

PROGRAM
GULF STATES MARINE FISHERIES COMMISSION
TWENTY-SECOND ANNUAL MEETING
MONTELEONE HOTEL - NEW ORLEANS, LOUISIANA
OCTOBER 20, 1971

EXECUTIVE PRE-SESSION WORKSHOPS

WED. OCTOBER 20, 1971

ROBERT E. LEE ROOM

(GULF STATES MARINE FISHERIES COMMISSIONERS-
FEDERAL AND STATE ADMINISTRATORS)

* * * * *

10:00 A.M. BRIEFING ON SALT WATER SPORT FISHERIES MANAGEMENT
John Gottschalk, Assistant to the Director,
NOAA-National Marine Fisheries Service
Washington, D.C.

2:00 P.M. DISCUSSION ON THE FOLLOWING PROGRAMS

- 1 - RENEWAL LEGISLATION 88-309 RESEARCH AND DEVELOPMENT ACT
- 2 - PROPOSED STATE FEDERAL FISHERIES MANAGEMENT
- 3 - PROPOSED "HIGH SEAS FISHERIES CONSERVATION ACT OF 1971"

Chairman, Dr. Ted Ford, Estuarine Technical
Coordinating Committee

4:00 P.M. COFFEE BREAK

4:15 P.M. G.S.M.F. TECHNICAL COORDINATING COMMITTEE
Dr. Ted Ford
(GENERAL SESSION)

* * * * *

GULF STATES MARINE FISHERIES COMMISSION

THURSDAY, OCTOBER 21, 1971

8:30 - 9:30 A.M. REGISTRATION MEZZANINE FLOOR

GENERAL SESSION - QUEEN ANNE ROOM

JAMES SUMMERSGILL, VICE CHAIRMAN, PRESIDING

9:30 A.M. ROLL CALL Joe Colson, Exec. Dir.

WELCOME ADDRESS

Dr. Lyle St. Amant, Asst. Dir.
Louisiana Wildlife and Fisheries Commission
New Orleans, Louisiana

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
AND FISHERIES

David H. Wallace, Associate Administrator for
Marine Resources, United States Department of
Commerce, NOAA
Rockville, Maryland

INTRODUCTION - ROBERT W. SCHONING,
DEPUTY DIRECTOR, U.S. DEPARTMENT OF
COMMERCE, NOAA-NATIONAL MARINE
FISHERIES SERVICE
WASHINGTON, D.C.

10:30 A.M. COFFEE BREAK

10:45 A.M. MANAGEMENT OF SALT WATER SPORT FISHERIES BY
NATIONAL MARINE FISHERIES SERVICE

John Gottschalk, Assistant to Director,
NOAA-National Marine Fisheries Service
Washington, D.C.

WASHINGTON LEGISLATIVE REPORT ON FISHERIES

Robert D. Nordstrom, Director, National Cannery
Association, Fisheries Products Program
Washington, D.C.

G.S.M.F. - ESTUARINE TECHNICAL COORDINATING
COMMITTEE REPORT

Dr. Ted Ford, Committee Chairman, Assistant Director,
Office of Sea Grant Development
Baton Rouge, La.

GULF STATES MARINE FISHERIES COMMISSION

-ANNOUNCEMENT-

RESOLUTION COMMITTEE MEETING J.V. COLSON'S SUITE

5:00 P.M.

ATTENTION: ANYONE HAVING RESOLUTIONS TO SUBMIT, KINDLY HAVE THEM PREPARED IN PROPER FORM AND PRESENT THEM PRIOR TO TODAY'S EXECUTIVE SESSION.

NOON RECESS FOR LUNCH

1:30 P.M. ALABAMA MARINE CAGE CULTURE STUDIES (SLIDES)
Wayne Swingle, Chief Marine Biologist
Alabama Marine Resources Laboratory
Department of Conservation,
Dauphin Island, Alabama

THE ROLE OF THE ENVIRONMENTAL PROTECTION AGENCY
IN THE INDUSTRIAL WASTE PERMIT PROGRAM
Howard D. Zeller, Acting Chief, Permit Branch
Environmental Protection Agency
Atlanta, Georgia

(QUESTIONS FROM FLOOR)

ALABAMA OYSTER RESOURCE SURVEY
Edwin B. May, Assistant Chief Marine Biologist
Alabama Marine Resources Laboratory
Dauphin Island, Alabama

STATUS OF GULF MENHADEN FISHERIES (SLIDES)
Robert Chapoton, Biologist,
NOAA-National Marine Fisheries Service
Beauford, North Carolina

2:30 P.M. COFFEE BREAK

FILM: FLORIDA SEAFARE
INTRODUCTION: by Harmon Shields,
Director of Marine Resources
Florida Department of Natural Resources
Tallahassee, Florida

ADJOURNMENT

5:00 P.M. RESOLUTION COMMITTEE MEETING SUITE 261

6:30 - 7:30 P.M. SPECIAL EVENT
COCTAILS AND HORS D'OEUVRES
VARIETY CLUB
THIRD FLOOR - ANDREW JACKSON RESTAURANT
ACROSS FROM MONTELEONE HOTEL

FOR REGISTERED GUESTS ONLY . . .

* * * * *

FRIDAY, OCTOBER 22, 1971

8:00 A.M. COMMISSION EXECUTIVE MEETING & BREAKFAST
Iberville North

GENERAL SESSION - QUEEN ANNE ROOM

10:00 A.M. JAMES SUMMERSGILL, VICE-CHAIRMAN, PRESIDING
THE OCCURENCE, DISTRIBUTION AND DENSITY OF
RANGIA CUNEATA (MARSH CLAM) IN LAKE PONCHARTRAIN
AND LAKE MAUREPAS
Johnnie W. Tarver, Biologist,
Louisiana Wildlife & Fisheries
New Orleans, Louisiana

WHITE SHRIMP ESTUARINE OBSERVATION
Dr. Alva H. Harris,
Nicholls State College
Thibodeaus, Louisiana

FEDERAL AID COORDINATOR REPORT
I.B. Byrd
NOAA-National Marine Fisheries Service
St. Petersburg, Florida

EXECUTIVE SESSION REPORT
-RESOLUTIONS
-FUTURE PLANS FOR LEGISLATIVE ACTION, 92nd CONGRESS
-INTRODUCTION OF INCOMING CHAIRMAN & VICE-CHAIRMAN
-AWARD TO OUTGOING CHARIMAN

ADJOURNMENT

* * * * *

NOTE: NEXT COMMISSION MEETING WILL BE HELD AT THE SHERATON
BILOXI MOTOR INN, BILOXI MISSISSIPPI
MARCH 16-18, 1972.

CHECK OUT TIME MONTELEONE HOTEL IS 3:00 P.M.

GULF STATES MARINE FISHERIES COMMISSION
Monteleone Hotel
New Orleans, La.
October 20 - 22, 1971

M I N U T E S

E X E C U T I V E S E S S I O N
Twenty-Second Annual Meeting
Friday, October 22 - Iberville North

The Commission Executive Session began at 8:00 A.M. with the serving of breakfast. The following Commissioners were in attendance:

Bledsoe (Proxy-Kelley), Owen (Anderson-Proxy),
Shields (Proxy-Hodges), Jones (Proxy-Walker),
Richbourg, St. Amant (Proxy-Hoffpauer), Ford
(Proxy-Guidry), Summersgill, Haas, Demoran
(Proxy-Rauxet), Leary (Proxy-Cross, Patman),
Mehos.

Vice-Chairman James H. Summersgill called the meeting to order in the absence of Chairman Randolph Hodges. A quorum was declared by the director.

Dr. Ted Ford, Chairman of the Estuarine Technical Coordinating Committee presented motions for consideration by the Commission as follows:

- 1) Urging the extension of Public Law 88-309 as amended (Expires June 30, 1973);
- 2) Requesting that the Estuarine Technical Coordinating Committee be redesignated as the Technical Coordinating Committee.

After lengthy discussions, particularly regarding the first resolution, both were passed unanimously as attached hereto.

The 1971-1972 budget was presented and accepted by the Commission.*

Vice-Chairman Summersgill turned the meeting over to Mr. Bledsoe (Proxy-Kelley) in order that he might chair the general session while the executive session continued.

The proposed site for the spring meeting was designated as the Sheraton-Biloxi Motor Inn, Biloxi, Mississippi. The date set was March 15-17, 1972.

Election of officers were as follows:

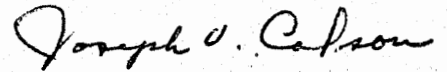
Chairman: James H. Summersgill, Louisiana

Page 2
Executive Session Minutes
October 22, 1971

Vice-Chairman: L.D. Owen, Alabama

The twenty-third annual meeting site was considered. It was proposed to be held at Gulf Shores, Alabama, pending further consideration.

There being no further business, the session was adjourned at 10:45 A.M. The group proceeded to the General Meeting for the remainder of the program and final adjournment.



Prepared by: Joseph V. Colson
Executive Director

*See attachment.

GULF STATES MARINE FISHERIES COMMISSION
 521 ST. LOUIS STREET
 NEW ORLEANS, LOUISIANA

	<u>BUDGET (70-71)</u>	<u>EXPENDITURES</u>	<u>BUDGET (71-72)</u>	<u>EXPENDITURES*</u>
SALARIES	\$17,200.00	\$17,199.96	\$17,200.00	\$ 4,843.38
TRAVEL	4,500.00	4,117.69	4,500.00	1,127.19
RENT	840.00	686.37	250.00	50.15
OFFICE SUPPLIES	250.00	123.00	200.00	47.30
TELEPHONE	1,000.00	904.37	1,000.00	199.87
POSTAGE	250.00	163.00	250.00	52.00
MAINTENANCE	100.00	122.37	100.00	29.87
ACCOUNTING	250.00	-	250.00	-
INSURANCE	500.00	596.00	650.00	28.00
MEETING	1,000.00	1,147.09	1,200.00	616.06
PRINTING	1,000.00	28.63	500.00	
FICA (TAXES)	650.00	655.93	700.00	152.50
OFFICE EQUIPMENT	200.00	-	300.00	
PETTY CASH-SUNDRY	150.00	143.95	150.00	42.05
	<hr/>	<hr/>	<hr/>	<hr/>
	\$27,940.00	\$25,888.36	\$27,250.00	\$ 7,188.37

* 7-1-71 thru 10-15-71

GULF STATES MARINE FISHERIES COMMISSION

R E S O L U T I O N

WHEREAS, the Commercial Fisheries Research and Development Program, as provided by Public Law 88-309, as amended, expires on June 30, 1973, and

WHEREAS, the concept for the "88-309" Program was strongly endorsed and supported by the states, and

WHEREAS, the Commercial Fisheries Research and Development Program enabled all states, Puerto Rico, the Virgin Islands, Guam and American Samoa to initiate or expand their Fisheries Research and Development Programs which are contributing substantially to the improved management of these renewable resources, and

WHEREAS, the expiration of this State-Federal Cooperative Program would strike a severe blow to the several dynamic, meaningful programs, resulting in a set-back and loss of thrust which may jeopardize an important area of natural resources at a time when competition for use of the coastal or estuarine zone is increasing dramatically, and

WHEREAS, the provisions of this Act as presently constituted have provided a highly satisfactory means for aid to the states, Puerto Rico, the Virgin Islands, Guam and American Samoa,

NOW, THEREFORE, BE IT RESOLVED that the Gulf States Marine Fisheries Commission, at its regular Fall, 1971, meeting, does hereby endorse and support the extension and full funding of Public Law 88-309, as amended, "The Commercial Fisheries Research and Development Act" and urges the Congress to act expeditiously in extending for a period of five (5) years and providing full funding for this program immediately so that the states may plan and budget in a rational manner, and

BE IT FURTHER RESOLVED that the Gulf States Marine Fisheries Commission does urge the National Marine Fisheries Service, NOAA, the Department of Commerce, the Office of Management and Budget, the states, Puerto Rico, the Virgin Islands, Guam and American Samoa to actually and strongly support the immediate extension of Public Law 88-309, as previously amended, and

BE IT FURTHER RESOLVED that this extension not be coupled with any proposed fisheries management bill, and

BE IT FURTHER RESOLVED that copies of this resolution be sent to each United States Senator and Congressman of the Gulf States, to the Secretary of Commerce, the Administrator of NOAA, the Director of NMFS, the Administrator of the Office of Management and Budget, and the Governor of each of the Gulf States.

* * * * *

The foregoing resolution was adopted by the Gulf States Marine Fisheries Commission, October 22, 1971, at the 22nd Annual Commission Meeting held at the Monteleone Hotel, New Orleans, Louisiana.

Joseph V. Colson
Joseph V. Colson, Executive Director
Gulf States Marine Fisheries Commission

GULF STATES MARINE FISHERIES

R E S O L U T I O N

WHEREAS, the marine activities of the several Gulf States and the federal government extend beyond the coastal bays and estuaries, and

WHEREAS, the National Marine Fisheries Service, NOAA, has established an Ocean Research Center to conduct research in offshore waters and a need for technical coordination with this Commission has become apparent, and

WHEREAS, the Estuarine Technical Coordinating Committee, a functional unit advising the Commission on matters relating to the technical coordination and research needs, can best meet current and future needs by amending its title in order to broaden its scope of activities and responsibility,

NOW, THEREFORD, BE IT RESOLVED that the Estuarine Technical Coordinating Committee requests that the Commission redesignate this committee as the Technical Coordinating Committee.

* * * * *

The foregoing resolution was adopted by the Gulf States Marine Fisheries Commission, October 22, 1971, at the 22nd Annual Commission Meeting held at the Monteleone Hotel, New Orleans, Louisiana.

Joseph V. Colson

Joseph V. Colson, Executive Director
Gulf States Marine Fisheries Commission

GULF STATES MARINE FISHERIES COMMISSION

FINANCIAL STATEMENT

	<u>BUDGET (71-72)</u>	<u>EXPENDITURES*</u>
SALARIES	\$17,200.00	\$12,016.02
TRAVEL	4,500.00	2,477.01
RENT	250.00	71.30
OFFICE SUPPLIES	200.00	111.19
TELEPHONE	1,000.00	647.85
POSTAGE	250.00	176.00
MAINTENANCE	100.00	50.82
ACCOUNTING	250.00	-
INSURANCE	650.00	543.00
MEETING	1,200.00	1,817.99 ⁺
PRINGING	500.00	5.72
FICA (TAXES)	700.00	406.45
OFFICE EQUIPMENT	300.00	201.85
PETTY CASH-SUNDRY	150.00	129.86
	<hr/>	<hr/>
	\$27,250.00	18,655.06

Bank Balance 3-15-72	\$12,647.81
Anticipated Expenditures thru June 30, 1972	\$ 7,875.00
Automobile Purchase	3,500.00
	<hr/>
	\$ 11,375.00

* 7-1-71 thru 3-15-72

+ \$790.00 registration fee deposited into general account in addition to budgeted amount (October 1971)

GULF STATES MARINE FISHERIES COMMISSION

CHAIRMEN & VICE-CHAIRMEN 1962 - 1973

YEAR	CHAIRMEN		VICE-CHAIRMEN	
	NAME	STATE	NAME	STATE
1962-63	Caffey	Alabama	Cory	Texas
1963-64	Corey	Texas	(Brumfield (Millette)	Mississippi
1964-65	Millette	Mississippi	Sheppard	Florida
1965-66	Sheppard	Florida	Summersgill	Louisiana
1966-67	Summersgill	Louisiana	Shriner	Alabama
1967-68	Shriner	Alabama	Versaggi	Texas
1968-69	Versaggi	Texas	Brumfield	Mississippi
1969-70	Brumfield	Mississippi	Hodges	Florida
1970-71	Hodges	Florida	Summersgill	Louisiana
1971-72	Summersgill	Louisiana	Owen	Alabama
1972-73	_____	Alabama	_____	Texas

Meeting Places

1965	Spring - Alabama	1970	Spring - Alabama
	Fall - Florida		Fall - Florida
1966	Spring - Mississippi	1971	Spring - Brownsville, Texas
	Fall - Louisiana		Fall - New Orleans, La.
1967	Spring - Texas	1972	Spring - Biloxi, Mississippi
	Fall - Alabama		Fall - Gulf Shores, Ala.
1968	Spring - Florida	1973	Spring - Florida
	Fall - Texas		
1969	Spring - Louisiana		
	Fall - Mississippi		

STATES' CONTRIBUTION TO GULF STATES MARINE FISHERIES COMMISSION

	<u>1968-69</u>	<u>1969-70</u>	<u>1970-71</u>	<u>1971-72</u>	<u>1972-73</u>
ALABAMA	\$ 5,000	\$ 5,000	\$ 5,000	\$ 5,000	
FLORIDA	4,500	4,500	4,500	3,500	
MISSISSIPPI	2,500	2,500	2,500	2,500	
LOUISIANA	6,000	6,000	7,500	7,500	
TEXAS	6,000	6,000	7,000*	7,500	
	<hr/>	<hr/>	<hr/>	<hr/>	<hr/>
	\$24,000	\$24,000	\$26,500	\$26,000	

* State of Texas made a supplemental contribution for Fiscal Year ending June, 1971, received and deposited September 2, 1971 (\$1,000).



1133 - 20th STREET, NORTHWEST • WASHINGTON, D. C. 20036
Area Code 202/338-2030

January 7, 1972

EDA Approves Grants to Aid Shrimp Aquaculture

The Economic Development Administration has recently announced the approval of a \$763,000 grant to aid shrimp processors in Texas and a \$29,935 grant to assist in the development of shrimp farming in Florida.

The Texas grant is directed toward stimulating economic growth in the lower Rio Grande Valley. The funds will be used to expand the fresh-water facilities in an area of Cameron County, which is experiencing a growth in shrimp-processing and tourist activities. District officials report that more than 400 new jobs will be created by the new facilities.

The Florida grant is being given to the Aquaculture Products and Research, Inc. to help continue an aquaculture program in southern Florida. The company is conducting a technical assistance program aimed at the establishment of shrimp farming industry in Florida.

One phase of the project involves the development of a technique to rear fresh-water shrimp in a controlled environment. The other is a demonstration project to help determine the economic feasibility of shrimp farming on Seminole Indian land. The project is being conducted in a laboratory-hatchery at Homestead and on Seminole land in Hendry County.

Slavin Named Associate Director of National Marine Fisheries Service

Joseph W. Slavin, 44, has been named Associate Director for Resource Utilization in the National Marine Fisheries Service. The appointment was effective December 12, 1971. Mr. Slavin has occupied the position in an acting capacity since early 1971 when the NMFS adopted a new approach to the management and protection of marine resources. As presently constituted, three components of NMFS-- Resource Research, Resource Management, and Resource Utilization--each under an associate director, are responsible to the agency's director. Mr. Slavin's responsibilities include programs of economic and marketing research and foreign trade analyses; fishery statistics and market news; loan insurance and subsidies; microbiological and technological research and inspection and certification of fishery products.



NOV 19 1971²

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

November 16, 1971

Mr. Joseph Colson
Executive Director
Gulf States Marine Fisheries Commission
400 Royal Street
New Orleans, Louisiana 70130

Dear Joe:

At the recent meeting of the Gulf States Marine Fisheries Commission in New Orleans, I promised to send you a letter indicating the views of the National Marine Fisheries Service on the extension of Public Law 88-309.

We have been very favorably impressed with the work done through State, Federal cooperation in fisheries research and development since PL 88-309 became law. We strongly favor extension of this Act at its full funding level. As you know extension legislation is being considered in different forms. Possibilities mentioned include simply extending the bill in its exact form; extending it with minor changes to correct problem areas such as the disaster section; and combining it with State, Federal Management Legislation. We are still evaluating these concepts.

I hope this clarifies the matter for you.

Sincerely,

Robert W. Schoning
Deputy Director



A Century of Fish Conservation

GULF STATES MARINE FISHERIES COMMISSION
 Room 225 - 400 Royal Street
 New Orleans, Louisiana 70130

	<u>BUDGET</u> 69-70	<u>EXPENDITURES</u> 69-70	<u>BUDGET</u> 70-71	<u>EXPENDITURES</u> 7-1-70 Thru 10-15-70
Salaries	\$16,200.00	\$16,200.50	\$16,200.00	\$4,540.96
Travel	5,000.00	5,567.15	5,000.00	1,863.57
Rent	840.00	840.00	840.00	210.00
Office Supplies	500.00	170.72	250.00	27.75
Tel. & Telegraph	1,000.00	980.62	1,000.00	257.24
Postage	250.00	204.20	250.00	60.00
Maintenance	-	-	100.00	83.69
Accounting	250.00	250.00	250.00	250.00
Insurance	500.00	536.00	550.00	40.00
Meeting	1,500.00	1,944.47	1,000.00	200.00
Printing	1,000.00	5.61	1,000.00	14.16
FICA Payroll Taxes	550.00	624.00	650.00	-
Depreciation	-	-	-	-
Petty Cash-Sundry	200.00	124.78	150.00	86.95
Office Equipment	200.00	587.15	200.00	-
	<u>\$27,990.00</u>	<u>\$28,035.20</u>	<u>\$27,440.00</u>	<u>\$7,634.32</u>

GULF STATES MARINE FISHERIES COMMISSION

October (1971) Meeting Attendance

GULF STATES MARINE FISHERIES COMMISSIONERS

Norton Haas, Chairman
Miss. Marine Conservation Comm.
23 Chantilly St., P.O. Box 6
Bay St. Louis, Mississippi 39520

Clyde Richbourg
American Seafood Company
P.O. Box 454
Pensacola, Florida 32502

John A. Mehos, President
Liberty Corporations
P.O. Box 267
Galveston, Texas 77550

James H. Summersgill, Chairman
Golden Meadow Ice Company
1819 South Bayou Road
Golden Meadow, Louisiana 70357

Sen. L.D. Owen, Jr.
105 Hand Avenue
Bay Minnette, Alabama 36507

ALABAMA

William Anderson, Chief
Alabama Department of Conservation
Division of Seafood
P.O. Box 188
Dauphin Island, Ala. 36528

Hugh A. Swingle
Marine Resources Division
Alabama Department of Conservation
P.O. Box 188
Dauphin Island, Alabama 36528

Sidney Bledsoe, Asst. Director
Alabama Department of Conservation
Administrative Building
64 North Union Street
Montgomery, Alabama 36104

Wayne Swingle
Alabama Department of Conservation
P.O. Box 188
Dauphin Island, Alabama 36528

Edgar A. Hughes
Alabama Department of Conservation
P.O. Box 188
Dauphin Island, Alabama 36528

Walter M. Tatum
Alabama Department of Conservation
P.O. Box 188
Dauphin Island, Alabama 36528

Eddie May
Alabama Department of Conservation
P.O. Box 188
Dauphin Island, Alabama 36528

Kenneth R. McLain
Southern Industries
P.O. Box 2068
Mobile, Alabama 36601

R.M. McPhearson
USPHS/FDA/GCTSU
P.O. Box 158
Dauphin Island, Ala. 36528

J.S. Ramos
Ramos Shrimp Co., Inc.
P.O. Box 578
Bayou la Batre, Alabama 36509

FLORIDA

I.B. Byrd, Chief
Office of Federal Aid
NOAA-NMFS
144 First Ave. South
St. Petersburg, Florida 33701

Bob Jones, Exec. Director
Southeastern Fisheries Association
3330 South Adams
Tallahassee, Florida 32301

Tony Sandifer
Southeastern Fisheries Assn.
Rt. 6, Box 1123
Pensacola, Florida 32507

LOUISIANA

Barney Barrett
Louisiana Wildlife & Fisheries
P.O. Box 14526
Southeastern Station
Baton Rouge, Louisiana 70808

Claude J. Boudreaux
Louisiana Wildlife & Fisheries
P.O. Box 37
Grand Isle, Louisiana

Wayne Brehm
Louisiana Wildlife & Fisheries
400 Royal Street
New Orleans, Louisiana 70130

S.W. Corbino
Fishing Gazette
7220 W. Judge Perez Drive
Arabi, Louisiana 70032

Ted B. Ford, Asst. Director
L.S.U. - Sea Grant Program
263 Stanford Avenue
Baton Rouge, Louisiana 70808

S.M. Gagliano
L.S.U.
Center for Wetland Resources
Baton Rouge, Louisiana 70803

Harmon Shields
Director of Marine Resources
Florida Dept. of Natural Resources
Larson Building
Tallahassee, Florida 32301

Richard Whiteleather
Regional Director
National Marine Fisheries Service
Federal Building
144 First Avenue South
St. Petersburg, Florida 33701

Harvey R. Bullis, Jr.
NMFS-Tropical Atlantic Biological Lab
75 Virginia Beach Drive
Miami, Florida 33149

Marilyn Gillespie
Louisiana Wildlife & Fisheries
11955 Mollylea Drive
Baton Rouge, Louisiana 70815

Dr. Alva Harris
Nicholls State University
P.O. Box 2021
Thibodaux, Louisiana 70301

C.L. "Pete" Juneau
Louisiana Wildlife & Fisheries
Grand Isle, Louisiana 70358

Ralph Latapie
Marine Lab Supervisor
Louisiana Wildlife & Fisheries
P.O. Box 37
Grand Isle, Louisiana 70358

Harold Loesch
L.S.U. Dept. of Marine Science
Coastal Studies Institute Building
Baton Rouge, Louisiana 70803

Jake Lowenhaupt
U.S. Geological Survey
P.O. Box 546
Metairie, Louisiana 70002

Waldo J. Orrson
W.J. Orrson Co.
P.O. Box 977
Metairie, Louisiana 70004

W.S. Perret
Louisiana Wildlife & Fisheries
400 Royal Street
New Orleans, Louisiana 70130

J.A. Prunty
Mobil Oil Corporation
Plaza Towers, Room 1030
New Orleans, Louisiana 70113

James G. Ragan
Nicholls State Univeristy
114 Pecan Street
Thibodaux, Louisiana

H.R. Robinson, President
Robinson Canning Co., Inc.
P.O. Box 4248
New Orleans, Louisiana 70118

Alan J. Robinson, President
American Shrimp Cannery Assn.
Box 50774
New Orleans, Louisiana 70150

Lyle S. St. Amant
Assistant Director
Louisiana Wildlife & Fisheries
400 Royal Street
New Orleans, Louisiana 70130

Harry Schafer
Louisiana Wildlife & Fisheries
400 Royal Street
New Orleans, Louisiana 70130

Ed Shepard
Walman-Shepard Company
2 Magazine Street
New Orleans, Louisiana

Larry de la Bretonne, Jr.
Louisiana State University
212 Glenwood Drive
Houma, Louisiana

George W. Snow
Regional Supervisor, Statistics &
Market News
National Marine Fisheries Service
608 Federal Building
New Orleans, Louisiana 70130

L.W. Strasburger
Strasburger Inspection Service
429 Betz Place
Metairie, Louisiana 70005

Max Summers
Louisiana Wildlife & Fisheries
400 Royal Street
New Orleans, Louisiana 70130

Sonny Summersgill
Summersgill Enterprises
Golden Meadow, Louisiana 70357

Johnnie W. Tarver
Louisiana Wildlife & Fisheries
400 Royal Street
New Orleans, Louisiana 70130

Harry W. Tyler
Wallace Menhaden Products, Inc.
1221 N. Broad Street
New Orleans, Louisiana 70119

Charles White
Louisiana Wildlife & Fisheries
Rt. 4, Box 254
Lake Charles, Louisiana 70601

Dr. Gregory White
Louisiana Wildlife & Fisheries
P.O. Box 14526, S.E. Station
Baton Rouge, Louisiana 70808

Capt. H.M. Willis
U.S. Coast Guard
Custom House, 423 Canal Street
New Orleans, Louisiana 70130

Judd Pollard
Louisiana Wildlife & Fisheries
400 Royal Street
New Orleans, Louisiana 70130

MISSISSIPPI

George A. Brumfield
Haynie Products Inc.
Box 663
Moss Point, Mississippi 39563

V.J. Castigliolia
Mississippi Marine Conservation
Commission
P.O. Box 1388
Pascagoula, Mississippi 39567

J.Y. Christmas
Gulf Coast Research Lab.
P.O. Box AG
Ocean Springs, Mississippi 39564

William Demoran
Mississippi Marine Conservation
Commission
P.O. Box AG
Ocean Springs, Mississippi 39564

Dr. Gordon Gunter
Gulf Coast Research Lab
P.O. Box AG
Ocean Springs, Mississippi 39564

Richard J. Hoogland
U.S. Corps of Engineers
Lower Mississippi Valley Division
P.O. Box 80
Vicksburg, Mississippi 39180

Juanda Kirk
Universities Marine Center
P.O. Box AG
Ocean Springs, Mississippi 39564

TEXAS

Kenneth N. Baxter
NMFS
Galveston Biological Lab
Galveston, Texas 77568

Johnie Crance
Texas A & M University
Bldg. 311, Fort Crockett
Galveston, Texas

Ed Klima
NOAA-NMFS
P.O. Box 1207
Pascagoula, Mississippi 39567

Tommy D. Quinn, Exec. Secretary
Mississippi Marine Conservation
Commission
1201 E. Bay View Drive
Biloxi, Mississippi 39530

Richard B. Roe
NOAA-NMFS
P.O. Drawer 1207
Pascagoula, Mississippi 39567

Joe Ross
2304 Dantzler Street
Moss Point, Mississippi 39563

Ed Smith
N.M.F.S.
P.O. Drawer 1207
Pascagoula, Mississippi 39567

John R. Thompson
University of Southern Mississippi
Box 5336
Hattiesburg, Mississippi 39401

James Trvirca
Mississippi Marine Conservation
Commission
P.O. Box 1313
Bay St. Louis, Mississippi 39520

Sidney D. Upham, Director
Universities Marine Center
Drawer AG
Ocean Springs, Mississippi 39564

Terrance R. Leary
Texas Parks & Wildlife
Reagan State Building
Austin, Texas 78701

Robert G. Mauermann, Exec. Secretary
Texas Shrimp Association
P.O. Box 1169
Brownsville, Texas 78520

Richard Neal
N.M.F.S.
Fort Crockett
Galveston, Texas 77550

Albert K. Sparks
Gulf Coastal Fisheries Research
Center (NMFS)
Galveston, Texas

George Allen
U.S. Army Corps of Engineers
South Atlanta Division
510 Title Building
30 Pryor Street SW
Atlanta, Georgia 30303

Robert D. Nordstrom
Director, Fishery Products
National Canners Association
1133 20th Street NW
Washington, D.C. 20036

Robert B. Chapoton
NOAA, NMFS
Beaufort, North Carolina 28516

Robert W. Schoning
Deputy Director
N.M.F.S.
Interior Building
Washington, D.C.

H.D. Fields
U.S. Fish & Wildlife Service
833 Peachtree 7th Building
Atlanta, Georgia 30323

Col B. Sormin
Production Department of the In-
donesian Army Cooperative
Jakarta, Indonesia

John S. Gottschalk
Assistant to Director
NMFS/NOAA
Commerce Department
Washington, D.C. 20235

David H. Wallace
Associate Administrator
U.S. Department of Commerce
NOAA
Rockville, Maryland

Walter Kirkness
Associate Director, Resource Mgt.
NMFS
6212 Beachway Drive
Falls Church, Virginia 77041

Robert M. Yancey
USAE-CERC
5201 Little Falls Road, N.W.
Washington, D.C. 20016

Howard Zeller
Environmental Protection Agency
1421 Peachtree-Suite 300
Atlanta, Georgia 30309

REMARKS BY JOHN S. GOTTSCHALK, ASSISTANT TO THE DIRECTOR,
NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION, DEPARTMENT OF COMMERCE.

GULF STATES MARINE FISHERIES COMMISSION MEETING, NEW ORLEANS,
LOUISIANA, OCTOBER 20-21, 1971.

THE NMFS MARINE GAME FISH PROGRAM

Five years have passed since I last enjoyed the opportunity to speak at a meeting of the Gulf States Marine Fisheries Commission. That was at Biloxi in the spring of 1966.

I said then that "I propose to review with you our plans for marine game fish studies in the Gulf of Mexico" which is precisely what I intend to do again today.

This is not the first time that major world events have upset the best-laid planning schedules, and, of course, it will not be the last. But this time, with the support of the Commission and its friends in the Congress, we speak from the vantage point of a major realignment of oceanic and fishery responsibilities in the Federal Government, as well as physical facilities in the form of two new laboratories which are now rapidly being brought to completion. But more on these later.

The essential concept underlying the creation of NOAA was the need to concentrate and unify the federal effort directed toward oceanic and atmospheric resource management. Bringing the commercial and sport fishing programs together in a single, unified program, is a natural and logical extension of the same logic that resulted in NOAA. There

are natural and material benefits, both in terms of operational efficiency and breadth of program, that may surely be expected from this approach. Moreover, as a result of the stimulus afforded by greater coordination and interaction between previously separate programs, new ideas, approaches and productivity in the conservation and development of the nation's marine resources can be achieved. Incorporated as an integral function of NMFS, the work that has formerly been confined to the efforts of one major and two minor game fish laboratories (with two more under construction) can now be made an integral part of the total program of NMFS. In this relationship, with the manpower, facilities, and vessel capability of NMFS at hand in lead and supporting roles, the effectiveness of the Federal Government in the marine recreation field can be greatly increased.

Past Programs

Until the establishment of NOAA, the marine game fish program has been carried out primarily at the Sandy Hook (New Jersey), Narragansett (Rhode Island), and Tiburon (California) Marine Game Fish Laboratories at a funding level starting at \$150,000 in 1961, and amounting to \$1,870,000 in 1972.

Scientific studies have been carried out under the four headings of: Life History, Population Dynamics, Habitat Development, and Environmental Protection. A fifth program category involved the collection and compilation of Statistics of the marine game fish catch.

Program Organization

Work will be continued in each of the subject matter categories of the past program. Research will be carried out both through the offshore marine research centers and those which will be concerned with inshore problems. The offshore centers will each be given responsibilities for studies of the pelagic marine game fishes and the open ocean environment these species inhabit. Other species or groups of species which may spend part of their lives in inshore areas and part in the high seas may also be the object of studies. Programs for these species will be coordinated between the inshore and offshore centers, and with various cooperative programs, for example, EGMEX.

In the Gulf of Mexico, the Miami laboratory will be responsible for offshore work on big game fishes as it will be also in the Caribbean and Atlantic. Since some of these species range throughout the entire Atlantic, the United States research will be coordinated with other nations through the medium of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

The role of the inshore research centers will be divided between research on environmental factors and fisheries resources studies. The former will deal with acquiring baseline knowledge of environmental conditions in the coastal and estuarine areas, and establish systems for monitoring changes in these environments; and with experimental work designed to provide a basis for improving conditions that may have deteriorated.

Environmental and fisheries research programs in the Gulf will be largely conducted from the new laboratories under construction at Panama City, Florida, and Port Aransas, Texas. Work on the essential structures at Panama City is scheduled for completion in early December. Completion of a saltwater circulation system will be required to put this facility in physical condition to serve not only as a base for open-water work, but for laboratory studies as well. Although a part of the Gulf "inshore" center, Panama City will initially be responsible for billfish tagging and related programs in the eastern Gulf.

At Port Aransas, where service buildings and site preparation were completed two years ago, the contract for laboratory construction has only recently been let, with completion scheduled for mid-October 1972. Detailed long-range programs for Port Aransas and Panama City have not been laid out pending completion of program reviews with the respective

States and other interested institutions with functional research programs operating in the Gulf.

The responsibility for the development of long-range objectives for the marine game fish program, as with other programs of the NMFS, will be that of the plans and policy development staff of the Director's Office. The responsibility for program development is assigned to the Associate Director for Resource Research. Field coordination will be the responsibility of the respective center directors working under the direction of the Office of Resource Research. Regional Offices will be involved in the coordination process both within the NMFS at the policy level and where a program spans the geographical areas of two or more regions, and outside the Service in the development of cooperative programs with States and private scientific organizations. Regional Offices will also have a major role to play in those programs which relate to habitat improvement, catch statistics, and relations with the marine game fish constituency.

Notwithstanding what we may learn in the discussions with the States and others, we believe there are certain areas of concern that will require a federal effort. For example, in international negotiations leading to fishery agreements, both before and after treaties have been consummated, it is

essential to have a firm knowledge base concerning the fishery. Getting information on the character of fish stocks of the open seas will continue to be a prime federal responsibility. Likewise, there are certain migratory species, essentially coastal in character, that have little significance in international fisheries, but which are of great importance to saltwater anglers. It is difficult for a single State to contribute effectively to the management needs of such species. We see a role for the Federal Service here as an independent research agency in some instances and as a coordinator and even financier of State-managed research efforts in others. While the foregoing remarks apply specifically to fisheries, we see a similar applicability to studies of environmental problems.

Program Elements

Thinking now of the urgency of various kinds of research, we believe it is time to make a concerted effort to devise machinery for securing reliable catch statistics essential to an understanding of management problems. National or even regional data will usually prove to be of little value in the management of areas of particular species. We have begun, this year, to explore various possibilities, but admittedly it is a large and difficulty problem. Sampling systems that produce usable data on a continuing

basis for local fisheries soon command an astronomical price, yet less expensive methods yield information of questionable value. Nevertheless, so many management decisions concerned with resource allocation, regulatory systems, and even research priorities depend upon catch and related data that it is imperative that a method acceptable in terms both of results and costs be obtained. Imagination and innovation are sorely needed if these requirements are to be met.

Tied in with catch data collection programs is the whole field of population dynamics. It is one thing to have catch data but quite another to estimate the sizes of the stocks from which those catches were made. It is only when both types of information are available that a broad basis for competent management has been laid.

Studies of the environment on which a fishery depends are becoming more critically significant. We intend to continue to expand these research efforts, not as a unique part of the marine game fish program, but as a part of the total research effort essential to the protection of the environment on which all the living resources of the sea depend. Our programs will provide data on environmental characteristics as related to the fisheries, including effects of heavy metals, chlorinated hydrocarbons, excessive enrichment, and other effluent material and physical impairment on fish health, growth, reproduction, food supplies, and availability.

There are still many species of marine fish with actual or potential value in sport fishing about which little detailed information is known. Life history studies, including behavior, should be continued and expanded.

In the area of habitat improvement, most efforts in recent years have been focused on artificial reefs. These have demonstrated their value in improving fishing opportunity and there is little more that needs to be done to substantiate the validity of this conclusion. However, a question still remains as to whether the effect of placement of reefs represents an increase in the absolute productivity of the ocean, or is, instead, merely the visible evidence of the concentration of grazing and predacious species. There remain also opportunities to test reef and reef-like structures in areas previously made less productive by deep-dredging or accumulation of sterile manmade detritus on the ocean floor. Still another intriguing possibility is wrapped up in the question of whether midwater fish concentrating devices can be installed with success and within reasonable cost limits.

"Service" Programs

All of the foregoing discussion has been centered on a federal fishery research program. There are interesting and challenging opportunities as well for Service-type

activities. Here the primary action would be on the part of the States but with Federal assistance in both the technical and extension phases. The fledgling extension program of NMFS, NOAA's Sea Grants, and Commerce's small business support programs offer a potential for the upgrading of private sector involvement with marinas, game fish processing stations, and sport fish advisory services ranging from "where to catch 'em" to "how to eat 'em without mercury," safety and small boat handling seminars, and so on. In the "where to catch 'em" category, the marine game fish atlas series will be completed next year with the publication of the Atlantic and Pacific numbers by NMFS, and the Gulf Atlas by the Gulf States cooperating through this Commission.

In still another context, we believe a determined effort should be made to stimulate public involvement in fishery affairs, and intend to promote the "town-hall" fishery meetings idea, which has been highly successful in some areas in bringing about better public understanding of fishery regulations, need for cooperation, and of the threat to fishery resources from pollution and destruction of estuaries.

Sport and Commercial Fishing Problems

In conclusion, I would like to quote from the address Director Roedel gave at the recent meeting of the American

Fisheries Society at Salt Lake City. I believe he put our game fish program in its most rational context when he said, "We recognize that no amount of good intentions or hard technical work will completely resolve the difficult questions of the allocation of catch between competing segments of the U.S. public. Many commercial fishermen will resent controls applied to their industry to benefit the sport fishermen. The latter, by the same token, will view with deep-seated suspicion efforts to optimize the commercial catch of a species of significance to the recreational angler. Nevertheless, we are convinced that if the characteristics of a fish population and its productive potential become known through the findings of competent research, that there will be reasonable people on both sides who will strive for an acceptable solution.

"In any event, I can assure you that we have no intention of slighting our marine game fisheries, or on the other hand, elevating them to the status of sacred cows. We shall strive for an honest, open dialogue based on facts that will make the resource available for the best and broadest interests of all the people of our country."

We recognize the need for better fishery management programs on a more regional or Gulfwide basis. This is particularly true for migratory species such as menhaden and shrimp. Toward this goal we watched with interest the development of the State-Federal management concept as proposed by our good friends in the National Marine Fisheries Service.

More recent actions by other Federal agencies have given cause for second thoughts about the feasibility of such a program.

Coastal States now regulate their fisheries to the territorial limit of three miles with the exceptions of Florida and Texas where the limit is nine miles. Under the proposed State-Federal management plan, regional or even state regulations, if approved by the National Marine Fisheries Service could extend through the Contiguous Fishing Zone or to twelve miles. An advantage would be in lateral as well as outward uniformity when several states are participating.

Recently, the State Department has prompted the Justice Department to file suit against Florida and Texas to prevent these states from enforcing their fishing regulations on foreign vessels operating beyond three miles even though our jurisdictional claim lies well within the twelve-mile National Contiguous Fishing Zone. This action, we feel, is clearing the way for the State Department to barter away at Geneva our fishing rights beyond three miles. If not, why should the issue arise now? The brief states that the purpose of such action is to avoid incidents with foreign vessels during the period of negotiation. However, since Florida and Texas jurisdiction is well within and short of National jurisdiction, we fail to see any problem. Illegal foreign vessels would be stopped by the Coast Guard three miles beyond the jurisdiction of these two states.

It is also our understanding that with respect to the proposed State-Federal Management Program the Justice Department is opposed to any extension of State jurisdiction beyond three miles. This position strikes at the heart of the proposal.

Thus, we feel that the worthy objectives sought by the National Marine Fisheries Service are being undermined by other Federal agencies to the point that the proposed program will become inoperable or unacceptable. We point out these problems now because we are concerned with the condition of some of our fisheries which suffer from piecemeal management. We see a crying need for regional regulation. Should the proposed State-Federal management concept be scuttled by other Federal agencies, interstate compacts such as ours must stand ready to develop wide management programs. This Commission is the logical and most appropriate body to coordinate these management efforts. I would urge that our states with the assistance of the National Marine Fisheries Service begin a review of existing management programs and determine how they might be redirected toward more regional efforts where the need exists.

Address by Wayne Swingle at the
Gulf States Marine Fisheries
Meeting at New Orleans, Louisiana
on October 1971

Thank you Mr. Chairman.

Ladies and Gentlemen. I'd like to acquaint you with Alabama's marine cage culture work and with some of the problems involved in culturing fish in cages. First, let me say that cage culture is not a new concept. It has been practiced for hundreds of years in Cambodia and more recently in Japan.

There are certain advantages to cage culture. First of these is that the fish are concentrated. This allows them to be easily harvested whenever the market is best and easily treated for parasites or disease. Also they may be observed throughout the culture period to see if they consumed all the feed or if they quit feeding indicating a possible disease problem. Since the cage mesh is open, the wastes from feed and metabolic wastes are disipated into the open water. The build up of these wastes is the major factor limiting production in ponds. Cages in estuaries have another major advantage, that is, that they can be placed offshore where they don't compete with housing and industrial development for expensive coastal lands. For this reason we began studies to evaluate marine cage culture.

There are certain disadvantages also. Foremost of these is increased likelihood of disease or parasite epidemic. The fish also require a nutritionally complete diet, which is more expensive than the supplemental feeds used in ponds. The marine habitat has the additional disadvantages of corrosion and fouling.

These last two problems we feel we have solved. Our initial cage design consisted of creosoted lumber and hardware cloth treated with an asphalt base material.

Although we chose the cheapest material, the cost of each cage was approximately \$39.00, more than half of which was labor costs. The cages proved impractical and did not last more than one year. We experimented with several designs and came up with one that has proven excellent for our work. The cylindrical cage is constructed of vinyl-coated hardware cloth, braced by fiberglass hoop net rings three-feet in diameter and fastened by hog nose rings. This cage can be produced for approximately \$20.00. Only 10 percent of this cost is for labor. We have used these cages for two years in the marine habitat with little or no deterioration. We expect them to last for five or more years.

The second problem we have overcome is marine fouling. Extreme fouling results on a cage after being in the water for 4 weeks. This type of fouling limits the water exchange and thus growth of the fish. Copper antifouling paint does not prevent this fouling, but is effective for barnacles.

We discovered when culturing mullet in cages, that they would control fouling. We tested different stocking rates and found that 20 mullet per yd³ of 20 grams average weight was adequate to control fouling. We routinely stock 30 per cubic yard along with our other fish.

We have also learned something about building protective structures. Our original enclosure and pier system was destroyed by Hurricane Camille. Our new enclosure has an area of about 1/10 of an acre, but has the potential of raising the same amount of fish as you could in 10 acres of ponds or perhaps more. The piers are protected by a sea wall constructed of vertical creosoted 2" x 10" 's which were jettted 3 feet into the bottom and nailed to two 6" x 6" horizontal stringers which were bolted to 15 inch butt pilings with one above the water and the other

submerged. The pilings were driven 10 feet into the bottom and spaced 7 feet apart. The vertical 2" x 10" were sandwiched between the 6" x 6" stringer and 2" x 6" stringer which were bolted together.

We have cultured spot, croaker, mullet, the catfishes, shrimp and pompano in cages. The shrimp work has been a failure so far. The other species all have potential for cage culture, but only the pompano has a high value. We have therefore concentrated on pompano culture. We seined these from the beaches and stocked them. The young are most plentiful in May and June in Alabama. We have taken them as early as May 5th. When the first group moves into the surf, they average about 0.1 of a gram. They are accompanied by larger individuals from the last fall spawn. This year we stocked the 0.1 gram size into this pond equipped with an electric feeder which was programmed to feed every two hours. This worked fairly well, and the fish were large enough to stock by the last part of June. We expect to raise them to .2 to .3 pound average by this fall. The previous year we were unable to utilize the smaller fish because we couldn't feed them in captivity often enough to keep them alive.

We have been able to raise pompano to 0.6 pound average using the previous year's spawn. It is doubtful if commercial size pompano of one pound can be raised in the Northern Gulf without overwintering juveniles. This presents some difficulty since they die at temperatures of around 50° F. We have been able to acclimate pompano to freshwater or almost freshwater. Really, it was the water we drink on Dauphin Island, which contains about .2 to .3 ppt salts. We will attempt overwintering stock this year in heated effluent from a power plant. I believe for Alabama the answer lies in utilizing the deep wells to warm and dilute brackish waters in ponds. All of south Baldwin and Mobile counties are ideally suited for this. We will work on this on the completion of our brackish water pond station

at Gulf Shores, Alabama. Last year we concentrated on utilizing different sizes of fish for stocking and different stocking rates. We stocked pompano ranging in size from $\frac{1}{2}$ gram to 80 grams into cages. We had low survival rates which ranged from 5.6% to 94% and averaged 40.8%. The larger the fish grew the better the survival rate. After reaching 20 g or larger, survival was 63.1% and after reaching 60 grams or 0.1 pound, survival was 87.6 percent. We are a little skeptical about stocking the smaller fish in cages and feel they should be stocked into ponds and overwintered and stocked the following year into cages. The largest poundage we raised was 60 pounds per cubic yard or about $\frac{1}{4}$ that expected for channel catfish. We did not get good data on stocking density due to high initial mortality, when the fish were small.

Our conversion rates were very poor the first year. It took an average of 5.2 pounds of feed to raise 1 pound of fish flesh. We utilized a commercial floating trout chow which costs about 11¢ per pound. This made us have 57¢ invested in each pound of fish for feed alone. These high conversion rates resulted primarily from high initial mortality of the pompano. Also a great deal of feed was lost when we were utilizing the smaller sizes of feed as they float poorly if at all. We are doing much better this year, and our conversion rate to date has averaged 3.5 for the trout chow. If pompano of 60 grams or larger were stocked, you could expect a much better conversion rate since they could utilize a larger pellet which would float until consumed.

Since feed costs were extremely high during our first year, we are investigating the use of a diet utilizing ground trash fish this year. This feed consisted of 70% ground whole fish and 30% soybean meal. So far the growth has been much better and the survival rate higher for fish on floating trout chow than it was for fish on the ground fish diet. Part of this difference is probably because the ground fish diet sinks. The pompano do utilize the feed off the bottom of the cage. ~~The~~

~~pompano do utilize the feed off the bottom of the cage.~~ The trout chow does seem to be a good diet if precautions are taken to preserve the vitamin content; however, it is very expensive and more work needs to be done on formulating feeds for pompano. The loss for dressed pompano amounts to 25 to 30% of the body weight. The percentage is higher for the smaller pompano.

I will conclude this section on pompano by saying that they certainly have a potential for commercial production. They are extremely hardy and may be handled with little or no mortality. They take artificial food as soon as it is offered and they have a high value. We are sure that they will have to be overwintered in the Northern Gulf area. We believe this can be done economically in Alabama. They will also have to be spawned and the fry raised. These are problems we hope to work out in future studies.

Let me now go briefly over our cage culture results with striped bass. We are raising these fish from fingerlings to a size of 6 to 10 inches for stocking. We are attempting to re-establish the species in Alabama's estuaries.

The first year we had survival rates of approximately 45%. However, this was slightly better than Edenton Hatchery did in ponds with pelleted feeds. This year we have had survival rates of 85 to 98%. The lower survival was on the ground fish diet and the other on trout chow.

After the fish are raised they are tagged and released. Last year we stocked 6,000 and this year will stock 10,000 striped bass.

GENERAL SESSION

ESTUARINE TECHNICAL COORDINATING COMMITTEE REPORT
Dr. Ted Ford, Chairman

Part of the role that I think should be emphasized here is one in which we held a session yesterday afternoon that is we appreciate greatly - we had Bob ~~Johnson~~^{Achornig(?)} in town, we had Walt Kirkness, both out of the Washington office, an opportunity to review present thinking about the extension of Public Law 88-309 which as you know is our commercial fisheries research and development program. I think we now have a clear position, ably reinforced, and will in this connection be carried back up the line and hopefully seriously considered. Secondly, we considered the proposed state and federal fisheries management concept that is being considered. We have indicated to them that we have a substantial interest among those that are in the Gulf as the guidelines are better developed and formed up what is Proposed, I think, they will certainly be able to count on the Gulf States for good support of this.

However, it was very clear that P.L. 88-309 and its extension by the Congress should stand on its own merits.

Additionally, we talked in terms of the proposed High Seas Fisheries and Conservation Act of 1971 and had Raud ~~Johnson~~ Anderson, the prime solicitor in commerce who discussed this with us and I think this was of considerable interest to the state. In that connection, we will probably have something for the first time, except by way of fisheries, treaties and conventions our government really does not have any regulatory authority in any of these waters as I understand it, except

by that which is specifically conveyed and under that particular proposal there would then become a prime responsibility for fisheries management from the three-mile limit except in cases of west coast of Florida and the coast of Texas, which I believe^e is approximately 10 1/2 statute miles for control or regulatory authority out to the 12-mile limit. I think this will particularly interest our group and then we would like to move on to the actual, rather brief meeting of the ETC committee. We had a report on some interim activities, one going back to a joint meeting of the administration and the ETC Members with the representatives of the regional staff of NMFS and Phil Rodel and his staff from Washington back in early August and the interesting discussions that were held there and as a result of this, it has developed a personalization of our views as just acknowledged a few minutes ago with respect to P.L. 88-309 and other significant items. In the meantime, we have expressed an interest in trying to develop a much stronger coordination between state groups and National Marine Fisheries Service groups all having a common interest in these resources. One of the highlights of the Estuarine Committee meeting yesterday was the thought that we will have an opportunity to work much more closely together to develop a program that is meaningful to us and you, more particularly, some of the proposals that are presently being considered, do not have that nice little slant of approval that means that they will be implemented.

We will have ~~a~~/f/ a follow-up meeting next January, and we placed on the list of Dick Whiteleather as Regional Director

to take the initiative and schedule this with representatives of the ETCC which incidentally, we will probably be attending a meeting of a step-child of this committee which began as a sub-committee of the ETCC, ~~the~~ and this is the World Mariculture Society and, incidentally, it is probably ~~the~~ larger than this group. I believe that the last meeting there were representatives from about fourteen foreign countries in addition to 27 states. It had a registration of about 210 and attendance of about 275. Now, this does include a number of students who are interested, mostly graduate students who were sitting in on that meeting. and they will be in St. Pete around January 26-28.

In addition to the points made thus far, we have had an interim report from another subcommittee headed by J.Y Christmas on the circulation and hydrograph (?) study on the waters of the Mississippi Sound from the east side of the mouth of the Mississippi River from the delta, there has been some field effort thus far on a cooperative basis with a number of agencies who are interested in this particular area. As a matter of fact, they were able to amass some 46 boats for making water samples in connection with a ----- or if you would by the NASA group. Hopefully, this may materialize into something as has been indicated by two or ~~two or~~ three gentlemen this morning. One of its main problems is having sufficient money to really implement our good hard-core program that will be productive.....

(end of tape)

THURSDAY'S GENERAL SESSION

NATIONAL OCEANIC & ATMOSPHERIC ADMINISTRATION AND FISHERIES
David H. Wallace

It is very interesting that when you look at NOAA and the National Marine Fisheries Service, you might almost say that the Federal Government has been taken over by a bunch of state guys. Here I am from the state, you've got Phil Roedel, Bob Schoening, Walt Kirkness, you even have members in the past - there's John Gottschalk who came from the state and has chief -----
Some people might even ask if the Feds are getting haphazard in representation.

One thing is for certain, though, we come to NOAA with some insights into the states' strengths, and also with their weaknesses, and I think we all have to recognize that the states have had some weaknesses in the past. It is because we are sympathetic with the states' viewpoint that I am inclined to be optimistic about what we can accomplish together. Nobody -----

an operating organization, only about a year.

What was initially a group of separate organizational units and functions, and many departments and agencies in the Federal Government, is now making a transition into a cohesive organization.

Bob White and his senior -----

have been taking a hard look at the form that NOAA should take.

The first task in deciding which organizational core might best suit us will be to identify what he thought was a major thrust of NOAA as outlined in the President's Reorganization Order -----

has sought out in subsequent congressional areas and in talks with key people in the academic community throughout the country. Four basic missions have been identified for NOAA which will accommodate all of the various tasks and responsibilities. These are first, the exploration, conservation, development and management of resources of the sea including diverse related roles in coastal zones. Two, development, operation and maintenance of a national system for observing and predicting the state of the atmosphere, the rivers, the ocean, and of South America(?). Three, the exploration of the possibilities and consequences of environmental modification. Here, we are concerned most with arresting the deterioration of the environment, and with conscious attempts to modify environmental phenomenon for man's benefit. The last measure of focus of activity for NOAA is to foster the development of the necessary scientific understanding and technical capabilities the nation must have to achieve the foregoing objectives.

These broad national responsibilities are not the exclusive property of NOAA. They require the participation and action of many agencies from the state and federal government, from the academic community, and from various segments of industry.

We have made the decision that the existing major lines of -----that is, the NMFS and various other services should serve as the fundamental building blocks of the organization. Each service will carry out the applied research and technology -----development and activities for which it is responsible. By doing it this way, however, it means that many organizational duties have been involved in each of NOAA's four basic missions.

For example, work in restoring, conserving and developing and

managing ocean resources involves the program of these components: National Fisheries Surveyor(?), the National Marine Fisheries Service, the Office of Sea Grant, and the Environmental Research Labs. With support from such agencies as the National Weather Service, the National Environmental Satellite Service and even _____

But we are going to establish associate administrators. There is one for marine resources, there's another for environmental fostering and protection, a third for science and technology.

My office has the cognizance of NOAA's total marine resources activities as well as its activities in the ----- mapping and charting.

Except for real time environmental observation and prediction responsibilities (?)

These responsibilities include living and non-living resources and coastal zone activities of concern to NOAA. We also have a number of national and international coordinations and special project management functions based on the two of us(?).

There is another office of NOAA headquarters which I would like to mention. This is the Office of Ecology and Environment Conservation headed by Doctor William _____. This office is the focus for providing NOAA's approach to the provisions of the Environmental Policy Act of 1969 and is our ~~perse~~ principal interphase and with the many conservation/ ecological-oriented groups outside of the government.

There have been some major organizational changes within some of the statewide components. I am sure that all of you have been aware of, or in one way or another, involved in some of the things that have taken place in the regional fisheries service. I would like to review ^{very} briefly some of these things that have happened in the

National Marine Fisheries Service. Their activities have been broken into three or four major groups. A better mechanism for sound and effective fisheries management, including the resolution of fisheries institutional problems, provides greater focus for economics, marketing, financial assistance, food technology programs, integration of sport and commercial fish research, and more.

direction of the total fisheries research effort.

Three major units have been established in the service. They are (1) resource research, (2) resource utilization and (3) resource management. Each of which is headed by an associate director. The basic regional structure remains unchanged although there have been developed some new relationships between regional directors, research labs, and the Washington-level of the program.

I think it is important to say, however, that Regional Directors will continue to represent the National Marine Fisheries Service, throughout the region. They are the central contact point for sports and commercial interests, as well as the general -----

I would like to talk about some of the major areas of organizational emphasis insofar as they affect fisheries. Last month, a proposed NOAA Fisheries policy was presented to the National Fisheries Advisory Committee. This draft policy clearly recognizes our obligation to the sports as well as commercial fisheries, and also the responsibility and an active role for the fate that fisheries meet. This tentative policy will be soon under discussion with the various states. I would hope that by early next year we would have the kind of policy that provides guidance for the federal government for the development of the kind of programs -----

Public confidence in the fisheries progress is implied in a prime factor in the success of any fishery processing and sales operation. It is in this area that I can assure you that the fishing industry and the problems that are facing it have the concern and the full support of Secretary Stans. Just last week we concluded meetingw with Deputy Commissioner James----- of the Food and Drug Administration and some of his top people. To discuss problems of mutual concern, particularly in the area of -----and fish inspection stands (?)

FDA has begun to recognize the need for real meaningful cooperation in fisheries matters and I velieve that this will result in definite advantages both to the fisheries, the industries and ----- We are delighted with the responses we are getting to the problem from the FDA who, I think, for the first time are extremely sensitive and aware of the problems facing the fishing industry, and would like to work with us in developing programs which will deal with the problem, will protect the consumer and at the same time prewerve our fishing industry. I would like to talk a little bit now about NOAA's role as an environmental basis. We have a concern with proper and effective use of the environment for all national purposes, the protection of life and property against the hazards of nature and I'm sure you all know what that means. -----

coming periodically(?)

conservational development of our marine resources.

A special concern, of course, is our fisheries facilities. In addition to consolidating our research facilities for this purpose,

we propose increased studies in marine systems. We have developed a plan providing conserved effort in key coastal states by stating a federal agency (?), academic community to develop information necessary for the rational management of the coastal zone, which give adequate consideration to our support of commercial fisheries resources. This is a total NOAA effort which is being coordinated through our Marine Resources Office.

We've also begun a cooperative program between the states and national ocean survey(?) which is concerned with coastal zone mapping with emphasis on the delineation of coastal boundaries.

I was meeting last night with some of your people, in which this very important matter was discussed. We've already been working with the state of Florida in trying to establish the seaward boundary of the states because it has critical importance in terms of long term development of our fisheries and of our water resources. We would hope to greatly accelerate this program because of the demands for very precise definitions of the three mile limit, the 12-mile limit, or the edge of the Continental Shelf is becoming more and more pressing in these days.

This program is in addition to NOAA's marine mapping and charting missions and other services such as -----

This is the basic activity of what used to be the old Gulf Coast geodetic survey and which is now a part of NOAA.

NOAA has also designated as a focus of Department of Commerce activities in connection with the planned 1973 Law of the Sea Convention.

Again, we expect to see a much more effective mechanism for dealing with international fisheries problems so many of which ----- upon our coastal fisheries. In the coming year, two areas in which I personally have considerable interest, extensive ----- and mariculture, will be given more emphasis. We have moved to strengthen our fisheries extension program by siding the offices Sea Grant with the coordinating role of NOAA. They will build upon what has already been accomplished through the universities under Sea Grant, through the National Marine Fisheries Service, under 88-309, and with their own activities which have been carried on a very difficult basis over the past years. The real goal is to supply the organization the financial support to enable the fisheries extension agents to carry ----- degree the technological development and benefits which will be of benefit to them and to reflect to the industry the kinds of needs which they feel are ----- to them. Mariculture, too, we want to mold to the accomplishments (?) and Sea Grant to these state, university, industry ----- into a truly national effort.

Some people say that mariculture is unrealistic and have no means of limited protection. I do not believe this. I am determined that there will be a viable program in NOAA to carry out research and systematic approach to mariculture and be relevant to the growing needs of this budding industry.

As I indicated earlier, my overall concern, and yours too I believe, deals with the way our fisheries resources are managed. There is truly a need for new management systems. This/^{is} particularly true in the areas where fish migrate from inshore, offshore, or they are exposed to ----- territory, state, or high seas.

As you know, this matter is being explored right now. Yesterday, Bob Schoening, and Walt Kirkness talked with you about these federal-state concepts. Personally, I think we have to think this is an tremendously important matter.

Again, my experience having been in the states, I believe there is a very strong need for a closer integration between the states and the federal government. I would hope that out of these conflicts that are being carried on, we can evolve into the kind of program that will be acceptable and benefit the states and at the same time allow the federal government to carry on with what I believe is its national responsibility.

In conclusion, let me say, again, I am optimistic about the progress we can make as a group. I am more optimistic because I talked with many of you who have been talking with our people, - we've been communicating. You know, communication is the greatest way to reconcile what we see as the various points of view. Dr. ----- is struggling behind our fisheries program. He is dedicated to see that our commercial and recreational fisheries will be developed. We look to organizations like yours to help us, to let us know what the views of the states and industry are, and if and when we reach agreement, to support us in our efforts to help you and preserve the resources to which we are all dedicated.

WASHINGTON LEGISLATIVE REPORT ON FISHERIES
Robert D. Nordstrom

I'm going to be necessarily brief because the subject of legislation in this particular Congress is one that we could spend several days on -----

all types of bills that people keep bring out.

As a little sidelight, I can tell you the type of activity that we are involved in today. Several years ago, I think five, to be exact, one of my predecessors said that if he had five or six bills in Congress that had something to do with fisheries, he thought that was a pretty tough Congress.

Today, and over the last couple of Congresses, we had something like two file drawers full. The bills number upware to 20,000 by the time we get through with this Congressional Session.

 something like
There are/140 bills that pertain to environmental activities alone and could be considered some threat or some help in the case of fisheries.

The main topics that we are covering, and in these days are working on, are fish inspection - something that has been around for about six years and may see the light of day within the next two weeks. We've been working for sometime to get a bill that would both protect the consumer, increase the sanitation standards, bringing to mind some of the products that we have coming in from other countries, as well as products being produced here. The current bill which is in ~~the~~ Second Committee ~~XXXX~~ ~~now~~ at the present time includes a definition of continuous inspection- something different

from what we had before. Continuous for most people would mean that you have an inspector at the plant each and every day ----- processing. We now have a system including at least one per day inspection by a Food & Drug inspector (an equal system should apply to foreign countries, however, run by those countries), more strenuous record-keeping so that the FDA can look ~~back~~ at your records to see what you're doing in regards to quality control, shipment, purchase and production.

The section that we've had the most trouble with is one that has come about because of last year's mercury scare and that is the dangerous material section. The only part of the current bill that goes to all foods & doesn't stop at fisheries products requires that Food and Drug within 180 days

list all danger of impurity. A good trick if they can do it, they don't seem to think they can at the moment. -----

and to list the levels at which those material might be dan-
the
gerous to humans and then list ~~with~~ intensive surveillance and intensive screening method by which they will search these materials in all food products in this country.

The bill is being discussed in executive session of the Senate Commerce Committee, was discussed on Tuesday, and will be discussed again next Tuesday, until they finally reach the end of all the Senatorial amendments that are likely to be proposed

for it. ~~and expected to be reported~~ It is assumed it will
whole intact
be reported to the/Senate/within the next couple of weeks,

will be passed and be available to the House to start its operations on it next year.

Majority Leader, Senator Mansfield, has listed just a few days ago, some of the high priority items he wants to get through this Congress and one of them is what is known as the whole-some fish bill. He also wants to adjourn by Thanksgiving, something I don't think he is going to be able to do; but fish inspection has a very high priority.

The Senate Commerce Committee also wanted a full security very soon on a number of bills that are pretty much unrelated. One bill was to cover the subject of fish disease and was designed primarily for the importing of such things as trout eggs and other types of fish eggs that are brought in to this country that in the past have sometimes been diseased and want effective legislation that will prevent this and also introduce some research.

There are two amendments to the Fishermen's Protective Act - one with shortened time for reimbursement of vessel owners and vessels of the seas such as tuna and distant water shrimp vessels to get rid of some of the red tape. We are always in favor of something like that. The Atlantic Salmon(?) Bill which Congressman Elliot put in which would embargo any product of any country that refused to stop fishing for salmon, but it does not include other fish which we feel conservation demands that we cut back on. ~~There~~ ^{There} I think also there will be a hearing possibly on a bill that I think will be of great interest to some of you, and that is S.1322 by Senator Tower of Texas to provide for excess storm loss reinsurance. Having been through these last couple of years, I'm sure there are many problems that boat owners face down here in the Gulf that perhaps could be corrected by this type of legislation.

John Wedin, the professional staff member responsible for this bill in the Senate Commerce Committee asked me to convey to you his hope that you would get a copy of this bill, take a good look at it and decide if it is the kind of thing you want and let him know as soon as possible because he does want to move on the bill if you want him too.

There are also possible hearings to be scheduled on bills to provide funds for processing facilities of aid to fishing vessels owners. There is another major subject that is of concern to especially the fishing areas and inshore areas. It is the Coastal Zone Management Legislation - another one that has been around for a number of years. There have been suggestions as to how this should be run. The Nixon Administration wanted a complete Land Use Policy ~~Plan~~ which would start in the Coastal Zone. ~~It~~ at the present time - the area that they ~~feel~~ felt needed to look at and protect.

The Senate Commerce Subcommittee on Oceans & Atmosphere with Senator Hollins (?) from North Carolina has had a different idea - they wanted a purely coastal zone bill that would provide for shared-use responsibility in the coastal zone. ----- they've reached a compromise which provides for coastal zone studies in the initial area, plus fitting this into an overall land use program at some later date. There are many ~~programs~~ other pieces of legislation that are being talked about - a lot of them have to do with consumerism and environmentalism. They are ~~too/number/~~ much too numerous to mention, but I think that most of you who have any ~~thing~~ dealings with processors of fishing vessel owners know that there are increasingly stringent standards that are ~~being~~ being proposed for the

sanitation devices of these fishing -----
waste permit disposal systems.

You will probably hear some more about that today or tomorrow and some of these pieces of legislation are moving, but they are moving slowly. I don't see them clearing Congress- at least not this year.

I told Joe Colson when he invited me down here that I would very briefly touch on a meeting that we had recently on another subject that is really not legislation, but is something that is a vast concern to anybody operating in the fishing area, and that is the Law of the Sea Conference as proposed for 1973- and ^{may} perhaps/~~now~~ delayed until 1974. Current activities in Washington lead us to believe that once again -----as has happened ~~before~~ many times, the fishing industry is the last one that is going to get any thing real-out of this particular Congress. The Defense Department seems to hold great sway in our government and has at this point, we believe, pretty much decided that if they have got to give fisheries away to get their point of view, they will do it. As a result, a group we call the National Fisheries Policy ----- which includes a good many people from this area, met again last year at Dulles Airport and had a meeting on the role of government in fisheries, and we met very briefly with a smaller group a short time ago and sent a letter to President Nixon telling him of our concern and also sent letters to many Congressmen and Senators and many of the people here in this room asking them to contact their people so that we could begin to move forward in some unified fashion to alter(?) that policy -----
at the present time. /X/ZZVBEA/IF/BIKA/ABA/BVFS

Friends of NOAA and the National Marine Fisheries Service have done their best to make our point of view ~~now~~ known but I am afraid that they are not being listened to by that bunch in the Federal department.

One other point that We would like to make -----

National Fisheries Institute to recover

association.

I made a rather conscious decision a year ago that we could not, and would not, represent members of the fisheries and ----- and vessel operating industries that weren't interested in getting together and having a unified approach.

since we started our little campaign and most ~~notably~~ notably, Bob White of NOAA has said to ~~us~~ us several times that he had always heard that the fisheries were the ones that couldn't come together on anything. On two occasions - once before the Secretary of Commerce and once before Mr. White himself we proved that we could sit down and that we could make divergent views and come out with at least 10 or 15 major areas of concern that we are all agreed on.

I say this to you this morning because I think it is something that the Law of the Sea ? problem and some of the other activities ~~that~~ that are coming up is something that we have got to do even more of in the future. We hope that if your reflections come from people in other states, people in other associations and the ones you belong to try to get some sort of policy we can give them your whole-hearted support.

ZELLER

The Role of the Environmental Protection Agency in the Industrial Waste Permit Program -

I appreciate the opportunity of being here with you today and would like to discuss with you the role of the Environmental Protection Agency and the industrial waste permit program - a program which has reached a forefront these past few months. I think it is quite appropriate on the program today that we have a reference to water pollution and water pollution control. I don't think it would appear melodramatic...

I think all of us here know what inroads water pollution has made... very important as far as fisheries is concerned.

All of us are aware that unless some of these inroads are curbed, we will all be out of business.

This is ^{one} of the responsibilities of E.P.A. and/of the programs to which I'll be addressing myself here today.

Before I get into any specifics, let me say just a little bit about the Environmental Protection Agency since it is a new government agency and all of you here may not be familiar with it. I'm not too familiar with it either.

Let me give you a little background. E.P.A. was created by an executive order of the president in December of 1970. The concept behind organizing E.P.A. was to bring an umbrella to the organizations connected with all of the agencies of the federal government; that is, the environmental responsibility of forests and land, the air and water, and as a result of this bringing together a number of satellite agencies under one head, the E.P.A. has essentially brought together all of the government agencies that were involved with water pollution, air pollution, pesticide control, radiation, solid waste, and until recently, we had no interest...

...in an official declaration of the president creating E.P.A. and this was further echoed by our

Primary responsibility of the organization would be toward environmental control. Since we are a regulatory agency our programs are directed to regulatory controls. I think this is our responsibility-we are not a business or commerce agency -- Our job is environment.

In the process of organization, E.P.A. presently has ten regions under the ten basic government regional centers. Region 4 in Atlanta has the responsibility for eight states-North Carolina, South Carolina, Kentucky, Tennessee, Georgia, Florida, Alabama, Mississippi. You can visualize that area and readily see that a substantial portion of the coastline of the United States is involved in Region IV and we are understandably very much concerned with the problems as you are here.

Specifically, the *Permit* ---Program came to light about the same time as E.P.A., later on in December, and it was created by an executive/^{presidential} order from the 1899 Refuse Act - existing legislation which has been ---- interpreted many times by the courts now. The rationale behind the use of the 1899 Refuse Act and the thrust behind using the 1899 program was to get a tool that could reactivate a program that would enhance the federal government's ability to enforce water quality standards and clean up the nation's waters. The basic 1899 Act was very straightforward and specific and a very neat piece of legislation - it is illegal to discharge anything in navigable waters or tributaries of navigable waters of the United States, unless you have a permit from the Corps of Engineers.

Of course, based on their interpretation of what constitutes a tributary, I don't think they left any industrial waste discharge behind? a very liberal interpretation of what constitutes a tributary literally.

-----/navigable waters or considered a tributary. For the purposes of the Permit Program, I refer to the industrial waste discharged with the exception of those which didn't go into the municipal waste system, are included in this program.

In Region IV, ~~the~~ which is the area I am engaged in, we currently have in my office at the present time somewhere in the neighborhood of 3400-4000 industrial waste permits that we will be dealing with.

We have looked at and categorized all of the industrial waste discharges as they have come in and sort of picked out what we call our Black List - actually it is a priority list, but...

(conditionally?)

We went through ---additionally with these 3500 discharge applications that we have received in the process of establishing

worse pollution sources. We selected somewhere in the neighborhood of 300-365 waste sources which we think probably constitutes 80-90% of the total industrial waste discharge in the waters of this

region. Very briefly, the procedures under the Permit Program

work something like this - By the federal regulation that have been

established, anyone who has any type of industrial waste discharge

must have an application in the district office of the Corps of En-

gineers by January 1971. Upon reception of the Corp of Engineers

application for discharge, these applications are referred to the

states for water quality provisions? of the...

Under the executive order the principal responsibility seems to be

states'.

We are looking at the permit applications in a very serious light. We'll be talking about that a little bit later.

But again after an application goes through the Corps, it is referred to the states. The next action is with the state water pollution control agency which under our 1971 Water Pollution Control Act is required to certify to the Corps that such a discharge does not violate navigable water quality standards at the same time the state may deny ...

Under our so-called 21-B regulation, this requires a public notice so the public -----and can react.

1. Formerly this phase of the game for E.P.A. and these will be a confrontation with the states at this phase of the game.

...and we will make our recommendation to the Corps of Engineers and establish some conditions which we think should be applicable as far as the the permits are concerned.

-----regulations we speak of the authority to deny a permit that a state would certify.

I know that in a -----program E.P.A. has the responsibility and authority to set up whatever -----or federal----- we think are appropriate.

Permits can be issued for any period of time. A recommended period of time is generally every five years.

Of the three, and I emphasize THREE permits that have been acted upon, in our office at this time

. . . one permit was for a period of ONE year, one was for three years, and the other for five years.

The three permits sound like a pretty small number. I'm rather impressed with it myself because we are the first region in E.P. A.

to get the-----

We feel like not we have overcome the problems involved and----
going out and forget about the busijess of controlling water pollu-
tion. Specifically in our office at E.P.A. we address ourselves
to...

(Tape ends before he gets into
the heart of his presentation.

Unfortunately, Mr Zeller does not
keep notes or make drafts of
his presentation. —)

The Status of the Gulf Menhaden Fishery¹

by

Robert B. Chapoton

National Marine Fisheries Service

Mid-Atlantic Coastal Fisheries Research Center

Beaufort, North Carolina 28516

Abstract

Landings of Gulf menhaden (Brevoortia patronus) by the purse seine fleet established a new record in 1970, when 1.2 billion pounds of this herring-like fish were unloaded at Mississippi, Louisiana, and Texas ports. Landings in 1971 will exceed those in 1970. Whereas these record landings suggest to some an unlimited resource, other aspects of this fishery indicate a less optimistic outlook. Fishing effort, defined as vessel ton-week, has generally increased annually over the 24-year period, 1946-1969. In 1970 and 1971, fishing efforts materially increased and are the highest recorded to date. The catch per unit of effort, a prime indicator of fish abundance, did not increase significantly in 1969 and 1970, nor is it expected to do so in 1971. The trend in catch per unit of effort for the 1946-1970 period is downward, and no major change is suggested for 1971. A Schaefer-type surplus yield model of the 25-year period 1946-1970, indicates a maximum sustainable yield (MSY) of 434,000 metric tons, or .96 billion pounds. Maximum effort required to make this catch is 407,000 units. The average catch and effort statistics during the past 5 years 1966-70, are approximately equal to the calculated maximum, although annual fluctuations are considerable. Estimated landings in 1971 are approximately 55 percent greater than the MSY and thus are not sustainable.

¹Abstract of talk given at the Gulf States Marine Fisheries Commission Twenty-second annual meeting, October 20-22, 1971, New Orleans, La.

Alabama Oyster Resource Survey

Edwin B. May
Alabama Marine Resources Division

Dauphin Island, Alabama 36528

The Marine Resources Division has recently published an extensive survey of Alabama's oyster and buried oyster shell resources (May, 1971). The material is presented in text and atlas form. The objective of the survey was to accurately map all oyster beds and to make a complete inventory of all the remaining buried oyster shell deposits in the State. The purpose was to provide reliable information which would enable effective management of these resources.

The main portion of the survey began early in 1968 and was completed in three years. Some data on shell deposits had been collected since 1956 and were updated during the survey.

Horizontal control stations used for mapping were established in cooperation with registered engineers maintaining second order accuracy by reference to U. S. Coast and Geodetic Survey triangulation stations. Accuracy of triangulation was within one inch for each 10,000 inches with an average allowance for triangulation closures of three seconds. The borders of the reefs were mapped using visual triangulation from these stations with theodolites. The location of the triangulation stations and the two survey angles were used to compute the grid coordinates of each survey point by computer. Electronic distance measuring equipment was used to measure traverse distances. Electronic horizontal control equipment and sub-bottom profilers were used to survey for buried shells in some areas.

The location, area, volume of shell and depth of overburden were given for each shell deposit and the total inventory of remaining shell reserves was calculated.

For the oyster reefs, the location, area and density of reef components, including all major animals and cultch material, were determined using scuba and random one-square yard quadrats.

In addition, several other studies were done in conjunction with the survey. Oysters were monitored for diseases and pesticides. Bottoms potentially useful for oyster culture were evaluated and factors which influence oyster production were reviewed. Results of shell planting were evaluated and the history and economic value of both the oyster industry and shell dredging industry ~~was~~^{were} discussed.

Excluding the previous shell survey data provided by a shell dredging company that was updated and incorporated into the survey, the cost for the three-year study was \$175,000. This included mapping and sampling about 3,000 acres of oyster beds and about 100,000 acres of shell deposits. Including the other data, the information contained in the atlas took a total of 10 years to accumulate at a total cost of \$1,050,000. This amounts to about \$3.50 per acre for the approximately 300,000 acres surveyed in Mobile Bay and Mississippi Sound. Survey costs are greatly reduced by using electronic positioning and profiling (May and McLain, 1970) and a survey cost estimate of about \$1 per acre would be realistic using modern equipment. A similar survey could be conducted by experienced investigators in about 2½ to 3 years at a cost of \$350,000.

LITERATURE CITED

May, Edwin B. and Kenneth R. McLain, 1970. Advantages of electronic positioning and profiling in surveying buried oyster shell deposits. Proc. Nat. Shellfisheries Ass. 60: 72-74.

May, Edwin B. 1971. A survey of the oyster and oyster shell resources of Alabama. Alabama Marine Resources Bull. 4: 1-53.

TITLE

Occurrence, distribution and density of Rangia cuneata
in Lakes Pontchartrain and Maurepas, Louisiana.¹

by

Johnnie W. Tarver
Louisiana Wild Life and Fisheries Commission
New Orleans, Louisiana

¹This study was conducted in cooperation with the U. S. Department of Commerce, NOAA, National Marine Fisheries Service under P.L..88-309 (Project No. 2-91-R).

ABSTRACT

Samples of Rangia cuneata populations were taken with a modified 18 inch oyster dredge throughout Lakes Pontchartrain and Maurepas to determine the occurrence, distribution and density of clam populations. Depth, bottom type, salinity, temperature, and turbidity were recorded with each sample. A total of 187 samples yielded 37,963 Rangia clams. Rangia catches ranged from 0 to 1,517 clams per three minute tow, and sizes ranged from 8 to 64 mm with a mean height of 30.9 mm. At all of the monthly stations the mean height varied from month to month. The data indicate that Rangia populations were stable with no major fluctuations in mean height occurring during the sample period. Many factors affect the occurrence, distribution, and density of Rangia cuneata in Lakes Pontchartrain and Maurepas. Among these factors, low salinity, high turbidity, and a substrata of sand, mud and vegetation remnants seemed to result in a high clam density and consequently, a small size.

INTRODUCTION

The brackish-water clam, Rangia cuneata, is a common inhabitant of the low salinity bays and lagoons ranging from the Potomac River in Maryland (Pfitzenmeyer, 1964) to Avarado, Mexico (Pulley, 1952). Rangia clams have been reported along the Gulf Coast for many years (Strecker, 1935), (Ladd, 1951), (Gunter, 1952), (Pulley, 1952), (Hedgepath, 1953, 1954), (Suttkus et al., 1954), (Parker, 1955, 1956, 1960), (Darnell, 1958), (Gunter and Shell, 1958), and (Fairbanks, 1963). In Lakes Pontchartrain and Maurepas, Louisiana, Rangia clams have grown and reproduced in abundance for the past 9,000 years (Saucier, 1963). Vast quantities of dead shell worth several millions of dollars are harvested from these lakes annually.

Dredging with sweeper dredges in Lake Pontchartrain was begun in the middle 1930's when it was discovered that large quantities of Rangia shell could be harvested. Dredged clam shell production has gradually increased from about 300,000 cubic yards statewide to 5,000,000 cubic yards annually from Lakes Pontchartrain and Maurepas (Glasgow, 1968). Formerly, when the Rangia shells were stacked on barges and stockpiled on the shore, many live or dying Rangia were observed. However, very few live Rangia have been observed in the stockpiles in recent years.

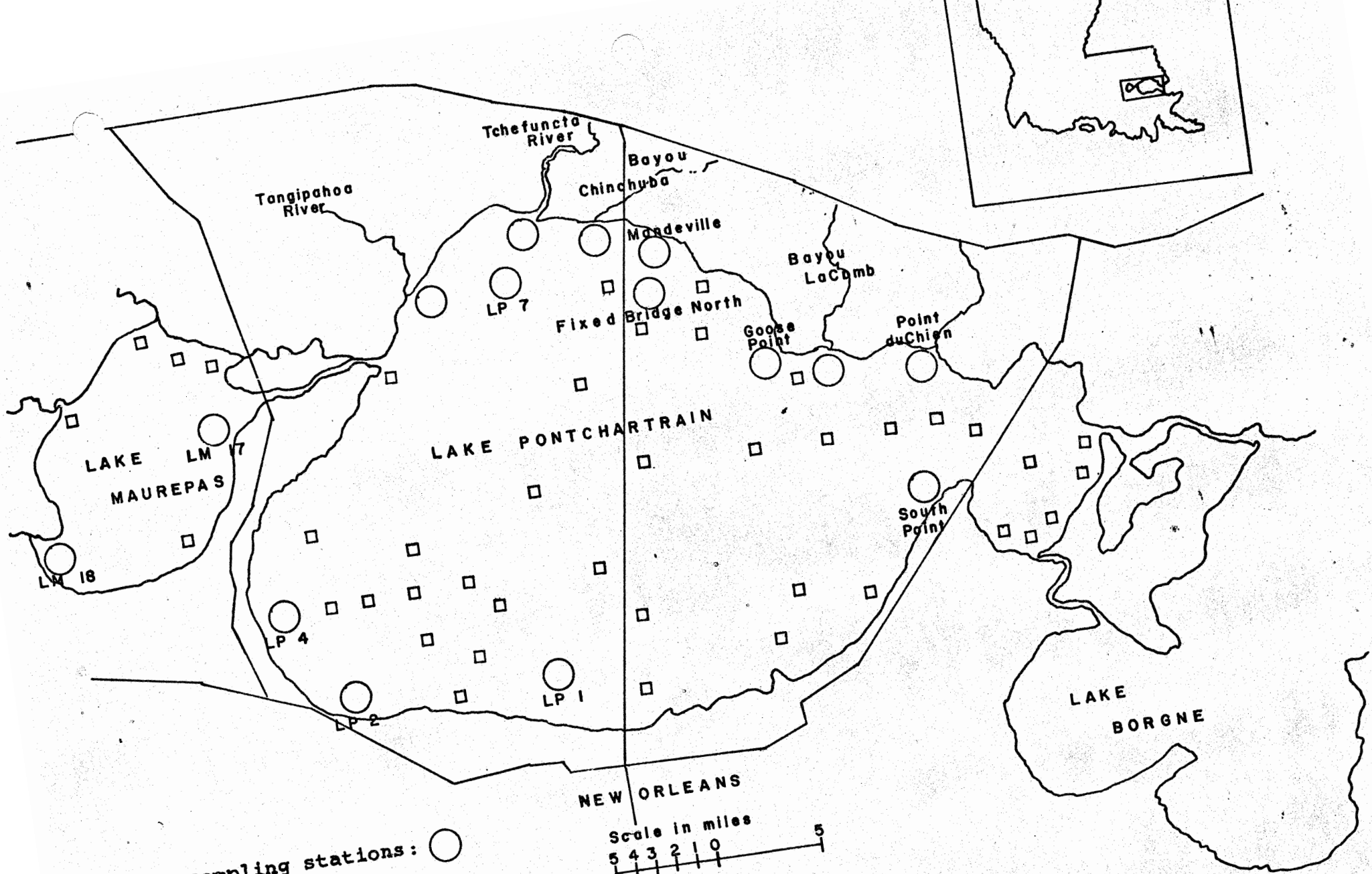
The purpose of this study was to determine occurrence, abundance, and size distribution of Rangia cuneata collected in Lakes Pontchartrain and Maurepas.

AREA DESCRIPTION

These two lakes, located in southeastern Louisiana, are surrounded by freshwater marsh, cypress swamp and brackish water marsh. Barrett (1970) reports 398,127 acres of surface water area in Lake Pontchartrain and 58,191 acres in Lake Maurepas. Lake Pontchartrain is the largest estuarine area in the coastal zone of Louisiana. Grass beds along the north shore area of Lake Pontchartrain consist of widgeon-grass (Ruppia maritima) and wild-celery (Vallisneria americana), and encompass approximately 20,000 acres (Perret et al., 1971). Eight major tributaries flow into the lakes and two outlets provide drainage into Lake Borgne. Normal tidal fluctuations of one to two feet do not expose large areas since the shore line slope is acute. Lake Pontchartrain is bisected by the causeway and traversed by pipelines and overhead powerlines. The average depth is about 11 feet with a maximum depth of 20 feet (except for a few artificial dredge holes which exceed 30 feet).

MATERIALS AND METHODS

Benthic samples were taken utilizing an 18-inch modified oyster dredge throughout the lakes (Figure 1). The modified 18-inch oyster dredge was towed for 3 minutes at a standard speed. Fifteen selected areas were sampled on a monthly basis. In addition, random samples were taken in both lakes. The sampling period extended from November 1, 1969, through



Monthly sampling stations: ○

Random sampling locations: □

FIG. 1. Location of sampling stations in Lakes Pontchartrain and Maurepas.

November 31, 1970. The height of the clams was measured in millimeters. In the event that more than 100 clams were dredged at any one location, only 100 were randomly selected for measurements and the remainder was counted. Depth, bottom type, salinity, and temperature were recorded with each sample. Depth was measured by using an Apelco recording fathometer. Salinity and temperature recorded in parts per thousand (ppt) were determined by digital reading on a Beckman RS5-3 portable salinometer. A Secchi disc was used to determine the turbidity.

RESULTS

Rangia occurred in 180 of the 187 samples; 37,963 individuals were collected and 13,707 were measured. The dredge was towed at a standard speed covering approximately 130 square meters for each sample. At the random and monthly stations there was an average of 1.6 clams/M². As expected, clams were more abundant in certain areas (Table 1). For example, at station LM No. 18, the average catch per effort was 4.3 clams/M². Random sample catches ranged from 0 to 426 clams per three-minute drag. Monthly catches ranged from 42 to 1,517 at the selected stations. The collection sites and catch per effort are shown in Figure 1. The greatest concentrations of Rangia were located around the periphery of the lakes. Few stations that were located more than one mile offshore yielded many clams.

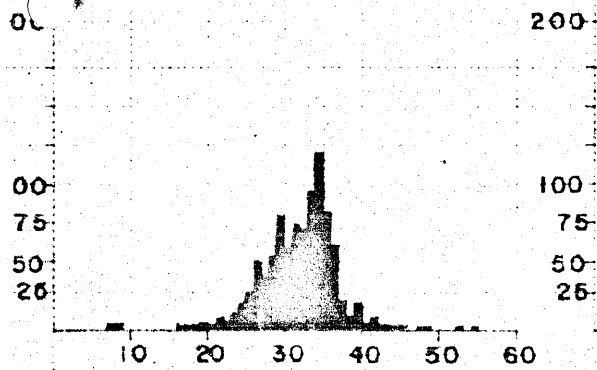
Table 1. Monthly sampling stations for Rangia cuneata in Lakes Pontchartrain and Maurepas giving the number of samples, catch per effort, mean height, salinity (ppt), temperature (°C), turbidity (0.1 ft), and bottom type. Bottom type key: dk.-dark, lt.-light, btm.-bottom, fm.-firm, sft.-soft.

<u>STATION</u>	<u>NO. OF SAMPLES</u>	<u>CATCH/EFFORT</u>	<u>MEAN LENGTH (mm)</u>	<u>AVG.SAL. (ppt)</u>	<u>AVG.TEMP. (°C)</u>	<u>TURBIDITY (0.1ft)</u>	<u>BOTTOM TYPE</u>
LP # 1	10	296.8	31.4	6.4	22.6	3.5	sft., dk. mud
LP # 2	10	264.9	30.4	5.4	22.7	3.7	sft., dk. mud
LP # 4	10	207.6	29.6	5.2	22.1	3.8	fm., dk. mud
LP # 7	8	135.5	30.7	4.5	21.2	4.8	sft., dk. mud
Langipahoa	9	259.5	28.1	4.0	20.7	3.2	sft., dk. mud
Lechefuncta	9	326.2	28.5	4.8	21.5	5.7	sft., dk. mud
Lac Bayou Chinchuba	9	273.2	28.5	4.7	22.2	6.4	fm., lt. sand
Fixed Bridge North	9	318.5	31.3	5.4	22.8	5.7	sand/mud
Landeville	9	275.4	28.2	5.4	22.5	6.3	fm., lt. sand/clay
Loose Point	10	181.3	35.6	6.0	23.6	4.5	fm., lt. sand/clay
Lac Bayou LaCombe	11	203.2	36.5	6.0	23.0	3.8	sandy btm.
Point du Chien	11	103.2	36.3	6.6	22.3	3.8	fm., dk. mud
South Point	9	54.9	34.7	7.2	22.5	4.1	sft. mud/sand
LM # 17	9	316.9	25.8	1.9	24.2	3.2	sft., dk. mud
LM # 18	9	557.4	26.1	0.5	23.4	3.0	sft., sandy mud/clay

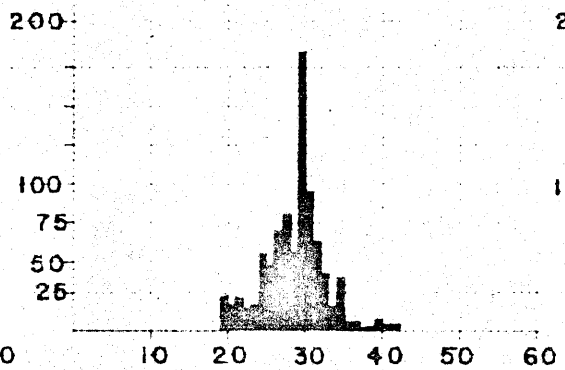
Rangia size varied from 8 to 64 mm with mean height of 30.9 mm. The monthly changes in frequency distribution of size were uniform except for February 1970, when two distinct modes were evident (Figure 2). Adverse weather conditions during this month limited sampling to those stations located in the eastern portion of Lake Pontchartrain (Figure 1). The records indicate that the mean height of Rangia collected in this eastern region was above the mode (Table 1). However, disregarding February, the frequency distribution of size varied from mean low of 28.7 mm to a high of 32.4 mm. These data indicate that Rangia populations in Lake Pontchartrain and Lake Maurepas were stable with no major fluctuations occurring during the sample period. More data collected for a longer time period are required to substantiate this hypothesis.

The average salinity in the lakes during the sample period was 4.9 ppt. The salinity ranged from 0.2 ppt to 10.8 ppt; the extremes occurred at opposite ends of the study area. Both bottom and surface salinities were recorded, and in all instances, no significant differences were noted. The salinity was probably an important ecological factor, since at LM No. 18 high catch per effort, small mean height and low turbidities were recorded with low salinities (Table 1). Conversely, the highest salinities were recorded at South Point with lowest catches per effort, large mean heights, and higher turbidity levels.

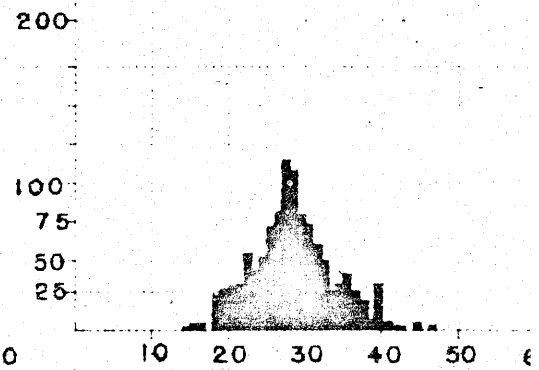
NOV 1969
N=953



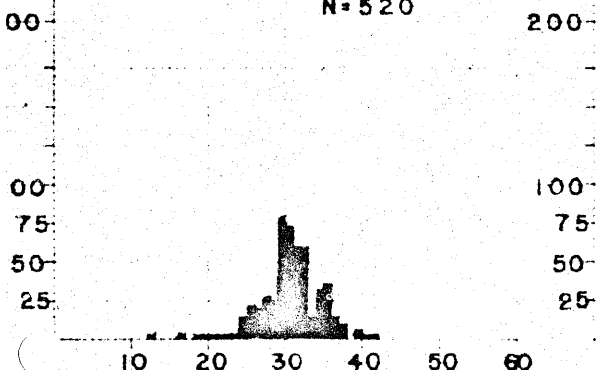
MAR 1970
N=859



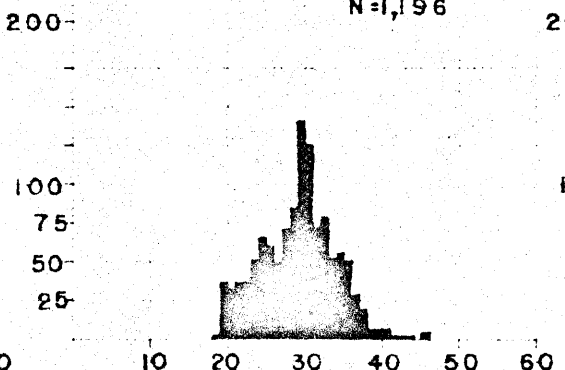
JUL 1970
N=1,104



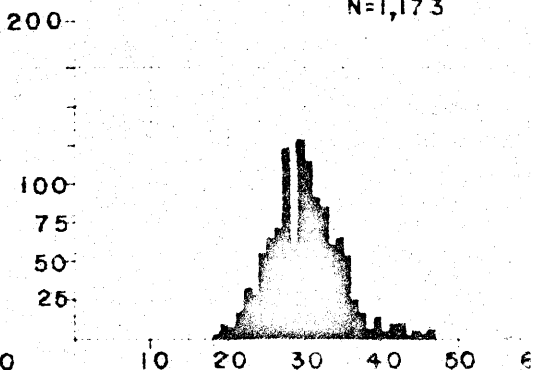
DEC 1969
N=520



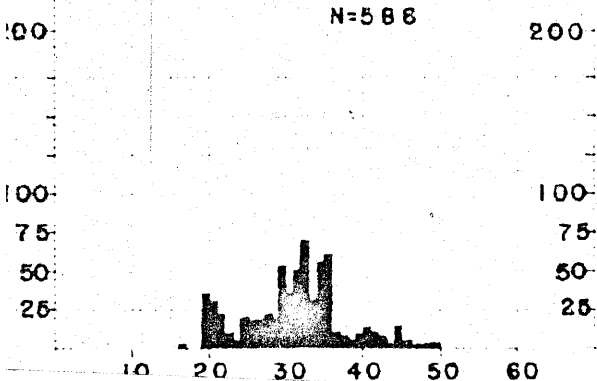
APR 1970
N=1,196



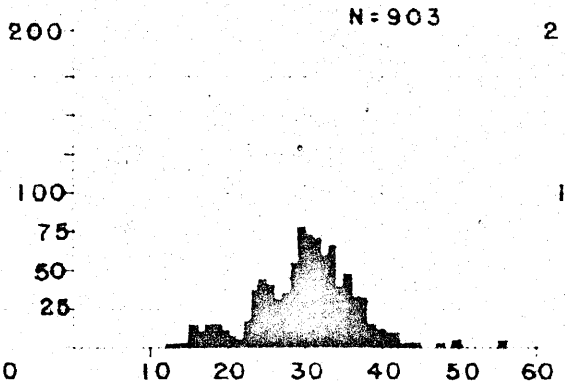
AUG 1970
N=1,173



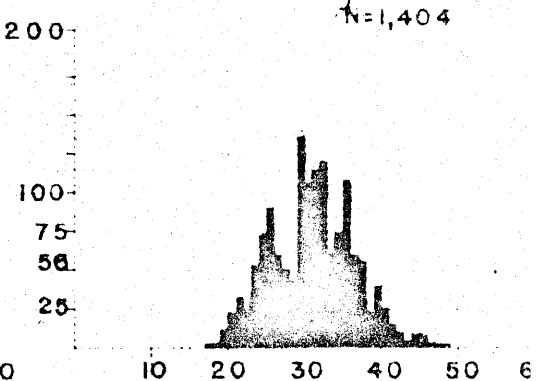
JAN 1970
N=588



MAY 1970
N=903



SEP 1970
N=1,404



The turbidity varied from 0.5 to 10.0 feet with an average of 4.2 feet. The water was more turbid at stations near the mouths of rivers and bayous (Table 1). The highest average turbidity was recorded at LM No. 18, along with the highest catch per effort. The materials in suspension are probably a rich food source, thus supporting a larger clam population.

General observations of substrata were made with each sample. Very few clams were collected from hard sandy bottomed areas. The substrata at most of the monthly stations consisted of a mixture of sand, mud and vegetation remnants. This mixture appeared to yield higher numbers of clams but smaller sized individuals than did the bottoms consisting of either hard sand or soft mud. Perhaps the mixed sand, mud and organic materials approached the ideal habitat for Rangia, as the clams were very abundant in these locations. Consequently, the crowded conditions seemed to limit the individual sizes of Rangia shell.

Many factors affect the occurrence, distribution and density of Rangia cuneata in Lakes Pontchartrain and Maurepas. Among these factors, low salinity, high turbidity, and a substrata mixture of sand, mud and vegetation remnants seemed to result in a high clam density and consequently, a small size.

LITERATURE CITED

- Anonymous. 1968. The history and regulation of the shell dredging industry in Louisiana. La. Wild. Fish. Comm. 32 p.
- Barrett, Barney. 1970. Water measurements of coastal Louisiana. La. Wild. Fish. Comm. 196 p.
- Darnell, R. M. 1958. Food habits of fishes and larger invertebrates of Lake Pontchartrain, Louisiana, an estuarine community. Publ. Inst. Mar. Sci. 5:353-416.
- Fairbanks, L. D. 1963. Biodemographic studies of the clam R. cuneata Gray. Tulane Stud. Zool. 10(1):3-47.
- Gunter, G. 1952. Historical changes in the Mississippi River and the adjacent marine environment. Publ. Inst. Mar. Sci. 2(2):119-139.
- Gunter, G. and W. E. Shell, Jr. 1958. A study of an estuarine area with water-level control in the Louisiana marsh. Proc. La. Acad. Sci. 21:5-34.
- Hedgepath, J. W. 1953. An introduction to the zoogeography of the northwestern Gulf of Mexico with reference to the invertebrate fauna. Publ. Inst. Mar. Sci. 3(1):107-224.
- Hedgepath, J. W. 1954. Bottom communities of the Gulf of Mexico, p. 207-209. In Gulf of Mexico, its origin, water, and marine life. Fish. Bull. 89 U.S. Fish. Wildl. Serv. 55.
- Ladd, H. S. 1951. Brackish-water and marine assemblages of the Texas coast, with special reference to mollusks. Publ. Inst. Mar. Sci. 2(1):135-146.
- Parker, R. H. 1955. Changes in the invertebrate fauna, apparently attributable to salinity changes, in the bays of central Texas. J. Paleontol. 29(2):193-211.
- Parker, R. H. 1956. Macro-invertebrate assemblages as indicators of sedimentary environments in east Mississippi delta region. Bull. Am. Assoc. Petrol. Geol. 40(2):295-376.
- Parker, R. H. 1960. Ecology and distribution patterns of marine macro-invertebrates, northern Gulf of Mexico, p. 302-337. In Recent Sediments, Northwest Gulf of Mexico. Am. Assoc. Petrol. Geol., Tulsa 1951-1958.

- Perret, W. S., B. B. Barrett, W. R. Latapie, J. F. Pollard, W. R. Mock, B. G. Adkins, W. J. Gaidry, C. J. White. 1971. Cooperative Gulf of Mexico estuarine, inventory and study, Louisiana, Phase I, Area Description. 175 p.
- Pfitzenmeyer, H. T. and K. G. Drobeck. 1964. The occurrence of the brackish-water clam, Rangia cuneata, in the Potomac River, Maryland. Chesapeake Sci. 5(4):209-212.
- Pulley, T. C. 1952. A zoogeographic study based on the bivalves of the Gulf of Mexico. Harvard Univ. 215. p.
- Saucer, R. T. 1963. Recent geomorphic history of the Pontchartrain basin. La. State Univ. Press, Coastal Series No. 9.
- Strecker, J. K. 1935. Notes on the marine shells of the Texas coast. Baylor Bull. 38(3):1-69.
- Suttkus, R. D., R. M. Darnell, and J. H. Darnell. 1953-54. Biological study of Lake Pontchartrain. (Annual Report 1953-54) Zoology Dept. Tulane Univ. 59 p.

PROGRESS OF GULF STATES'
FEDERAL AID FOR COMMERCIAL FISHERIES PROGRAMS

by

I. B. Byrd

Chief, Federal Aid Division, Southeast Region

National Marine Fisheries Service

U.S. Department of Commerce

St. Petersburg, Florida

presented at

Twenty-Second Annual Meeting of

Gulf States Marine Fisheries Commission

New Orleans, Louisiana

October 22, 1971

REMARKS BY I. B. BYRD, CHIEF, FEDERAL
AID DIVISION, SOUTHEAST REGION,
NATIONAL MARINE FISHERIES SERVICE, NOAA,
DEPARTMENT OF COMMERCE
ST. PETERSBURG, FLORIDA

GULF STATES MARINE FISHERIES COMMISSION,
NEW ORLEANS, LOUISIANA, OCTOBER 22, 1971.

PROGRESS OF FEDERAL AID COMMERCIAL
FISHERIES PROGRAM OF GULF STATES

The Gulf States obligated a total
of \$2,111,370.26 (\$1,475,751.68
Federal) during the past year (October 1,
1970 - September 30, 1971) under the
Commercial Fisheries Research and
Development (PL 88-309), Anadromous Fish
(PL 89-304), and Jellyfish (PL 89-720)
programs. These monies provided for
46 research and development projects
employing 74 fishery scientists.

Commercial Fisheries

Commercial Fisheries Research and
Development (PL 88-309)

The five Gulf States obligated \$1,851,920.26 (\$1,346,026.68 Federal) during the past year.

The manuscripts for the atlases presenting the data from the Gulf of Mexico cooperative estuarine study have been completed and are presently being printed. This study has enabled the states to evaluate their estuarine dependent commercial fishery resources, the associated environmental conditions, the seasonal and areal variations in these resources and the man-made alterations of the coastal zone. The evaluation of man-made alterations includes information on pollution, engineering projects and channelization. Federal, state and private interests have begun to utilize these data to evaluate ongoing and planned projects which have a potential for effecting the estuaries

of the Gulf

of the Gulf Coast and the Nation.

Research was conducted during the year to obtain information for the development of management procedures for shrimp, crabs, industrial fish and oysters; determine the status of the clam Rangia as a replenishable shell producing resource; evaluate the construction of experimental oyster reefs; survey the commercially significant fish and shellfish of estuaries and the associated environmental conditions; and study the abundance and distribution of coastal pelagic fishes. Studies were also conducted to determine the effects of engineering projects on the estuarine environment and develop a better understanding of the hydrological characteristics and the requirements for estuarine associated fishery resources. Mariculture studies were continued for the development of techniques for the production of pompano, shrimp, gafftopsail catfish and other

commercially important

commercially important species. In addition, a study of parasites and diseases of fish, crustacea and mollusk utilized in mariculture was continued with specimens being provided by all of the Gulf States in a coordinated effort. Alabama completed a survey of benthic organisms in coastal waters and a planning project for the State's management research and development needs.

Development projects were conducted for the placement of oyster lease control monuments, construction of permanent oyster leases, collection of commercial fisheries statistical data, marketing of seafood, implementation of fisheries extension services and production of a molluscan film. A project for the construction of jetties at the Texas coastal fisheries research station was completed.

The states of

The states of Alabama, Louisiana and Mississippi completed the planting of oyster cultch with projects funded with resource disaster funds under Section 4(b) of the Act. This cultch material was distributed to mitigate the damage to the seed oyster producing areas of the three states caused by Hurricane Camille. Some of these areas will be open to harvesting this fall.

Anadromous Fish (PL 89-304)

Under the Anadromous Fish program, the Gulf States have obligated \$176,500 (\$88,250 Federal) during the past 12 months.

Research studies have been continued by Mississippi and Alabama to develop rearing techniques for striped bass and to evaluate experimental stocking of striped bass in coastal waters. Florida has completed a study to determine the

spawning areas and

spawning areas and movements of juvenile American shad in the St. Johns River. The State has also initiated a survey of all of their anadromous fish resources. Alabama has started the construction of an anadromous fish hatchery at Gulf Shores.

Jellyfish (PL 89-720)

Mississippi and Florida obtained jellyfish funds in the amount of \$82,950 (\$41,475 Federal) during the year.

Florida continued a study of the distribution and abundance of Portuguese Man-O-War. Mississippi has completed a survey of the noxious coelenterates of their coastal waters. A more detailed project has been initiated to determine the seasonal movements of these organisms and the life history stages that are most susceptible to control.

**OBSERVATIONS ON THE BIOLOGY OF
WHITE SHRIMP (PENAEUS SETIFERUS) IN ESTUARINE IMPOUNDMENTS***

by

Alva H. Harris
Department of Biological Sciences
Nicholls State University
Thibodaux, Louisiana 70301

White shrimp generally spawn offshore in the five to ten fathom curve. Some spawning occurs year round but the majority or peak spawning appears to be in late spring or early summer. Gravid females during the spawning peak are often caught inside the five fathom curve and are sometimes found in the surf. There is increasing evidence that some spawning may occur inside the estuaries or inlets both in Texas and in Louisiana.

Mr. Frank Ritchie, late senior vice president of Louisiana Land and Exploration Company, firmly believed that white shrimp were overwintering, breeding, and producing successive generations in some of the pipeline canals on Louisiana Land property. You would have to know Mr. Ritchie to appreciate his practical knowledge of the marsh.

As a biologist, I seriously doubted Mr. Ritchie's belief, but set up a study to test his theory. The study was not conducted well, and was almost ignored as a side branch of a brown shrimp productivity study. The results have been startling, and made me more aware than ever that technical training is no substitute for practical knowledge.

*Research Supported by Office of Sea Grant Programs, NOAA, and The Louisiana Land and Exploration Company.

METHODS AND MATERIALS

On May 15, 1970, an amphibious dragline dug a hole in the marsh at Point au Chein that was 30 feet in diameter and eventually stabilized its depth at five feet. The pond was filled with 12 PPT brackish water and allowed to age until October 15. Minimum O₂ levels taken early mornings were consistantly near zero or less than one part per million until September 23. After that the minimum O₂ levels were averaging near two parts per million.

One-hundred sub-adult white shrimp, averaging 136 mm or 22 count/heads on, were stocked in this small hole on October 15, 1970. Fifty (50) sub-adult brown shrimp were stocked at the same time. Occasional attempts were made during the winter with a cast net to determine if any live shrimp were in the pond, and we were always surprised to catch one or two whites. We did not take O₂ measurements or water temperatures from November 27, 1970 until March 15, 1971.

GROWTH

The first sample of overwintered white shrimp was weighed and measured on May 25, 1971. Average length was 155.2 mm and the count was 14 (22 when stocked in October). By July 5, the average count was 12.5 and remained at that until August 30. From August 30 until September 15 it decreased to 11 count. No brown shrimp survived the winter. We do not know how many white shrimp were in the pond during this study but we caught ten to fifteen for each growth sample.

The last sample was taken September 15. No feed of any kind was added to the pond during the entire study.

SEXUAL DEVELOPMENT

All male shrimp examined during each sampling period after July 5 showed fully developed gonads. These shrimp averaged 13 count.

The first sign of ovarian development appeared on August 3 on an 11 count shrimp. Several shrimp showing ovarian development have been preserved and will be examined microscopically to study egg development.

You may or may not know that a male white shrimp attaches a spermatophore to the female during copulation. On July 13, 1971, we captured a female white shrimp with a spermatophore attached along with the male that had deposited it in the same cast with a cast net. This whole bit of evidence is preserved and it is quite evident the male is spent.

This is positive proof that some breeding occurs in brackish H₂O.

We have no evidence that spawning occurs even though there was ovarian development. The shrimp we were studying had been in captivity for 11 months. We were going to overwinter these same shrimp for another year's study and expect they would have been 6-8 count by next May, but the high waters from Hurricane Edith liberated them on September 16, 1971.

JUVENILE OVERWINTER RESULTS

We inadvertently overwintered a few juvenile white shrimp in another experiment that lends credence to these results. A 50-foot square vinyl-coated wire pen located in one and one-half feet of water in a natural pond was stocked with 1,000 77 mm average, 130 count shrimp on August 31, 1970. Most of these were harvested with a seine on November 15, 1970 (76 days) and averaged 85 mm, 95 count. Those that were not harvested on November 15, 1970 were seined out on April 15 this year and averaged 97.5 mm, 67 count. We estimate these would have been 30-40 count by the May season. This seems reasonable proof to me that at least some of the big whites around when the May season opens spent the winter in the marshes.

LONGIVITY

These observations also shed light on white shrimp longivity. This study held adult shrimp in captivity eleven months during which time the average count increased from 22 to 11. How old were these 22 count shrimp on October 15 when they were stocked? Using the very fastest growth obtained by the Louisiana Wildlife Commission on Grand Terre as a guide, the eggs would have had to be spawned during May for the shrimp they raised to be 28 count in November, and the shrimp we stocked were 22 count on October 15.

My data suggests, but does not prove, that the small white shrimp (100-150 count) present in the fall are spawned during mid-summer and comprise the 30-40 count shrimp taken during the May

season. These shrimp are probably 20-25 count by October, at which time they may be as much as 15 or 16 months old. In another 12 months, or the next fall, they are 10-12 count. I had intended to overwinter this size for another year in the hopes of producing 6-8 count shrimp, at which time they could be three years old.

The characteristics of the life history of white shrimp that confuse this picture is the fact that spawning occurs over a long period of time so that there is continual recruitment, and the growth rates of each spawning peak will vary with the environmental conditions and food.

IN SUMMARY

1. Juvenile white shrimp can be overwintered in brackish water ponds in Louisiana marshes.
2. Significant growth occurs between fall stocking and spring harvest.
3. Growth, sexual development, maturity, and breeding occurred between sub-adult white shrimp that were stocked in brackish pond in October of 1970 and maintained until September of 1971.
4. Spawning was not observed, nor were ripe females sampled; however, several females were collected and preserved for microscopic studies that showed definite ovarian development.
5. The life cycle of white shrimp involves at least two years growth and may be as long as three years.
6. Sub-adult brown shrimp stocked simultaneously and in the same pond with white shrimp did not survive the winter.

6

More data is needed to back up these preliminary observations and a subsequent study is being planned.

Tables II and Chart I summarize the data that was used in preparing this paper.

TABLE

Data on Over-Winter Study of Sub-Adult White Shrimp

10-21-70 - - Stocked 100 Sub-Adult White Shrimp in 1/46 Acre (30 ft. Diameter) Pond
Average Length = 136.3 mm = 22 Count-Heads-On

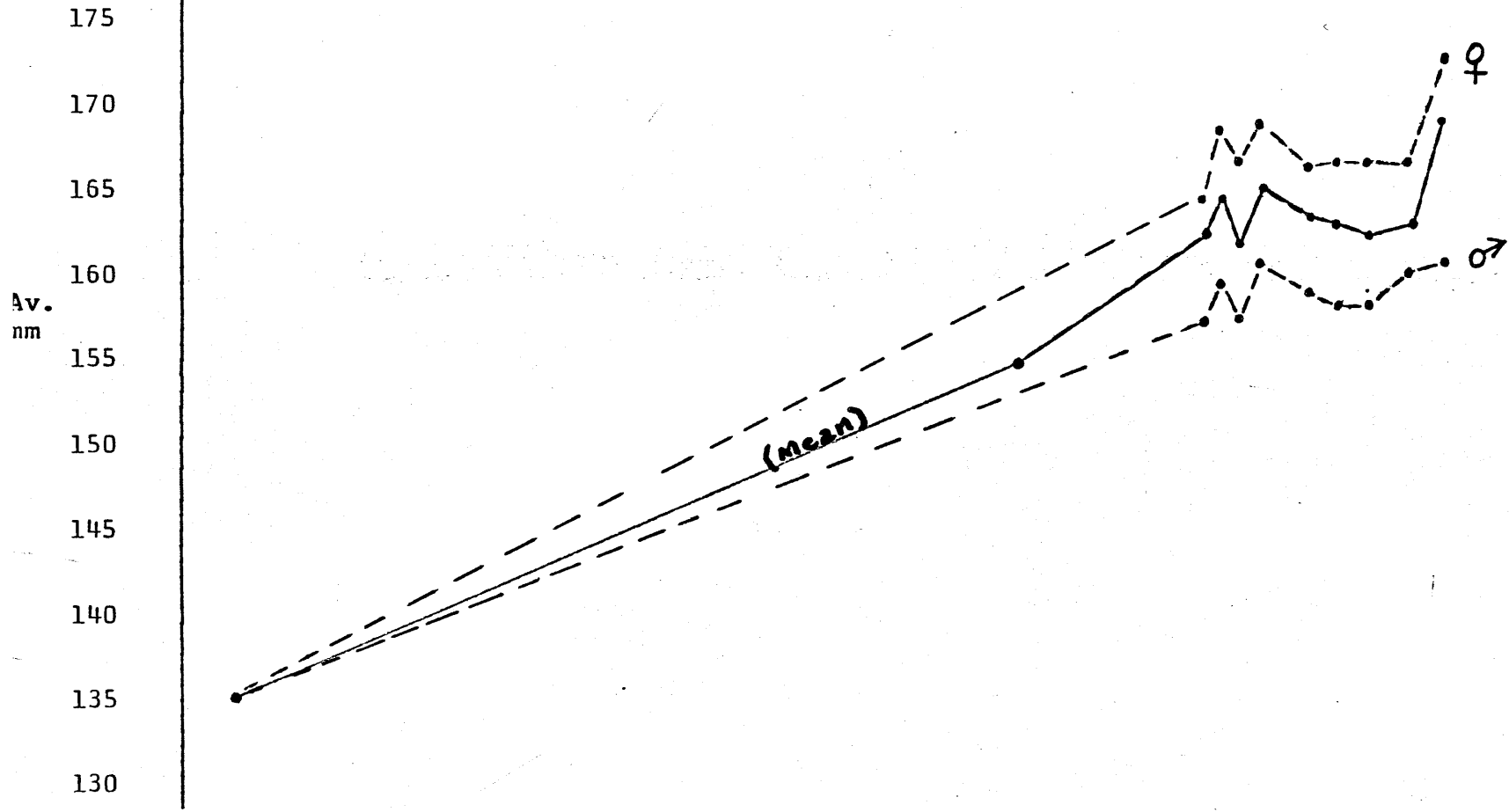
Sampling Date	No. Sampled	Av. mm	Av. Count	No. ♂ Sampled	Av. mm	No. ♀ Sampled	Av. mm
5-25-71	12	155.2	14.0	-	-	-	-
7-5-71	13	162.5	12.5	3	156.7	10	164.3
7-12-71	14	163.9	12.5	7*	159.6	7	168.1
7-20-71	14	162.1	12.5	7	156.9	7	167.4
7-26-71	15	166.3	12.0	5	161.2	10	168.9
8-3-71	15	163.5	12.5	6	158.8	9**	166.6
8-9-71	12	163.3	12.5	5	158.0	7	167.0
8-17-71	12	162.5	12.5	6	158.0	6***	167.0
8-30-71	9	163.2	12.5	5	160.2	4	167.0
9-15-71	10	169.1	11.0	3	161.0	7	172.6
9-16-71	Hurricane Edith Terminated Study						

* All males with gonads fully developed from this point until termination of study.

** 11.1% Females with ovary partially developed.

*** 16.6% Females with ovary partially developed.

1970-71 Deep Right Pond Study of Over-Winter Male and Female White Shrimp - Growth Rates - - - - -Chart I



Oct. 1970 Nov. 1970 Dec. 1970 Jan. 1971 Feb. 1971 March 1971 April 1971 May 1971 June 1971 July 1971 Aug. 1971 Sept. 1971

Stocking Date - - - - - Sampling Dates - - - - -

PROGRAM

GULF STATES MARINE FISHERIES & TEXAS SHRIMP ASSOCIATION

FORT BROWN MOTOR HOTEL - BROWNSVILLE, TEXAS

MARCH 17, 1971

PRE-SESSION MEETINGS: WEDNESDAY, MARCH 17, 1971

UNDERWATER OBSTRUCTION ADVISORY COMMITTEE AZTEC ROOM
Robert Evans, Chairman
Supr. Oil & Gas Div., Geological Survey

U. S. COAST GUARD ADVISORY COMMITTEE AZTEC ROOM
Capt. Hardy M. Willis - Presiding
Chief Search & Rescue Branch

COFFEE BREAK

G.S.M.F.C. Estuarine Technical Coordinating AZTEC ROOM
Committee
Dr. Ted Ford, Chairman

.....

THURSDAY, MARCH 18, 1971

REGISTRATION GULF STATES MARINE FISHERIES MAIN LOBBY

STATE OFFICIALS - Meeting on Proposed salt CALVARY ROOM
Water Fishing License

G.S.M.F.C. - GENERAL SESSION FORTRESS ROOM

JAMES SUMMERSGILL, PRESIDING

ROLL CALL

"MERCURY STUDIES IN TEXAS" (SLIDES)
Dudley J. Johnson, Director
Marine Resources
Texas State Dept. of Health

UNDERWATER ADVISORY COMMITTEE REPORT
Robert Evans, Regional Oil & Gas Supervisor
Gulf Coast Region - U.S. Dept. of Interior

U.S. COAST GUARD ADVISORY COMMITTEE REPORT
Capt. Hardy M. Willis
Chief Search & Rescue Branch
U. S. Coast Guard - 8th District
New Orleans, Louisiana

REPORT - G.S.M.F.C. Estuarine Technical
Coordinating Committee
Dr. Ted Ford, Chairman

COFFEE BREAK

STATUS OF FEDERAL AID PROJECTS
Don Geagan, Asst. Federal Aid Coordinator
National Marine Fisheries Service
U. S. Dept of Commerce - N.O.A.A.
St. Petersburg, Florida

COOPERATIVE MARKETING BY INDUSTRY
States and Federal Governments
Bob Jones, Executive Secretary
Southeastern Fisheries Association

ADJOURNMENT

RESOLUTIONS COMMITTEE MEETING
NOTE: Anyone having proposed resolutions
submit to Joe Colson prior to this
meeting

LOCATION TO
BE ANNOUNCED

COCKTAILS - SEAGUARDEN SALES (HOST)

POOL SIDE
(FORT BROWN)

FRIDAY, MARCH 19, 1971

BOAT OWNERS EXECUTIVE MEETING - MEXICO

TEXAS SHRIMP ASSOCIATION REGISTRATION

LOBBY

FINAL MEETING OF THE 1970 BOARD OF
DIRECTORS TEXAS SHRIMP ASSOCIATION

AZTEC ROOM

SHOPPING

MEET IN LOBBY

GULF STATES MARINE FISHERIES

EXECUTIVE MEETING

CALVARY ROOM

LUNCH

AZTEC ROOM

GULF STATES MARINE FISHERIES-TEXAS SHRIMP
Joint General Session
Randolph Hodges-G.S.M.F.C. Chairman,
Presiding

FORTRESS ROOM

INVOCATION Reverend Refus Stewart, Church
of the Advent Episcopal, Brownsville, Texas

WELCOME ADDRESS Hon. John Tower, U.S. Senator, Texas

G.S.M.F.C. CHAIRMAN'S REPORT & ANNOUNCEMENTS

STATISTICS & MARKET NEWS PROGRAM - N.M.F.S.
Geo. W. Snow - Regional Supervisor
Statistics & Market News
National Marine Fisheries Service
New Orleans, Louisiana

DEVELOPMENT OF AN EXTENSION PROGRAM
FOR MARINE FISHERIES IN TEXAS

Johnie H. Crance, Texas Agricultural Extension
Service Texas A & M University, Galveston, Texas

COMPUTERIZED ANALYSIS OF SHRIMPING
VESSEL INVESTMENTS

Dr. Robert Wilson, Institute of Statistics
Texas A & M, College Station, Texas

FISHING VESSEL INSURANCE (Questions from Floor)
Harold Allen, Assoc. Director, National
Marine Fisheries Service, St. Petersburg, Fla.

COFFEE BREAK

REVIEW & PREDICTION OF CONGRESSIONAL
LEGISLATION CONCERNING FISHERIES

John Wedin, Legislative Asst., Senate Commerce
Committee, Washington, D. C.

UTILIZATION OF TRASH FISH

Dr. Bryant Cobb, Animal Science
Texas A & M, College Station, Texas

ADJOURNMENT

FIRST MEETING OF THE 1971 BOARD OF DIRECTORS
TEXAS SHRIMP

AZTEC ROOM

COCKTAILS

FORTRESS ROOM

SATURDAY, MARCH 20, 1971

TEXAS SHRIMP ASSOCIATION - REGISTRATION

LOBBY

GENERAL SESSION (JOINT)

FORTRESS ROOM

Felix Bruney, President, Texas Shrimp
Association (Presiding) - President's
Address

HONORABLE DONALD MCKERNAN - Asst. Secretary
for Fisheries, Dept. of State, Washington, D.C.

THE NEW LOOK IN FEDERAL FISHERIES

Philip M. Roedel - Director N.M. Fisheries
Service, N.O.A.A., Dept. of Commerce,
Washington, D. C.

COFFEE BREAK

BRIEFING TO INDUSTRY National Data

(SLIDES)

Buoy Development Project, N.O.A.A.
Dept. of Commerce

Commander Pete Morrill

U.S. Coast Guard - Deputy Director
National Data Buoy Project

Project Office - Miss. Test Facility

Bay St. Louis, Mississippi

SHRIMP FORECAST (SLIDES)
Dr. Harvey M. Hutchings - Asst. Director
for Economics, N.M. Fisheries Service
n.o.a.a., Dept. of Commerce
Washington, D. C.

ADJOURNMENT

BOARD OF DIRECTORS SAOTA (LUNCH)

RESACA CLUB

NATIONAL SHRIMP CONGRESS
Membership Meeting

AZTEC ROOM

COCKTAILS (Liquor Only)

FORTRESS ROOM

DINNER DANCE HOLIDAY INN - MATAMOROS, MEXICO

NOTE: Additional Registration Required of G.S.M.F.C.
Registrants Attendees for Saturday Night Program.
\$10.00 - FOUR BUSSES

TRANSPORTATION - NOTIFY DESK OF DEPARTURE TIME FOR AIR TRAVEL

CHECKOUT TIME - 2:00 P.M.

GULF STATES MARINE FISHERIES COMMISSIONERS - 1970-71

ALABAMA

Claude D. Kelley, Director
Alabama Conservation Department
Administrative Building
Montgomery, Alabama 36104

Senator Robert Edington
307 Conti Street
Mobile, Alabama 36600

Vernon K. Shriner
Florida Fish Company
217 Columbus Street
Montgomery, Alabama 36104

FLORIDA

Randolph Hodges, CHAIRMAN
Director Florida Department of
Natural Resources
107 West Gaines Street
Tallahassee, Florida 32304

J. Lorenzo Walker
House of Representatives
P. O. Box 475
Naples, Florida 33940

Clyde Richbourg,
American Seafood Company
P.O. Box 454
Pensacola, Florida 32502

LOUISIANA

Clark M. Hoffpauer, Director
Louisiana Wild Life and Fisheries
400 Royal Street
New Orleans, Louisiana 70130

Richard P. Guidry
House of Representatives
P. O. Box 8
Galliano, Louisiana 70354

James H. Summersgill, VICE-CHAIRMAN
Golden Meadow Ice Company
1819 South Bayou Road
Golden Meadow, Louisiana 70357

MISSISSIPPI

George A. Brumfield
P. O. Box 518
Moss Point, Mississippi 39563
(Chairman, Miss. Marine
Conservation)

Ted Millette
349 Watts Avenue
Pascagoula, Mississippi 39567

August Rauxet, Jr.
218 North Beach Boulevard
Bay St. Louis, Mississippi 39520

Ron Jones
Acting Executive Director
Texas Parks & Wild Life Department
Austin, Texas 78701

Senator William N. Patman
State Senate
Capitol Building
Austin, Texas 78701

OPEN

John A. Mehos, President
Liberty Corporations
P. O. Box 267
Galveston, Texas 77550

J. V. Colson, Executive Director
Room 225, 400 Royal Street
New Orleans, Louisiana 70130

Telephone (504) 524-1765

Order of Listing: Administrator, Legislator, Governor's Appointee

March 15, 1971

Review of Statistics and Market News Programs,
National Marine Fisheries Service

Members of the Gulf States Marine Fisheries Commission, Texas Shrimp Association, and guests -

I appreciate the opportunity to speak with you to-day and review briefly the statistics and market news programs of the National Marine Fisheries Service. I hope that all of you have noticed that the recent reorganization which placed us under the Département of Commerce in the National Oceanic and Atmospheric Administration has not appreciably changed the services provided by our Division of Statistics and Market News.

Expansion and new developments, particularly in the shrimp industry, have required additional or more detailed information be available on a current basis if industry members are to successfully plan their day to day operations. The magnitude of the expansion in the Gulf States is well indicated in the dockside or ex-vessel value of shrimp landings which has surpassed \$100 million each of the past two years. At the specific request of several trade associations and numerous individuals within industry, and based upon their clearly demonstrated needs, we recently expanded information on shrimp imports and cold storage holdings published in our Fishery Market News reports.

In July we began the collection and publication of information on the count size composition of raw headless and peeled shrimp imports entered at 6 major ports (New York, Miami, Tampa, New Orleans, Brownsville, and Nogales) of entry. The Bureau of Customs makes available to our personnel, usually on a daily basis, documents from which the information is abstracted. The figures are tabulated on a weekly basis -- information from all ports of entry are combined to insure that data of individual importers are not revealed. The tabulation is published each Wednesday in our Fishery Market News reports. While the program seemed relatively simple and easy to attain, there were many obstacles to overcome before we got it underway. Since we have had it underway, however, only minor problems have developed. In some instances documents furnished us by Customs have been delayed and the shipments may actually have entered several days prior to our picking up the information. An additional problem, which is rapidly being solved, is that there have been some entries for which no documents were available showing the count sizes in the shipments. This program is in accord with the responsibilities delegated to us in the Fish and Wildlife Act of 1956 (P.L. 1024, 84th Congress). Among other things the Act directs that the "...Secretary (Interior) make periodic reports to the public, to the President, and to Congress with respect to competitive domestic and foreign produced commodities." For many years we have compiled and published a rather complete breakdown of Gulf shrimp landings by species and count size in our daily Fishery Market News reports. These reports are available to domestic and foreign producers as well as any other interested individuals.

On the basis of comments received from members of the Texas Shrimp Association, Oscar Longnecker

asked that I devote some time to a discussion of our cold storage report program.

Before getting into specifics on cold storage holdings of shrimp, I would like to provide a bit of background information on the program. The report series, dating back to 1922, is intended to provide information on inventories of frozen fish and shellfish. A special survey in 1955 resulted in changes in the types of data collected and published in order to increase the value of the reports. It also resulted in an increased number of firms reporting information, both public and private freezers. A list of all firms reporting freezings and holdings is published in our annual Frozen Fish bulletin -- I had hoped to have copies of the 1970 annual for this meeting but they have not yet been received from the printer. There is no mandatory reporting of cold storage information -- all reports are submitted on a co-operative basis. We do not have sufficient personnel and funds to support a section or branch whose sole duties involve the collection and compilation of cold storage data. Let me assure you, however, that the report is carefully reviewed before publication each month. Every attempt is made to resolve questionable data appearing on individual reports by personal or telephone contact with the person preparing the report at the freezer involved. Many of you have noticed that the preliminary figures usually published on the 15th of each month in our Market News reports are not always in accord with the final figures shown for the same month in the Frozen Fish bulletin. The reason for this is that if a report is not received from a freezer by tabulating time a member of our staff estimates the holdings. A review of the preliminary and final figures for the past 24 months indicates that a fairly good job has been done on estimating. Discrepancies in final and preliminary figures for raw headless shrimp ranged from 1/10 of 1 percent to 2.5 percent except in August 1969 when the preliminary figures were 7 percent below the final figures. In the "all other" category the discrepancies ranged from 1/10 of 1 percent to 3.5 percent except in August 1969 when the preliminary was 6.6 percent less than the final, and again in February 1970 when we were also 6 percent below the final figures. We have occasionally been asked about the possibility of duplication in reported holdings. The only such possibility, as I see it, would be that a processor who stores in both his own and a public warehouse might report his total holdings in both warehouses while at the same time the public warehouse includes his holdings in their report. Instructions on the reporting form state "...enter the quantities held in your establishment, regardless of ownership, at the close of business on the last day of the month."

As most of you know, in January of this year, and as previously mentioned in accordance with requests from industry, there were several changes in the data collected and published in the cold storage reports. Of greatest interest to those of you in this area is the attempt to get a better breakdown of shrimp holdings. The new report form provides space for listing raw headless, breaded, peeled, and other -- the old report had only two categories, raw headless and other. The report for the period ending January 31 surprised many people including those in our own Division. Total holdings of all types of shrimp had dropped from 78.2 million pounds on December 31 to 69.6 million

pounds on January 31. The sharpest decline was in the reported holdings of raw headless which dropped nearly 15 million pounds. We strongly suspect, however, that prior to January a substantial volume of peeled "titi" (small block frozen shrimp principally from Asia) had been erroneously reported as raw headless by some freezers in prior reports -- the new reporting form has apparently helped to resolve this problem. The largest decline in holdings between December 31 and January 31 occurred in the South Central region (Tennessee, Alabama, Kentucky, Mississippi, Louisiana, and Texas). I reviewed reports submitted by the 35 firms reporting shrimp holdings in this region and found that all but 4 showed lower holdings as of January 31; all of the reports appeared in good order and I did not find any instance of an extraordinary large decline in holdings for a few freezers. I again remind you, however, that the reports are submitted on a co-operative basis and their accuracy is dependent upon the time and effort put into the report by the person supplying us with the information.

The holdings report for February published on Monday of this week, indicated an apparent continuing good movement of shrimp. Total holdings of all types had dropped 6.6 million pounds; this followed the general pattern of the past 5 years during which holdings decreased from 3.9 to 7 million pounds during February. In view of comments we have received regarding the inability of some firms to locate various sizes of shrimp and general reports of good sales over the past 6 to 8 weeks we feel reasonably sure the reported holdings are fairly accurate. We are still concerned about the substantial volume (6.7 million pounds on February 28) reported in the "other" category despite the more specific categories now provided. We are attempting to get a better breakdown of this figure, most of which we suspect is peeled and breaded shrimp.

A good many years ago cold storage holdings may have been fairly indicative of quantities available for sale. With changed marketing and distribution systems I doubt that this is now the case. Most users of the information today rely on it mainly for determining market trends. In determining these trends consideration must be given to other factors such as total available supplies (taking into consideration landings used for canning and drying purposes) as well as cold storage holdings. I'm sure that Dr. Hutchings, our Assistant Director for Economics will get into these aspects during his presentation tomorrow.

Many of our monthly and annual statistical publications such as State landings bulletins, annual digest, Shrimp Landings, and Gulf Coast Shrimp Data have been compiled and distributed for many years with little change in content or format. Users of the information have not been as quick to indicate the shortcomings of the information in these publications as they have with respect to the daily Fishery Market News reports. Initially most of the publications were designed to provide basic statistics on production as an integral part of information needed by government to successfully manage fishery resources.

Most of you are well aware that many of our statistical publications were not being issued on a timely basis. This is one of the reasons that data furnished in response to some of your requests had to be hand tabulated and qualified as "preliminary, subject to revision." Progress has been made in reducing the time lag for some publications and plans have been formulated for issuing all on a more timely basis. It is also apparent that some information needed by management is not included in our present programs, particularly with respect to investment and operational costs in major fisheries.

During the forthcoming year we plan a critical review of our statistical programs to determine the changes necessary to provide information to better meet the needs of users. Your help will be solicited through either informal meetings or the use of a questionnaire to determine the kinds of data you need, how often, and in what form. Unless we get good "feed back" from all users the critical review will not be a success. Upon the completion of the survey we are going to perform an "in house" appraisal to determine that (1) we are using the best and most efficient ways to collect needed information (2) assess the reliability of data now reported with respect to the reliability needed, and (3) establish priorities for meeting statistical needs.

During the past year we have also continued our close liaison with the Branch of Oil and Gas Operations, U.S. Geological survey. Some of you are aware that a fishing industry advisory committee to the Oil and Gas Supervisor was formed a few years ago. The purpose of the committee, which included members of the oil and gas industry and conservation departments of each of the Gulf States, was to seek means of resolving problems arising from the multiple use of the Outer Continental Shelf. One of the most serious problems to fishermen were the submerged casings which caused "hand ups" resulting in extensive damage to trawls. Through the efforts of the committee progress is at long last being achieved in solving the problem.

A major factor in the solution of the problem was the necessity for changing portions of the lease regulations and this took quite a bit of time. On January 1, 1970 there were 214 submerged casings on the Outer Continental Shelf -- 7 off the Texas coast and 207 off Louisiana. On January 1 of this year there were 150 -- 2 off Texas and 148 off Louisiana. Adverse weather during the winter months has curtailed removal operations, but with the advent of spring we expect to see many more being removed or platforms erected over the casings.

Our Division also has responsibility for compiling information which is furnished Mexico under the terms of the terms of the fishery agreement entered into on October 27, 1967. The agreement went into effect January 1, 1968 for a period of 5 years. The terms of the agreement require that we furnish a list of the names of vessels, by January 31 of each year, which expect to fish Mexico's exclusive fishery zone (waters between 9 and 12 miles from mainland or islands) during the forthcoming year. We have kept our listing fairly current by deleting vessels which were sunk or sold to foreign interests during

the year and adding the names of new vessels entering the shrimp fishery principally at Texas ports. I have furnished each of our Reporting Specialists at Texas ports and Oscar Longnecker with copies of the list which contains the names of 1,320 vessels; I suggest you contact any of these individuals if you are not certain that the name of your vessel is included. By April 1 of each year we are also required to furnish a report on the volume of catches taken from Mexico's exclusive fishery zone during the past year. Total catch from Mexico's exclusive fishery zone during the 5 year agreement is limited to the same volume which was taken during the prior 5 year period preceding January 1, 1968; this amounted to approximately 8.2 million pounds, heads-off weight. Information on the grounds from which catches are taken is obtained in our detailed shrimp program. I am certain that many of you present have been interviewed by our Fishery Reporting Specialists at the completion of your trip to obtain information on the grounds fished and fishing time expended. All of the information on the grounds from which catches are taken based upon these interviews is published in our monthly and annual Gulf Coast Shrimp Data bulletins.

I would like to take this occasion to thank each of you for the excellent help and cooperation you have extended to our Statistics and Market News staff throughout the years. This co-operation has made our job easier and is vital to the success of our programs.

Thank you.

II. ENVIRONMENTAL NEEDS AND PRIORITIES OF, AND POTENTIAL BENEFITS TO, THE FUNCTIONAL USERS OF MARINE ENVIRONMENTAL INFORMATION.

A. Introduction

This chapter presents a discussion of the environmental needs and priorities of, and potential benefits to, the functional users of marine environmental information. For this discussion, the functional users of marine environmental information are divided into seven major categories: (1) Commercial Fishing; (2) Marine Transportation; (3) Coastal Recreation; (4) Offshore Oil, Gas, and Sulphur Industries; (5) Inland Commercial and Coastal Land Use; (6) Military; and (7) Marine Research. Under each of these major categories there is a further categorization, generally along functional lines. For each of the sub-categories of functional users, there is presented a general discussion of the needs and priorities for marine environmental information, and the potential benefits which could accrue from the fulfillment of those needs, specific statements of needs and priorities for environmental information, the methodology by which the potential benefits were allocated to environmental information factors and to geographic regions, and the methodology by which the potential benefits were projected ten years into the future. The final section of this chapter shows the composite statements of need for improved marine environmental information.

B. Commercial Fishing

The commercial fishing industry has been divided into three sub-categories: (1) Offshore Commercial Fishing, which is confined primarily to offshore areas 1, 2, 3, 4 and 5, and includes approximately 70% of the shrimp and all of the snapper harvested in the Gulf; (2) Inshore Commercial Fishing, which is confined primarily to inshore areas S1, S2 and S3, and includes all other species caught in the Gulf; and (3) Commercial Fishing Research and Mariculture, which also concentrates in geographical areas S1, S2 and S3, but has quite different needs for marine environmental information than do the two sub-categories of users which are operationally oriented. The total product revenue to the fishermen working the Gulf area in 1969 was \$152 million. This breaks down by species as follows:

Offshore Shrimp	75.5 million dollars		
Inshore Shrimp	32.3	"	"
Menhaden	19.4	"	"
Oyster	8.6	"	"
Miscellaneous	5.4	"	"
Snapper	4.3	"	"
Crab	3.2	"	"
Industrial Fish	3.2	"	"

1. Offshore Commercial Fishing

a. Introduction

The area of operation of the offshore commercial fishing industry forms nearly a closed loop around the perimeter of the Gulf of Mexico, extending from ten miles offshore to the fifty fathom curve. Within these areas, approximately 70% of the Gulf shrimp-ing is done, and all of the red snapper are caught in these waters. Together, these two industry segments accounted for 52% of the total catch (offshore and inshore) by revenue in the Gulf of Mexico for 1969. Less than one percent of the product revenue for Gulf commercial fishing is derived from the deep water areas beyond the fifty fathom curve; expansion into these areas is a future possibility, but was not taken into consideration for this study effort.

Approximately 3500 fishing boats operate in deep Gulf waters, of which 70% are valued between \$60,000 and \$75,000 each, and 30% valued between \$80,000 and \$85,000 each. Between 10,000 and 11,000 fishermen man these vessels. The value of the offshore catch in 1969 was \$79,800,000, and it is projected that this catch revenue will increase \$6,825,000 by 1980; or, it will have an annual average increase of 0.713% over the next decade. In addition, the processed product price averages nearly twice the dockside price; an increase of 80%. It is the opinion of the experts consulted in the commercial fishing industry that, based on the volume of present imports and market potential, an additional catch can be absorbed into the market with little effect on consumer price.

b. Environmental Needs, Priorities, and Benefits

The offshore commercial fishing industry depends on environmental information in making the following decisions:

- . To fish or not to fish
- . Where to fish
- . When and where to secure boats pending hurricane force storms

The decisions on whether or not to depart, that is to fish or not to fish, are ideally made at the dock, and are currently made on the basis of sea state and wind velocity; however, sea state in the fishing areas is the controlling factor, with wind velocity merely being used by the fishermen as an additional factor to assist them in arriving at a good decision. Offshore fishermen are interested in sea state heights between 3 feet and 12 feet, with the actual decision point being 6 feet. Depending upon the size of a specific boat, sea state heights of less than 3 feet to 6 feet do not hamper fishing operations. At the other extreme, sea state heights above 8 feet to 12 feet, even for the larger boats, preclude fishing operations. As the offshore fishermen must make plans for sailing well in advance of their actual departure, and considering the typical cruise time of one to four hours for even those areas adjacent to the coast, the commercial fishermen have a need for forecasted information 24 hours in advance of their arrival in the fishing area.

A similar decision must be made by the fisherman when he is offshore and weather conditions dictate that he cease operations. Under these circumstances, the offshore fisherman needs to know not only forecasted conditions, but nowcast information in nearby fishing areas.

In addition to sea state heights, the offshore fisherman has a need to know the visibility in his planned area of operation, and in the area of transit. Below 100 yards visibility, fishing is precluded, primarily because he cannot locate the fish. Above that point, visibility plays no factor in decision-making.

The importance of these decisions of when and where to fish are shared by the boat owner and crew as each either gains or loses as a result under the normal shared boat arrangements between owner and crew. Under this arrangement the crews are paid only on days which they fish, and are responsible for the ice used to freeze the catch. The owner is responsible for all other equipment and operating expenses. Thus, recoverable revenue loss can occur in two ways; when the boat remains at the dock when conditions would have permitted fishing (this can and does occur as the result of forecasted unfavorable weather conditions which do not materialize), and revenue is lost when the boats attempt to fish an area and are denied because of severe conditions (this may occur when favorable forecasts turn out to be in error). The second type of

revenue loss sighted above is sometimes offset by fishing inshore areas where conditions are more moderate. When conditions do not permit fishing and the boats remain at the dock, the revenue not realized as a result is considered to be unrecoverable.

Unseasonable weather (and erroneous reports thereof), particularly during the severe winter months, causes the total revenue figure for the industry to be 40-48% lower than it would be if fishing could be carried out every day of the season. This represents 90 days lost during the fishing season, of which it is estimated by the experts in the commercial fishing industry that 12 days could have been fished but were not because of predicted foul conditions. On this basis it is estimated that an additional revenue could be realized if environmental information to the stated specification were made available.

Of the two non-storm environmental conditions to which the offshore commercial fishing industry is sensitive, a knowledge of sea state is of far more importance than is a knowledge of visibility conditions; on a relative scale of 100, the priority rate would be: sea state - 95%, visibility - 5%.

The decisions to be made in preparation for hurricane conditions have to do with avoidance of capital investment loss in the strict sense; however, economically the results are very similar to income revenue loss reduction. The needs for improved storm information for the commercial fishing industry are quite similar for all segments of the industry, and indeed are much the same for many of the coastal industries. Unfortunately, insurance statistics do not distinguish claimed losses in sufficient detail to permit an accurate assessment of loss reduction to commercial fishing vessels due to hurricanes while the boats are in their home ports.

The present value of boats and equipment of the Gulf commercial fishing fleet is \$240 million. Over the past five years the new boat investment has averaged \$23-1/2 million per year and the projected figure for 1980 is between \$267 and \$272 millions for a net average yearly increase of approximately \$3 million per year. During 1969, which represents a typical year, 32 vessels with complete equipment were lost. Some of these are vessels that might have been saved with more accurate forecasts; likewise, a certain amount of fishing equipment. However, no records are maintained on such losses since they tend to reflect on the captain's judgment of the situation.

c. Statements of Needs and Priorities

The information needs of the offshore segment of the commercial fishing industry are summarized in Table II-1.

Table II-1

<u>Environ. Phenom.</u>	<u>Grid Radius</u>	<u>Decision Point</u>	<u>Info Needs</u>			<u>Geographical Areas</u>
			<u>C</u>	<u>N</u>	<u>Fhrs.</u>	
Sea State	60 nm	6 ft.		x	24	1-2-3-4-5
Visibility	60 nm	.5 nm		x	24	1-2-3-4-5

d. Allocation of Potential Benefits

The estimated amount of recoverable revenue is \$8.778 million or 11% of the \$79.8 million revenue figure. There is, in addition to the revenue sacrificed by the fishermen, a revenue loss to the processors of the offshore catch, almost all of whom are located in areas S1, S2 and S3. The cost markup which results from the processing operation is very nearly 80% of the product dockside price. This would mean that in 1969 the processors of the Gulf offshore catch lost a potential \$6.985 million almost all of which could have been gained through improved environmental forecasting. Finally, the offshore boat and equipment losses for 1969 which could have been avoided through improved forecasting totals \$525,000. The grand total of the avoidable offshore losses for the year 1969 are thus \$16,288,190, which breaks down by geographical area and environmental phenomena as follows:

<u>Area</u>	<u>Sea State</u>	<u>Visibility</u>	<u>Totals</u>
1	\$ 1,751,787	\$ 92,199	\$ 1,843,986
2	3,503,573	184,399	3,687,972
3	8,758,624	460,980	9,219,604
4	583,980	30,736	614,716
5	875,816	46,096	921,912
<u>Totals</u>	<u>\$15,473,780</u>	<u>\$814,410</u>	<u>\$16,288,190</u>

e. Projection of Potential Benefits

The estimated revenue loss reduction of \$16.288 million for the offshore segment of the commercial fishing industry assumes that the new improved forecasts are completely accepted throughout the industry. However, it has been estimated that such confidence in the reports would occur only after three years of use, and that during the first three years the information is available, their acceptance would be 10% the first year, 20% the second, 60% the third, and 100% only at the end of the third year. Offsetting this is the projected industry growth pattern amounting to 0.713% per year over the next 11 years. Thus, for the first ten years, the revenue improvement would be:

1971	\$16,288,190	x	101.426%	x	10%	=	\$ 1,652,046
1972	"	x	102.139	x	20	=	3,327,319
1973	"	x	102.852	x	60	=	10,051,637
1974	"	x	103.565	x	100	=	16,868,864
1975	"	x	104.278	x	"	=	16,984,999
1976	"	x	104.991	x	"	=	17,101,134
1977	"	x	105.704	x	"	=	17,217,268
1978	"	x	106.417	x	"	=	17,333,403
1979	"	x	107.130	x	"	=	17,449,538
1980	"	x	107.843	x	"	=	<u>17,565,673</u>

10 Year Total = \$135,551,881

2. Inshore Commercial Fishing

a. Introduction

Inshore commercial fishing is conducted in the surge areas, defined for the present study as S1, S2, and S3. The species captured in these areas include approximately 30% of the shrimp and essentially all of the menhaden, oyster, crab, industrial and miscellaneous fish caught in the Gulf of Mexico. The classification of inshore fisheries should properly include commercial freshwater fishing that takes place in rivers and lakes located in areas S1-S3 and I1-I3. However, the statistics related to freshwater commercial fishing are not as well organized and the size of the industry is thought to be much smaller than the corresponding Gulf industry which overlaps in these areas. For this reason, commercial freshwater fishing has not been considered in the present study.

Approximately 8,000 to 10,000 vessels operate in the inshore areas, mostly in the bays and estuaries. These boats average much smaller than those operating offshore with the notable exception of,

the menhaden boats. Boats other than menhaden boats are manned by one or two fishermen, and have an estimated value that averages \$5,000 to \$10,000. The replacement value of these craft would greatly exceed these figures, however, almost all of the 400 new boats which are added to the fleet each year are in the \$80,000 to \$85,000 class and are capable of offshore operation.

b. Environmental Needs, Priorities, and Benefits

The environmental information requirements of the inshore fishing industry are both more and less important than for the offshore segment of the industry. Inshore fishermen can generally see the area they intend to fish from the shore and thus can make their own nowcast as accurately as they require. Their great need is for an accurate six hour forecast so that a fish/no fish decision can be made and sailing preparations either firmed or cancelled. In this sense they do not depend on weather forecasts to the extent that offshore fishermen do. On the other hand, when inshore conditions are unfavorable, then boats have no alternative areas to fish and must remain at the dock. These boats are often less well equipped for foul weather, and generally do not have the range capability of the offshore fleet. Their workable fishing areas extend in a course parallel to the shore on either side of their home port.

This segment of the industry has been reported to be sensitive to four environmental phenomena; sea state, surge elevation, surface wind and visibility. The priorities estimated for these phenomena break down as follows on a relative scale of 100%:

Sea State/Surge	70%
Surface Wind	20%
Visibility	10%

The recoverable revenue loss was estimated on the basis of the number of days which the boats spend in port as the result of incorrect weather forecasts. Statistics indicate that an average of 45 fishing days out of a season that extends for 200 days are lost due to the combination of bad weather and forecasts thereof. Experts in the industry have estimated that one day per month out of the six month bad weather period was not fished because of false reports of foul weather. Therefore, the percent of recoverable loss is:

$$\frac{1 \times 6}{200 - 45} = 4\%$$

This percentage figure is lower than the corresponding figure for the offshore industry segment since, as stated previously, the inshore fishermen can see the area they intend to fish and make their decision accordingly. The estimated recoverable loss for 1969 at this 4% level of product revenue when added to boat and equipment losses totals:

$$0.04 \times \$72,093,600 + \$474,300 = \$3,358,044$$

Since boats operating primarily in the inshore areas are often designed for the less severe average conditions which prevail there, their sensitivity to these conditions is increased. For example, the inshore commercial fleet operates in closer proximity to shore, and thus is affected by a combination of sea state and surge elevation rather than either singly. Inshore fishing operations become affected by wave heights as small as two feet, and must cease entirely when waves reach six feet. Decisions such as moving to more sheltered areas are made by inshore fishermen when wave heights reach three to four feet. The length of forecast time required is six hours, with nowcasts of alternate fishing areas being of only slight interest.

The inshore fishermen are also sensitive to surface winds in the range from 12 to 30 knots. The offshore fishermen do not differentiate between wind speed and wave height, because in the open offshore areas high winds will cause high waves which then become the limiting factor. For inshore fishing operations, however, conditions can be such that wave heights are tolerable, but fishing is impossible due to high winds. The decision point for suspending operations because of wind velocity is approximately 15 knots, and again a forecast of about six hours is desired.

The visibility requirements of inshore fishing are quite similar to the offshore requirements with a range of sensitivity from .1 - 1.5 nautical miles, and a decision point at about .5 miles. However, the forecast time for the inshore segment is much less stringent, since a six hour forecast would be sufficient.

c. Statements of Needs and Priorities

The environmental information needs of the inshore commercial fishing industry are summarized in Table II-2.

Environ. Phenom.	Grid Radius	Decision Point	Info Needs			Geographical Areas
			C	N	Fhrs.	
Sea State	30 nm	3 ft.		x	6	S1-S2-S3
Wind Speed	30 nm	15 kts		x	6	S1-S2-S3
Visibility	30 nm	.5nm			6	S1-S2-S3

d. Allocation of Potential Benefits

During 1969 the combined value of the Gulf inshore catch for all species was \$72.1 million. It has been estimated that 4% of this \$72.1 million or \$2.884 million could be recovered with better forecasting of the sensitive environmental phenomena. This, however, is again only the dockside product price, and should properly include the processor revenue loss also. The resulting total product loss is then:

$$179.5761\% \times \$2,884,000 = \$5,178,975$$

To this figure must be added the inshore boat and equipment losses of \$474,000 for a grand total of \$5,652,975. This potentially recoverable loss total can be distributed by geographical area and attributed by environmental phenomena as follows:

Area	Sea State/ Surge	Surface Wind	Visibility	Total
S1	\$ 673,547	\$ 192,444	\$ 96,219	\$ 962,210
S2	2,609,989	745,712	372,853	3,728,554
S3	673,547	192,444	96,219	962,210
Total	\$3,957,083	\$1,130,600	\$565,291	\$5,652,975

e. Projection of Potential Benefits

The estimated revenue loss reduction for the inshore commercial fishing industry is \$5.65 million with an average estimated annual increase of 0.713% over the next decade. Estimating the rate of acceptance of the improved environmental information at 10% for the first year, 20% the second, 60% the third, and 100% for the fourth and subsequent years, the revenue indicated for the next 10 years

is as follows: ^{improvement}

1971	\$5,652,975	x	101.426%	x	10%	=	\$ 573,359
1972	"	x	102.139	x	20	=	1,154,778
1973	"	x	102.852	x	60	=	3,488,518
1974	"	x	103.565	x	100	=	5,854,504
1975	"	x	104.278	x	"	=	5,894,809
1976	"	x	104.991	x	"	=	5,935,115
1977	"	x	105.704	x	"	=	5,975,421
1978	"	x	106.417	x	"	=	6,015,726
1979	"	x	107.130	x	"	=	6,056,032
1980	"	x	107.843	x	"	=	6,096,338

10 Year Total= \$47,044,600

3. Commercial Fishing Research

a. Introduction

Fishing research and mariculture are presently very limited in nature and no definite patterns of activity have emerged. The greatest interest has centered on the bays and estuaries located in areas S1, S2, and S3. These two aspects of the industry have of course addressed themselves to the shrimp industry due to its already dominant role among species captured in the Gulf. Though the research and mariculture budgets are meager and will remain so, still their economic impact on the industry is conceded by everyone thus far consulted during the present program to be enormous as demand for Gulf products continues to grow at an ever increasing rate.

b. Environmental Needs, Priorities, and Benefits

The environmental information needs of fishing research and mariculture are very different from those expressed by the offshore and inshore segments of the industry. They are, by necessity, those phenomena which influence the food supplies, breeding conditions and other life cycle related conditions of the various species which occur in the Gulf. Specifically, the stated needs include information regarding currents, water temperature and salinity at all depths. Special needs include the detection of heavy metals, pesticides and oil spills as these are proving increasingly detrimental to the ecology of the Gulf. A definite need has been expressed for better understanding of the general heat budget of the Gulf because of its influence to offshore spawning shrimp and the definition of their life cycle. Rainfall prediction influences the decision of when to seed and when to harvest a crop.

It has not been possible to place priorities on the information needs of fishing research and mariculture due to the diversity of the various activities presently being conducted. For this reason also, little in the way of economic benefits can be assigned to the individual information. Whatever the benefits of improved environmental information may be - and everyone consulted estimates the economic impact to be great - they will not be realized by the research activities, but will accrue to the respective fishing and mariculture activities affected.

Commercial fishing research has a moderate need for improved information of eight environmental phenomena including:

Rainfall
Surface Air Temperature
Surface Water Temperature
Under Water Temperature
Salinity
Surface Current Speed
Underwater Current Speed
Current Direction

The need in all cases is for climatological information within a grid radius of 60 nautical miles with the single exception of current direction for which information is needed within a grid of 30 nautical miles.

It would be desirable to know rainfall at levels starting at .05 inches per hour and up. An accuracy of $\pm .02$ inches per hour would be required, and decisions regarding seeding and harvesting are made at around .1 inches per hour. All temperature information is required in a range from 55 - 66^oF with decisions being made at approximately 64^oF. Accuracies of ± 1 ^oF would be required. Actually temperature and salinity must be considered together when assigning desirability values to alternate shrimp nursery areas.

Salinity within the estuarine areas in the range of 0 - 32 parts per thousand and with an accuracy of ± 1 ppt is required at regular intervals. The wide range of salinities is required because of the changing sensitivity which shrimp demonstrate during their life cycle to this phenomena.

Both surface and underwater currents need to be documented in the range of 0 - 2 knots; the highest which it attains in the surge areas. An accuracy of .2 knots is required for this parameter. Current direction of $\pm 10^{\circ}$ is required, and since the direction is primarily from the south, the range of interest would be 90^o - 270^o from north. Information regarding currents is necessary to define and keep track of shrimp breeding areas about which little is presently known.

c. Statements of Needs and Priorities

The environmental information needs of commercial fishing research and mariculture are organized in Table II-3. It is not possible at this time to establish priorities for these needs.

Table II-3

<u>Environ. Phenom.</u>	<u>Grid Radius</u>	<u>Decision Point</u>	<u>Info Needs</u>			<u>Geographical Area</u>
			<u>C</u>	<u>N</u>	<u>Fhrs.</u>	
Rainfall	60 nm	.1 in/hr	x			S1 - S2 - S3
Surface Air Temp	60 nm	64 ^o F	x			S1 - S2 - S3
Surface Water Temp	60 nm	64 ^o F	x			S1 - S2 - S3
Underwater Temp	60 nm	64 ^o F	x			S1 - S2 - S3
Salinity	60 nm		x			S1 - S2 - S3
Surface Current	60 nm		x			S1 - S2 - S3
Underwater Current	60 nm		x			S1 - S2 - S3
Current Direction	30 nm		x			S1 - S2 - S3

MAR 29 1971



March 26, 1971

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Regional Office, Region 2
Federal Building
144 First Avenue South
St. Petersburg, Florida 33701

Mr. J. V. Colson
Executive Director, Gulf States
Marine Fisheries Commission
400 Royal Street - Room 225
New Orleans, Louisiana 70130

Dear Joe:

Attached are two copies of the talk I presented at the recent TSA-GSMFC Convention in Brownsville. You requested a copy for incorporation into the record of the meeting.

I enjoyed being with you and members of the fishing industry in Brownsville. It was very beneficial to me to become better acquainted with these fine people.

Sincerely,

A handwritten signature in dark ink, appearing to read "H. B. Allen". The signature is fluid and cursive, with a long horizontal line extending to the right.

H. B. ALLEN
Associate Regional Director
for Management and Utilization

Attachments

FISHING VESSEL HULL AND LIABILITY INSURANCE

by

H. B. Allen

Associate Regional Director
for Management and Utilization
Southeast Region
National Marine Fisheries Service

U.S. Department of Commerce
St. Petersburg, Florida

presented at

TSA & GSMFC Meeting

Brownsville, Texas

March 17-20, 1971

FISHING VESSEL HULL AND LIABILITY INSURANCE

Commercial fishermen who seek insurance against physical hazard and liability losses in their vessel operations are facing increasingly serious problems. Recent years have witnessed sharply rising premiums for vessels qualifying for insurance, a growing reluctance among marine insurers to offer insurance on certain types of hull construction and a reduction in the number of marine insurers willing to underwrite commercial fishing vessels. Casualty insurance on older wooden vessels in the Gulf States is virtually unobtainable today and premium rates for insurable vessels have increased far more rapidly than any other category of expense.

During the past year, the National Marine Fisheries Service undertook a study of the reasons for the reluctance of the insurance industry to offer adequate coverage at reasonable costs. As a result of this study, the Service is developing a number of suggestions that should enable fishing firms to qualify for reduced insurance rates.

In making our study, we have held discussions with the U.S. Coast Guard and other sources of marine risk experience. We have also been in consultation with the insurance industry, existing insurance pools, and with those involved in other schemes already in operation in other parts of the United States and the world.

Factors causing high costs of hull and P&I insurance have been identified as (1) the safety conditions of the fishing operation; (2) lack of sufficient knowledge to predict risk of loss; and (3) certain provisions of the Jones Act (Merchant Marine Act of 1920) relating to vessel owner liability to crewmen. The high costs do not appear to be attributable in any significant measure to inefficiencies or high profits of the insurance underwriters. All evidence available shows that loss ratios are high for fishing vessel insurance and that there is little in the way of improving internal efficiency in insurance companies which would reduce premium costs.

In making our study, we are addressing each of these problems. Although our views are not yet completely worked out, I will discuss some of the alternatives we are considering. Your comments and suggestions on these will be helpful in preparing our final report.

1. Improved Vessel Safety

High insurance costs are directly related to high risk, and high risks reflect unsafe conditions. During our discussions with the U.S. Coast Guard, we learned that the chief source of lost time for Gulf shrimp vessels is grounding. Fire and explosion ran a close second.

The Coast Guard estimated that the cost of hull insurance could be reduced by 15 percent to 29 percent in the Gulf through an active and effective safety program.

We learned that the Coast Guard is considering the inauguration of a fishing vessel safety program that may include vessel inspection, crew licensing, and the development of safety standards and regulations. If this is initiated, the NMFS could possibly aid vessel operators and seamen in complying with Coast Guard regulations. For example, we could

a) Assist the United States Coast Guard to insure they are on the right track in specifying safety standards. To this end, we can supply the USCG with pertinent data and technical advice so they can take into account the unique requirements of the fishing industry.

b) Provide technical assistance to the industry to help the vessel owners meet the Coast Guard standards.

c) Look at the possibility of using our fishing vessel loan program to finance vessel improvements.

d) Consider an educational program to assist the industry. This would work primarily through existing state organizations for crew training programs and through extension personnel in reaching vessel owners concerning the program. Training and certifying a

group of qualified private marine assessors who would, in turn, certify individual vessels could be helpful.

e) Consider providing for voluntary certification of vessels that meet a more comprehensive set of standards designed to qualify vessels for even further reduced insurance rates.

If the program can be enacted, vessels could be inspected and certified by the NMFS or authorized private marine surveyors as complying with standards of safety and competence determined to be desirable for particular fisheries. The inspection costs, of course, would have to be borne by the vessel owner, but the incentive would be significant savings on insurance costs.

2. Centralized Risk Evaluation Program

The commercial market for fishing vessel insurance is handicapped by the lack of a suitable statistical base for reliable evaluation of risks. Individual companies rely on their own limited experience in determining premium rates. This greatly increases the chance of costly errors for both the insurer and the insured. The insurance market could function more efficiently if all actuarial information regarding fishing vessels were centralized and evaluated on a fishery basis, and the data and analysis made available to the public. Scientific risk

evaluation techniques--which cannot feasibly be used by small units with limited data--could be used to rate fishing vessel risks in the manner of risk rating procedures practices by the various private rating Bureaus that operate in the casualty insurance field.

We are considering the establishment of such a risk evaluation program in NMFS which would collect, tabulate, and analyze fishing vessel casualty data, and publish a schedule of suggested premium rates for hull and P&I insurance. These rates would be based on a continuing actuarial analysis of the casualty and other related data.

The collection and analysis of such casualty data would also be especially valuable to the vessel safety program. The actuarial system would provide a means of evaluating risk based on vessel characteristics, geographical areas of operation, and other operational aspects. Vessel owners could also be made directly aware of the effect of improved safety practices on their insurance rates.

3. Devising Standardized "Master" Hull and P&I Policies

It may be useful to develop a program whereby we could work with insurance companies and the fishing industry to develop master policies which would streamline underwriting procedures and result in some

underwriting cost savings. More importantly, the policies could incorporate a certification that the insured complied with predetermined vessel and crew safety standards.

Standardized policies tailored to the requirements of various fisheries, plus the safety certification, would allow insurance companies to set rates with greater confidence and enhance their disposition toward writing fishing vessel insurance. This approach would result in more realistic rates which should result in significant cost savings for vessel owners.

4. Reinsurance Program

The fourth alternative we are considering is a program to assist the reinsurance of primary insurers of vessels. One of the major problems faced by current vessel insuring companies is that their experience is not sufficiently diverse, both geographically and by type of vessel, to give them a predictable annual rate of loss. Small insurance companies operating on a regional basis can incur large sudden losses that do not "average out." There is a need, therefore, for small insurance companies to pool some of their risk by buying insurance themselves from a large national or international reinsurer. The reinsurer then deals with a much broader risk accumulated by insuring diverse

insurance companies covering different fisheries in different parts of the country. At present, this kind of reinsurance is not generally available in the United States.

One way to initiate a reinsurance program would be through the appropriation of Federal funds to provide for the reinsuring of both regional insurance companies and fishermen's co-ops during the development years of the program. Part of the educational program will be to point out the advantages of fishermen-owned small group insurance systems where no commercial insurance is available. From a reinsurance point of view, the more insurance companies and cooperatives participating, the more certain we would be of having a predictable annual national loss. As the precision of the aggregate annual loss increases, the smaller the margin of safety necessary in establishing premium rates.

5. Legislative Change to Promote Equitable Disposition of Crewmen Personal Injury and Illness Claims

The fifth and last alternative we are considering refers to liability insurance better known as P&I. Very simply, we believe serious consideration should be given to exempting fishermen from current

maritime laws, the Jones Act in particular. It is possible that fishermen could be brought under existing Workmen's Compensation laws. Fishermen could, for example, be given the option of coming under either coverage over a trial period of perhaps five years. During this period, they would learn that there are some real advantages to Workmen's Compensation over protection under the Jones Act, particularly with regard to non-fatal accidents. Benefits under Workmen's Compensation are automatic, begin immediately, and require no major investment on the part of the injured party. By contrast, the injured party must initiate a law suit and often undergo years of delay in obtaining satisfaction under the Jones Act.

Again, I want to reiterate we are still formulating our program and that these points I have mentioned are only alternatives we are considering for a responsive NMFS plan to alleviate this difficult problem.

We feel the potential benefits of these alternatives would be threefold. First, insurance rates would be lower to the extent that insurers today must make some overcharge to cover the fact that they do not have good actuarial data. Second, vessel owners would have control over whether or not their vessels qualify for insurance. If a vessel does not meet the minimum safety standards for insurance rating, the

owner would know exactly what he must do to qualify. Third, once qualified, a vessel owner would have direct control over his insurance premium. By investing in improved safety standards, he could obtain lower rates and be certain of their reality.

I will hasten to point out, however, that these alternatives would not mean generally lower rates for everyone. Vessels that continued to operate below minimum safety standards will either be uninsurable or the owner would pay heavy surcharges as at present. There is no way that a genuinely bad risk can reduce his insurance cost. We would anticipate, however, that the sometimes arbitrary distinction made between wood and steel hull could be reduced.

If a wooden hull vessel meets minimum safety standards, it should be as insurable as a newer hull of steel construction. This is not to say that the standards themselves will not be quite different according to hull construction. Making a wooden hull safe may simply cost more than making a steel hull of comparable size equally safe.

The alternatives we are considering have the potential of putting the insurance of fishing vessels on an actuarially sound basis and at lower cost for the majority. This is not to say that vessel insurance would

become "dirt cheap," nor is it to imply that everyone will benefit. Any plan would require substantial effort and some investment by the fishing industry to meet minimum safety standards.

Our program is not yet an accomplished fact. We have yet to fully evaluate our alternatives. This meeting catches us on the verge of completing our analysis, but I am delighted that I can outline the highlights at this stage. We will keep you advised as we progress.



MAR 25 1971

Texas State Department of Health

JAMES E. PEAVY, M.D., M.P.H.
COMMISSIONER OF HEALTH

AUSTIN, TEXAS

BOARD OF HEALTH

HAMPTON C. ROBINSON, M.D., CHAIRMAN
ROBERT D. MORETON, M.D., VICE-CHAIRMAN
W. KENNETH THURMOND, D.D.S., SECRETARY
MICKIE G. HOLCOMB, D.O.
N. L. BARKER JR., M.D.
JESS WAYNE WEST, R. PH.
JOHN M. SMITH JR., M.D.
NOBLE H. PRICE, M.D.
ROYCE E. WISEBAKER, M.S. ENG.

J. B. COPELAND, M.D.
DEPUTY COMMISSIONER

March 23, 1971

Mr. Joe Colson
Executive Director
Gulf States Marine Fisheries Commission
Room 225 - 400 Royal Street
New Orleans, Louisiana 70130

Dear Joe:

Neil and I enjoyed the Brownsville meeting very much. We were delighted at the chance to see and talk with our friends from the Gulf States area who we do not have the opportunity to see as often as we would like.

Enclosed please find information concerning the talk I presented. This information does not represent exactly the speech I made as the speech was largely extemporaneous. However, the graphs enclosed do factually represent the data shown on the slides at the meeting.

If you have any further questions concerning the talk, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Dudley J. Johnson".

Dudley J. Johnson, Director
Division of Marine Resources

DJJ/bu

MERCURY STUDIES IN TEXAS

By Dudley J. Johnson

Presented at Marine Fisheries Commission
Meeting - Brownsville, Texas
March 18, 1971

There has been so much said and published about mercury and mercury densities in fishery products that I really hesitate to belabor the subject further. But since this is the topic I'm scheduled to talk about for the next 20 minutes I will try to give you the bare bone facts as we have found them in Texas.

We, in the Division of Marine Resources, do not consider ourselves to be mercury experts. In fact, due to the complexity of the subject, the limited knowledge available, and the relative "newness" of the problems, I doubt if there are very many if any real experts in this field at this time. This is not to say that there has not been a flood of data loosed on the public during the past several months. The problem would seem to be to determine how much of this information is factual and if it is just what does it mean. The correlation of available information and data to specific problems is much needed. There are many unanswered questions--Such as how much of the mercury problem comes from industrial sources and how much from natural sources. How long has the problem, as we see it now, existed and how wide spread is it. And above all at what point or rather in what concentration is it a health problem.

The Texas Heavy Metals Surveillance Program is not a new one but rather one that dates back to 1960-61 when as a result of the Minimata Bay disaster a study of Galveston Bay was made and the conclusion was ~~concluded~~ that there was no danger in Galveston Bay from mercury discharges at that time.

The first formally scheduled sampling program was undertaken in 1968 with the cooperation of the Texas Parks and Wildlife Department who collected and shipped the samples to the Gulf Coast Marine Health Sciences Laboratory, Dauphin Island, Alabama, which performed the laboratory analysis. This program included the analysis of samples from six sampling stations for six metals, copper, cadmium, chromium, lead, mercury and zinc. The establishment of the sampling stations was, of course, limited to those areas where oysters could easily be secured.

As you may remember in 1967, Texas experienced Hurricane Beulah. Beulah was an extremely wet hurricane and dumped so much water that

many of the Texas estuarine areas were virtually turned into fresh water lakes. This, of course, caused a large die-off of oysters.

At the time this program was established no sampling stations were set in Lavaca Bay. The closest station was located at Mad Island Reef in Matagorda Bay. Several stations were located in the Galveston Bay complex and one was located at Panther Point in San Antonio Bay. During the period 1968-69 only one sample collected at Panther Point was found to have any mercury density. This sample registered .05 ppm. None of the samples collected before or after this were found to be positive for mercury. Panther Point is far removed from any possible pollution sources, therefore, we were unable to determine the cause or the sources of mercury density in this sample.

During May of 1970, it came to our attention that the Federal Food and Drug Administration was investigating the possibility of mercury contamination of seafood products. They had collected random samples from Galveston Bay and Lavaca Bay. Mercury in relatively small quantities ranging from .003 ppm up to 0.9 ppm were discovered. The only excessively high densities were found to be from flounder and catfish. In response to the Federal Food and Drug Administration mercury program, we collected samples from Galveston Bay on May 12 and May 26 and from Lavaca Bay on May 21 and May 29. The results of these samples indicated that we had no mercury problem in Galveston Bay but very definitely had a problem in the Lavaca Bay area. At this point we began to plan an organized program designed, we hoped, to determine the extent to which the Texas estuarine areas had been polluted by the industrial discharge of mercury. In the Galveston Bay area it was known that Diamond Shamrock and Tenneco were users of mercury in the manufacturer of chlorine and that the Aluminum Company of America operated at chlor-alkali plant at Point Comfort in the Lavaca Bay area. In cooperation with the Texas Water Quality Board plant effluent samples were secured from each of these plants. As had already been indicated by oyster meat samples collected and analyzed no mercury contamination problem existed in Galveston Bay seafoods. However, sampling stations were established in both Galveston Bay and in Lavaca Bay and steps were taken to split a control sample with the Gulf Coast Water Hygiene Laboratory, Dauphin Island, Alabama, each time a sampling run was made. Our laboratory had a limited capacity for performing heavy metals analysis, therefore, we requested assistance from the Gulf Coast Water Hygiene Laboratory, Dauphin Island, Alabama, which they readily agreed to provide. The Parks and Wildlife Department agreed to collect samples from the Galveston Bay area, Tres Palacios-Matagorda Bay area, San Antonio Bay area, Copano-Aransas Bay area and the Corpus Christi Bay area and to submit these samples directly to the Gulf Coast Water Hygiene Laboratory for analysis. Our laboratory devoted itself to the analysis of plant effluents, sediment samples and seafood samples,

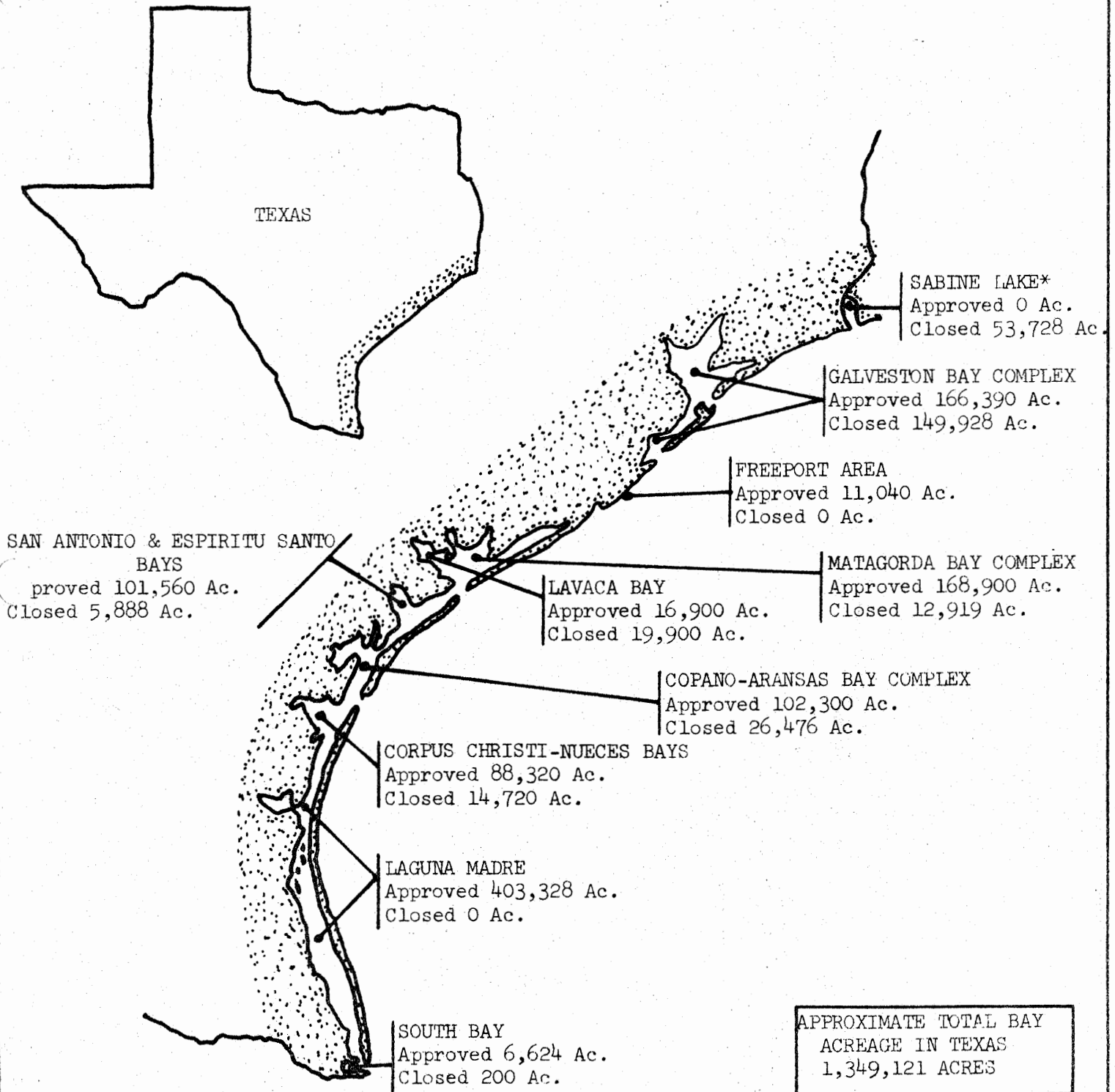
and specifically to oyster samples collected from Lavaca Bay. We used the oyster as the principal yard stick to measure the degree to which the Texas estuarine areas may have become contaminated by mercury largely because of his well known ability to concentrate heavy metals and because of the fact^h his immobility. We could not however, ignore the public health significance of mercury concentrations in other seafoods and we therefore, made arrangements with the Texas Parks and Wildlife Department Biologists to collect samples of other seafoods.

The following graphs present the data we have gathered.

You will note that there has been a tremendous reduction in the mercury densities found in the oyster samples collected from Lavaca Bay. This is a much more rapid reduction than we would have thought possible prior to this study.

Probably the most important point to make from the consumers standpoint is that the market samples we have collected do not indicate that there is a serious mercury problem in Texas seafood at this time. A study of the graph on which this data is plotted will, I think, bear this out.

THE STATE DEPARTMENT OF HEALTH
 DIVISION OF MARINE RESOURCES
 CLASSIFICATION OF OYSTER HARVESTING
 WATERS OF TEXAS
 SEPTEMBER 1, 1970



APPROXIMATE TOTAL BAY
 ACREAGE IN TEXAS
 1,349,121 ACRES

*Includes Portion in Louisiana

FDA: Canned Tuna's OK

Excess Mercury Called No Health Hazard

By G. C. THELEN JR.
WASHINGTON (AP)—The Food and Drug Administration says Americans can keep on eating canned tuna although excess mercury has been found in more than one of every five cans sampled. Should housewives buy all their

tent found to date, and the fact that even this excess is being removed, we are confident that the American summer is now safe. The water fish used to industrial charges. The test remains safe.

Tuna Sales Dip Here Following F.D.A. Report

By RICHARD PHALON
A spot check of shoppers in five supermarkets here yesterday suggested that the sale of canned tuna had dropped sharply.

Following publication of a report that at least a million cans of tuna fish on the country's grocery shelves were contaminated with "excessive" amounts of mercury, housewives seemed to have gone on a buyers' strike.

Emily Danies, for instance, a frequent shopper at the International Market at 499 Avenue of the Americas, glared at what she thought was typical of other shoppers interviewed at other stores. The reaction extended not only to canned tuna but to fresh fish of all kinds as well.

Her attitude was typical of other shoppers interviewed at other stores. The reaction extended not only to canned tuna but to fresh fish of all kinds as well.

A few blocks away at the University Place, the Sea Cliff fish market, "This kind of business is not fresh fish business."

Concern Is Expressed Over Mercury Contamination

Other Fish Shunned Too

The worry also affected the tuna fish sandwich, the tuna fish sandwich, the tuna fish sandwich, the tuna fish sandwich.

Yesterday, he said, there were only a few tuna fish sandwiches on the shelves of the restaurant. Instead of egg salad, the product was still safe for consumption.

Dr. Charles C. Edwards, Commissioner of Food and Drug Administration, estimated that, to date, almost a million cans of tuna fish contaminated by mercury were being drawn from the market.

The product was still safe for consumption, he said, because the amount of mercury in the fish was less than the amount in the fish.

But the FDA says that the amount of mercury in the fish is not enough to cause damage to offspring, but added that this was not proven.

The concentrations of mercury in the fish in Niigata suggest that regular daily consumption of the fish could be harmful.

F.D.A. Report

MERCURY IN TUNA BRINGS A RECALL

Million Cans Withdrawn

F.D.A. Head Says The Don't Imperil Health

By RICHARD D. LYONS
Special to The New York Times

WASHINGTON, Dec. 15—The Food and Drug Administration announced today that, as a precautionary measure, a minimum of almost one million cans of tuna fish contaminated by mercury were being drawn from the market.

The product was still safe for consumption, he said, because the amount of mercury in the fish was less than the amount in the fish.

Dr. Charles C. Edwards, Commissioner of Food and Drug Administration, estimated that, to date, almost a million cans of tuna fish contaminated by mercury were being drawn from the market.

The product was still safe for consumption, he said, because the amount of mercury in the fish was less than the amount in the fish.

But the FDA says that the amount of mercury in the fish is not enough to cause damage to offspring, but added that this was not proven.

The concentrations of mercury in the fish in Niigata suggest that regular daily consumption of the fish could be harmful.

Mercury Is Found In Fish Dating to '27

By DAVID BIRD
Researchers at the state's Department of Environmental Conservation have found levels of mercury in preserved fish caught up to 43 years ago in levels that are higher than those in the market.

LEAD IS STUDIED IN COASTAL FISH

Chemist Finds Amounts in Livers Abnormally High

Special to The New York Times
LA JOLLA, Calif., Dec. 26—Some of the lead pollutant from automobile exhausts may be finding its way into man's body by way of the fish he eats, according to a study under way here at the Scripps Institution of Oceanography.

Dr. T. J. Chow, marine chemist, said that fish living in coastal waters near metropolitan centers have been found to have abnormally high amounts of lead in their livers.

He said that the exact implications of this were unknown and that conclusive tests had not yet been made on the fleshy parts of fish.

Million Cans of Tainted Tuna Recalled

Continued From Page 1, Col. 7
more mercury than specified by the F.D.A. guidelines. numbers after each brand.

so chose, enforce its regulations

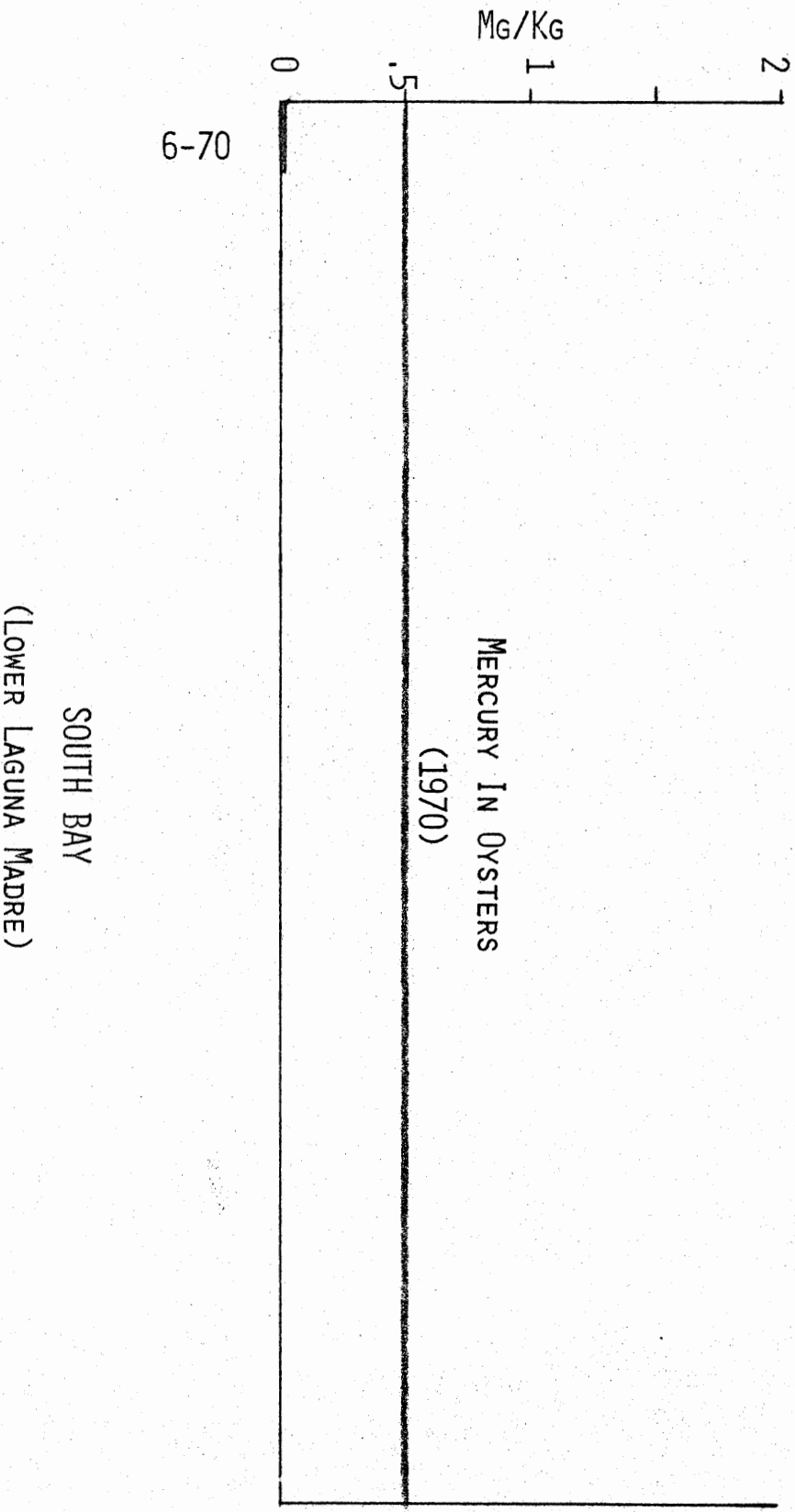
levels of mercury. But some samples of frozen swordfish imported from Japan were found to contain 10 per cent of all the mercury that is considered safe.

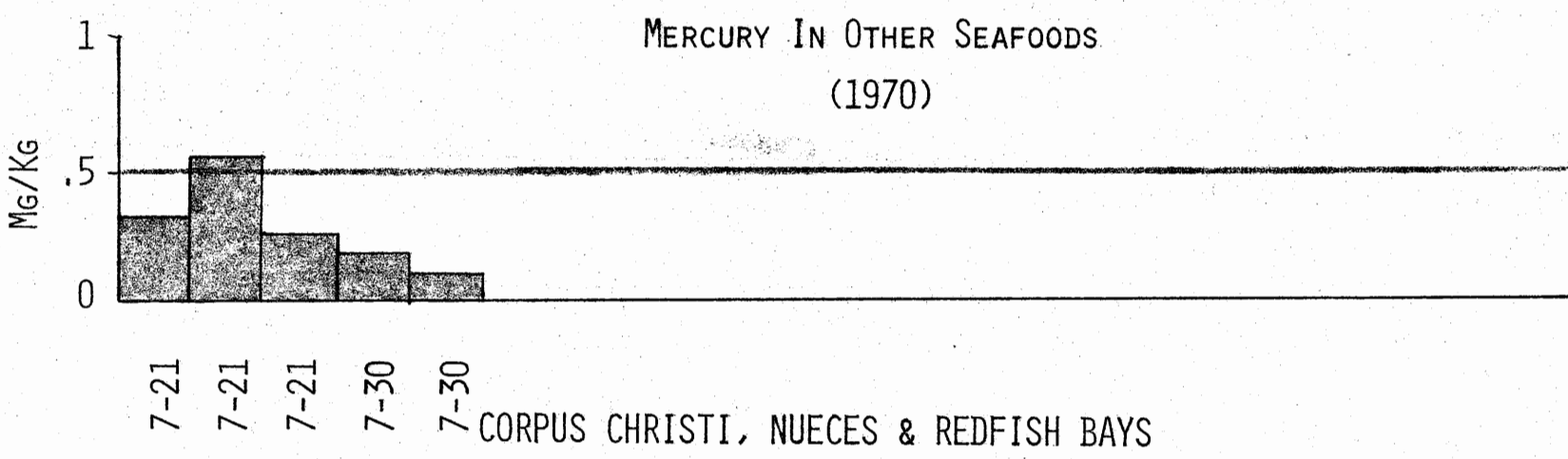
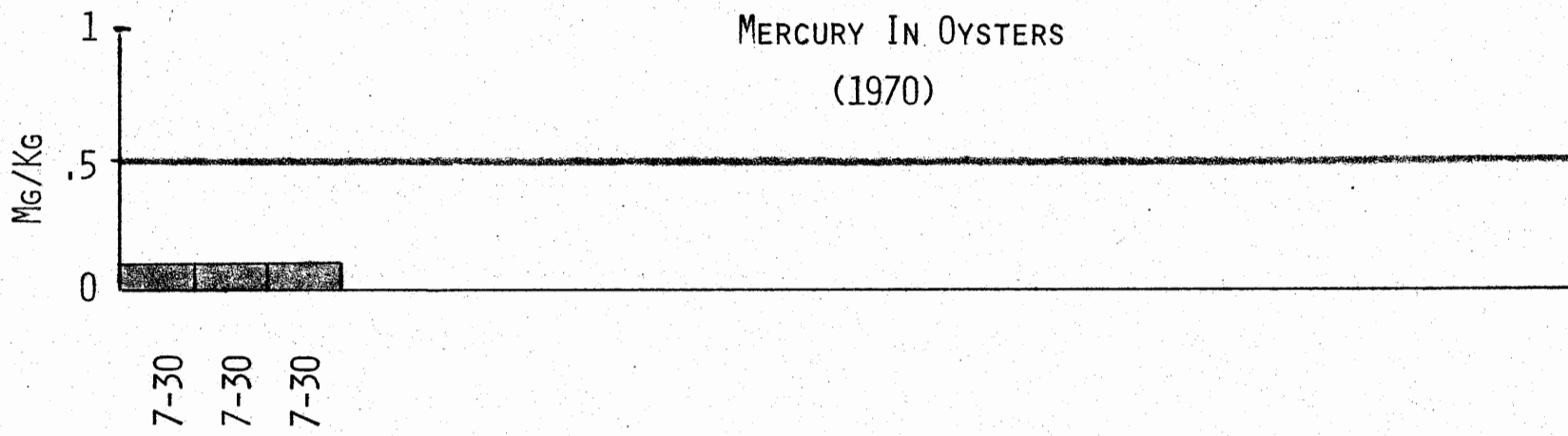
Mercury Can Damage the Brain

By The Associated Press
The elusive element mercury, deadly toxic in large amounts, can damage the brain, break

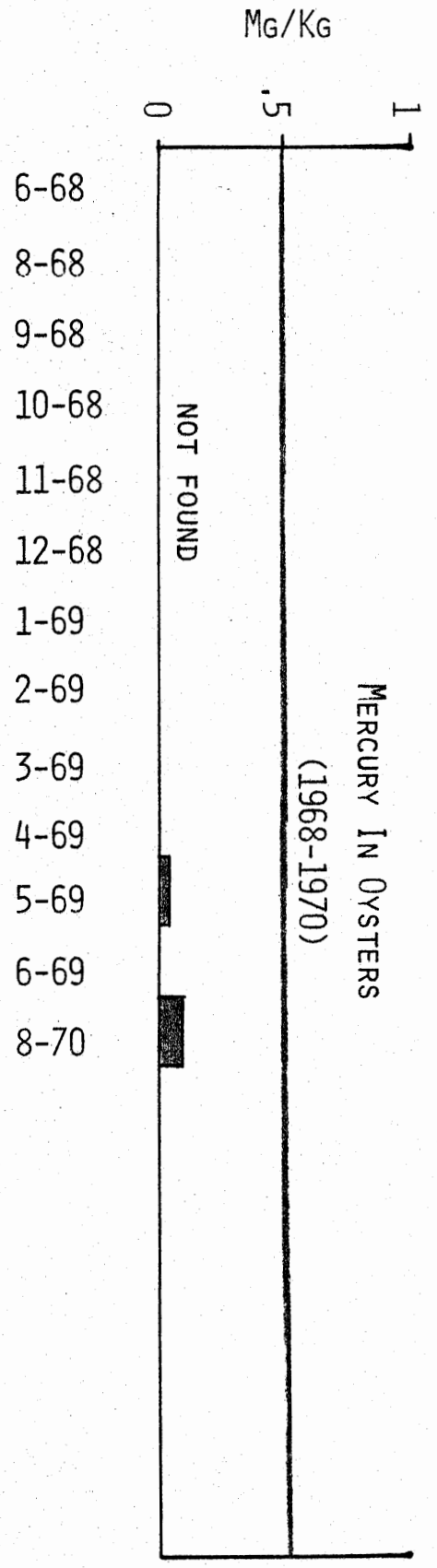
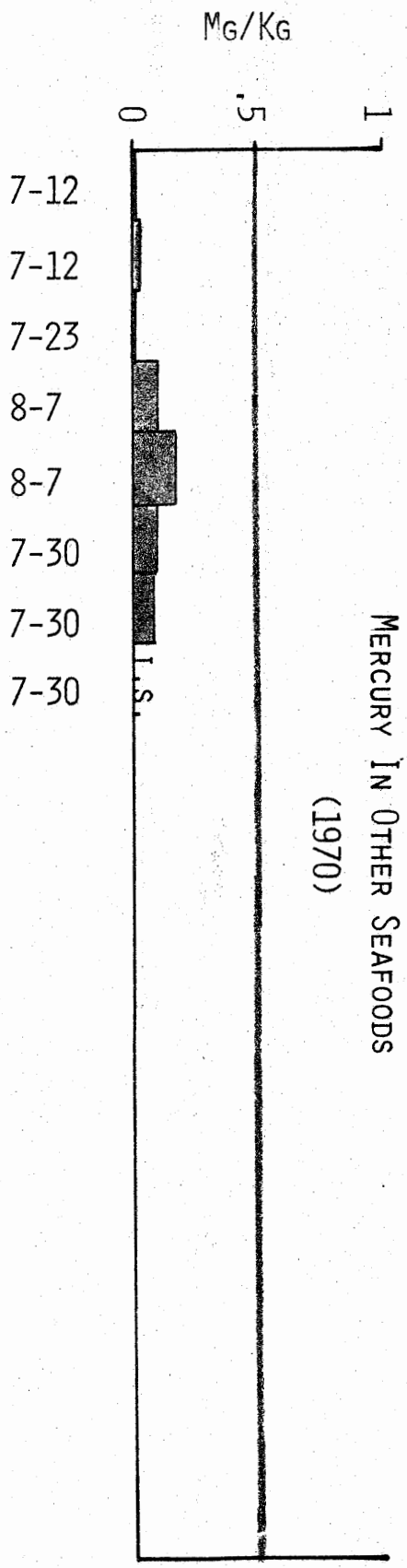
damage to offspring, but added that this was not proven. The concentrations of mercury in the fish in Niigata suggest that regular daily consumption of the fish could be harmful.

cury, which are considered less toxic, are metabolized into methyl mercury, the highly toxic form, by microorganisms





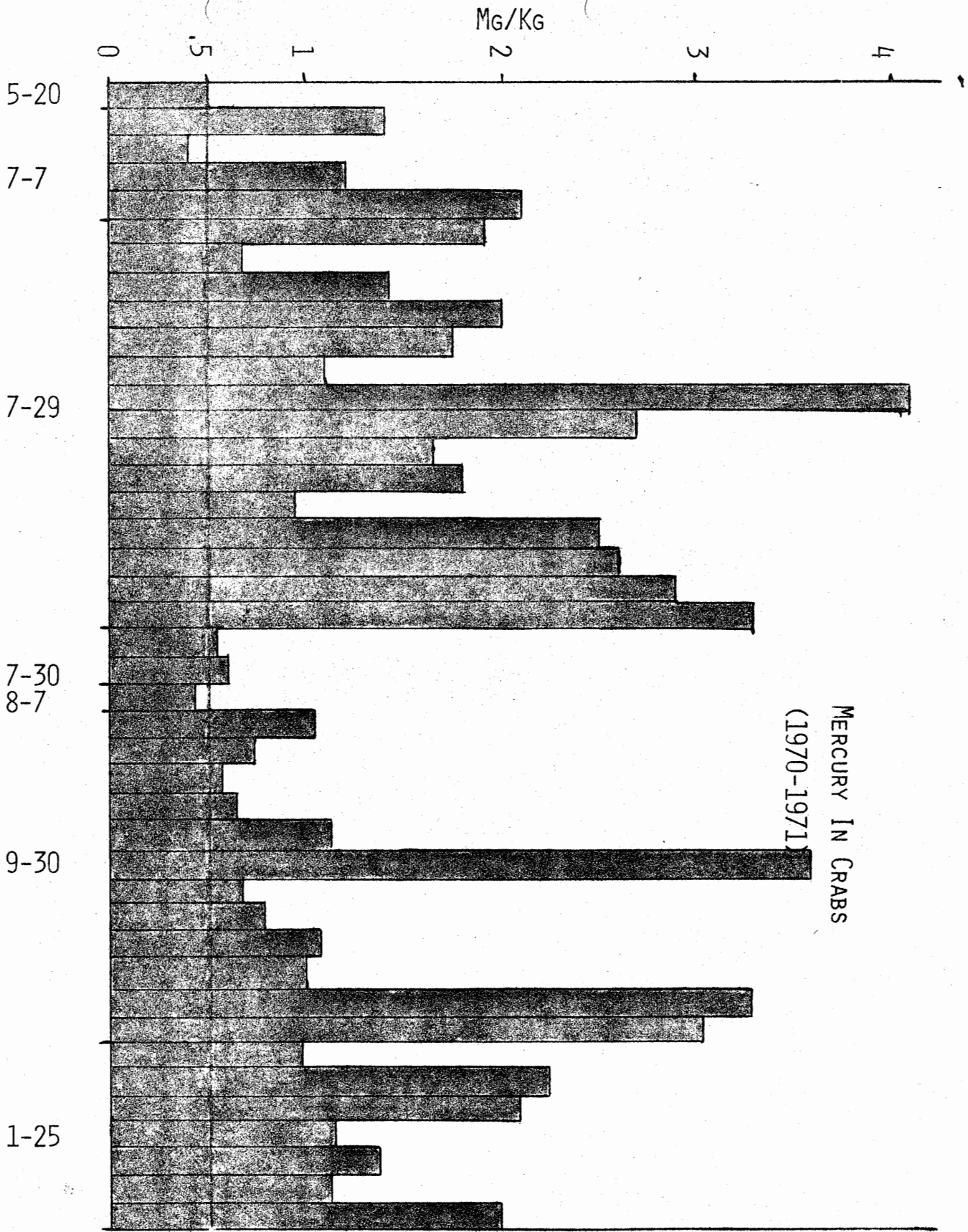
SAN ANTONIO & ESPIRITU SANTO BAYS



LAVACA BAY

1970

1971



LAVACI JAY

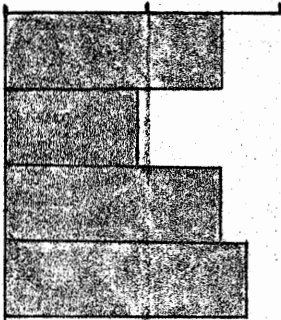
Mg/Kg

5-27

8-7

8-7

8-7



MERCURY IN FISH
(1970)

Mg/Kg

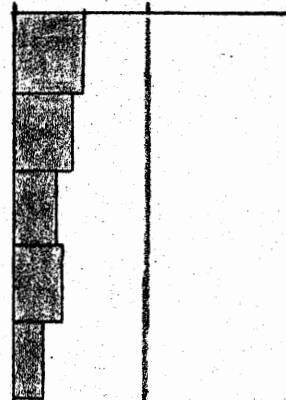
5-27

7-30

8-7

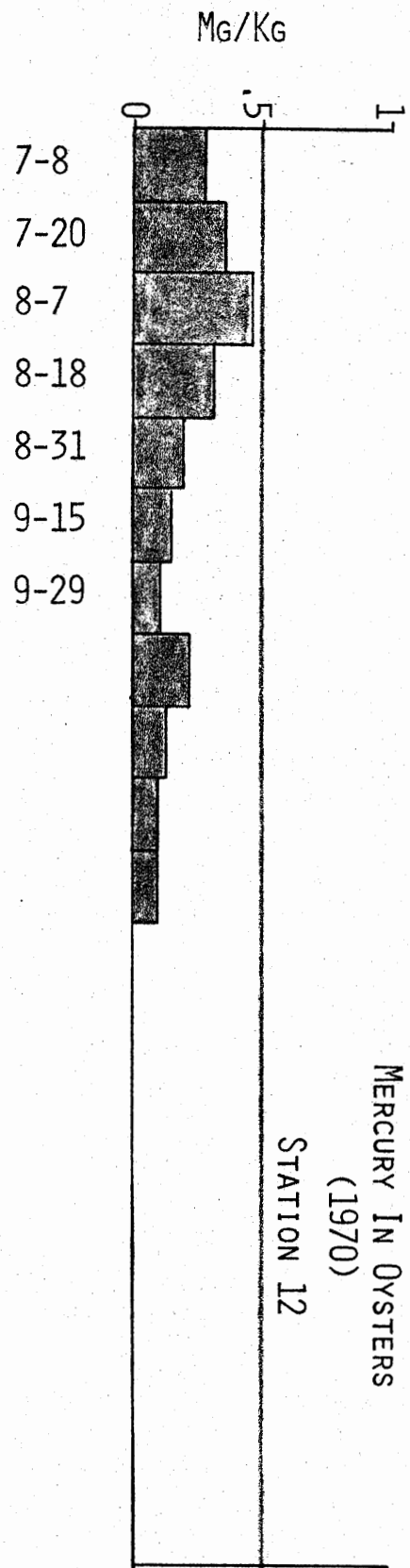
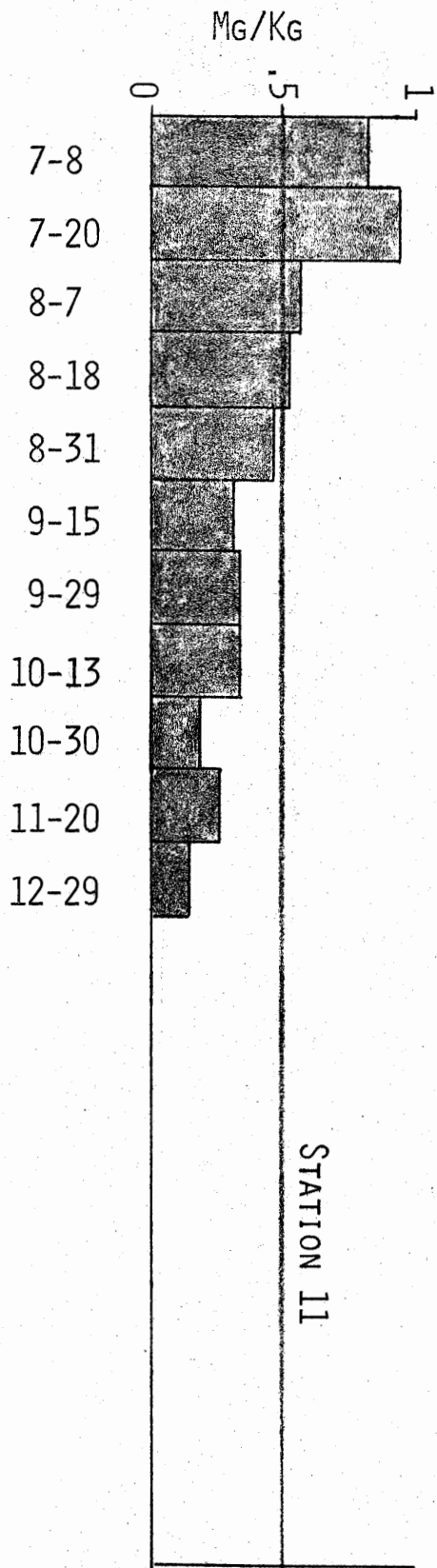
9-15

9-29

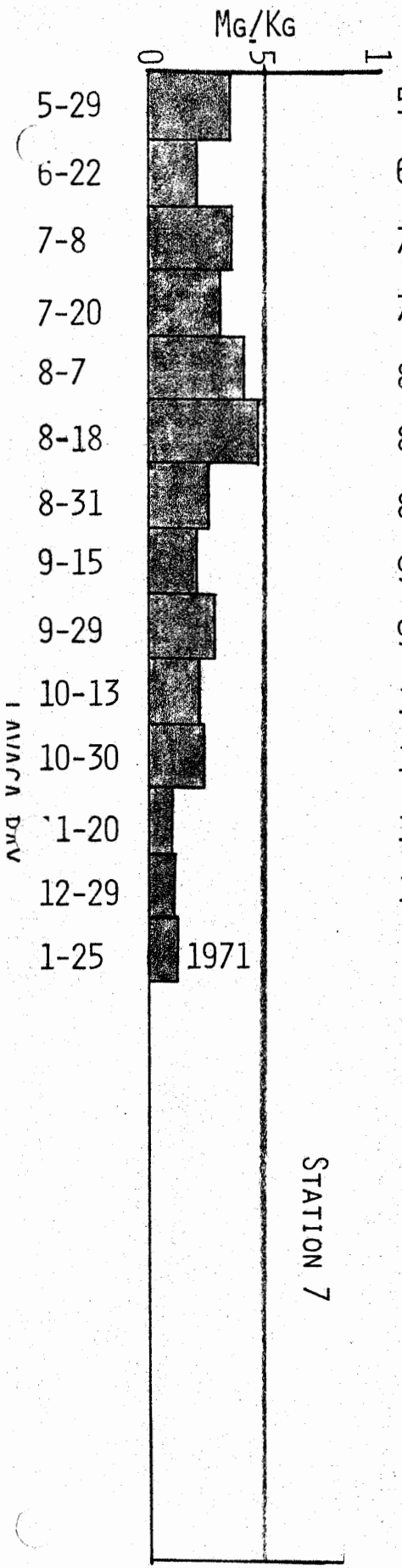


MERCURY IN SHRIMP
(1970)

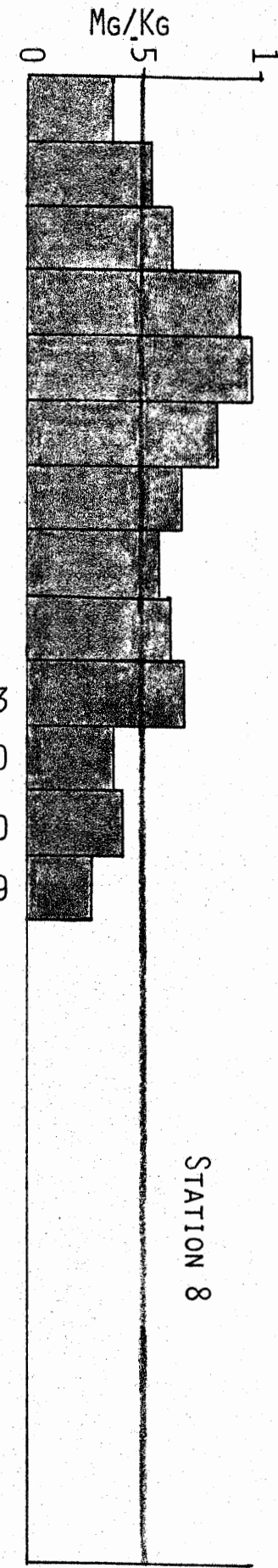
LAVACA BAY



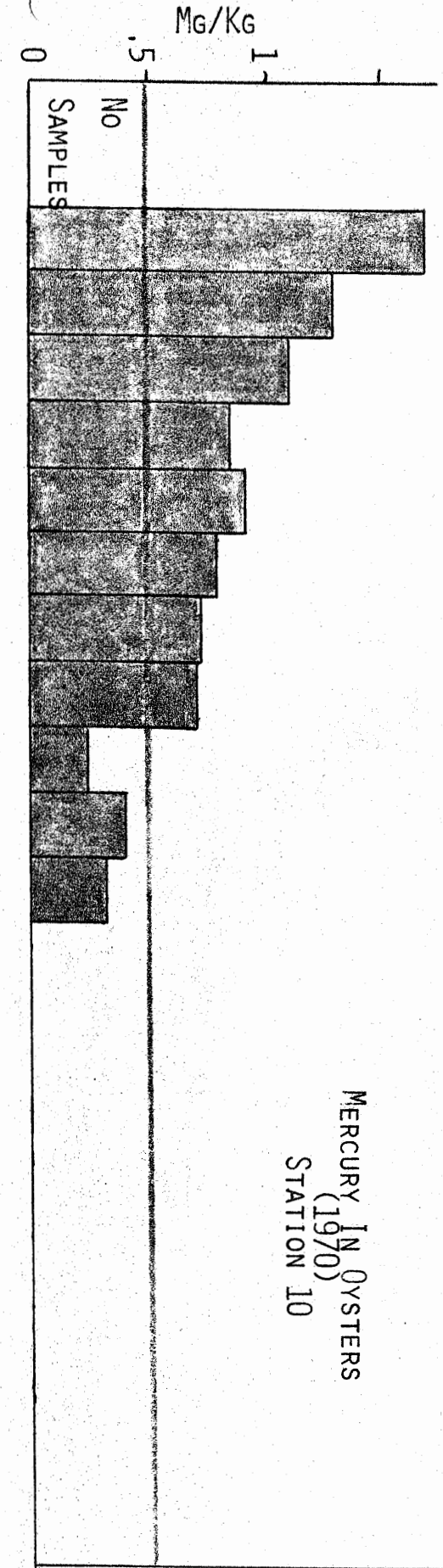
1 AVIWA DNV



STATION 7

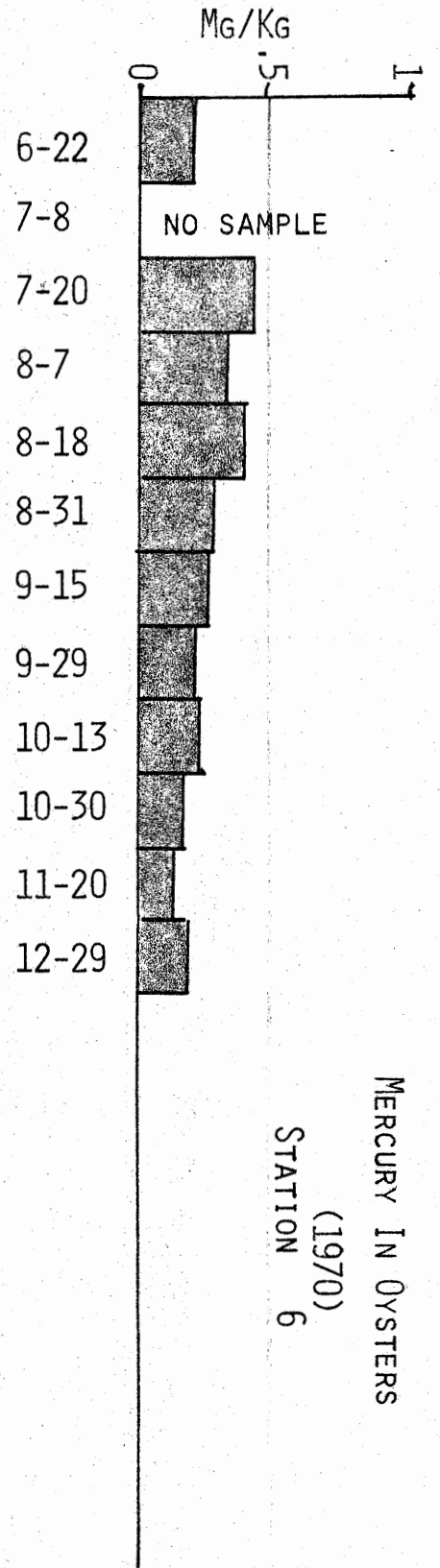
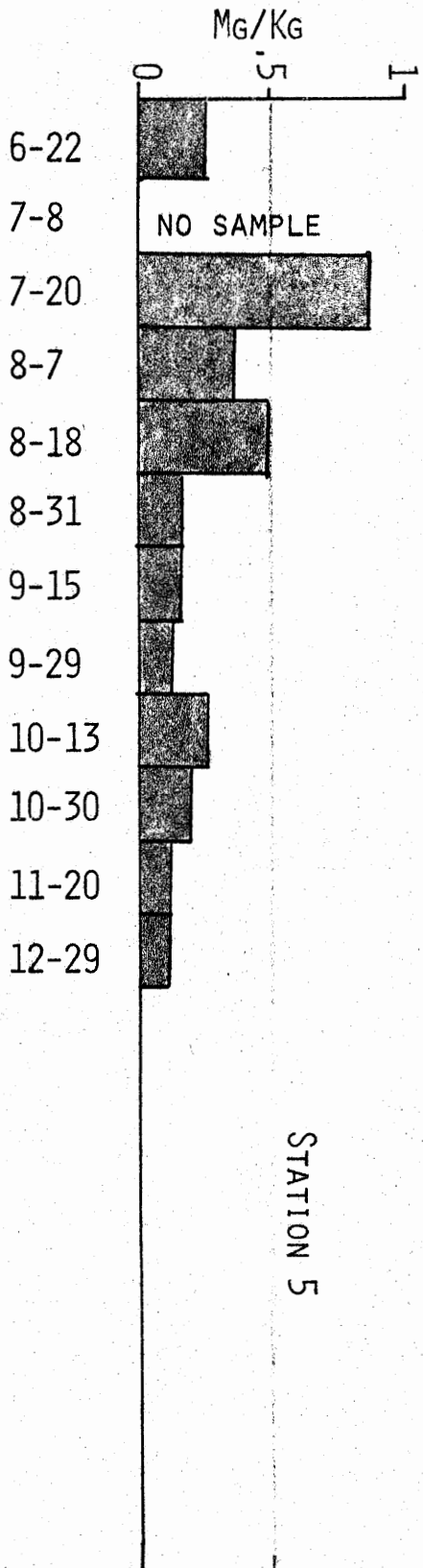
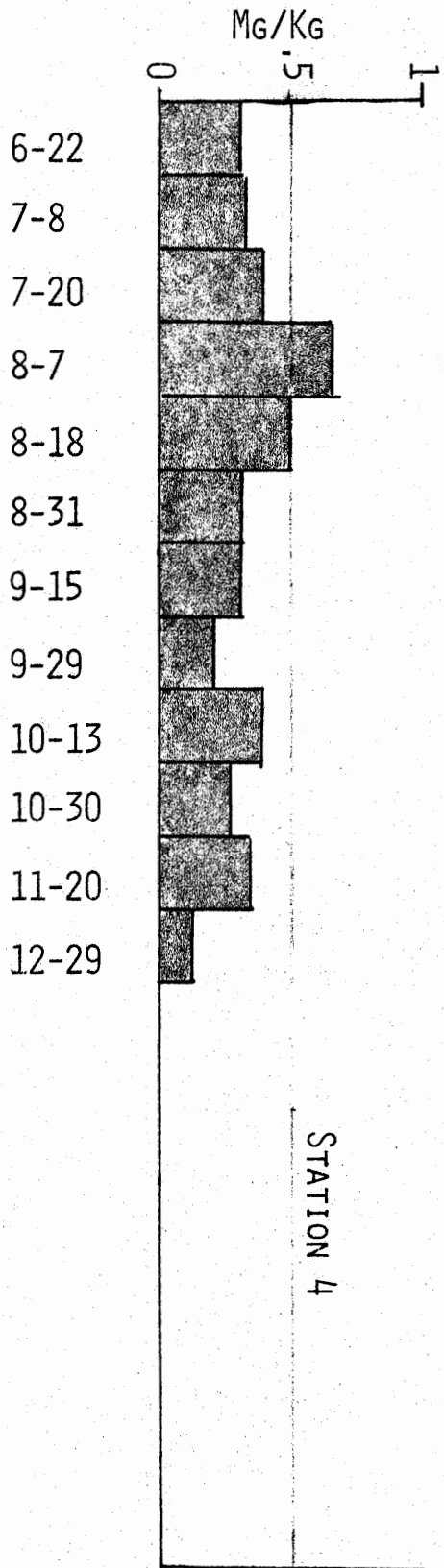


STATION 8

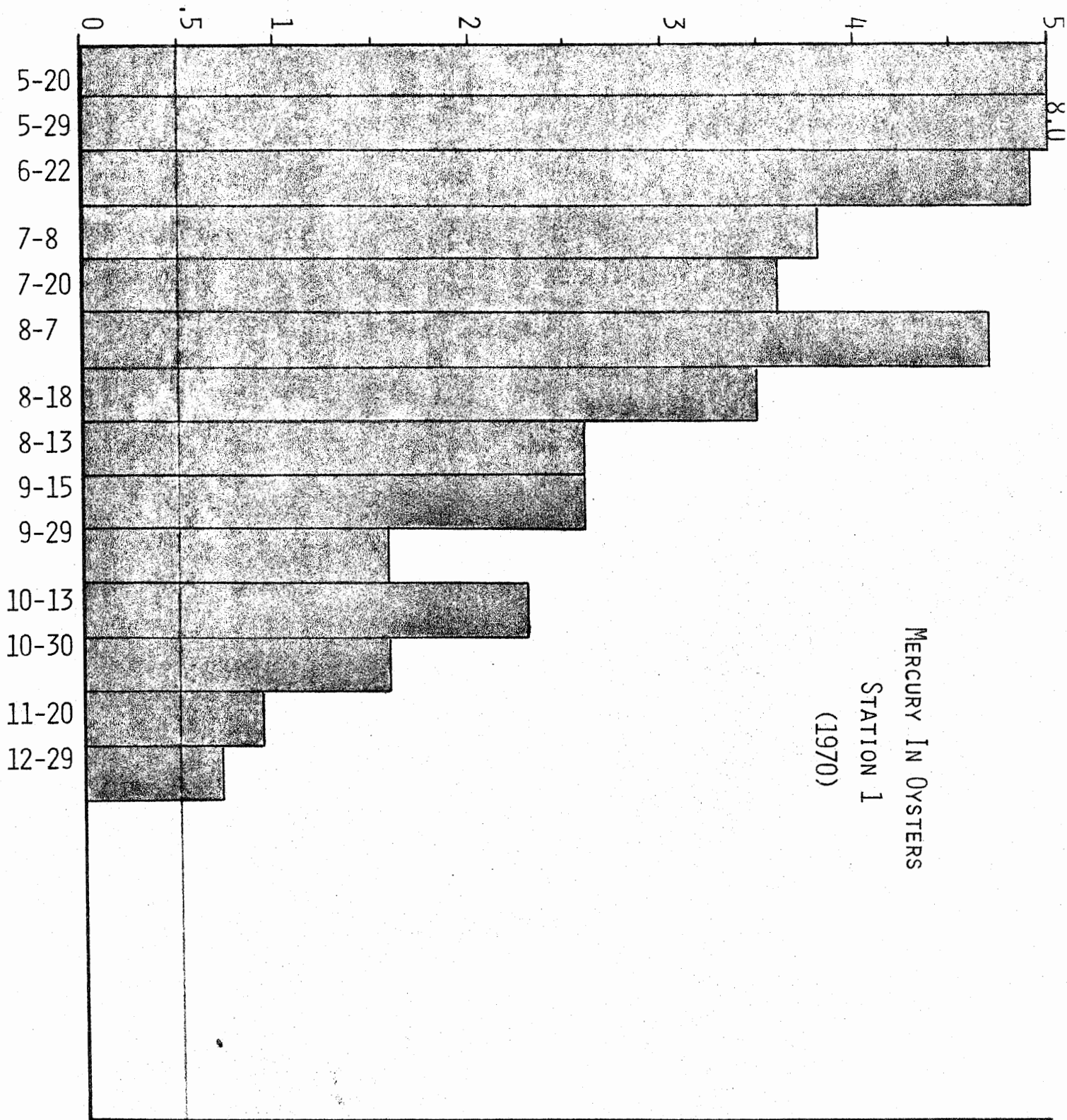


MERCURY IN OYSTERS
(1970)
STATION 10

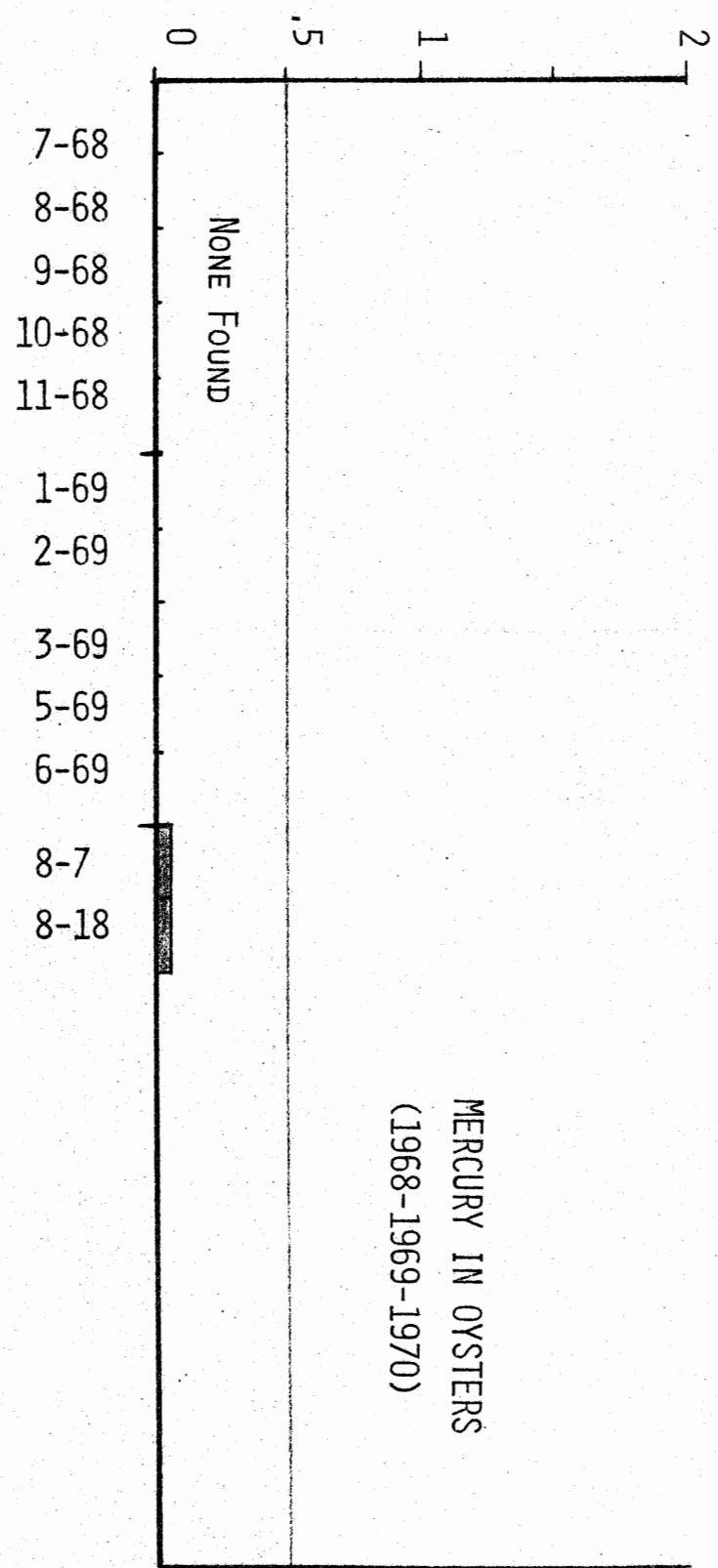
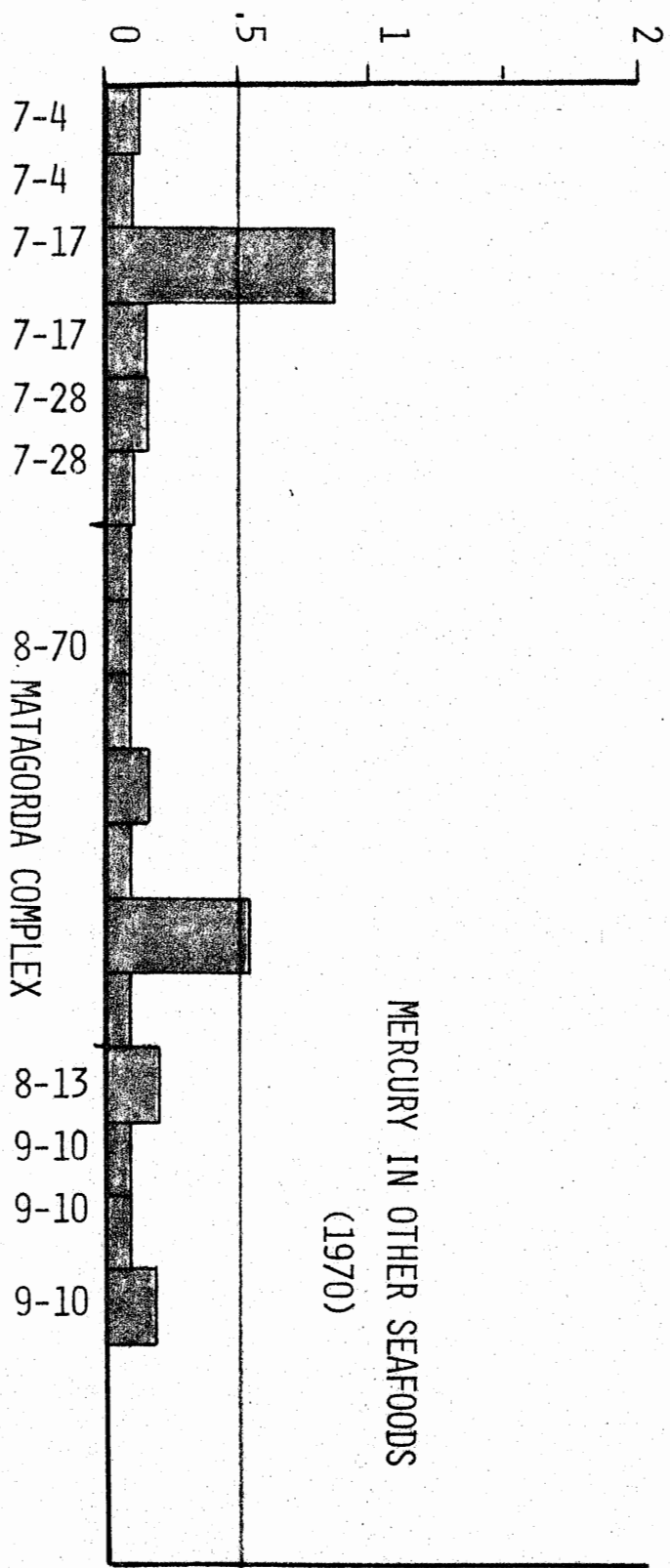
LAVACA BAY



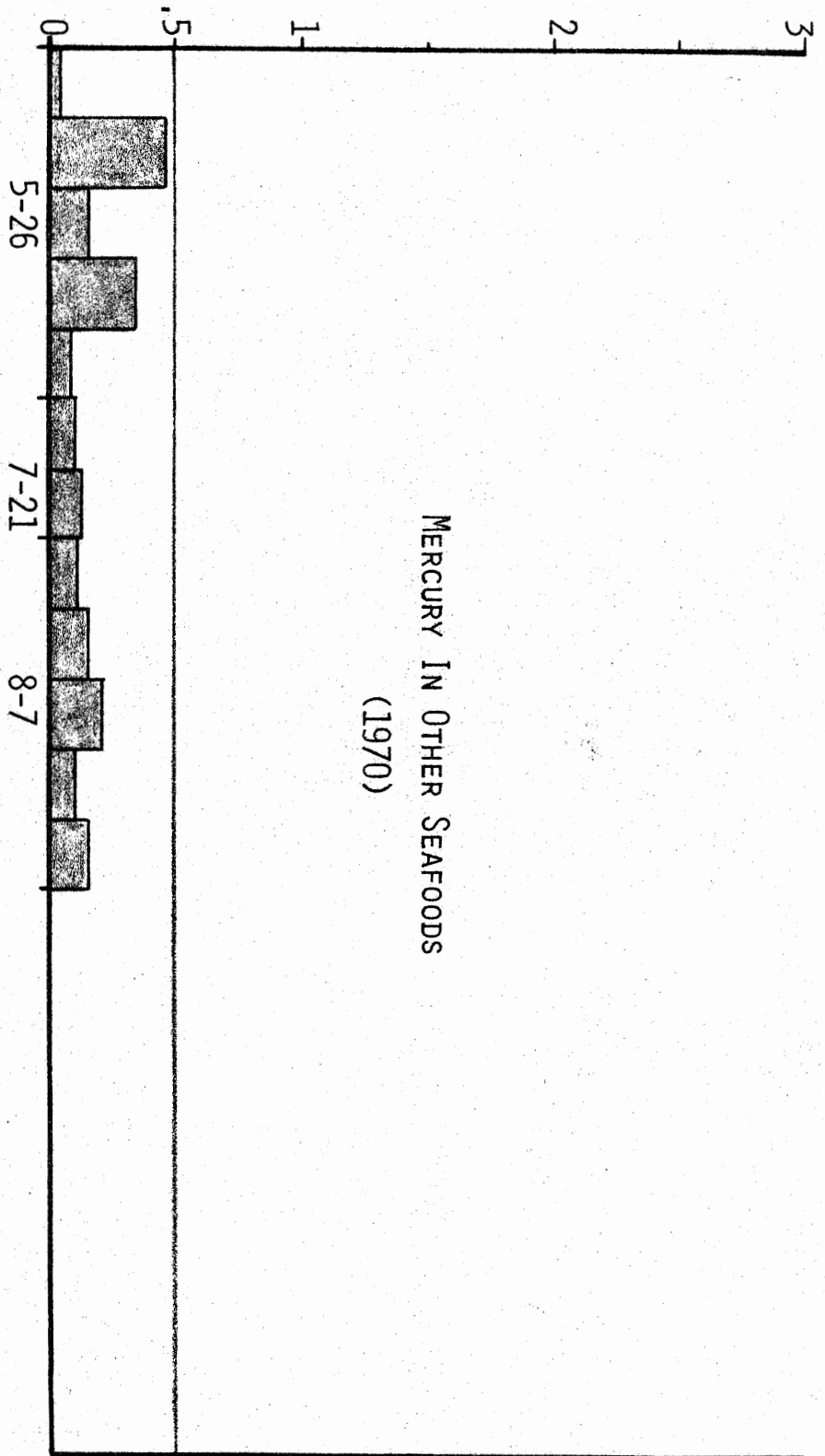
LAVAC BAY



MERCURY IN OYSTERS
STATION 1
(1970)

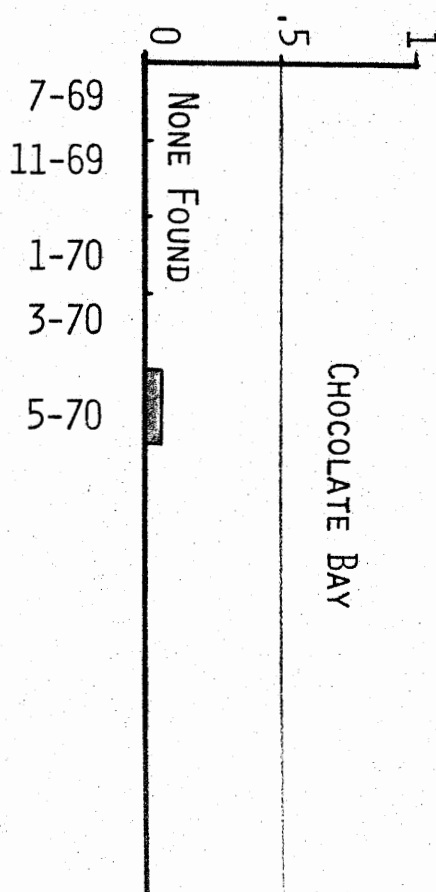
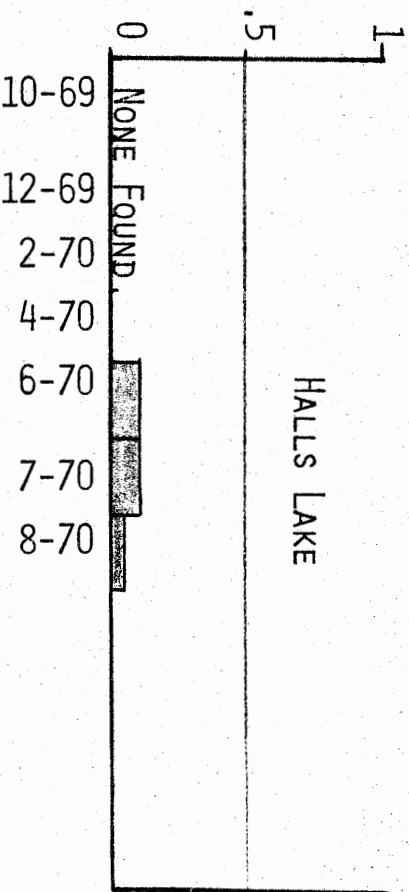
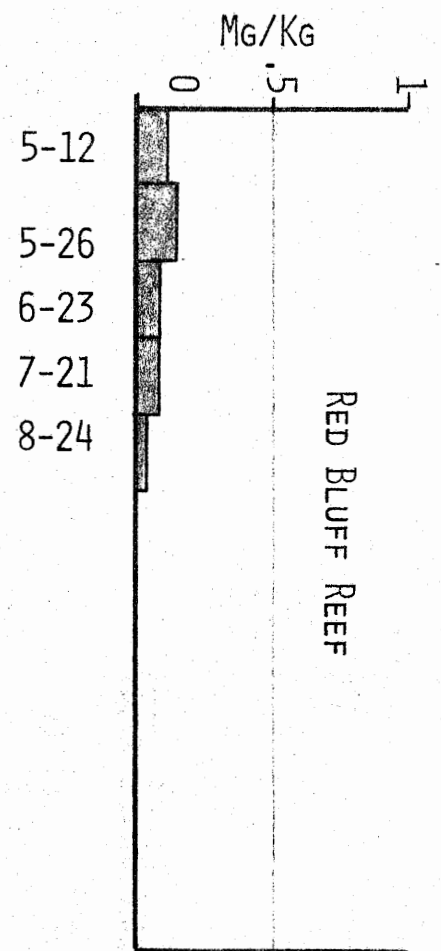
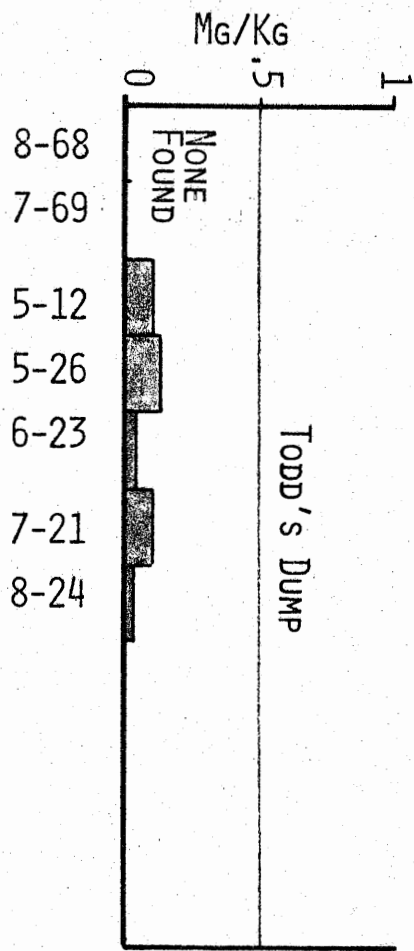
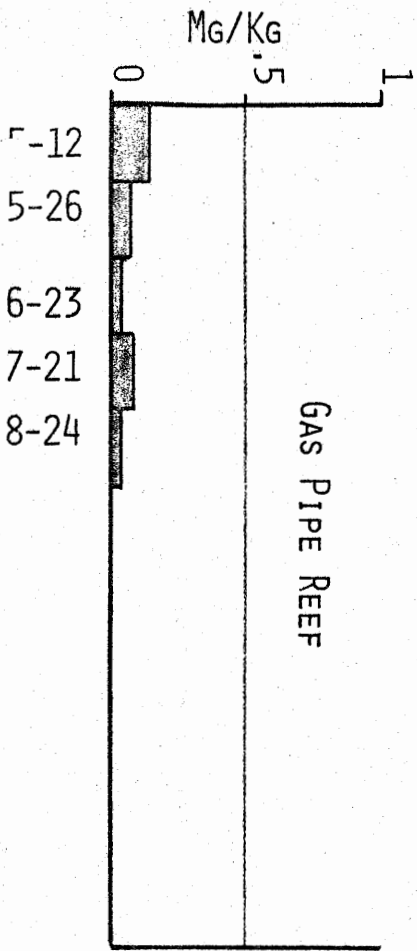


Mg/Kg



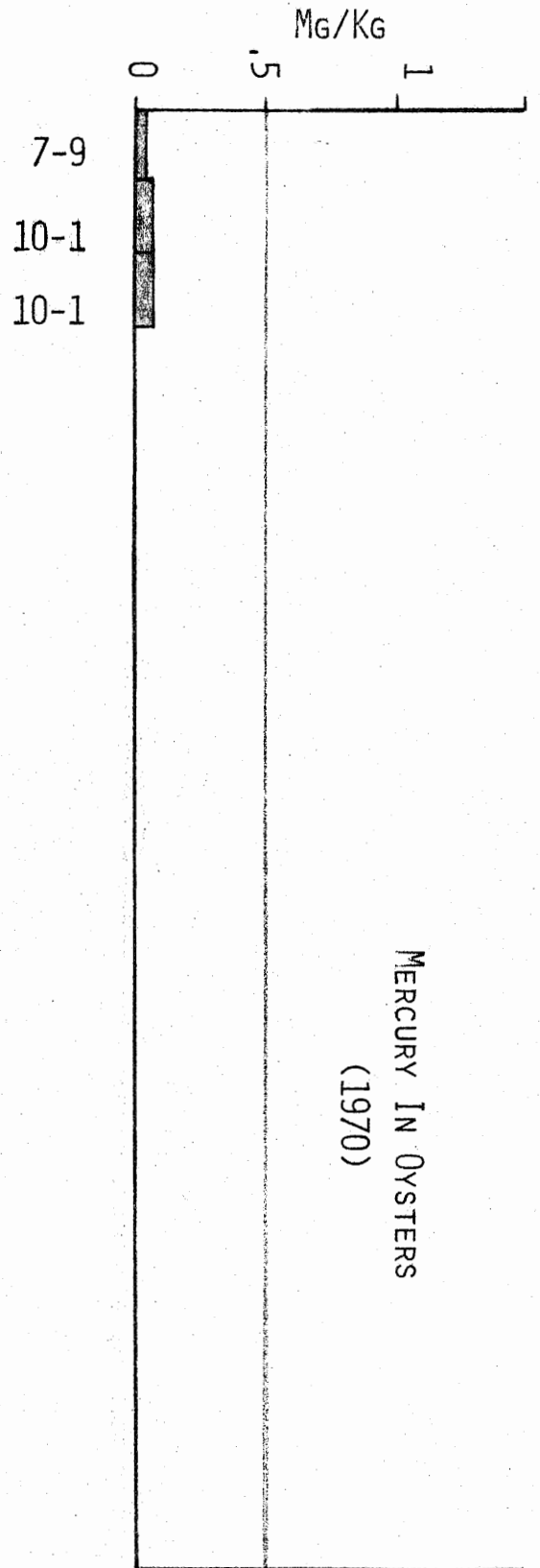
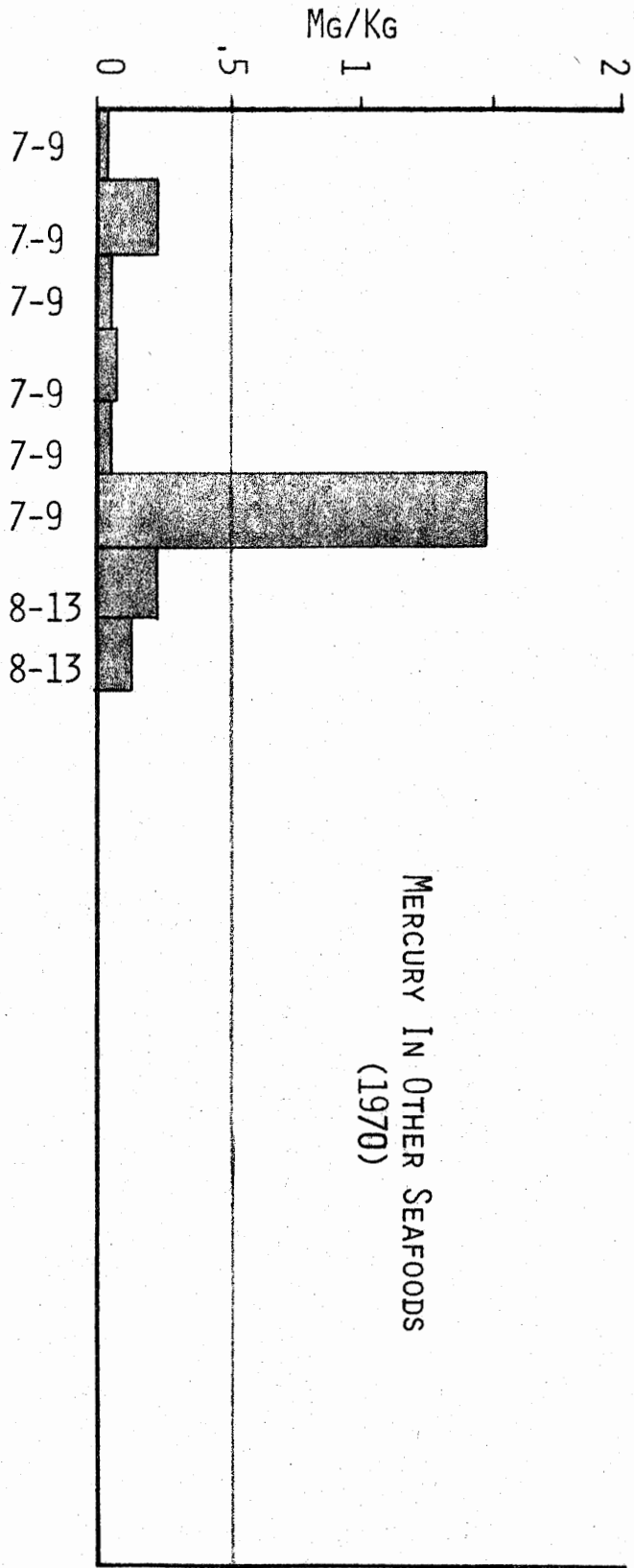
MERCURY IN OTHER SEAFOODS
(1970)

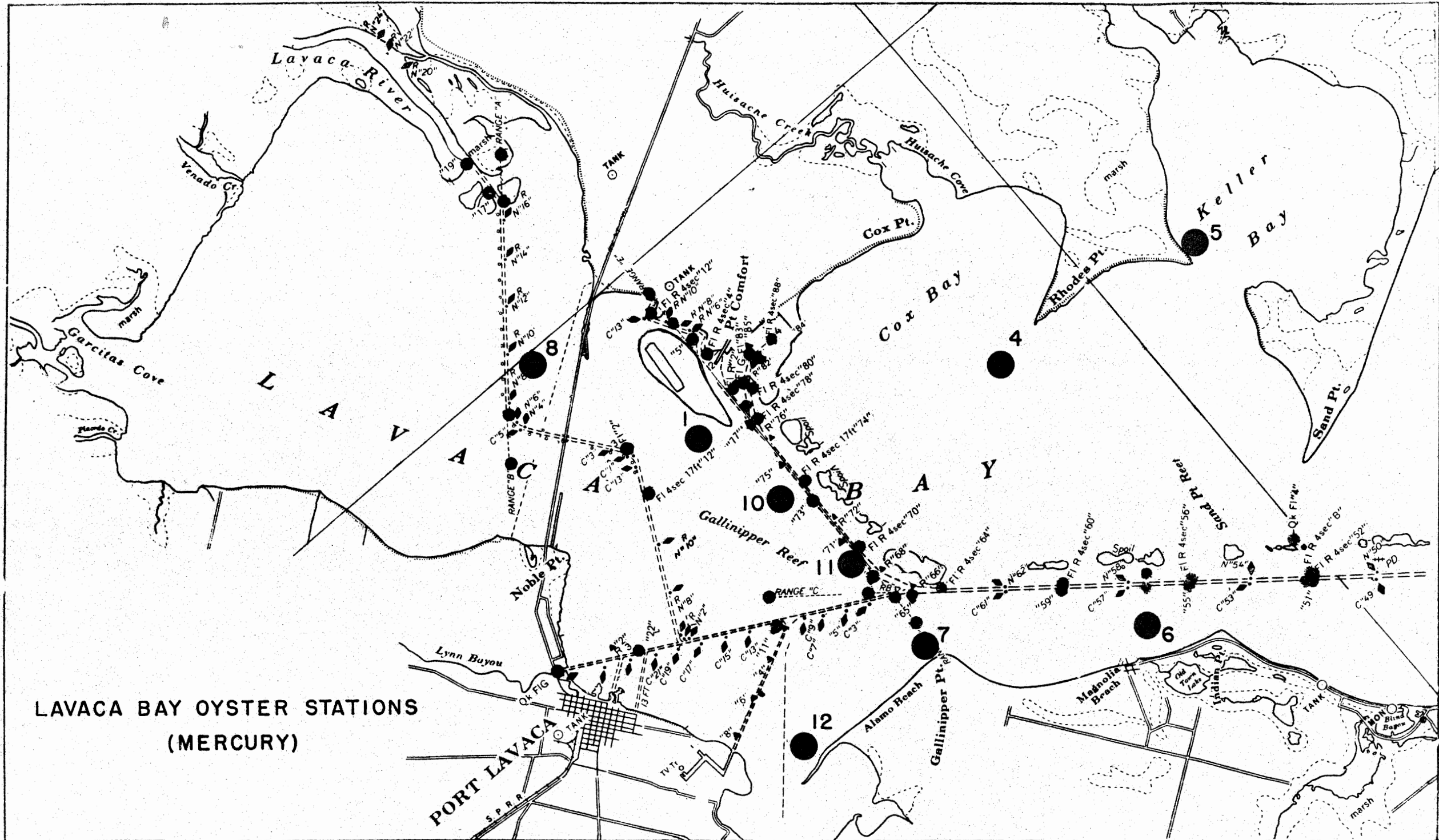
GALVESTON BAY



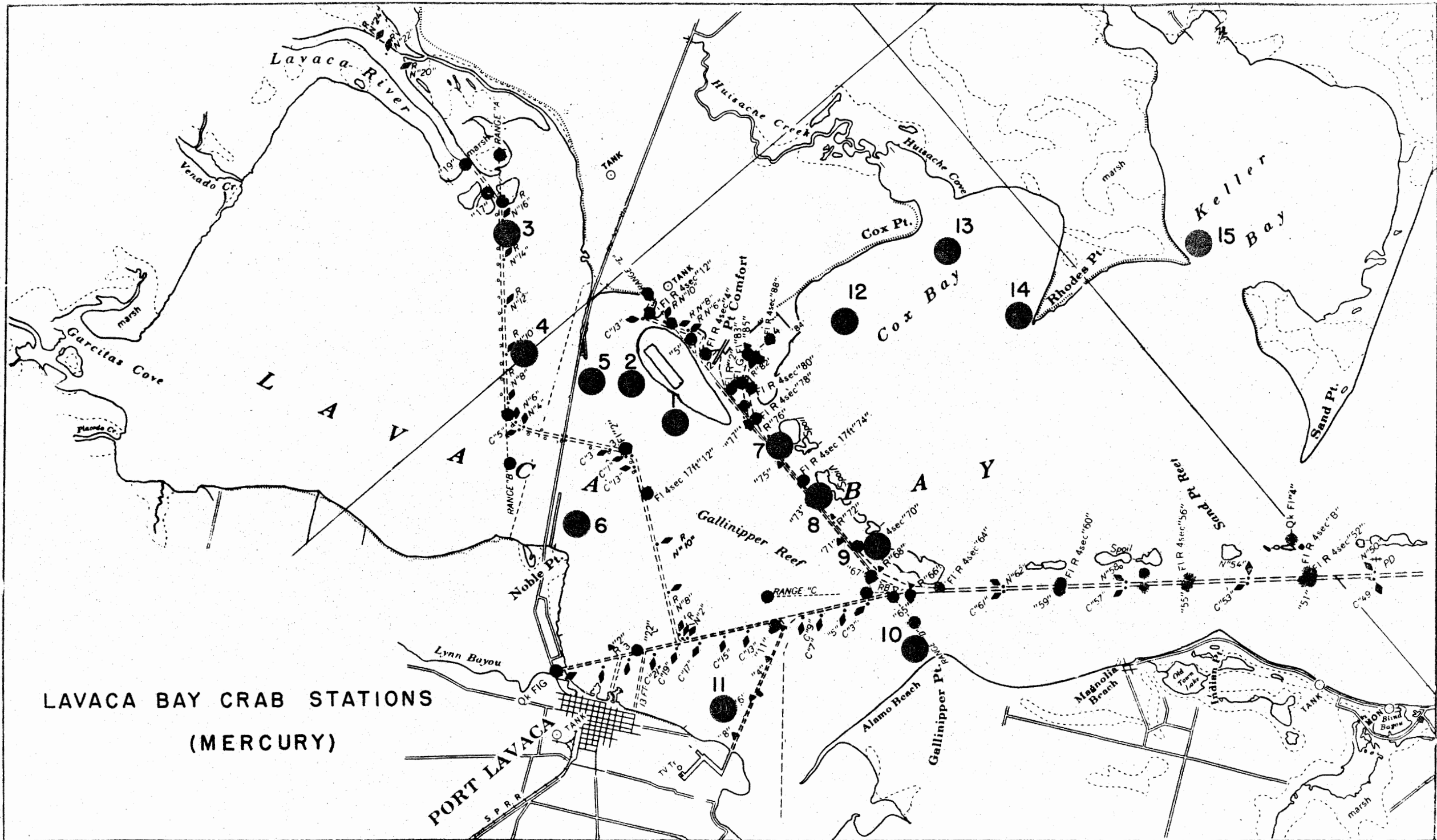
GALVESTON BAY
 MERCURY IN OYSTERS
 (1970)

SABINE LAKE

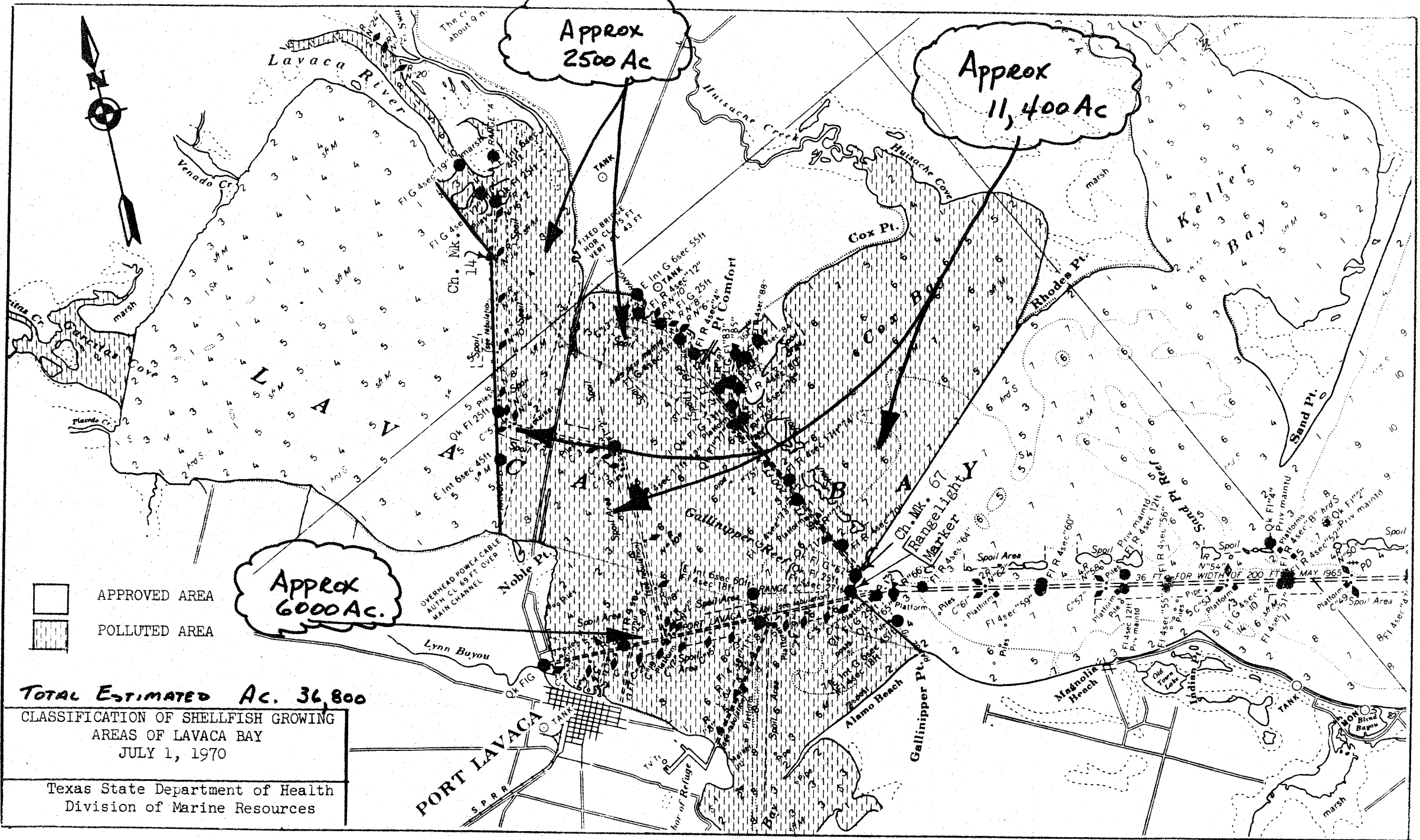




LAVACA BAY OYSTER STATIONS
(MERCURY)



LAVACA BAY CRAB STATIONS
(MERCURY)



TOTAL ESTIMATED AC. 36,800

CLASSIFICATION OF SHELLFISH GROWING
AREAS OF LAVACA BAY
JULY 1, 1970

Texas State Department of Health
Division of Marine Resources



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Regional Office, Region 2
Federal Building
144 First Avenue South
St. Petersburg, Florida 33701

MAR 29 1971

March 25, 1971

Mr. J. V. Colson
Director
Gulf States Marine Fisheries Commission
400 Royal Street - Room 225
New Orleans, Louisiana 70130

Dear Joe:

Transmitted herewith is a copy of the talk Don Geagan gave at the Gulf States Marine Fisheries Commission meeting in Brownsville.

Thanks for the many courtesies extended to Don. He has advised us that this was a very constructive and pleasant meeting.

Sincerely,

I. B. BYRD
Chief, Division of Federal Aid

Enclosure

Joe —
I also appreciate the
"Special Cocktail hour" you
provided for me. You
aren't quite as bad as I
thought you were.
B.

STATUS OF FEDERAL AID COMMERCIAL FISHERIES PROGRAM OF THE GULF STATES

by
Donald W. Geagan
Assistant Chief, Federal Aid Division
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
St. Petersburg, Florida

at

Gulf States Marine Fisheries Commission Meeting
Brownsville, Texas
March 18, 1971

The Federal Aid program administered by the National Marine Fisheries Service now encompasses three Acts:

The Commercial Fisheries Research and Development Act (PL 88-309)

The Anadromous Fish Act (PL 89-304)

The Jellyfish Act (PL 89-720)

Under these Acts, the five Gulf Coast states received a total of \$1,336,000 Federal funds during the past year. These moneys have enabled the states to continue their research and management programs which were expanded at the initiation of the Federal Aid program under PL 88-309 in 1965.

The largest of the three Federal Aid programs in the Gulf Coast area is funded under PL 88-309. As we have reported to you in the past, the states of the Gulf Coast have utilized these funds in a most efficient

2.

and effective manner and they are continuing to do so. The initial research projects funded under PL 88-309 have been completed and the results of these studies have been either utilized for the implementation of management techniques or as the basis for specific studies designed for more effective management. Results from development projects have continued to contribute to the efficient management and/or utilization of the states' resources. Facilities constructed under earlier projects are now being used for their respective purposes such as mariculture, resource assessment, exploratory fishing, controlled studies of effects of environmental conditions, etc.

I would like to cite some examples of the results of completed projects and the current status of the Gulf States' Federal Aid program as a result of these projects.

The largest research effort and one which you have heard a great deal about is the State-Federal Cooperative Gulf of Mexico Estuarine Inventory. The participating agencies have completed the field work and analysis of data from this study and they are in the process of publishing their respective Atlases. Already there has been a strong demand for the information resulting from this coordinated study, which consisted of four phases: Area Description, Hydrology, Biology and Sedimentology.

3.

Federal, State and private interests have begun to rely heavily upon these data to evaluate ongoing and planned projects which have a potential for effecting the estuaries of the Gulf Coast. Also, these data are being put to use in other ways. The participating states have utilized the study's standardized field sampling techniques for such management procedures as the monitoring of shrimp populations. They have used the results of this basic study to determine the needs for more specific studies. For example, projects have been initiated for crabs, oysters, clams and finfish for which the data from the inventory has indicated a definite need. This systematic approach of establishing a base line for their respective estuarine resources has enabled the states to proceed to develop management techniques for the individual estuarine species resources in a more efficient, effective and coordinated manner.

Benefits have resulted from this cooperative inventory other than the biological, physical and chemical data. The participating agencies, both Federal and State, have worked closely during this study through a subcommittee of your Estuarine Technical Coordinating Committee. The many meetings by administrative and technical personnel necessary for the establishment of standardized sampling, analytical and reporting procedures have enabled them to become much better acquainted. They now are more aware of each other's needs, problems and capabilities. As a result of this closer association, they have continued to cooperate with one another and to coordinate the efforts for studies related to

4.

the management of their respective resources. Examples are (1) the close cooperation between Mississippi's disease and parasite project and the states participating in mariculture studies and (2) the planned coordinated effort between three of the states to obtain striped bass fry and eggs from Chesapeake Bay.

Many other completed projects have laid the groundwork for ongoing and future studies. Texas conducted pre-construction studies to determine the effects of effluents from a power plant and a steel plant. These facilities are now in operation and the state is in a position to determine the exact effects of their activities on the environment and associated biota. The conclusions from this study will be extremely valuable in assessing the potential of future industrial projects for affecting the estuarine environment. Florida has initiated a study to assess clam resources throughout the state. The sampling procedures and equipment which are being used were perfected primarily under an initial pilot study recently completed in Tampa Bay. Some studies have developed results indicating certain practices are not applicable in particular areas. Alabama has demonstrated that three dimensional oyster culture is not economically practical in that state, thereby saving industry money and defining the need for management and production of oyster resources by other methods.

5.

Other mariculture studies are now underway. Florida is developing techniques for the culturing of gafftopsail catfish, brackish water shrimp, Machrobrachium, and pompano. Louisiana is conducting state-funded shrimp mariculture studies using ponds constructed under Federal Aid. Texas has initiated studies for shrimp, finfish and oysters at their Palacios Experimental Station. Prior to starting their work, Texas completed a planning project under PL 88-309 in order that they might make maximum utilization of these facilities and their funds by studying work conducted by other agencies and by universities,

Most development projects are continuing efforts in contrast to research studies which generally end in results to be used for the implementation of management techniques and/or indicate the need for more specific studies. Florida has experienced continued good results from their marketing project. In addition, they have initiated a fisheries technical assistance project. Texas has extended their statistics project which is closely coordinated with the Service's statistics program. Louisiana, Mississippi and Alabama have planted shells as cultch material under the resource and disaster Section 4 (b) of the Act to compensate for the devastating effects of Hurricane Camille on their oyster seed stocks. In addition, Louisiana has made extensive cultch plants using their 4 (a) funds and Florida has continued to

6.

construct permanent oyster reefs which are expected to produce oysters for many years to come. The oyster lease control monument project in Louisiana has become increasingly effective in helping the state to manage their oyster resources by proper lease identification. This project has received considerable interest from other oyster producing states.

PL 89-304

Four of the coastal states have participated under the Anadromous Fish program. Efforts under these projects have placed particular emphasis on the striped bass and shad. Mississippi has recently completed a study to determine the status and history of striped bass populations in that state's coastal rivers, the acceptability of the present environmental characteristics of the waters for striped bass, and whether striped bass stocked in these waters will survive and spawn. These initial stocking studies have demonstrated that fingerling stripers will survive and grow rapidly. In addition, evidence of gonad maturation has been noted in at least one of the returned tagged fish.

Future plans under the Anadromous Fish program call for the previously mentioned cooperative effort by Louisiana, Alabama, and Mississippi to jointly participate in a more extensive stocking program utilizing stock from South Carolina, Maryland and Virginia. Mississippi has greatly expanded their hatching and rearing facilities and Alabama is currently

7.

constructing an anadromous fish hatchery on Dauphin Island. It is hopeful that with this coordinated effort, these states will be successful in establishing a striped bass population along the Gulf Coast.

PL 89-720

The newest of the three programs is funded under PL 89-720. Florida has conducted an extensive survey of the abundance and seasonal movements of the noxious coelenterate Physalia, commonly known as the Portuguese Man-of-War. Mississippi will shortly complete a 3-year study of the noxious jellyfish in their coastal waters. They plan to follow-up this initial survey with a study to describe the movements of these organisms in their coastal waters and to better understand the life histories of the noxious forms for the purpose of determining at which stages these organisms may be more susceptible to control.

Summation:

In discussing the status of the Federal Aid program in the Gulf States, I have relied upon specific examples of completed projects and their results, continuing projects and new ongoing projects. Of course, I have mentioned only a few of the total number of projects along the Gulf that are funded under the Federal Aid program. In summation, I would like to emphasize that since the Federal Aid program began in

8.

1965, the Gulf States have used these funds to systematically determine their management needs and then develop and/or implement management procedures for the most efficient utilization of their commercial fisheries resources.



The Texas Shrimp Association

910 East Levee Street
BROWNSVILLE, TEXAS 78520

CONVENTION NOTICE

TEXAS SHRIMP ASSOCIATION

AND

GULF STATES MARINE FISHERIES COMMISSION

The 21st Annual Meeting of the Texas Shrimp Association will be held in the Fort Brown Motor Hotel in Brownsville, Texas, on March 17-20, 1970. The two General Sessions will take place on Friday afternoon, March 19 and Saturday morning March 20, and include an interesting program of speakers on subjects to be helpful to the shrimping industry.

Social activities include a cocktail party on March 19 and the dinner-dance March 20.

Golf playing members and their associates are urged to bring their golf clubs and enter the Seventh Annual Golf Tournament of the Association which is to be played on Thursday March 18 at the Valley International Country Club. The Sea Garden Sales Corporation traveling trophy will be awarded for the seventh year to the player with the lowest net score; a trophy, sponsored by Gulf King Shrimp Company, will be awarded to the winning player with the lowest gross score. This is an annual award. A trophy is being offered to the lady golfer with the lowest net score. Entry forms must be received as early as possible.

Enclosed are the hotel reservation form, convention registration form and golf tournament entry blank.

Registration fees are \$25.00 for men, \$20.00 for ladies and the golf entry fee is \$2.00. Country Club Green Fee is \$5.00. You should indicate if you will need a golf cart. Cart rental is \$7.00 for two players. Please send all the forms with your check to the TEXAS SHRIMP ASSOCIATION, P. O. BOX 1666, BROWNSVILLE, TEXAS 78520.

See you in Brownsville !!!

Felix Bruney, President

REGISTRATION

21ST T. S. A. ANNUAL MEETING

IN JOINT SESSION WITH GULF STATES MARINE FISHERIES COMMISSION

FORT BROWN MOTOR HOTEL, BROWNSVILLE, TEXAS

March 17 - 20, 1971

_____ I will attend the joint Texas Shrimp Association - Gulf States Marine Fisheries Commission Annual Meeting

_____ My wife and I will attend the cocktail party, Friday, 7:00 P. M., March 19

_____ My wife and I will attend the Cocktail-Dinner-Dance, Saturday, 7:00 P. M., March 20

_____ I plan to arrive _____ at _____ (approximate time)
(date)

(The above information is necessary to know how many to prepare for)

Please send your check for your registration fee - Men - \$25.00

Ladies - \$20.00 - along with this blank to:

Texas Shrimp Association
P. O. Box 1666
Brownsville, Texas 78520

Please include any guests in your check at the same rate.

Registration fee enclosed \$ _____ amount of check.

Hotel reservation enclosed _____

Name

Guest's Name

There will be a registration desk at the Fort Brown Motor Hotel. You may pick up your program and tickets at this desk any time after 1:00 P. M., Thursday, March 18.

Gulf States Marine Fisheries Commission may pre-register March 17th.

SEVENTH ANNUAL

TEXAS SHRIMP ASSOCIATION GOLF TOURNAMENT

Arrangements have been made to play the Seventh Annual Texas Shrimp Association Golf Tournament at the Valley International Country Club, Brownsville, Texas, on Thursday, March 18th. Entry fee will be \$2.00. We will reserve carts and each player will pay at the pro-shop for his cart (half cart rental is \$3.50). Please complete this entry form and return to the Texas Shrimp Association office with your check. You may make up your own foursome, or we will place you in one at start of play.

Callaway Handicap System will be used for low net scores.

Low Net wins Sea Garden Sales Corp. Traveling Trophy, and there is a trophy for ladies.

Low Gross wins Gulf King Shrimp Company Annual Trophy.

SEVENTH ANNUAL

TEXAS SHRIMP ASSOCIATION GOLF TOURNAMENT

Please enter me in the Texas Shrimp Association Golf Tournament, March 18, 1971. Enclosed is my check in the amount of \$ _____ to cover entry fee.

_____ I will want to reserve a cart. Pay for cart at pro-shop.
(\$3.50 on a share basis)

\$5.00 Green Fee will be paid at pro-shop.

Name

Firm or Business Name

City

RETURN TO:

Texas Shrimp Association
P. O. Box 1666
Brownsville, Texas 78520

THIRD ANNUAL

SEA GARDEN SALES LADIE GOLF CLASSIC

The Ladies are invited to bring their clubs and play again in the golf tournament. Sea Garden Sales Co. will present a trophy to the winner with lowest net score. (Callaway Handicap System will be used). The tournament will be played at the same time as the men's tournament on Thursday, March 18 (check at the registration desk for details). Entry fee is \$2.00 payable in advance. Carts will be available at \$3.50 rental per half cart. Fill out the attached entry blank and return to the Texas Shrimp Association.

THIRD ANNUAL

SEA GARDEN SALES CO. LADIES GOLF CLASSIC

Please enter me in the Ladies Golf Tournament, March 18, 1971.

Enclosed is my check in the amount of \$ _____ entry fee.

_____ I will want to reserve a cart. ((3.50 on a share basis)

Pay for cart at pro-shop.

\$5.00 Green Fee will be paid at pro-shop.

Name

Firm or Business

City

RETURN TO:

Texas Shrimp Association

P. O. Box 1666

Brownsville, Texas 78520



MAR 24 1971

AGRICULTURAL EXTENSION SERVICE
of
TEXAS A & M UNIVERSITY
Building 311, Fort Crockett
Galveston, Texas 77550

March 23, 1971

Mr. J. V. Colson
Executive Director
Gulf States Marine Fisheries Commission
Headquarters Office
Room 225 - 400 Royal Street
New Orleans, Louisiana 70130

Dear Mr. Colson:

Enclosed is a corrected copy of my presentation at the meeting in
Brownsville on March 19.

This is the version as presented. You will note that minor changes
have been made and this is as it should appear in the minutes instead
of the version I gave you before the meeting.

Sincerely yours,

Johnie H. Crance
Johnie H. Crance *mw*

Area Marine Fisheries Specialist

Enclosure

JHC:mw

DEVELOPMENT OF AN EXTENSION PROGRAM
FOR MARINE FISHERIES IN TEXAS^{1/}

Johnie H. Crance
Area Marine Fisheries Specialist
Texas A&M University
Agricultural Extension Service
Galveston, Texas 77550

As a land-grant University, Texas A&M has three functions. They are:
(1) teaching; (2) research; and (3) extension.

Extension, the third branch of the land-grant system, was created by the Smith-Lever Act in 1914 to take practical information from the universities and the U. S. Department of Agriculture and other sources to people who could use it on their farm, in their home, and in their community. Texas A&M and other land-grant colleges have been successful in doing this job.

"Extension is essentially informal off-campus education."

"Extension is helping people to help themselves -- it initiates action."

"Extension is a working partner among industry, government and education -- it helps bridge the gap."

Extension is not a one-way street, however. It requires input, feedback, a close working relationship, and the assistance of all individuals and organizations involved.

^{1/}Presented before a joint meeting of the Gulf States Marine Fisheries Commission and the Texas Shrimp Association, Brownsville, Texas, March 19, 1971.

The Texas Agricultural Extension Service is the largest in the world and it has played an important role in the success of Agriculture Extension by taking information from the classrooms, textbooks, laboratories, and practitioners to the people who could use it and benefit from its application.

Performing this task the Texas A&M Extension Service has a resident staff of professional extension agents in 251 Texas counties. These County Agents are backed by a staff of specialists and research workers on the Texas A&M University campus readily available to provide specialized advisory services when required. This kind of extension service organization has distinct advantages for serving local citizens.

As residents of the county in which they serve, extension agents are acquainted with the leadership of the county. Their offices are points of contact where local people can tap the knowledge resources of the land-grant university.

Extension agents are expert in getting local leadership involved in development of informal education programs. They function as generalists as opposed to specialists but they are well trained in helping to recognize problems and for getting people involved in finding solutions.

The County Agent's office is a focal point for local distribution of information about many different subjects. More than 1 million copies of publications are distributed annually by the Texas Agricultural Extension Service. Extension agents also have personal consultations with their clientele, appear on

TV and radio programs, write newspaper columns, conduct method and result demonstrations, and hold training meetings to help disseminate information.

The Sea Grant Program is patterned in many respects after the land-grant college concept. Under the Sea Grant Program, the land-grant principle of resource development has been applied to the oceans, making it possible to apply capabilities and knowledge of the university to the practical needs of marine resource development.

The Sea Grant College and Program Act calls for institutional support directed toward education, research, and advisory service. Texas A&M has been this state's leader in the oceanographic and marine resources fields for many years and it has over 60 years of experience in Agricultural Extension work. It was one of the first universities in the nation to participate in the Sea Grant Program.

The Sea Grant Program at Texas A&M University is under the direction of Dr. John C. Calhoun, Jr. Involvement by the University is broad, with practically every college and department on the campus participating in projects involving research, teaching, or advisory services.

The extension program for marine fisheries at Texas A&M University was initiated about one year ago under Sea Grant sponsorship. The program is patterned after and is a part of the Texas Agricultural Extension Service. We feel that Extension's role in marine fisheries is basically the same as Extension's role in agriculture -- and that is to serve as the connecting link between knowledge and the potential users of the knowledge.

We now have one full-time and two one-fourth-time professionals working in marine fisheries extension at Texas A&M. Our primary efforts have been in the area of developing effective liaison or the two-way communication that is necessary to determine problems that the fisheries industry feels should be given priority. Training sessions for some County Agents have been held to explain the Extension Service's efforts under the Sea Grant Program.

We have also met with some of the leaders in marine resources to explain our objectives and to seek their help. We hope to form a Marine Fisheries Advisory Committee to be composed of leaders in the marine fisheries industry. We will seek their guidance in helping to identify significant problems and in setting priorities on our extension efforts.

As we begin to identify problems and set priorities, we will be in a position to call upon resources available at Texas A&M University and other places. I am sure that some problems cannot be solved and that many other problems cannot be solved easily with the information and resources at hand. Some will have to be referred to researchers. In this case we will again look to the leaders of the fisheries industry and other agencies for guidance in helping to focus available resources on pertinent problems. As these problems are worked out, extension specialists can employ informal education methods such as short courses, seminars, conferences, individual assistance, method and result demonstrations, newsletters, bulletins, and mass media to disseminate the information to people who can use it and benefit from its application.

A marine fisheries extension specialist has already helped to develop better communications between marine product manufacturers and the fishing industry and helped field test the electric shrimp trawl. These field tests resulted in what is thought to be an improvement of the electrode array arrangement of the trawl and in the trawl's efficiency. Information resulting from these field tests was published and has been distributed to individuals having interest in its application.

The Texas Agricultural Extension Service plans to broaden and expand its marine fisheries advisory services under the Sea Grant Program. Through discussions with fisheries leaders we have already recognized some problem areas that expertise is available at Texas A&M University or elsewhere. These areas relate to boat insurance, income tax interpretation and guidelines for sanitation and preservation of seafoods. Where expertise in these and other fields are available, it can be formulated and made available to the fisheries industry and individuals who will benefit from it.

Long-range plans for an Extension Program could include a team of marine extension agents located along the Texas Coast, and backed by an economist, food technologist, law expert, or whatever subject matter specialists that are needed to help do the job. These agents and subject matter specialists together could then help provide the fisheries industry the kind of assistance provided to the agriculture industry by the Texas Agricultural Extension Service and the Texas Agricultural Experiment Station teams.

Regardless of the methods used or approach taken in developing our marine fisheries extension program, our purpose will be to assist the fisherman and the fisheries industry. We are still feeling our way to some degree and we welcome the help of all concerned. We do not want to compete in any way with other Agencies, but to work cooperatively with existing State and Federal agencies in identifying needs and problems and in developing solutions. With the help of those who are involved in fisheries, we want to focus efforts and resources on problems that they feel are real. Then we want to help provide the best information and help available.

GULF STATES MARINE FISHERIES COMMISSIONERS

1970 - 1971

ALABAMA

Calude D. Kelley, Director
Alabama Conservation Department
Administrative Building
Montgomery, Alabama 36104

Senator Robert Edington
307 Conti Street
Mobile, Alabama 36600

Vernon K. Shriner
Florida Fish Company
217 Columbus Street
Montgomery, Alabama 36104

LOUISIANA

Clark M. Hoffpauer, Director
Louisiana Wild Life and Fisheries
400 Royal Street
New Orleans, Louisiana 70130

Richard P. Guidry
House of Representatives
P.O. Box 8
Galliano, Louisiana 70354

James H. Summersgill,
VICE-CHAIRMAN
Golden Meadow Ice Company
1819 South Bayou Road
Golden Meadow, Louisiana 70357

TEXAS

Ron Jones
Acting Executive Director
Texas Parks & Wildlife Department
Austin, Texas 78701

John Mehos, President
Liberty Corporations
P.O. Box 267
Galveston, Texas 77550

FLORIDA

Randolph Hodges, CHAIRMAN
Director Florida Department of
Natural Resources
107 West Gaines Street
Tallahassee, Florida 32304

J. Lorenzo Walker
House of Representatives
P.O. Box 475
Naples, Florida 33940

Walter O. Sheppard
Sheppard & Aloia, Attorneys
2132 McGregor Boulevard
Fort Myers, Florida 33902

MISSISSIPPI

George A. Brumfield
P.O. Box 518
Moss Point, Mississippi 39563
(Chairman, Miss. Marine Conservation)

Ted Millette
349 Watts Avenue
Pascagoula, Mississippi 39567

August Rauxet, Jr.
218 North Beach Boulevard
Bay St. Louis, Mississippi 39520

J.V. Colson, Executive Director
Room 225, 400 Royal Street
New Orleans, Louisiana 70130
Telephone (504) 524-1765

TEXAS SHRIMP ASSOCIATION

and

GULF STATES MARINE FISHERIES COMMISSION

in

JOINT CONVENTION

March 17 - 20, 1971

Fort Brown Motor Hotel

Brownsville, Texas

Order of Listing: Administrator, Legislator, Governor's Apointee

WEDNESDAY

March 17, 1971

PRE-SESSION MEETINGS — Aztec Room
Fort Brown Motor Hotel

1:00 P.M. Underwater Obstruction Advisory Committee
Robert Evans, Chairman
Supervisor, Oil & Gas Division Geological
Survey.

COFFEE BREAK

2:30 P.M. U.S. Coast Guard Advisory Committee
Captain Hardey M. Willis — Presiding
Chief Search & Rescue Branch

3:30 P.M. G.S.M.F. Estuarine Technical Coordinating Com-
mittee. Dr. Ted Ford, Chairman

THURSDAY

March 18, 1971

Tee-off — Seventh Annual TSA Golf Tourna-
ment. R.G. International Country Club.
Trophies: Low Net by Sea Garden Sales Col,
Inc., Brownsville, Texas
Low Gross by Gulf King Shrimp Co., Aransas
Pass, Texas

Ladies Tournament tee-off at same time.
Low Net Trophy by Sea Garden Sales Col,
Inc. (Contact registration desk to arrange
tee-off time after foursome is formed)

9:30 A.M. Registration — Gulf States Marine Fisheries
Commission. Lobby, Fort Brown Motor
Hotel.

10:00 A.M. State Officials — Meeting on Proposed Salt
Water Fishing License, Cavalry Room, Fort
Brown Motor Hotel.

G.S.M.F.C. — GENERAL SESSION

Fortress Room, Fort Brown Motor Hotel
James H. Summersgill — Vice Chairman, Pre-
siding.

Roll Call

1:10 P.M. "Mercury Studies in Texas" — Dudley J. John-
son, Director Marine Resources, Texas State
Department of Health.

Underwater Advisory Committee Report —
Robert Evans, Regional Oil & Gas Supervisor
Gulf Coast Region, U.S. Department of In-
terior, New Orleans, Louisiana

U.S. Coast Guard Advisory Committee Report -
Captain Hardy M. Willis, Chief Search and
Rescue Branch, U.S. Coast Guard — 8th Dis-
trict, New Orleans, Louisiana.

Report — G.S.M.F.C. Estuarine Technical Co-
ordinating Committee — Dr. Ted Ford,
Chairman

COFFEE BREAK

Status of Federal Aid Projects — Don Geagan,
Assistant Federal Aid Coordinator, National

Officers

FELIX BRUNEY, PRESIDENT

GUY MATHERNE, VICE PRESIDENT

N.A. HARDEE, SECRETARY—TREASURER

O.M. LONGNECKER, JR. EXECUTIVE SECRETARY

Directors

WALLACE BOUDREAUX

B.H. BULLINGTON

DAVID COX

ORLEANS P. EYMARD

JOE GRASSO, JR.

JOHN MEHOS

L.G. REISMAN

C.O. ROBERT

A.B. TIPPITT

HUGH M. WALLIS

J.D. WELBORN

Y. (BO) WHITEHEAD

R E S O L U T I O N N O . 1

WHEREAS the last authorized funding of the program conducted under PL 88-309 as amended by PL 90-551 will be in July 1972, and;

WHEREAS this program has been very effective in providing for an expansion of fisheries research and developments by the several states; and

WHEREAS the several states must be able to plan and budget for their programs in advance before funds are actually made available; and

WHEREAS this program should be reviewed before renewal steps are taken in the near future; Now

THEREFORE BE IT RESOLVED by the Estuarine Technical Coordinating Committee that the Chairman of the Gulf States Marine Fisheries Commission is requested to appoint a study committee to review the provisions of PL 88-309 as amended by PL 90-551 and that this committee be authorized to act as expeditiously as needed, reporting back to the Commission no later than the regular meeting in October 1971; and

BE IT FURTHER RESOLVED: That the Study Committee be encouraged to cooperate and work with the Atlantic and Pacific States Marine Fisheries Commissions and other interested groups.

R E S O L U T I O N N O . 2

WHEREAS Scientific investigation and study has demonstrated that the pesticide Mirex used in the control of fire ants is detrimental and lethal to many forms of wildlife, shrimp and fish; and

WHEREAS present governmental proposals for the control of fire ants advocates widespread aerial application of Mirex which could be extremely harmful to all forms of wildlife and fish;

WHEREAS the fire ant does not pose a threat to the fish and wildlife resources of this state but the widespread aerial application of Mirex over the streams, woodlands, lakes, and coastal water shed areas could create serious problems;

THEREFORE BE IT RESOLVED: That the Gulf States Marine Fisheries Commission recognizes the need for Mirex under restricted circumstances, but opposes the widespread indiscriminate aerial application of this or any other pesticide. It recommends that where Mirex is needed only local and specific ground applications be utilized.

BE IT FURTHER RESOLVED: That copies of this resolution be referred to the respective Governors, Congressional delegations, and appropriate federal and state agencies.

R E S O L U T I O N N O . 3

Whereas, there is a continually changing interest and use in the renewable marine resources and coastal environment of the Gulf, and

Whereas, the Gulf States Marine Fisheries Commission best represents the multiple interests and is congressionally and legislatively charged with the responsibility for the coordination of research, development and management of the renewable marine resources and environment, and

Whereas, there is a need for a continuing study of relative issues so as to keep the Gulf States Marine Fisheries Commission and the respective legislative delegations of the several Gulf states well informed, Now,

Therefore Be It Resolved that the Gulf States Marine Fisheries Commission does establish a Legislative Study Committee to study changing interests in and use of the renewable marine resources and coastal environment with respect to existing and future legislation relative to the achievement of optimum benefits, and

Be It Further Resolved that this committee be comprised of two representatives from each of the respective states and that this committee report to the Commission at its regular meetings as needed, and

Be It Further Resolved that this committee is urged to work with representatives of the Atlantic and Pacific States Marine Fisheries Commissions.

Whereas, the Third Federal Aid Coordinators Annual Workshop was just successfully completed, and

Whereas, these workshops have been very effective in coordinating the research and management efforts of the several states in the Southeast Region of the United States, thereby bringing about a better understanding of mutual problems and solutions for the most effective management of the fisheries resources of these states, Now,

Therefore Be It Resolved that these workshops were meaningful and should be continued.

PRE-REGISTRATION LIST

M/M Dan H. Allen
1602 West Fifth
Freeport, Texas 77541

H. B. Allen
National Marine Fisheries Service
144 First Avenue South
St. Petersburg, Fla. 33701

M/M R. T. Anderson
Pinelas Seafoods
333 16th. Avenue South
St. Petersburg, Fla. 33701

Mr. Ned Baron
Tidewater Shrimp Co.
P. O. Box 1023
Freeport, Texas 77541

M/M Gene Barnes
National Shrimp Processors, Inc.
Brownsville, Texas 78520

M/M Raymond E. Barr
First National Bank
Raymondville, Texas

M/M A. F. Beckman
Gulf Coast Marine Salvage
907 W. 8
Freeport, Texas 77541

M/M John Wm. Black
Cox, Wilson, Duncan & Black
P. O. Box 953
Brownsville, Texas 78520

Henry Boies
National Marine Fisheries Service
Dallas, Texas
1114 Commerce Street Room 1306

M/M Wallace J. Boudreaux
117 Highland Drive
Brownsville, Texas 78520

M/M R. B. Brockhouse
National Shrimp Processors, Inc.
Brownsville, Texas 78520

M/M Adolph Brooks
P. O. Box 1364
Brownsville, Texas 78520

M/M Jack Brune
Palacios Freezer, Inc
Palacios, Texas

M/M Felix Bruney
Tidewater Shrimp Co.
P. O. Box 1023
Freeport, Texas 77541

M/M Joe Buckmaster
Aransas Pass Shrimp Co-op
P. O. Box 1317
Aransas Pass, Texas 78336

Ross P. Bullard
Rear Admiral, U. S. Coast Guard
401 Customhouse
New Orleans, La. 70130

M/M Bobby Bullington
Gulf Coast Marine Salvage
907 W. 8
Freeport, Texas 77541

Mr. Gaylord Burgau
Schulman-Shepard, Inc.
302 Magazine St.
New Orleans, La. 70130

M/M A. D. Caravageli
Liberty Fish & Oyster Co.
P. O. Box 267
Galveston, Texas 77550

M/M D. A. Caravageli
Liberty Fish & Oyster Co.
P. O. Box 267
Galveston, Texas 77550

Jack Carinhas, Jr.
Storter, Carinhas & Cunningham
910 E. Levee
Brownsville, Texas 78520

Bob Chapoton
National Marine Fisheries Service

M/M Willis Clark
Sea Grant College
Texas A & M
College Station

M/M J. R. Clegg
J. R. Clegg Shrimp Co., Inc.
P. O. Box 1288
Brownsville, Texas 78520

M/M J. R. Clegg, Jr.
J. R. Clegg Shrimp Co., Inc.
P. O. Box 1288
Brownsville, Texas 78520

M/M R. E. Clegg
Clegg Shrimp Co.
P. O. Box 557
Port Lavaca, Texas 77979

Dr. Bryant F. Cobb III
Texas A & M University
College Station 77843

Ed Coffay
Fitzgerald Laboratory
Annapolis, Maryland

M/M Joe Colson
Gulf States Marine Fisheries Comm.
New Orleans, La.

M/M Marvin Conner
Deep Sea Trawlers
P. O. Box 951
Brownsville, Texas 78520

M/M Bill Corbino
Fishing Gazette
Arabi, La.

Johnny Crance
Texas A & M
Galveston, Texas

M/M Gerald A. Cross
The Fisherman's Supply Co.
P. O. Box 332
Aransas Pass, Texas 78336

M/M J. A. Curtino, Jr.
Marine Machine Works, Inc.
2021 Strand
Galveston, Texas 77550

E. G. Cutcheon
Singleton Packing Corp.
P. O. Box 2819
Tampa, Fla. 33601

M/M H. Morgan Daniel
H. Morgan Daniel Seafoods
Port Lavaca, Texas

M/M K. Dean Drieling
C. F. Lytle Co.
Drawer L
Aransas Pass, Texas 78336

John E. Duggan
Singleton Packing Corp.
P. O. Box 2819
Tampa, Fla. 33601

M/M E. N. Dumas
Palacios Freezer, Inc.
Palacios, Texas

M/M Dick Ellis
B. D. Holt Co.
P. O. Box 1979
Corpus Christi, Texas 78403

M/M O. P. Eymard
R. Leloup Shrimp Co.
P. O. Box 1791
Brownsville, Texas 78520

M/M John C. Ferguson
St. George Packing Co.
P. O. Box 1703
Fort Myers, Beach, Fla. 33931

James W. Fitzgerald
Fitzgerald Laboratories
Annapolis, Maryland

M/M H. M. Forrester
Western Seafood Co.
P. O. Box 903
Freeport, Texas 77541

M/M Oscar Galjour
Box 2
Aransas Pass, Texas 78336

Don Geagan
National Marine Fisheries Service

Jack W. Gehringer
National Marine Fisheries Service
144 First Avenue South
St. Petersburg, Fla. 33701

Joe Gianino
Singleton Shrimp, Inc.
P. O. Box 2819
Tampa, Florida 33601

M/M W. J. Godfrey
Western Shell Fish Co., Inc.
Star Route Box 60
Brownsville, Texas 78520

M/M Ivo Goga
Goga Trawlers
P. O. Box 608
Port Isabel, Texas

M/M Wright Gore
Western Seafood Co.
P. O. Box 903
Freeport, Texas 77541

M/M J. Albert Groner
Stroudsburg Engine Works, Inc.
62-64 North Third St.
Stroudsburg, Pa. 18360

M/M George B. Gross
American Embassy
Reforma #305
Mexico 5, D. F.

Peeter E. Hagias
Brownsville, Texas

M/M Charles E. Hamilton
Cox, Wilson, Duncan & Black
P. O. Box 953
Brownsville, Texas 78520

M/M N. A. Hardee
Empire Seafoods
P. O. Box 162
Brownsville, Texas

M/M Willis Hardee
S a Garden Sales Co.
P. O. Box 951
Brownsville, Texas

M/M Jack Harding
Booth Fisheries
P. O. Box 592
Brownsville, Texas 78520

Allen Hayne
Independent Marine Services
235 White Horse Pike
West Collingswood, N. J.

Smith Haynes,
Freeport Shrimp & Cold Storage, Inc.
P. O. Box 2512
Freeport, Texas 77541

M/M Sydney E. Herndon
Gulf King Shrimp Co.
P. O. Box 1270
Aransas Pass, Texas 78336

M/M Paul Herring
Durrant-Herring Co.
P. O. Box 726
Fort Myers, Fla. 33902

Mr. Bob Hettler
Fishing Gazette
461 8th. Avenue
New York, N. Y. 10001

M/M Randolph Hodges
Tallahassee, Florida

M/M L. T. Hodgson
National Shrimp Processors, Inc.
Brownsville, Texas 78520

M/M Mark Hulings
B. D. Holt Co.
P. O. Box 1979
Corpus Christi, Texas 78403

Harvey M. Hutchings
National Marine Fisheries Service
Washington, D. C. 20235

M/M V. Iller
National Shrimp Processors, Inc.
Brownsville, Texas 78520

Charles E. Jackson
International Shrimp Council
1200 18th. St., N. W.
715 Ring Bldg.
Washington, D. C. 20036

Norvell F. Jackson
Jackson Seafoods Co.
P. O. Box 1038
Rockport, Texas

M/M Charles R. Johnson
Port Director
Port Mansfield

Bob Jones
Southeastern Fisheries Association
Tallahassee, Florida

Captain Peter Karpenko
Freeport Shrimp & Cold Storage, Inc.
P. O. Box 2512
Freeport, Texas 77541

M/M Leon S. Kenney
Pinelas Seafoods
333 16th. Avenue South
St. Petersburg, Fla. 33701

Charles M. Kilbourn
Tri-Pak Machinery Service, Inc.
P. O. Box 1228
Harlingen, Texas 78550

Ed Klima
National Marine Fisheries Service

M/M Terry F. Koehl
Woolsey Marine, Inc.
P. O. Box 8291
New Orleans, La. 70122

Mike Lanasa, Jr.
Lanasa Shrimp Co.
P. O. Box 2098
Key West, Fla. 33040

M/M Terrance R. Leary
Parks & Wildlife Dept.
438 Brady Lane
Austin, Texas 78746

M/M Milton J. Lindner
4923 Crockett Blvd.
Galveston, Texas 77550

M/M O. M. Longnecker, Jr.
Texas Shrimp Association
P. O. Box 1666
Brownsville, Texas 78520

R. D. Magoon
Boca Chica Hardware Co.
P. O. Box 1031
Brownsville, Texas 78520

Amb. Donald L. McKernan
Department of State
Washington, D. C. 20520

M/M Richard G. McInnis
First National Bank
Brownsville, Texas 78520

Mauricio B. Madero
5 de Mayo 27
Mexico 1, D. F.

M/M Bill Mancuso
Western Seafood Co.
P. O. Box 903
Freeport, Texas 77541

Mr. E. G. Marsh
Regional Director, Region IV
LaPorte, Texas

M/M Guy Matherne
Gulf King Shrimp Co.
Drawer 1270
Aransas Pass, Texas 78336

M/M Robert G. Mauermann
Texas Parks & Wildlife Dept.
John H. Reagan Bldg.
Austin, Texas 78701

M/M John Mehos
Liberty Fish & Oyster Co.
P. O. Box 267
Galveston, Texas 77550

Shirley Metzger
Sort-Rite Sales Corp.
Harlingen, Texas

Mr. Richard Meyer
National Shrimp Processors, Inc.
Brownsville, Texas 78520

Frank Miller
Rex Packaging, Inc.
136 Eastport Road
Jacksonville, Fla. 32218

M/M John P. Mitchell, Jr.
Rockport Yacht, & Supply Co.
P. O. Box 662
Rockport, Texas 78382

Mr. Tom D. Moore
Texas Parks and Wildlife Dept.
715 South Bronte
Rockport, Texas 78382

M/M W. J. Mott
Intracoastal Marine Supply, Inc.
P. O. Drawer G
Aransas Pass, Texas 78336

Darrell Murray
Hankins Container Co.
Weslaco, Texas

William R. Neblett
National Shrimp Congress
Key West, Fla.

Douglas B. O'Connell
American Consul
Consulate of the U. S. of America
Merida, Yucatan, Mexico

Sydney K. Opler
Golden Dipt. Co.
100 E. Washington
Millstadt, Illinois 62260

M/M Lou Pashos
P. O. Box 608
Port Isabel, Texas 78578

M/M Ronald E. Pockrus
Port Isabel, Texas

John F. Purcell
Desco Marine, Inc.
P. O. Box 1480
St. Augustine, Fla. 32084

Vernon E. Ramsey
Vernon E. Ramsey Inc.
P. O. Box 1238
Boca Raton, Fla. 33432

L. C. Ringhaver
Ring Power Corp.
1600 Talleyrand Ave.
Jacksonville, Fla.

M/M W. O. Roberson
First National Bank
Brownsville, Texas 78520

M/M C. O. Robert
Gulf King Shrimp Co.
P. O. Box 1270
Aransas Pass, Texas 78336

M/M Rod Rodemich
Modern Maid Food Products, Inc.
110-60 Dunkirk St.
Jamaica, N. Y. 11412

C. W. Roe, Jr.
Texas Plastics, Inc.
P. O. Box 278
Elsa, Texas 78543

Philip M. Roedel
U. S. Dept. of Commerce
Interior Building
Washington, D. C. 20235

Franz H. Ross, Sr.
Executive Director
Shrimp Producers Information Center
214 Sunny Dell Plaza
Port Charlotte, Fla. 33950

M. D. Rubenstein
Rubenstein Foods, Inc.
Dallas, Texas
P. O. Box 687

M/M Carl Schober
B. D. Holt Co.
P. O. Box 1979
Corpus Christi, Texas 78403

Ralph Schoenberg
National Marine Fisheries Service

M/M George W. Schulman
Schulman-Shepard, Inc.
302 Magazine St.
New Orleans, La. 70130

Mr. Bill Schwartz
Texas Parks & Wildlife Dept.
Austin, Texas 78701

M/M C. E. Seals
Ellis & Seals
4630 Dody
Corpus Christi, Texas 78411

M/M Robert B. Shaw
Hankins Container Co.
Weslaco, Texas

M/M T. H. Shepard, Jr.
Schulman-Shepard, Inc.
302 Magazine St.
New Orleans, La. 70130

M/M Harmon Shields
Department of Natural Resources
Larson Building
Tallahassee, 32304

M/M A. B. Silchenstedt
Rockport Yacht & Supply Co.
P. O. Box 662
Rockport Texas 78382

M/M J. Silverman
Modern Maid Food Products, Inc.
110-60 Dunkirk St.
Jamaica, N. Y. 11412

Mr. John Smircic
Tidewater Shrimp Co.
P. O. Box 1023
Freeport, Texas 77541

Jim Smith
Sort-Rite Sales Corp.
Corpus Christi, Texas

M/M T. N. Smith, Jr.
Rockport Yacht & Supply Co.
P. O. Box 662
Rockport, Texas 78382

George Snow
National Marine Fisheries Service

Al Sparks
National Marine Fisheries Service
Galveston, Texas

M/M Albert K. Sparks
National Marine Fisheries Service
Biological Laboratory
Galveston, Texas 77550

M/M T. P. Summerlin
Aransas Pass Shrimp Co-op
P. O. Box 1317
Aransas Pass, Texas 78336

Jim Sykes
National Marine Fisheries Service

M/M Tamm
14 Palo Alto Dr.
Brownsville, Texas 78520

M/M Pete Van Tassel
Gulf King Shrimp Co.
Drawer GG
Aransas Pass, Texas 78336

M/M Ames Theriot
Western Seafoods Co.
P. O. Box 903
Freeport, Texas 77541

M/M Clevance Theriot
Western Seafood Co.
P. O. Box 903
Freeport, Texas 77541

M/M Lee Thomas
Port Mansfield Sea foods
P. O. Box 15
Harlingen, Texas 78550

Jerry D. Thompson
Desco Marine Inc.
P. O. Box 1480
St. Augustine, Fla. 32084

M/M Ray Tolson
Booth Fisheries
P. O. Box 592
Brownsville, Texas 78520

Mr. E. J. Toomer, Jr.
Coral Shrimp Co.
P. O. Box 2457
Key West, Fla. 33040

M/M Sam Tufana
Palacios Freezer, Inc.
Palacios, Texas

Mr. John Urban
Modern Maid Food Product, Inc.
110-60 Dunkirk St.
Jamaica, N. Y. 11412

M/M Eugene Vandergriff
Western Seafood Co.
P. O. Box 903
Freeport, Texas 77541

Anthony T. Verchinski
Golden Dipt Co.
100 E. Washington, St.
Millstadt, Illinois 62260

M/M Virgil Versaggi
Versaggi Shrimp Co.
P. O. Box 1847
Brownsville, Texas 78520

M/M Frank Voltaggio
Valley Frozen Foods
P. O. Box 1085
Port Isabel, Texas 78578

M/M Morris Voltaggio
Port Fisheries
P. O. Box 158
Port Isabel, Texas 78578

M/M Hugh M. Wallis
Palacios Marina
10 Eighth St.
Palacios, Texas 77465

John Waring
Hatteras Yacht Div.
High Point, North Carolina

Zygmunt Warren
5431 Chevy Chase
Houston, Texas 77027

John Wartman
14 Palo Alto Dr.
Brownsville, Texas 78520

Harry Weber
Boca Chica Hardware Co.
P. O. Box 1031
Brownsville, Texas 78520

Mr. John Weddin
Senate Commerce Committee
Senate Office Building
Washington, D. C. 20510

M/M E. Wayne Wilson
Cox, Wilson, Duncan & Black
P. O. Box 953
Brownsville, Texas 78520

H. L. Wolfe
Kathi-Kristi, Inc.
P. O. Box 1847
Brownsville, Texas 78520

M/M John D. Wolfe
Western Shell Fish Co., Inc.
Star Route Box 60
Brownsville, Texas 78520

D. K. Young
P. O. Box 6483
San Antonio, Texas

M/M Walter W. Zimmerman
Marine Mart, Inc.
Port Isabel, Texas

M/M William Zimmerman
Marine Mart, Inc.
Port Isabel, Texas

M/M A. T. Edwards
Valley Leasing Co., Inc.
7519 Boca Chica Blvd
Brownsville, Texas 78520

W. A. Fraley
Sea Technology Dept.
Thermo King Corporation
314 West 90th. St.
Minneapolis, Minnesota 55420

M/M R. Malcolm Graham
Graham Insurance Agency
2728 Boca Chica Blvd.
Brownsville, Texas 78520

M/M Max Marquis
Valley Leasing Co, Inc.
7519 Boca Chica Blvd.
Brownsville, Texas 78520