance and a real decline. This difference can best be determined by detailed, accurate and continuous records of the quantity of fish taken in a given area and the effort going into the taking of them. Further, marketing and other economic studies can be best carried on with adequate economic data. Few colleges today carry courses specifically related to the marketing of fishery products, largely attributable to lack of facts on which to base a study. I trust some of this will be overcome in the new program.

In spite of the inability to recruit qualified personnel for the positions around the Gulf, some progress has been made toward establishing the new system. For instance, it was necessary to contact various state and local officials regarding the local names of fishing grounds and seasons shrimp are taken. Thanks to Dr. Gordon Gunter, Director of the Institute of Marine Science of the University of Texas and to Mr. John Rockwell, Alabama Department of Conservation, Bayou Labatre, Alabama, much of this work has been completed. A grid system had to be devised and after discussion with Mr. Albert Collier and Mr. Stewart Springer, Fish and Wildlife Service, it was decided to use the method developed by them for use in correlating reports of unusual occurrences of organisms in the Gulf. Two additional digits were added to each of the numbers in the Collier-Springer system in order to permit greater breakdown of bays, sounds, and lagoons. This system has many advantages in that it will permit Biology and Exploratory Fishing to correlate commercial catches with data collected in their course of study.

(Lyles, #2)

Two forms for use in recording the data have been devised, sent to Washington for review and approved. The first printing of these forms is expected soon. Two field manuals for the use of agents in interviewing the boats and in recording the weighouts have been prepared and await approval. A master vessel list is in the process of being prepared. For this I am indebted to Mr. Howard Dodgen, Executive Secretary, Texas Game and Fish Commission, for he not only made all the Texas lists available to me, but actually prepared a list and forwarded it to my office. The states of Mississippi, Alabama, and Florida made available their records so that names of the vessels could be obtained. I expect to contact Louisiana in the near future for the same type of help. The list thus prepared will contain the names of all fishing vessels in the Gulf of Mexico. A code number will then be assigned to each vessel in order to facilitate tabulating its catch over the entire year.

Landings of shrimp will be published daily in the New Orleans Market News report. The report will show point of landings and quantity of shrimp landed for the 24 hour period ending at 8 A.M. of the day the report is issued. Landings by species of shrimp will be shown. Those wishing to receive the report should send a request to Fishery Market News Service, 314 Customhouse Bldg., New Orleans 16, Louisiana. In addition to the daily landings, a monthly summary showing the catch by area of capture will be published. The species of shrimp will be shown separate on this report

In the meantime, it has been necessary to carry on such surveys as are necessary to provide the Service with information on which to reply to inquiries from congress and the general public. The bulletins in Mississippi and Alabama must be kept up to date until the new system can be established. A great deal of time is required for this work.

In conclusion, I can say that within one month from the date the three agents report in Texas, we will be reporting our first-landings under the new system. The same can be said for Florida, Alabama and Mississippi.

When fully staffed, the Service will have representatives at the following locations performing duties described below.

New Orleans, La.

Headquarters -- 1 Fishery Marketing Specialist who will supervise the entire operation.

1 Fishery Marketing Specialist who will make frequent trips to nearby areas to collect statistics on a weekly basis.

1 Clerk Typist to assist in coding and other clerical work in handling schedules.

Coral Gables, Fla. 2 Fishery Marketing Specialists who will collect data on landings at isolated points on a monthly basis.

(Lyles, #3)

- Key West, Fla. 1 Fishery Marketing Specialist who will interview boats and obtain data on area of capture and quantity of effort by specie of shrimp.
- Ft. Myers, Fla. 1 Fishery Marketing Specialist who will interview boats and obtain data on area of capture and quantity of effort.
- Tampa, Fla. 1 Fishery Marketing Specialist who will interview boats and obtain data on area of capture and quantity of effort.
- Pascagoula, Miss. 1 Fishery Marketing Specialist who will collect data on landings from Pascagoula, Miss. to Apalachicola, Fla. on a weekly or monthly basis. Log books will be issued at Bayou Labatre and Southport, Alabama and this agent will pick them up.
- Biloxi, Miss. 1 Fishery Marketing Specialist who will interview boats and obtain data on area of capture and quantity of effort.
- Houma, La. 1 Fishery Marketing Specialist who will interview boats and obtain data on area of capture and quantity of effort. Weekly trips to Golden Meadow area for total landings.
- Morgan City, La. 1 Fishery Marketing Specialist who will interview boats and obtain data on area of capture and quantity of effort.
- Galveston, Tex. 1 Fishery Marketing Specialist who will interview boats at Galveston and will make frequent trips to Freeport to obtain data on area of capture and quantity of effort.
- Aransas Pass, Tex. 1 Fishery Marketing Specialist who will interview boats at Aransas Pass and will make frequent trips to Rockport, Corpus Christi and Ingleside to obtain data on area of capture and quantity of effort.
- Brownsville, Tex. 1 Fishery Marketing Specialist who will interview boats at Brownsville and make frequent trips to Port Isabel to determine area of capture and quantity of effort.

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"OYSTER INVESTIGATION PROGRAM"

Philip A. Butler
U. S. Fish and Wildlife Service
Pensacola, Florida

The expanded research program on gulf oysters, made possible by Public Law 466, can be best summarized by a listing of the projects and their objectives. Briefly, these investigations are as follows:

1. Environmental factors affecting oysters

An intensive survey of environmental factors to determine which are most important in determining such things as growth, quality and reproductive capacity.

2. Economic loss due to oyster drill.

A survey of entire Gulf Coast to determine the overall importance of the drill and how much we are justified in spending to combat it.

3. Control of the oyster drill.

A continuation of present studies to determine whether the drill can be controlled best by mechanical or chemical methods or perhaps by use of some parasite as a biological control.

4. Study of the oyster community.

An extensive survey of the natural oyster reef in regions of high and low salinity to determine what other predators are of economic importance.

These projects require the addition of several biologists and assistants to our staff plus from one to three years for completion of the research. Difficulties involved in finding qualified personnel have delayed the inception of much of this program. Recently, however, the situation has improved. One of the projects, the study of the oyster community, has been undertaken by the Oceanographic Institute of Florida State University. They will appoint two graduate men to this project which is scheduled to start in June.

(Butler, #2)

We have just made arrangements for the appointment of the biologist who is to conduct the coastal survey of the oyster drill. He will start work in one month, by which time we shall have secured all of the equipment necessary for the survey. Temporary assistants have been appointed for the summer months and we expect to have all of the projects actively underway before the end of June. By the end of the summer the remaining permanent personnel should have been appointed so that the research can continue without interruption.

While much of the research done under this program will be centered at the Pensacola Laboratory, the results will be of general application to the oyster industry in all of the gulf states, and presumably, in some of the states along the Atlantic as well. We shall also avoid duplicating many maintenance and equipment costs so that more than 75% of the appropriation can be spent on salaries for personnel. We can expect a proportionately high return in research results per dollar appropriated.

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"PROSPECTS IN GULF OYSTER RESEARCH PROGRAM"
AND "EARLY STATES OF CONTRACT WORK"

Charles Butler
Fish and Wildlife Service
Washington, D. C.

In spite of its many biological foes, ranging from the conch down to the microscopic Dermocystidium marinus; frequently unfavorable environmental conditions of too high or too low salinity; and encroachment on many good growing areas of pollution, both sanitary and industrial, oyster production on the Gulf Coast for the 1954-55 season to date is ahead of the preceding two seasons. However, it is also notable that the processed oyster industry, the canneries, are accounting for the increased production, with the Gulf fresh shucked oyster industry remaining very much a minor fishery, production-wise.

There are undoubtedly many factors involved in this poor position in marketing the Gulf oyster compared to its biologically identical brother from the Chesapeake Bay and North; namely, excessive labor costs in tonging and in shucking due to small size, insufficient return of shell to beds and other cultural practices related to the general use of public beds as compared to those in use for private beds in other producing areas. But, fundamentally much of the trouble is that there is not enough consumer demand for the product to make general improvement of conditions economically feasible. It is a vicious circle in which the Southern fresh shucked oyster industry has been trapped for many years.

The present program is aimed at breaking this vicious circle. The fresh shucked market is now largely limited geographically to a thin strip of the coast not even including the whole of the states in which the oysters are produced. Among the reasons for this may be mentioned the difference in color; browns and black shades rather than the uniform gray of the Chesapeake oyster; the tendency to develop free liquor after packing; and, directly related to this characteristic of excessive bleeding, the frequent presence of shell and more or less mud due to the very limited washing usually given these oysters. Environmental and physiological reasons for color, its chemical character, and ways to control or eliminate it are being studied. Both the Tulane University and Florida State University staffs will have a part in this phase of the work with each group employing a different approach to the problem. As for the tendency to bleed excessively, the basic physiology of this reaction is under study at Tulane University, while other aspects of the problem are being explored along three different lines at Florida State University, at Louisiana State University, and at the Fishery Technological Laboratory, College Park, Maryland. Much of the work will be

(Butler, #2)

related to the freezing of oysters and oyster products, since basic knowledge as to how and when Gulf oysters can best be frozen and stored will materially better the industry's economy in two ways: 1) it will permit spreading out the season, and 2) it will permit greatly enlarging the market area.

At present the main oyster marketing season starts just before Thanksgiving when the weather is often still warm and the oysters are poor and thin. Just before, during, and after the Christmas holidays demand is usually good, and continued cool weather and the tourist season keeps some activity in the market through February. In March the Southern oysters are said by the plant men to be in the best condition of the season, but the market is stagnant and the fresh shucked oyster business shuts down with the canneries taking over.

Current thinking is that, if a good frozen package of individual oysters, or a product such as breaded, (raw or precooked) smoked, creamed, scalloped or otherwise prepared, can be developed, these fresh shucked oysters can be packed when in prime condition and held over to meet the heavy market demand the following fall with a high quality product. These fat, high-quality oysters should not only better meet the demands in their present market territory, but should be capable of competing throughout a much larger market area. The new frozen products mentioned of a type for which a demand is proven and for which a wide market exists already, should make it possible to absorb any foreseeable increase in oyster production from the Gulf Coast without depressing prices of the raw, fresh or frozen product.

The program at both Louisiana State University and Florida State University as well as at the Fishery Technological Laboratory, College Park, Maryland has been developed on this basis. At Tallahassee a study will be made of the effect of some processing and raw material variables on the quality of the several types of frozen products prepared there. Quality will be judged by means of taste tests, and these in turn will be correlated to certain special chemical tests designed to follow changes in the fat of the oyster during frozen storage. Composition of oysters used for these storage tests will be determined as will the composition of additional samples from local beds obtained to follow seasonal changes in the oyster. The suitability of the oysters for freezing may be related to these seasonal changes. We will determine the initial values for several of the vitamin B complex and thereafter measure these same vitamins at the principal stages in processing and during frozen storage to find any points at which losses in these essential food elements occur.

At Louisiana State University additional frozen storage tests will be conducted using Louisiana oysters. Emphasis at this point will be on quality as indicated by a series of chemical, physical and bacteriological tests during the storage life of frozen oysters. Samples for following seasonal fluctuation in composition will be collected by the Louisiana State University staff in Mississippi and Alabama as well as in Louisiana. The frozen storage studies will, of necessity, be carried out with a few large

(Butler, #3)

batches from only two coastal areas. However, the analytical data for these samples and for similar samples obtained from Georgia and North and South Carolina by Service personnel should permit the application of the results obtained from these frozen storage studies to oysters from all coastal areas concerned in these investigations.

("EARLY STAGES OF CONTRACT WORK"):

It is my understanding that at both Louisiana State University and at Florida State University, the first step will be to prepare one or two large lots of oysters for frozen storage before the season is too far gone. These, then, can be examined at leisure or portions removed for preliminary work on special products, or for the development of special tests to be used in following storage changes. In both areas it is expected that, through the cooperation of State Conservation agencies and a few oystermen, small samples can be obtained locally the year round, but it might be difficult to collect and have shucked a large enough volume of oysters to put up storage lots during the period from April to October.

A good deal of the work this Spring will probably be exploratory and developmental since work specifically with oysters is new to both groups, and past experience personally has shown that the oyster is like no other marine product, and requires modification and adaption of procedures through trial and error.

We are conducting studies on the freezing of Pacific oysters at the laboratory in Seattle, Washington. This work was started several months ago and is sponsored by the Refrigeration Research Foundation. Information and ideas gained there will be available for our Southern Oyster research. In fact through an exchange of samples for evaluation the two projects are being closely integrated.

Typical analysis of oysters from North and South: Due to variability in both, all natural and normal, it is almost meaningless to give one set of values, but the following data may serve to give an idea of differences:

	Dry Solids	Protein	Fat	Ash	Salt	Carbohydrates
Northern oyster, shell	14.0	8.0	1.3	2.1	1.4	2.6
washed and blown	15.5	9.0	1.5	1.0	0.3	4.0
Southern oyster, shell	10.5	6.1	0.8	2.2	1.7	1.4
washed and blown	15.0	8.5	1.2	1.8	1.0	2.5

On the basis of incomplete data from shell samples only for oysters collected in mid-October, mid-December and late January, the following observations appear to be warranted: early season oysters from Louisiana beds were poorest with total solids averaging less than 10 percent, and the other components correspondingly low. Condition of all oysters improved slightly as season progressed, with small increases in total solids, protein and fat and larger increases in glycogen (determined by difference).

(Butler, #4)

Salt content of samples was fairly high everywhere, but Georgia and South Carolina oysters were especially salty, over 2 percent. Florida oysters were only slightly less, 1.8 - 1.9 percent, while those from Alabama, Mississippi and Louisiana beds were quite variable, ranging from 1.0 to 1.8 percent. Oysters from the East side of Mobile Bay were about the least salty. There seems to be little seasonal effect on salinity in the period covered, probably reflecting the continuing generally low precipitation over the area.

When washed oysters (taken in most cases from the skimmer without additional holding) are compared with the corresponding shell controls, some interesting differences were found. The oysters prepared in the small plants along the coast, excepting New Orleans, generally are given only superficial washing. As a result the liquor bleeding out in the shucking bucket is drained off, but the oysters do not have a chance to soak up fresh water, and the dry solids content increases from 10-12 percent in the shell samples, to 14.5 and as high as 17.5 percent dry solids, with the salt content remaining fairly high, from 0.8 to 1.6 percent. In New Orleans, the practice of holding oysters in pans or cans of water is used to get cleaner oysters than can be obtained by merely washing on the skimmer, but this permits absorption of fresh water and dry solids rarely exceed 12.5 percent, while salt content may be as low as 0.35 to 0.45 percent.

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"THE GULF OYSTER TECHNOLOGICAL PROGRAM AT TULANE UNIVERSITY"

Milton Fingerma
Tulane University
New Orleans, Louisiana

The oyster grant deals with two problems of rather diverse nature.

1. Bleeding.

When oysters are shucked, a bleeding or diapedesis occurs along with a general secretion of body fluids and mucus. The commercial importance of this is that about 25% of the volume of the oyster is thus lost as fluid and the retail price rises proportionally. The Government, therefore, wishes to learn something of the blood of the oyster and its reaction to determine if this condition can be altered or arrested. Mollusc blood contains hemocyanin, the copper respiratory pigment, and 1-2% blood cells. There is no coagulation mechanism similar to vertebrate fibrin clot formation. The only thing that occurs is an agglutination of the cells. We shall determine if bleeding is an essential concomitant of shucking or whether it can be prevented. We also plan to investigate the agglutination reaction and determine the factors that cause the cells to agglutinate, as well as the stimulus for agglutination and whether or not it occurs in normal individuals. We shall also investigate the mechanism of secretion of this fluid. Is it due simply to a contraction of the tissue, forcing out the fluid, or is it an active secretory process?

2. Brown-spotting.

A small percentage of the Southern oysters have brown spots in their tissues. For this reason they are not as popular commercially as are the non-spotted oysters. Therefore, the Government is interested in determining the nature of these spots. Grave in 1909 found a similar spot in another mollusc, *Atrina*. He believed the pigment was formed by the pericardial excretory gland and taken up by blood cells as excretory products. He also found such blood cells with large brown granules. There is no similar description of these spots in oysters. It is possible that the excretory gland cells fill with this pigment, then slough off and are piled up in small blood vessels. We hope to determine the nature of the pigment and whether it is functional. Is it intra- or extracellular? How is it produced and why do not all the oysters in a given locale have the brown spots if it is an excretory product? Because if it is an excretory product, then we would expect all the oysters in a given area to show the spots. All are presumably eating the same materials in this

(Fingerman, #2)

given area and should have the same metabolic end products. We also plan to determine whether a normal oyster can be induced to form brown spots.

We propose to supply answers these fundamental problems and those who wish may apply this information to solve these problems on the commercial level.

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"THE ECONOMIC SURVEY OF THE SHRIMP INDUSTRY: INFORMATION TO BE OBTAINED FOR THE BENEFIT OF INDUSTRY, AND PROGRESS TO DATE."

Walter H. Stolting
U. S. Fish and Wildlife Service
Washington, D. C.

Origins of Survey. This survey goes back to economic conditions prevalent in the shrimp industry in 1951. Prices for shrimp had dropped precipitously in that year and fishing effort by fishermen was directly affected. This condition came before the purview of the Gulf States Marine Fisheries Commission and a request was received from that body by the Fish and Wildlife Service to undertake an economic survey of the shrimp industry. Because of lack of personnel and finances the Service could not act at that time. Now with Saltonstall funds available such action can be taken and it should be noted that economic conditions similar to 1951 have recurred since the latter part of 1953.

Personnel A small nucleus of researches will be maintained on the staff of the Service. These few people will be responsible for organization and coordination of the survey in addition to conducting a few important lines of research. At least one half or more of the workload will be undertaken by personnel of universities or private research firms. Most of these agencies outside the Service will be from the Gulf or South Atlantic area.

Outline. An outline for the survey has already been developed and has been reviewed by various people at the local level who have offered valuable suggestions.

Catch and Utilization. This outline calls for opening the survey with some introductory background material, history of the industry, and study of world catch and utilization. Relative to the latter will be a detailed analysis of the United States catch and utilization. The various segments of the industry both in the Gulf, South Atlantic and other areas will be covered. Efficiency of United States vessel operations and other topics will be studied to determine if cost savings can be effected.

Processing. What happens to shrimp immediately after they are landed will be covered in this section. The efficiency of plants will be checked to see if improvements can be made in this area resulting in lower costs. Ideas about new products will be discussed with processors. Relative importance of the charge for processing as related to consumer expenditure

(Stolting, #2)

for the finished product will be covered for purpose of comparison with other main elements sharing consumer's dollar.

Foreign Trade. United States imports or exports will be determined in detail. It is expected that exports will be found to be insignificant. Leading sources of imports which are significant will be shown.

Foreign Countries Production. Catch and utilization and processing of shrimp in foreign countries will be studied. It is planned to obtain much information in this area through our Foreign Service. Detailed study of costs in the more important foreign countries producing shrimp will be undertaken so as to get some idea as to domestic versus foreign costs of production.

Consumption. Several different types of work will be undertaken in connection with this subject. It is planned to have a private firm contact a representative sample of wholesalers and retailers to determine from them what might be done about new products, increasing consumption, etc. Consumption data will be analyzed to determine general characteristics of consumers demand for shrimp and its various products.

Distribution and Marketing. Data on the channels of distribution through which shrimp flows from producer to consumer will be obtained. Costs incurred in this process will be assembled and studied to determine if efficiencies can be effected in this area.

Government Assistance. Assistance in this respect to the fishing industry with particular emphasis on shrimp production will be studied. A comparison of United States assistance with assistance given in various foreign countries will be made.

Recommendations and Conclusions. Recommendations for the benefit of the industry will be made, particularly with respect to foreign competition. Since this is a fact-finding study with no authority to promulgate findings for suggested programs in the economic field, this study should serve principally as a base from which the industry, legislators, etc., can make determinations as to the need for and possible future programs. A report on the survey should be ready in the spring of 1956.

(COPY)

GULF STATES MARINE FISHERIES COMMISSION
Montgomery, Alabama
Dinkler-Jefferson Davis Hotel
March 17-18, 1955

ADDRESS

John L. Farley
U. S. Fish and Wildlife Service
Washington, D. C.

The Gulf States Marine Fisheries Commission was organized to promote the better utilization of the fisheries, marine, shell and anadromous, of the seaboard of the Gulf of Mexico, by the development of a joint program for the promotion and protection of such fisheries and the prevention of the physical waste of the fisheries from any cause.

Member states are Florida, Alabama, Mississippi, Louisiana and Texas. The Compact was signed May 19, 1949. It is the newest of the three State Commissions.

The first was the Atlantic States Marine Fisheries Compact approved in 1942, and the second, the Pacific State Marine Fisheries Compact approved in 1947. If the device of interstate cooperation in the consideration of fishery conservation problems of mutual interest had been a failure in the instance of the Atlantic States Marine Fisheries Commission, the other two would not have been established with the approval of the legislators of the various states and with the consent of the United States Congress.

Since its inception the Commission has worked closely with the Service and has been effective in bringing research needs of the Gulf fishing industry to the attention of the state research agencies and to the Service, which is the primary research agency of the Commission.

Growth of fishery research in the Gulf has been remarkable during the brief period since the Gulf States Marine Fisheries Commission was organized. We have observed with great interest the intensive programs underway to solve Gulf fishery conservation problems. These programs are aimed to help the fishing industry. Each state now has its own conservation agency or provides for marine fisheries research through contracts. Outstanding programs are studies of shrimp stocks in Mobile Bay by Alabama, studies of the ecology of Lake Pontchartrain by Louisiana, and a comprehensive program on various marine problems by Texas. The University of Texas, Texas A. and M. College, Tulane, University of Miami, and other universities and colleges are engaged in Gulf marine fisheries research. With the Commission's help the Service has established the laboratory at Galveston, Texas, for marine biological research, and the exploratory fishing and gear development section at Pascagoula, Mississippi. Such research groups are a credit to the Commission and truly reflect what can be accomplished when agencies with a common goal work together.

(Farley, #2)

Thus there is evolving a pattern of coordination on the part of all Gulf research agencies working with the Commission to obtain the knowledge necessary for wise utilization of Gulf fishery stocks. In this respect the Commission, the Service, and the state agencies are striving for a common goal. The Commission is organized to insure that research is made possible and that it is directed towards problems which will benefit the fishermen.

One of the principal functions of our research agencies is to further development of fishery science through study of living fishery stocks as they are affected by fishing and by changes in the natural environment. The goal of our scientific staffs is to provide the information required for rational direction of fisheries, and it is the task of organizations such as the Commission to translate information into practical application which usually takes the form of unified laws or regulations.

Some brief observations on the genesis of the interstate compact idea as an aid to fishery conservation may be appropriate. The history of fishery research in the United States has shown that the uncoordinated piecemeal approach by individual agencies has not on the whole produced satisfying results, and this is because marine animals do not seem to know about man-made boundaries. The shrimp resources of the Gulf of Mexico are common to all of the Gulf states; so is the menhaden resource. These same resources of the Gulf are contiguous to the resources in the South Atlantic Ocean. Shad and striped bass range along a big stretch of the Atlantic Coast. So with other species.

Most of our biological research problems have been started under the pressure of bad situations affecting particular fisheries. A sharp decline in total catch might be the occasion for a new program as was true in the case of the haddock fishery in the late 1920's; or a fishery stock might disappear from the fishing grounds as was true of the Pacific sardine in 1947; or it might be an invasion by a new predator that had not formerly affected the fishery stocks as was true when the sea lamprey invaded Lakes Huron, Michigan, and Superior; or there might be a mass mortality of fish as was true on the west coast of Florida last year; or there might be a competition between the two kinds of fishing gear engaged in a common fishery as was true in southern New England in 1870. This last controversy was the occasion for the founding of the United States Fish Commission.

Most fishery research programs have not been able to get under way until the particular situation has run its course and then it is too late to reconstruct what happened. The programs, however, have continued because other problems have arisen, other particular situations have developed.

We are pleased to note that biological research is underway in the Gulf before adverse conditions have obtained. I refer particularly to the

(Farley, #3)

shrimp fishery which contributes so much to the fishery economy of the entire Gulf. Although the program carried on by the Service during the early days of shrimp research was a meager one, the information gained when pooled with knowledge obtained by researchers of the Gulf agencies will form a basis for the new programs which have been started through efforts of the Commission. The Gulf surveys now being completed by the staff at Galveston will provide further knowledge essential to future shrimp research. Through this work they have developed valuable techniques of handling water samples, and they have equipped and learned to operate a complete biochemical and culture laboratory for studying the development of shrimp. Thus the future looks encouraging for increased and fruitful shrimp research.

Most of you, I know, are wondering what the policy of the Service will be when the final decisions are made in augmenting or implementing research with Saltonstall-Kennedy funds. The program now underway results from funds which our research scientists believe can be spent wisely while new people are being recruited and results obtained from initial studies to develop techniques which are required for shrimp population definition. The Service expects to follow a policy of using its appropriations and any additional funds it may receive where they will bring the greatest return. The Service has personnel who are expert in many phases of our fisheries. We believe results emanating from research to gain a store of knowledge of the nation's fisheries will pay off handsomely, not only by maintenance of the resources, but in many instances, by increasing production through direction of fishing rates. We further believe the shrimp, oyster, menhaden, and other fisheries of the Gulf should share in research results similar to those of other areas, and we recognize the Gulf fisheries as a large and important part of the United States fishery industry. We are pleased to work with the Gulf States Marine Fisheries Commission to achieve useful research results.

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GULF STATES MARINE FISHERIES COMMISSION
Montgomery, Alabama
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March 17-18, 1955

"OUR LATEST APPRAISAL OF THE GULF YELLOWFIN TUNA"

Harvey R. Bullis, Jr.
U. S. Fish and Wildlife Service
Pascagoula, Mississippi

At the October meeting of this Commission Stewart Springer told you about our progress in the Gulf of Mexico exploratory tuna program and described our long-line fishing gear and methods. At that time catches had been made over too short a period to attempt an appraisal of the possibilities of a Gulf yellowfin tuna fishery.

In reality, that situation, for the most part still exists. It was only ten months ago that the first long-line caught yellowfin was brought to gaff on the Oregon and the large number of still-to-be-answered questions precludes a comprehensive appraisal for some time to come. However, the intense interest that has developed has brought a deluge of inquiries from Gulf fishermen, as well as from west and east coast fishing interests. To some degree, this has forced us to present a preliminary evaluation of results to date. Perhaps the best way to present this to you is to answer, as best we can at this time, the basic questions we have been asked.

Question I. Are yellowfin tuna present in the Gulf throughout the year, and if so, what seasons produce the highest catch?

For the past year we have been most interested in finding the seasonal range throughout the Gulf, and most of our trips have placed emphasis on fishing wide areas. Coverage has been good in the north and western Gulf but very poor in the southeastern Gulf. In essence, this coverage shows yellowfin distributed throughout the Gulf beyond the 500-fathom curve. The Oregon has caught yellowfin tuna on long-line gear during every month from May 1954 through February 1955.

In late February of this year there was a marked decline in the yellowfin catch which coincided within a week with the appearance of large bluefin tuna weighing from 300 to more than 700 pounds each. The first few bluefin were captured along with several yellowfin in the commercial catch; however, within a week, catches became almost exclusively bluefin. Several tuna boat captains have mentioned that fishing concentrations of bluefin and yellowfin are rarely found in the same area in the Pacific. Whether the arrival of migratory bluefins is directly associated with the disappearance of yellowfin in the Gulf catches at this time is a question we are unable to answer. Prior to this time it was unknown where bluefins congregated between late fall and early summer. We do know that in early June these large bluefin follow the

(Bullis, Jr., #2)

Gulf stream north to the Gulf of Maine so their exodus from the Gulf of Mexico in May might well be associated with our first yellowfin catches in May 1954.

In the western Gulf during May and June of last year the mature fish captured were either recently spawned out, partially spawned out, or running ripe. And, during this period and through September post-larval and juvenile yellowfins were captured at many widely separated night-light dip-net stations.

Length frequencies of Gulf caught yellowfin show the presence of several size groups. By plotting these frequencies on a monthly basis there is a gradual seasonal change in the different groups which are attributable to growth.

Stomach analysis has shown that the food is quite similar throughout the year, consisting almost entirely of the scientifically little known deep-water fishes, squid and octopi. There has been no observed seasonal concentrated feeding on shoal or shallow-water species.

From this early evidence it appears that the Gulf contains, to some degree, a self-sustaining stock of yellowfin tuna. This does not discount the likelihood of some loss, gain, or exchange with Atlantic and Caribbean yellowfin.

Trying to evaluate seasonal catch rates puts us even farther out on a limb. We have not completed one full year of longlining as yet. Also, a myriad of other variables such as using different baits and changing gear design have probably influenced catch rate somewhat. To date, we have made our best catches (in terms of number of yellowfin per 100 hooks) from mid-summer through the fall.

Question II. What areas will give the highest production?

Catch rates on the Oregon, averaged on a cruise basis, show a fairly uniform rate for the north, western, and central Gulf. As I have said, we know very little about the southeast Gulf. Two or three sets between Key West and the Campeche Banks caught yellowfins at rates less than one fish per 100 hooks. Largest individual catches and best individual set catch-rates have been made in the central and north-central Gulf, from 50 to 200 miles southward from the Mississippi Delta.

Question III. What catch rates can be expected, and has this been a good, bad, or average year?

We have no way of telling whether this a good or bad year. We have no basis for comparison. If surface indications of yellowfin mean anything

(Bullis, Jr. #3)

(and it is questionable if they do) this year was better than 1950, much poorer than 1951, and about par with 1952 and 1953. We have no evidence that shows correlation between surface signs and long-line catches. Only by fishing over a period of several years and keeping accurate catch records will these fluctuations become known.

Catch rates for all exploratory longlining to date have averaged approximately 1.3 fish per 100 hooks. Restricting the averages to those sets made throughout the Gulf beyond the 1000-fathom curve we have caught approximately 1.9 yellowfin per 100 hooks. Averaging the sets made in the north-central Gulf shows a rate of 3 yellowfin per 100 hooks. These averages closely parallel those of the commercial boats now fishing for yellowfin in the Gulf.

Highest catch rates on the Oregon to date have been 6.5 fish per 100 hooks. In this we have been greatly overshadowed by one commercial vessel that made several catches of 10 to 12 fish per 100 hooks and completed a trip with a better than 5 fish per 100-hook average. That trip was made last September and during two weeks the Santa Antonino landed over 13 tons of yellowfin while fishing only 40 baskets of gear a day (less than one-half the commercial string of gear).

Question IV. Are there other species of tuna present in the Gulf in large quantities?

Yes, but we have not succeeded in catching many. The presence of large bluefin tuna, at least seasonally, has recently demonstrated by catches on the Oregon, the long-line vessels Mike Flechas and San Marcos. We have previously captured small bluefin while live bait fishing. Catches of large bluefin have been restricted so far to late February and March and the degree of future commercial importance is unknown. If the migration pattern is consistent and their arrival in the northern Gulf is coincidental with the period of absence of yellowfin they could offer a suitable fishery to occupy the long-line vessels until the yellowfin reappear. This will require some rerigging of gear but should be relatively simple and inexpensive. One 300-pound bluefin has submerged and collapsed two buoys that have held as many as seven 100-pound yellowfin on a single basket. Within the past week one of the commercial boats has had 24 baskets of gear "carried away" in a single set by a catch of unknown numbers of bluefin. A few days later three 500-pounders submerged six baskets of gear but were recovered.

Repeated observations of numerous and large schools of mixed blackfin tuna and white skipjack heavily concentrated in the late summer and early fall has lead us to believe that these species might eventually prove to be present in greater numbers and weight than yellowfin. Previous efforts by the Oregon to catch blackfin with a purse seine were fruitless. Subsequent trials with

(Bullis, Jr., #4)

live bait met with only slightly better success. Captures of these species on long-line gear have been comparatively small so their availability is still the major question.

In conclusion, we feel that the Gulf tuna potential is very promising. The presence of commercially valuable stocks is now being demonstrated by several Gulf fishing vessels which have been converted to longliners. The close proximity of fishing grounds permitting short trips by small boats using small crews is a competitive advantage that everyone present can appreciate.

GULF STATES MARINE FISHERIES COMMISSION
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"THE AVAILABILITY OF SO-CALLED TRASH FISH IN THE GULF OF MEXICO"

Stewart Springer
U. S. Fish and Wildlife Service
Pascagoula, Mississippi

The problem of trash utilization has been with the fishing industry for a long time. An early effort to find a solution resulted in a fifty page report published by the U. S. Bureau of Fisheries nearly fifty years ago (Field, 1907) under the title Unutilized Fishes and Their Relation to the Fishing Industries. It is significant that this title does not refer to trash by that name. Once a fish or shellfish becomes the fishing objective it is, of course, no longer trash. It is also noteworthy that the only practical suggestion offered for handling the problem was to increase utilization of the species then having no satisfactory market. The problem remains as a challenge to everyone associated with the fishing industry and advances cannot be expected without the combined efforts of the technologists, the economists, and most important, the members of the fishing industry. The problem also needs the attention of the biologists because we have only a hazy idea of the effects, good or bad, of trash on other fisheries.

An arbitrary definition to be used here is that trash is any kind of fish or shellfish available to the fishing industry for which there is no established market. Sometimes trash is taken in the course of fishing for marketable fish or shellfish. However, fishermen avoid the fish or shellfish that are not wanted because handling and getting rid of unmarketable material is expensive and time-consuming. It follows that figures on the amounts of trash picked up by fishing vessels do not provide a sufficient basis for an estimate of the actual abundance of trash in the sea.

Some Abundant Fishes of the Gulf of Mexico.

Using all of the criteria available at the time, Gunter, (1941) has estimated the relative abundance in terms of species mass of the fishes of the shallow waters of the northern Gulf of Mexico and has tentatively ranked the first four. In this ranking the anchovies come first, the menhaden and mullet second and third, and the croaker fourth. It should be noted that these estimates apply to a restricted area and not the Gulf as a whole and that local and seasonal fluctuations are disregarded. I have no information that would bring me to disagreement with Gunter's ranking but if we enlarge the area to be considered to include all waters out to the edge of the continental shelf in the entire Gulf of Mexico, there are several additional species that should rank among the most abundant of Gulf fishes. The relative availability of fishes to shrimp trawls for several shrimp fishing grounds in the western

(Springer, #2)

Gulf of Mexico has been shown in the study of Henry Hildebrand (1954). This study indicates that many Gulf species occur in enormous numbers in different localities at appropriate seasons. Based on observations from the M/V Oregon, as well as on catches made with several types of gear by the Oregon, I would add the thread herring (Opisthonema oglinum), the Spanish sardine (Sardinella anchoa), the rough scad or cigar minnow (Decapterus punctatus, the razor-bellies or Gulf sardines (Harengula sp.), and the Gulf porgy (Stenotomus caprinus) as species which in total mass possibly exceed that of the menhaden in the Gulf of Mexico. I have excluded from consideration the lantern fishes which are scattered through the waters beyond the continental shelf and some of the smaller species of bottom fishes which may be present in greater mass than would be indicated by bottom sampling with trawls which have large mesh.

My reason for emphasis on estimates of the relative species mass of Gulf fishes is to point out that only a few are directly utilized by the fishing industry. Our knowledge of the abundance of fishes of the Gulf comes chiefly from commercial catches with commercial gear. Comparatively speaking we know much more about the bottom fauna available to shrimp trawls on the shrimp fishing grounds than the midwater fauna because the shrimp trawl is the gear most common to the Gulf fishing industry. In sampling done by the Oregon the evidence of catches would actually point to the menhaden as one of the less common of Gulf fishes or to the redfish and speckled trout as great rarities. This may result in part from the fact that much of the fishing done by the Oregon has been outside the range of these species but probably chiefly to the fact that the species are not ordinarily available to the gear employed on the Oregon.

As stated by Gunter (1941), a significant point about our most abundant Gulf fishes is that they feed low in the food chain. Those species estimated to represent the most abundant forms in species mass in the Gulf are all relatively small fishes. The largest of the group, the mullet, is extensively marketed only east of the mouth of the Mississippi River. The anchovies are represented in the Gulf by several species, some of which are present in inshore waters throughout the Gulf. Anchovies were caught by a trap lift net (Siebenaler, 1953) from the Oregon in the northern Gulf of Mexico in summer and fall for use as live bait for tuna fishing, and observations at that time suggested the possibility that relatively large numbers could be taken by small fishing boats using suitable gear. I know of no commercial utilization of anchovies in the Gulf of Mexico area. The Spanish sardine and the rough scad or cigar minnow are taken together in beach-haul seines in summer along the north Gulf coast of Florida. In these hauls the scad is the most numerous and in greater demand for use as snapper bait but both species are used. Observations from the Oregon indicate that the two species may occur together offshore in midwater. I was greatly impressed by a diffuse school of mixed rough scads and Spanish sardines seen in midwater on underwater television from the Oregon during trials of this equipment carried on as a joint undertaking by

(Springer, #3)

the Service's Gear Research Station at Coral Gables, the Navy, and the University of Miami Marine Laboratory. This was a particularly interesting observation to me since I could also see the net we were using to try to catch the fish, and could see that nearly all of the fish easily avoided the net in this particular operation. Large dense schools of the Spanish sardine have been observed from the Oregon on the northern Campeche Banks and off Florida Bay and near Tortugas. Collections with lights and lift nets have been made in both areas. The Spanish sardine is used by the Venezuelan fishery on Margarita Island for canning but is not utilized for food in the Gulf area. The scad is taken in shrimp trawls frequently and the Spanish sardine rarely but probably neither are characteristic of the bottom fauna.

The thread herring has been repeatedly observed from the Oregon in great schools off Florida Bay and northward from Tortugas. It appears to be common at least as far west as the mouth of the Mississippi River. Oregon catches have been made with lift nets, lampara nets, and midwater trawls, but very few have been taken in shrimp trawls. Menhaden fishermen are said to take the species occasionally but it is not sought because of its lower oil content. Miles and Simmons (1950) report it as comprising a very small percentage of the catch by menhaden fishermen and Hildebrand (1954) mentions only a few specimens from shrimp trawl catches but reports it as common on the Campeche Bank in February, 1951.

The razorbellies or Gulf sardines apparently do not ordinarily form such large schools as thread herrings but are widespread throughout coastal waters of the Gulf. They have been taken by the Oregon chiefly in lift nets and lampara nets. Parenthetically, the Oregon has not taken a menhaden in either a lift net or a lampara in spite of use of this gear in areas where menhaden are abundant and in seasons of abundance. The other species, croakers and porgies, are bottom fishes. The croakers taken by shrimp trawlers in the Gulf are smaller even though sexually mature, than croakers of the Carolina coasts. Most of the croakers taken in large numbers by the Oregon west of Pensacola weighed less than a fifth of a pound and consequently are of little market value as food fishes.

Utilized Fishes taken by shrimp trawls.

The large amount of trash taken by shrimp trawlers in the Gulf of Mexico has been the subject of discussion. Baughman (1950), Vincent (1950) and Siebenaler (1951), have given estimates of the volume of trash discarded by shrimp trawlers. The composition of trash in the ratio of invertebrates to vertebrates taken by shrimp trawlers varies greatly in different localities (Siebenaler, 1951). Studies of the relative numbers of shrimp-trawl caught fishes by Gunter (1945) and by Hildebrand (1954) show great variation in species composition seasonally and by area.

*much

(Spinger #4)

To the fishermen trash is any kind of fish or shellfish that is not worth bringing to the dock, either because it cannot be sold or requires too much labor for the monetary return. Trash might be potentially high priced like the stone crabs (*Menippe mercenaria*) taken occasionally by shrimp trawlers near the mouth of the Mississippi River but thrown overboard because there are not enough stone crabs taken in the area to make a market. Most trash, however, is made up like the small croaker or the lizard fish that are either potentially low priced or have no merit at all as marketable items for human consumption.

Shrimp fishing is carried on over a very wide area and while the total amount of trash discarded by the entire shrimp fleet in a year may be a very impressive figure, there is no available estimate of the amount that could be collected in one place over a full year of operation. Some of the better shrimp fishing grounds are a long distance from the nearest ports where shrimp are unloaded and few shrimp grounds are heavily fished during all seasons.

Shrimp fishermen prefer not to catch trash. If the proportion of trash gets too high it may be necessary for them to look for other grounds because the sorting takes too much time. Occasionally good catches of shrimp are taken with large catches of trash. At such times all hands have to work at full speed to save the shrimp. In view of the difference in value of shrimp and potential value of the trash, they would be unable to give sufficient attention to trash to assure a good product. There are important difficulties in the utilization of trash fish taken by shrimp trawling for reduction and the preparation of fish meal. The cost of handling trash aboard the shrimp fishing boat in such a manner that it does not interfere with the primary fishing objective is the chief one. Harden F. Taylor (1951, pp. 360-361) in discussing the preparation of fish meal states, "It is therefore a disconcerting fact that in cost and with technical methods now available, the vast resources of the sea, except those which pay their way with oil and human edible portions, are economically beyond reach for fertilizer and animal nutrition." Taylor's discussion points out that fish meal production is a large-volume, low price operation and that only the larger centers of fishery production provide a sufficient volume of waste from canneries or as a by-product of other fishing to permit reduction plants to operate. The only trial collection of trash fish for reduction that I know of in the Gulf area failed because the cost of collecting the trash with a "run-boat" was too high and because the amount of trash actually obtained was substantially less than the amount estimated to be available in a previous survey.

Utilization of fresh trawl caught fish for canned or frozen for animal food

Increasing quantities of bottom fishes taken by trawling have been utilized in the past year or so in the northern Gulf for canning for animal food. The trawlers bringing the iced fish to these canneries land unsorted mixed fish. Some of the larger fish such as sting rays are removed and discarded at sea but most sorting and handling is carried out at the dock in an efficient manner and at low cost. Shrimp or food fish are a by-product. Figures on the amount of waste are not available but my own observations lead me to believe that waste is very small. My observations would also suggest that these landings of mixed iced fish contain relatively few shrimp and unimportant quantities of marketable food fishes.

The use of trash fish collected from vessels primarily engaged in shrimp fishing for use in the preparation of canned animal food does not appear practical because of the cost of handling and icing the scrap as well as the interference of the operation with the primary business of fishing for shrimp. On the other hand the fishing vessels trawling for fish to be used for animal food make much larger catches of fish than the shrimp trawler. These vessels would rarely be able to make a paying trip either by random dragging or by fishing only in areas where shrimp are to be taken.

The comparatively higher prices of fish for use as animal food, canned or frozen, make it possible for trawlers to operate in the northern Gulf of Mexico specifically for the purpose. The vessels now working in this fishery land more croakers than any other species from their mixed catches. If there is any expansion of the present fishery in a small geographical area it seems likely that some of our other low-cost fishes will be utilized in that area. The porgies are available to trawlers in deeper water and the employment of other types of gear might be expected to tap some of our resource in midwater fishes.

The surveys made by the Oregon and information from sources already quoted indicate that the important grounds for trash available to trawls all lie on the continental shelf west of the "Middle Grounds" - Cedar Key area around to the Campache pink shrimp grounds. We may restrict this further since long hauls are impractical for low-price products, to the shelf between Cape San Blas, Florida, and Brownsville, Texas. On the negative side we do know that the quantities of fishes available to shrimp trawls on the gulf coast of peninsular Florida is low in comparison with availability in the west Gulf. We also know that the proportion of invertebrates available to shrimp trawls is high in this area.

We have practically no information on the presence or absence of large quantities of mid-water fishes west of the mouth of the Mississippi River. Observations east of the Mississippi from the Oregon and particularly depth sounder tracings, suggest great abundance of schooling fishes out to depths of at least 15 fathoms.

(Springer, #6)

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Gulf States Marine Fisheries Commission
Montgomery, Alabama
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"SHOULD SHRIMP AND GAME FISHES BECOME MORE OR LESS ABUNDANT AS
PRESSURE INCREASES IN THE TRASH FISH FISHERY OF THE GULF OF MEXICO"

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The question involved in the title of this paper could be answered by a fishery biologist with a vast complement of data on the populations of the marine fishes of the Gulf of Mexico, or it could be answered by a prophet. Since I am not a prophet and we do not have the necessary fisheries data, I shall have to try to keep a middle course between two extremes at the risk of being less trustworthy than either one. However, we do have some odd bits of information here and there and with these I shall try to construct a reasonable view of the situation.

The trash fish industry seems to be centered about the middle northern Gulf and, furthermore, most of our data comes from this region. Because of the lack of data along the west Florida coast, my remarks shall apply to the region between Brownsville, Texas and about St. Marks, Florida. With regard to this area three or four simple questions arise immediately. In the first place what types of boats will be used in this fishery? I am proceeding under the assumption that it will be largely those boats not properly fitted for off-shore work in the shrimp fishery or in the tuna business, if it develops. As all of you know, there has been a remarkable evolution in the type of boats used in the shrimp industry during the past twenty-five years. At the outset of the Campeche fishery all sorts of cracker-boxes engaged in the work and they sank going and coming. However, by and large, old shrimp boats never die but slowly rot away. There are a multitude of old boats on this coast which can not compete in the modern shrimp fishery. Some of these turn to bait fishing and others may be available for the trash fish industry because they do not have large holds for ice, etc. In any case, it appears that for some time to come the large trash fish catches will be made not too far from shore.

The next question following is, what kinds of fish are available to the small trawler in this area. Although we have some information for deeper water because of Mr. Springer's explorations and partly because of a closer inshore survey between twelve and forty fathoms, made by Dr. Henry H. Hildebrand, of our Institute, I believe that our remarks at this stage should be confined to the Gulf area within ten fathoms, for that is where the greatest exploitation will probably take place, at least for some years to come.

(Gunter, #2)

Work carried on in Louisiana and Texas over the past twenty-five years shows that the dominant fishes in this area belong to the families Sciaenidae and Otolithidae. These are the croakers and sea trouts. Now it may be said very firmly at the outset that sports and commercial fishes are not taken by trawlers. The black drum and the redfish are both members of the Sciaenidae and the speckled trout is an otolithid. However, these are very rarely taken in trawls. Hundreds of samples taken in Louisiana and Texas show that redfish, black drum and mullet were not caught in outside waters in trawls. The combined percentage of the trawl catch of speckled trout, spanish mackerel and pompano was less than 0.009. Similarly, the red snapper is rarely taken. Thus we can say without equivocation that there is not and never will be any direct effort of the trash fish industry upon commercial and sports fishes of the Gulf of Mexico, so long as the method of harvesting is confined to trawlers; and since trawling seems to be the most efficient method of fishing, there seems to be little fear that the situation will change in the foreseeable future.

The next question is, what indirect effects will large scale exploitation have upon the sports and commercial fishes. Here, comparatively speaking, we leave a lighted area of knowledge and go into one that is much darker. And I might say at the outset that we shall have to know a great deal more about the life history, ecology and interrelationships of a great many species of fishes and shrimps and other animals than we know today before firm answers can be given to that question. Nevertheless, a few facts are available from which possibly some inference may be drawn.

Aside from small changes which may pass unnoticed by even a long time observer I have pretty well demonstrated, at least to my own satisfaction, that great declines of the general fish populations on the Texas coast are caused by natural catastrophies, of which the chief two are the Red Tide and sudden hard cold waves. The same mass mortalities affect the west Florida coast but have less influence in the northeastern Gulf from the Mississippi River east. I have also been impressed with how quickly these matters are forgotten and how, during the summer following a winter of decimating cold, sportsmen's complaints concerning destruction by the commercial fishery rise to a peak, only to fall away and subside after a few years of mild winters when the fish population rebounds.

There is another small bit of evidence which to me, at least, has been impressing. Years ago, as a beginning fishery worker I was dismayed at the waste of trash fish caught by the shrimp trawlers and even wrote a paper on the subject, in which I tried to calculate the amount of fishes destroyed. The chief fish, as I stated, was the croaker. Since that time the shrimp industry has expanded enormously and larger and bigger and better boats with larger and more efficient trawlers have been devised. This was especially true in the State of Louisiana where the original work was done. Two or three

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years ago I had occasion to repeat some of this work. The fish found to be still present in enormous numbers everywhere was the croaker. The situation is about the same as ever, in spite of a manifold increase in shrimp trawling in the past twenty-five years. Furthermore, the total population of all fishes was apparently as numerous as it ever was. I remember suggesting in the preliminary paper that the shrimpers should make every effort to throw the trash fish overboard, as quickly as possible, so that some of them would survive. I admit this somewhat ruefully because it was the naive and impractical statement of a youthful idealist. (I still have a great respect and reverence for life, for it seems to be the substance of ultimate value on this planet, and following the words of a famous zoologist of the last century, Dr. W. K. Brooks, I try to treat every living thing as if it possessed a sensitivity somewhat akin to my own.) Thus, I still think my suggestion was good, so far as it applies to an individual fish, but so far as the general population goes its rigorous observance would have no effect than the sun rising in the morning.

more

Now, if the critical mind accepts what has been said up to now, he might easily say that is all well and good, but what about the increased and heavier exploitations which might develop in the future. Here we go into a still darker region of knowledge but there are a few little pinpoints of light. The area of the Gulf of Mexico between the Rio Grande and the north-east corner of the Gulf out to ten fathoms is roughly 20,000 square miles in extent. It would be very nice if we knew how much of a fish population exists over this bottom, but we do not know and can only make some very bold guesses. Very little quantitative information is available. If we approach it in one fashion we find that the bay waters of Texas cover some 3500 square miles and that the population seems to be about seventy-five per cent depleted when about ninety million pounds of fishes are killed by hard cold waves. Thus we may make a shaky guess that the total population there is about one hundred and fifty million pounds. It is not proper to compare Texas bay areas with the open Gulf, for we do not know what the density ratios are, but I think it is probably correct to assume that the amount of fishes is greater in the Gulf. Thus we might have the temerity to suggest that there are about a billion pounds of trawlable fishes in the area out to ten fathoms in the northern Gulf of Mexico. It may be something less or it may be nearer two billion pounds. In any case, the supply is vast and it is renewable. I believe, therefore, that there is enough trash fish within this circumscribed area of the Gulf to support a vastly increased catch for a great many years to come without any diminution of supply for the cats of America, or the sports and commercial fishes which subsist upon this population.

At present the shrimp population is subject to two great influences. The first is fishing pressure. Last year over 200,000,000 pounds of shrimp were landed at Gulf ports. This is terrific pressure, which apparently can only be supported because of the very fast growth rate of shrimp. Some preliminary data on the numbers of shrimp found per acre was collected by student workers at our Institute and later by Dr. Hildebrand. They show suprisingly small numbers. These two facts led Martin Burkenroad to suggest

(Gunter, #4)

that the total annual catch of shrimp may exceed the population present at any given time, if this is really the situation, it is unique in the field of fisheries biology.

Another great influence, of which we have some little inkling, is environmental. During the recent long drouth, the white shrimp catch in Texas declined 75 per cent or more. Possibly the brown shrimp has increased, but we do not know about that. In any case, the facts suggest that uncontrollable environmental changes, Acts of God so-called, have had more effect on the shrimp population than all the fishing pressures by man. My point is that further activity in the trash fish field will be probably insignificant in comparison with the other factors now affecting the shrimp populations.

There are some minor points to be considered. Shrimp in small stages are plankton feeders, and it is rather improbable that the trash fish catch will greatly modify the plankton content of the Gulf. At larger sizes shrimp seem to be omnivorous, but they are not notorious devourers of fish (although they will capture and eat live fish in aquaria--as well as each other). The situation is rather the other way around, as Mr. Viosca pointed out long ago. If this is the proper view of the situation, then any reduction of the fish population might tend to lower the natural mortality rate of small shrimp, thus leading to a larger crop of adult shrimp.

We do not know that post-larval shrimp ever suffer from food shortages, but possibly they do, although the fast growth rate is contrary to that idea. I raise this point because shrimp may be in competition with some fishes for food. In fact certain tenuous information leads to the suspicion of such a possibility. The common croaker has a sensory barbel under the chin and is evidently a bottom feeder; so is the shrimp. Similarly, both species are notorious for the absorption of iodoform, probably from the same food source. It would take some very abundant group of animals to support the shrimp and croakers both. The suspicion points to worms as a primary food source. They are abundant, many of them live in the bottom, and certain ones have a large iodoform content. These matters have been known and talked about for a long time. Recently, Doctor Hildebrand noted that shrimp fishermen in east Texas were sometimes limited by the numbers of croakers taken in trawls and sometimes had to leave a shrimping ground when the croakers moved in in such great numbers that the catch could not be economically sorted. That observation ties in with the above hypothesis.

In the above remarks we have been traveling a mental trail not much more firm than the trembling prairies of "Mayor" J. N. McConnell's domain in the Louisiana marshlands. It can be summarized by saying, 1. that there is no evidence that a greatly enlarged trash fish fishery will have a harmful effect upon sports and commercial fishes or shrimp, 2. there are some indications that any influence of such a fishery will be minor in comparison to other factors now operative and 3. there are some indications that the trash fish fishery could, conceivably, be beneficial to the shrimp.

(Gunter, #5)

In closing, I might mention the obvious fact that some consideration must be given to the total animal populations of the Gulf before we can claim a working knowledge of the shrimp resource, or for that matter, any other fishery resource of our coast.

The few scattered pertinent facts mentioned in these remarks have been gathered over the past twenty-five years by different workers, who have different aims, and who worked without much relation to each other and certainly without following any particular pattern. I have not cited papers specifically, but have prepared a short bibliography which will be made available to any one who is interested.

GULF STATES MARINE FISHERIES COMMISSION
Montgomery, Alabama
Dinkler-Jefferson Davis Hotel
March 17-18, 1955

"BIOLOGICAL RESEARCH AND ITS RELATION TO THE MENHADEN FISHERY
OF THE UNITED STATES"

Fred C. June (Presented by Mr. Howard H. Eckles)
U. S. Fish and Wildlife Service
Newark, Delaware

For the second consecutive year menhaden production broke all records for a single U. S. Fishery. The total catch was estimated at 1.8 billion pounds. It was the fourth successive year that the yield has continued to rise. Unfortunately, however, this upward trend is not characteristic of all coastal production centers. For example, preliminary catch statistics for 1954 indicate that landings in the Gulf of Mexico were up slightly as compared with 1953; however, the south Atlantic catch fell off. In Chesapeake Bay a record yield reversed a downward trend that, in general, had its beginning 7 years earlier. Production in the middle Atlantic fell below that of the previous year while in New England the catch increased. Thus menhadens like most pelagic species, are subject to variations in abundance.

Examination of catch records for the various coastal regions reveal that, independent of these obvious annual fluctuations in yield, there appear to be short-term fluctuations as well as longer trends. By way of illustration, production records of menhaden fishing in the middle Atlantic area over the past 29 years show some rather striking features. Apart from annual variations, short-term fluctuations occurred in the fishery about every 6 or 7 years. However, the outstanding feature is the terrific growth of the fishery; from 1929 to 1953 the catch had increased twenty-fold.

In contrast to the phenomenal rise in yield in that area, the fishery in the Gulf of Maine collapsed very abruptly in the 1870's. In 1876 17 factories located in the state of Maine utilized nearly 142 million pounds of menhaden. Three years later this species had almost completely disappeared, and except for one or two seasons, it did not return to these waters in any numbers for nearly 50 years. It appears, however, that menhaden once again are increasing in abundance in this section of the coast. Landings at Gloucester in 1954 amounted to over 35 million pounds. It was the most productive season since the return of this species to New England waters a few years ago.

Such fluctuations are of great economic concern to the menhaden industry, and it is this problem which is most challenging to the fishery scientist. If we can understand why menhaden stocks fluctuate as they do, we may be able to furnish advance information on these changes. This would enable

(June, #2)

the fishing industry to plan their operations more prudently. To these ends we have designed a program of investigations which soon will be initiated with funds made available under Public Law 466 (S-K Bill).

To attack the problem of fluctuations we must, first of all, define and describe the basic units in the fishery with which we are dealing. It is well known that menhadens as adults are pelagic, occurring in schools in particular localities along our coasts at certain periods of the year. The young spend the first several months of their life in the brackishwater bays, coves, and rivers that border both the Atlantic and Gulf coasts. Whether the young remain in the general vicinity where they were reared, or whether they freely intermingle and undertake extensive migrations after leaving the nursery grounds is very important to understanding the problems of fluctuations. If the stock of fish in a given area is continually receiving recruits from other localities, a local fishery thus is removing only part of a larger total stock. If, on the other hand, each area is inhabited by a relatively independent stock, fishing in one area will have little or no effect on the others. Thus it is of practical importance to determine at the outset the geographical limits and identity of the stocks comprising the fishery.

We have already begun a system of collecting biological data on the menhaden populations of the Atlantic coast. We intend to expand the work on this coast to include all geographical localities where menhaden occur. By comparison of samples of fish from the various localities, we seek to determine whether any real differences exist among them.

Fluctuations may result from differential success in spawning and recruitment, i. e. a large year brood may enter the fishery in overwhelming numbers and continue to provide the bulk of the catch for several years. When its numbers become reduced, fishing is poor until another large year brood comes along. Such variations in year-brood strength thus may be responsible for real fluctuations in abundance. Information respecting such a condition may be obtained by determining the age or size composition of the catch over a period of several years. To gather these necessary data we already have begun a system of collections and we plan to expand the work into each locality where commercial menhaden fishing is conducted. In addition, we plan an intensive ecological study of an estuarine system which serves as a nursery area. By comparison of the results of such studies with those now underway in other estuaries along the coast, we eventually, hope to learn how the various elements of this environment affect the survival of year-broods.

Fluctuations in yield may result from changes in movements or habits of the fish. As the fish grow older, they may seek different habitats; they may migrate great distances for spawning or feeding purposes. Furthermore, changes in such factors as ocean temperature, salinity, currents, food abundance, etc. may cause the movement of fish out of their usual places of occurrence into areas where the fishermen cannot catch them. It must be determined,

(June, #3)

therefore, whether fluctuations result from changes in the different environments in which the fish live at different stages of their lives.

Finally, man's effect on the menhaden stocks must also be determined. Eventually, we must learn how fishing influences the menhaden stock and yield obtained therefrom. Initial efforts, however, will be devoted to the collection and compilation of detailed information to provide measures of yield and abundance for as many years as may be possible. Also we plan to inaugurate a logbook system throughout the purse seine fleets. These records will provide detailed information on fishing effort and distribution of the catches.

From the foregoing it may be seen that the proposed studies will follow several lines of investigation. These have been designed so that the work is mutually supplementary and will be coordinated to form an integrated general program aimed at solving the problem outlined above.

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GULF STATES MARINE FISHERIES COMMISSION
Montgomery, Alabama
Dinkler-Jefferson Davis Hotel
March 17-18, 1955

"SALTWATER FARMING: ITS POTENTIALITY FOR THE GULF OF MEXICO"

Howard H. Eckles and William F. Carbine
U. S. Fish and Wildlife Service
Washington, D. C.

Presented by Mr. Eckles

Those of you who have traveled the coast of the northern Gulf have probably noticed that extensive areas of shallow marsh, bayous and bays blend Gulf waters with the land. The intricate system of water ways and flooded areas formed by the shallow along the Gulf is extremely valuable and important for fisheries of the Gulf as these areas serve as the nursery and feeding grounds of the young stages of many species among which are shrimp and menhaden. I refer particularly to the shallow bays which are brackish during the rainy seasons and marshes which may be partly exposed during lower than average low tides. Such areas are rich in nutrients, which have seeped from the land or formed through decay of plant materials. These nutrients become dissolved in the tide waters and thus serve the young shrimp or fishes living there.

I wish to stress the importance of the inland waters to the Gulf fishery economy and to suggest a means whereby they might be more extensively and profitably used.

Before proceeding let us consider the location and extent of the waters and marsh areas of the Gulf.

On this chart we have colored the general areas of marshes and inland waters. Notice that, except for a few places, such areas extend all around the edges of the northern Gulf from Florida to Texas. The Office of River Basin Studies of the Service is preparing a publication on wet lands of the United States. In this they state that there is over 7 million acres of various types of wet lands along the Gulf coast.

Florida	has	812,500 acres
Alabama	"	29,450 "
Mississippi	"	55,919 "
Louisiana	"	4,777,752 "
		(A good part of this is freshwater)
Texas	"	<u>1,387,000</u> "
Total		7,062,641 acres

(Eckles and Carbine, #2)

On the larger chart details of the shallow marsh are more closely displayed than on the chart of the entire Gulf. Note the extensive areas in green. Those in red may be particularly well suited for fish and shrimp farming which I wish to discuss this afternoon. This chart shows a typical area near Galveston. There are, of course, many other areas around the Gulf. Out of the 7 million acre area I propose that there are many which with proper equipment and knowledge could be managed so as to produce profitable quantities of seafood.

The idea of fish farming is not a new one. Pond fish and brackish water fish culture has been practiced in Asia for several hundred years. Ponds are one of the main sources of fish for protein food in China, India, Thailand, Philippines and in Indonesia. Freshwater fish ponds are common on farms in this country and a thriving business is carried on in many places supplying minnows and gold fish for bait or exotic types for the pet shop trade.

Fisheries research as a science is becoming more and more directed towards husbanding of natural populations, mainly through determination of the proper fishing rates to crop the annual increment through growth or addition of new fish to the population. Extensive studies have been made to learn growth rates, death rates and age at maturity to learn the proper age and size of capture or harvesting. Examples of such studies, which have met with moderate success, are the oyster, the Pacific salmon, the Atlantic coast shad, and haddock on Georges Bank of New England. We already have considerable knowledge of Gulf shrimp, particularly on growth and longevity.

It is not a large step then from the designed harvesting of natural populations to raising the desired species under partially controlled conditions so that the maximum production is insured.

As examples of what we might expect from such ventures if undertaken in the Gulf, let's consider the methods used and production obtained in Indonesia.

Brackish water ponds on Java are used to produce milkfish or Chanos chanos. This is a herrinlike fish which reaches a maximum of 3 feet in length but which is usually harvested at about 15-18 inches and a weight of 2-3 pounds. The milkfish is common throughout the Indo-Pacific region. It also occurs on the west coast of Mexico and in the Red Sea.

Milkfish fry are captured with fine nets along shallow coastal areas. They are transported in containers with 20-30 quart capacity which hold 2,000-3,500 fry each. The fry are planted in brackish ponds which have been made of diked earth. The ponds are constructed so they receive tide water from the sea and at times river or rain water. Depth of the ponds varies but all are constructed so that drainage is possible for harvesting the crop and

(Eckles and Carbine, #3)

to insure growth of algae which serves as the main diet of the milkfish.

The milkfish industry of Indonesia has developed through practice, custom and trial and error. Through experience, techniques of planting the fry, harvesting, upkeep of ponds and proper drainage, and flooding have been developed and passed from family to family. The production of milkfish is closely related to the growth of algae in ponds. Too heavy stocking of fry results in overcropping of algae and poor production results. Although milkfish are the major product and usually the only species stocked in the ponds, shrimp, crabs and other fish enter with the tide and often produce valuable quantities which are sold or eaten as part of the income from the ponds.

There is little exact science in the industry and the strange customs of the pond keepers make investigation of their work and production records difficult.

However, through experimental pond farming and comparisons with production from nearby native ponds, Dutch researchers on Java obtained some interesting records. These are average figures representing production from what was termed a good saltwater pond.

The milkfish production was 250 pounds per acre per year.

The shrimp (prawn) was 290 pounds per acre per year.

Now assuming that the milkfish brought only \$.10 per pound to the fisherman, as such fish might in this country, and assuming the shrimp brought \$.25 per pound, this would be an income of approximately \$100 per acre per year.

To bring our consideration closer to home, saltwater pond culture has been attempted by Lunz in South Carolina, and Johnson raised mullet in ponds at Marine Land, Florida. You may also recall that at our last meeting in San Antonio, Cecil Reid mentioned that he was setting up brackish ponds for red fish at Rock Port. I would be pleased to hear if further results have been obtained in Texas. Perhaps we can have his comments later after this discussion is finished.

Lunz, at the Bears Bluff Laboratory, has obtained some interesting results from saltwater ponds which were built primarily to raise oysters. His ponds were constructed by putting a dike across the mouth of sloughs which extend finger-like into the land from a creek off Wadmalaw Rivet. Tide water enters the ponds through a wooden trunk with an automatic slide gate which allows water to enter the pond when the adjacent creek becomes higher than the water in the pond.

(Eckles and Carbine, #4)

No attempts have been made to stock the pond except on one occasion. Incidental production totaled 250 pounds of marketable fish and on one occasion 400 pounds of shrimp and 100 pounds of crabs. This would be approximately \$130, allowing \$.10 per pound for fish, \$.25 per pound for shrimp, and \$.05 per pound for crab. This production was without attempted management of the ponds through stocking, feeding or fertilizing.

Johnson's work at Marine Land, Florida, consisted of raising mullet. He fertilized some ponds with commercial organic fertilizer and compared production with unfertilized ponds. He concluded that fertilization was not practical to increase the yield of mullet. The highest yield obtained was 277 pounds of fish per acre during an 11-month period.

Earnings possible as indicated in the examples given here become more attractive if compared with income from other types of farming.

In 1953

Cotton farmers on family operated farms on the high plains of Texas	realized \$90 per acre
-beef	
Hog/raising farmers of the central corn belt	realized \$74 per acre
Grain farmers in the corn belt	realized \$72 per acre
Cotton farmers on the Mississippi delta	realized \$108 per acre

These figures are comparable with those of the fish ponds as costs of production of the products have not been removed although we must make the assumption that fish can be produced with the same cost as the crops. It is likely that in many areas ponds could be placed upon inexpensive wastelands which could be purchased or leased at low cost.

Even these quick comparisons show that funds realized from an acre of salt water can equal that of an acre of good farm land. Thus, commercial salt-water fish or shrimp farming is within reason. Let us consider how such a venture might be undertaken somewhere along the Gulf.

Sites should be selected which could be closed by a dike and a system of ponds made by excavation. It is likely that rather large bodies of water could be impounded and developed into sections by closing a narrow passage. It would be preferable that the water impoundments or systems of ponds be located so that the water level could be lowered by drainage during periods of low tides. If necessary water could be pumped from impoundments although this would add to the cost of operation. Road ways should be provided between

(Eckles and Carbine, #5)

the ponds for access.

An integral part of the construction would be installation of gates which would control the flow of water. Use of swing gates would admit water during periods of high tides but would prevent water from flowing from the ponds during low tides. Again it may be necessary to pump water to fill the ponds to the desired level.

The next step would be to stock the ponds with selected species of fish along with shrimp larvae. It may be possible to obtain shrimp larvae during the spring months when they collect along jetties or inland passage ways as they work their way towards the nursery grounds. The larvae could be caught with fine meshed nets and transported in suitable containers. It may also be possible to obtain schools of young of a desirable fish species to place in ponds along with the shrimp. Thus, two products could be produced at the same time.

The aim of pond production would be to produce a choice shrimp and fish through proper management and feeding so that a luxury product would be produced at relatively low cost.

If ponds are stocked with shrimp larvae in the spring, it may be possible to harvest them the following fall; thus allowing one growing season. Experience would indicate whether the shrimp could winter over in the ponds and be available for harvesting in the spring or early summer. Fish may be transplanted to other ponds and allowed to remain for two or more growing seasons, if found necessary to produce a desirable market size.

Fertilization is probably the key to high production. This might be done through addition of commercial fertilizers or other substances which would produce algae and later animal plankton. Thus, a complex system of animals will be growing in nutrient sea water. Mullet and other species feed upon algae. Shrimp would feed upon detritus; bottom organisms, which would grow in the ponds, also feed upon invertebrate zooplankton, which would naturally develop. Further means of increasing production of shrimp would be to feed fish scrap or fish products which would be consumed directly by the shrimp. Rapid growth would result if the shrimp were properly fed.

Another possibility for increasing production from the same ponds, which hold shrimp and fish, would be the growing of oysters, which could be placed in the ponds at selected sites or grown on wired trays. Oysters might do particularly well if certain types of algae are grown, and this again would result from proper fertilization and seeding the algae.

There are a number of advantages and disadvantages to be considered if saltwater pond farming is to be tried. Among the advantages I would list the following:

(Eckles and Carbine, #6)

Growth of the animals in the ponds and the labor of seeding and harvesting would be carried on more or less independent of weather conditions. Many fishing days are lost at sea because of windy and poor weather while an operation ashore would not be bothered by such hazards.

The use of large vessels which are costly and difficult to operate would be eliminated.

Once the science of ponds fish farming is developed and followed it is logical to assume that mortality of the desirable species in the ponds would be low. This would be especially true if the right amounts of larvae were stocked and if predators were controlled.

Fishing or harvesting seasons could be extended over a period of months, that is, if shrimp in the ponds had growing seasons starting in April, it may be feasible to harvest them in October, November or December. The shrimp could be harvested when market conditions are favorable. The product produced could be immediately available for market or for freezing without a long trip at sea, thus insuring a fresh product.

Since large areas of inland waters are available and these are little used, it may be possible to purchase or lease land at a low cost. Such land certainly would be less expensive than choice farm lands.

Among the disadvantages, which are really problems to be met through research, I would list the problem of controlling predators. If shrimp are being grown, carnivorous species of fish should be kept from the ponds. This might best be done by control at the time of flooding, and the use of screens to keep undesirable species from the ponds. It may also be possible to remove undesirable species and practically clean the ponds of all fish during the periods of draining and fishing operations.

Dikes and banks might be difficult to maintain. The dikes would be washed out during hurricanes and may cause difficulty during periods of storms. Pumping water to flood or to drain the ponds would be expensive and should be kept to a minimum.

Fishing or harvesting of the crop should be done by a simple method to reduce costs. Draining the ponds and taping the fish or shrimp from a low point would be a method. Serving would be another.

Salinity, temperature and other environmental conditions might be wrong for the species selected. This enters into the realm of proper management. If restricted areas were used, it may be possible to change the salinity by addition of fresh water through stream diversions or pumping. Purchase of chemicals for fertilization or other manipulation of chemical environments

(Eckles and Carbine #7)

might also prove costly.

The prospects of farming to produce seafoods in salt water are most intriguing. Development of workable methods would be a valuable contribution if accomplished by fishery scientists of the Gulf. Portions of the vast areas of inland waters if properly managed might prove useful for a profitable industry while the remainder still serves as nursery grounds for natural populations which are now fished in the Gulf.

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GULF STATES MARINE FISHERIES COMMISSION
Montgomery, Alabama
Dinkler-Jefferson Davis Hotel
March 17-18, 1955

"EXTENT OF PRESENT WEATHER REPORTING - GULF OF MEXICO"

George L. Canaday
U. S. Weather Bureau
New Orleans, Louisiana

The Weather Bureau maintains a dense network of regular weather reporting stations from the tip of Florida at Key West around the eastern, northern, and western shores of the Gulf of Mexico to Brownsville and through close cooperation with the Mexican and central American and West Indian countries obtains surface weather reports to complete the encirclement of the Gulf. Through the strategically situated stations, not only of the U. S. Gulf Coast, but Cuba and Mexico we receive upper air reports from representative locations, including reports from sondes, rawins, and radar stations. In fact, the entire Gulf of Mexico is well ringed with weather stations of all kinds.

Not only are there national weather service stations, but, also, Coast Guards, Navy, Army, and to some extent private stations of oil companies and others that enter into the complete weather picture.

We can then see why the surface and upper air land stations are considered adequate in light of available means. To illustrate the point I have a sectional map here on which the various types of coastal stations are plotted.

We may next consider the waters of the Gulf of Mexico. Although New Orleans alone supervises the synoptic weather reporting work of some 200 American and foreign ships there are many others under the supervision of our New York and San Francisco offices that occasion the Gulf at times. Besides these there are quite a few of the regular weather reporting ships under the supervision of foreign weather services that cooperate in the Gulf at times in exchange for the assistance of American ships.

These arrangements would appear at first to insure complete coverage of the Gulf at all times. Such is not always the case even over the routes from the United States coasts of the Gulf through the Yucatan and the Florida Straits. Most of the time, we do have a goodly number of ship reports at 6-hour intervals over these routes. However, the Gulf area west of 90° west longitude and south of a line one or two hundred miles from the middle and upper Texas coasts still remains our region of scant reports. There are a number of U. S. Coast Guard cutters that take turns patrolling that area and each cooperates fully, but still, because of the almost non-existence of merchant shipping, it remains our biggest worry at present. We are always on guard for the possible

(Canaday, #2)

enlistment of any new ship with radio equipment that enters the area.

We have thoroughly investigated the possibility of enlisting a number of the fishing and shrimping fleets that occasion the waters of the southwest Gulf. But, as you know, there are no regular schedules, crews are small for the most part, and these change frequently, the range of the radio telephone is so limited much of the time, and the ever present backlog of calls, that regular, up-to-the-minute weather reports can seldom be depended on. We did enlist a dozen of the small banana boats a few years ago, but these had at least one mate besides the Captain, or a minimum of two regular officers. A few excellent reports came in for a short period, then changes in the economic situation and the drop out of several of the boats resulted in the abandonment of the project as almost entirely impracticable.

We do have the benefit of pilot reports from airplanes that fly over the southwest Gulf and our network of radar stations scan the Gulf for some 200 miles seaward.

The Weather Bureau is improving its radar coverage as rapidly as is possible and is working towards improved airplane reconnaissance in the cooperation with the military services during storm threats. You can rest assured that every effort possible is being exerted within the means available towards the expansion and improvement of all of our land, sea and air weather facilities. We are proud of the record of especially the past two or three decades and hope that the next one or two will practically eliminate loss of life from storms entirely and most of the property damages.

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I have only mentioned the availability of the various types of weather reports that the Weather Bureau receives. I believe a few words may be said concerning the use made of the reports.

They are plotted on charts at all of the Weather Bureau offices and more completely in detail at the forecast centers at Miami and New Orleans. From these points every 6 hours are issued forecasts of the impending weather over the coastal states, cities and communities and the adjacent water areas including the Gulf of Mexico and the Caribbean Sea.

The forecasts are released to all news services including the press, the telephone, government, and commercial radio stations. Definite schedules are maintained all of the time and more frequent broadcasts are made as conditions warrant.

I will not go into detail concerning the broadcasts as you no doubt familiar therewith.

(Canada, #3)

The forecasts cover the weather and winds, and, where pertinent, the temperatures of a critical nature, for land and sea areas. Warnings of severe weather are issued as needed and storm and hurricane warnings are displayed along the coasts.