

STATE Texas

DATE January 1, 1951

SHRIMP INVESTIGATION

Quarterly Report

From: November 1, 1950 to December 31, 1950
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Boat: Carey
Crew: George Nava; Antonio Rinche

INTRODUCTION

The current shrimp investigation was initiated 26 November 1950. The purpose of the project is to conduct an investigation of the off-shore waters of the Texas coast with a view toward facilitating both the present work of the shrimp industry and its future expansion. The waters to be studied include those which are now being utilized by the commercial shrimpers as well as other waters which might either support an expansion of the industry or supplement any possible decrease in the future production of the present shrimping grounds. A secondary purpose of the study is to determine any trait or characteristic of the shrimp which could be utilized by the shrimp fishermen as a basis for locating or predicting the presence of significant concentrations of shrimp.

Inherent to the above purposes are the following lines of investigation:

1. Determine the possible existence of new beds of shrimp which are not at the present time being exploited by the industry.
2. Accurately chart the seasonal changes in the density of the shrimp population for the varying depths of off-shore waters.
3. Search for any correlation between the movements* of

*Other than movements normally associated with growth of the individual shrimp or with spawning movements.

shrimp and bottom temperatures, salinities, wind direction, wind velocity or local currents.

4. Report the monthly pound count of shrimp in varying depths with a view toward comparing the observed variations with "2" or "3" above.

5. Determine "indicator" species.

Collecting Areas

The specific areas to be collected consist of nine transverse sections extending along the strike of the bottom and between the depths of ten and fifty fathoms. Collections will be made at approximately five fathom intervals beginning with the ten fathom depth. The landward end of each transit is marked by a convenient landmark [except for transits VI and VIII which are to be collected from the fifty fathom depth shoreward]. The landmark for each location and the course of the strike of the bottom at that point are as follows:

Transit	Landmark	Course of Strike
I	Brazos Santiago Whistle	90°
II	Spar Buoy (Red) Padre Island	90°
III	Baffin Bay Nun Buoy (White)	115°
IV	Aransas Pass Whistle Buoy	135°
V	Pass Cavallo Light	160°
VI	Course 84° from 50 fathom station transit V 5.9 mi. to 50 fathom station this transit	340°
VII	White Flash Whistle Buoy S. of Freeport	171°
VIII	Course 87° from 50 F. Sta. transit VII to 50 F. Sta. this transit	0°
IX	S.W. Whistle Heald Bank (Fl G) 1"	175°

Collections

Collections are to be made monthly from each area or as the weather permits. The data to be recorded are:

- (a) Air temperature
- (b) Surface water temperature
- (c) Bottom water temperature
- (d) Surface salinity
- (e) Bottom salinity
- (f) Bottom soil sample
- (g) Plankton tow, surface oblique
- (h) Plankton tow, bottom oblique
- (i) Trawling time each haul
- (j) Pounds shrimp taken per haul
- (k) Pounds scrap per haul
- (l) Pound count of shrimp per haul
- (m) Sex ratio of shrimp
- (n) Predominant species, other than shrimp, in each catch

The winter weather has seriously hampered collections to date. The only area successfully collected was transit IV although an abortive effort was made to collect transit V.

BIOLOGICAL DATA

The data resulting from the investigation is, at this time, so incomplete that no conclusions can be drawn. However, it can be shown that, during the period here covered, the red shrimp (Penaeus aztecus) occurred in their greatest concentrations in the neighborhood of twenty fathoms. On the other hand, the white shrimp (Penaeus setiferous) occurred only in the more shallow waters.

<u>Fathoms Depth</u>	<u>Lbs. Shrimp/hr. Trawl</u>	<u>Key</u>
9	30.00" !	" <u>P. setiferous</u>
15	8.25" *	* <u>P. aztecus</u>
16	3.60*	' <u>P. duorarum</u>
20	54.00*	
25	36.00*	Note: This data was taken by the use of a 28 foot flat net.
27	30.00*	
30	20.00*	
37	12.80*	
42	8.00*	
55	1.50*	
58	0.40*	
76	0.00	

The species thus far identified from the collections taken from transit IV are:

1. Penaeus setiferous (Linnaeus)
2. Penaeus aztecus Ives
3. Penaeus duoarum Burkenroad
4. Callinectes danae Smith
5. Callinectes sapidus Rathbun
6. Calappa springeri Rathbun
7. Acanthocarpus alexanderi Stimpson
8. Podochela sidneyi Rathbun
9. Ethusa microphthalma Smith
10. Portunus (Achelous) spinicarpus (Stimpson)
11. Anasimus latus Rathbun
12. Raninoides louisianensis Rathbun
13. Raja texana
14. Ophidion holbrookii (Putnam)
15. Ogcocephalus radiatus (Mitchill)
16. Antennarius ocellatus (Bloch & Schneider)
17. Porichthys porosissimus (Cuvier & Valenciennes)
18. Trachurus lathamii Nichols
19. Peprilus alepidotus (Linnaeus)
20. Vomer setapinnis (Mitchill)
21. Pareques acuminatus (Bloch & Schneider)
22. Prionodes phoebe (Poey)
23. Centropristes philadelphicus (Linnaeus)
24. Aprion macrophthalmus (Pristipomodes macrophthalma)
25. Upeneus martinicus Cuvier & Valenciennes
26. Otrynter caprinus (Bean)
27. Ancylopsetta dilecta (Goode & Bean)
28. Ancylopsetta quadrocellata Gill
29. Cyclopsetta chittendeni Bean
30. Cynoscion arenarius Ginsburg
31. Chaetodipterus faber (Broussonet)
32. Lutianus blackfordii Goode & Bean
33. Synodus foetens (Linnaeus)
34. Laevicardium mortoni (Conrad)
35. Busycon perversum (Linnaeus)
36. Busycon canaliculatum Say
37. Loligo pealei Lesueur

UTILIZATION OF TIME

The early part of the period covered by this report was spent aboard the U. S. Fish and Wildlife Service's research vessel "Oregon". The time spent on board this vessel, including travel time, is listed below separately from the normal field work which was carried out aboard the Texas Game, Fish and

Oyster Commission's vessel "Carey".

No attempt is made to separate the time listed as "Laboratory work" into such components as the care, overhaul and repair of collecting equipment; identification of species collected; maintenance of records and other activities such as the preparation of this report.

"Crew time" is the time spent by the crew in working the boat during field trips and does not in any way report their activities such as repair, maintenance, et al, while the boat is at the dock.

Activity	Biologist Time	Crew Time
5th Cruise of the Oregon	336	
Field Work (Other)	144	144
Laboratory Work	204	
Total number hours	684	144