

# JOB REPORT

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Project No. M-4-R-3

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Project Name: General Ecological Survey of the Matagorda Bay Areas.

Period Covered: September 1, 1960 to December 1, 1961.\* Job No. B-2

## Inventory of Invertebrate Forms Present in Area M-4

Abstract: Sampling indicated that both the white shrimp and brown shrimp were less abundant in 1961 than in 1960. The commercial shrimp harvest was reduced in 1961.

Oyster reefs and private oyster leases were damaged by the September, 1961 hurricane. The two artificial reefs in the east arm of Matagorda Bay were buried under sand. A newly constructed oyster reef, located off Well Point, was not damaged.

Objective: To maintain a checklist of invertebrate species and to list the relative abundance of the commercially important invertebrates.

Procedure: Invertebrate samples were collected by trawl, pull seine, minnow seine, oyster dredge and oyster tongs. Information was recorded and reported monthly or semi-monthly as required.

## Findings:

Shrimp: Early sampling disclosed that shrimp were not as abundant as in 1960 and a poor season later proved to be the case. Neither juvenile white shrimp nor juvenile brown shrimp appeared in quantity in Matagorda Bay during 1961. It is believed the post-larvae and/or larvae stages did not reach the bay in numbers great enough to establish a juvenile bay population.

First appearance of brown shrimp in Matagorda Bay has been mid-April in 1959, 1960 and 1961. However, juvenile brown shrimp did not become abundant in 1961. Brown shrimp began leaving the bay during the first part of June in 1959, 1960 and 1961. All browns had left by December.

The first collections of juvenile white shrimp in Matagorda Bay were made on June 12, 1958, May 28, 1959, June 14, 1960, and May 30, 1961. As can be seen by referring to Project Report M-R-5, 1960, and MC-R-5, 1961 two peaks of juvenile white shrimp occurred in Matagorda Bay. White shrimp were extremely slow leaving the bay in the winter of 1959 and that group is shown in the graph in Job Report MC-R-5. For discussion and comparisons of the two years refer to Job Report MC-R-5, 1961.

\* Supplement to Project Reports, 1960-1961.

Oysters: Oyster production from the Matagorda Bay Area was severely damaged by the September, 1961 hurricane. Tres Palacios Bay was closed to oystering after the hurricane due to a heavy concentration of coliform bacteria present in the bay, and was not reopened for the remainder of 1961. East Matagorda Bay was closed to oystering after the hurricane but was reopened in November, 1961. Private leases were damaged and no production was expected from them this season.

- A. Reefs: An oyster reef was constructed at Oil Well Cut on Matagorda Peninsula, but bed definition has not been attempted and condition since the hurricane has not been determined. Some live oysters were found on Halfmoon Reef this year, but they were not in commercial quantity.

Oysters in upper Tres Palacios Bay did not show signs of recovery from the 1959 kill. Samples taken from Middle Reef in lower Tres Palacios Bay indicated 10% market oysters, 60% seed oysters, and 30% dead market oysters on the reef.

East Matagorda Bay showed extensive damage in the southwest portion due to the hurricane, and approximately four hundred barrels of oysters were washed out on the beach in this particular area. Sampling immediately after the hurricane showed 90% mortality among the remaining oysters. Big Boggy Reef showed approximately one third mortality. Live oysters at Eidlebach Flats and Kain Cove were noticeably reduced.

A bay bottom survey in Lavaca Bay (Job Report A-2) indicated an extreme decrease of available oyster producing areas. One reef in Southwest Lavaca Bay contained some live oysters, but most of that population was dead. A thirty inch rain in June, 1959 was the contributing factor for the large mortality of remaining oysters in Lavaca Bay.

Dermocystidium marinum cultures were taken from natural reefs in Area M-4, and a light infestation was found throughout the area. The heaviest infestation recorded was on Middle Reef in Tres Palacios Bay. East Matagorda Bay had a very light infestation.

- B. Private Leases: There are sixteen private leases covering 967 acres of bay bottom in Area M-4. Four hundred and seventy five barrels of seed oysters have been transplanted to the private leases. No commercial production has been observed from any of the leases. Production was expected from nine of the leases; however, due to extensive damage caused by the hurricane no commercial production from private leases can be expected in the Matagorda Bay area.
- C. Artificial Reefs: Two artificial shell mats in the eastern arm of Matagorda Bay had decreased to one-fourth an acre before the hurricane, and there were some oysters of commercial quality harvested. Both reefs were covered with sand during the hurricane and were destroyed.

A shell mat, Gadwall Reef, was constructed in Matagorda Bay in the fall of 1961 and is located on the north shore of Matagorda Bay near Well Point. Bauer Dredging Company of Port Lavaca received the contract to build the mat at a cost of \$40,000. 15,908 cubic yards of mud shell was placed in an area 120 yards by 120 yards. The mat was placed 500 yards off shore at a depth of six feet at mean low tide. The entire area is covered with a two foot layer of shell. The mat was completed in October of 1961, and first sampling showed that a spat fall occurred immediately after completion.

Other Invertebrates: The following records of invertebrates should be added to the previous listing the Project Report M-4-R-2 (Day, 1959-60).

Bimera humilis (Allman)

Palacios, Texas, May 5, 1938 (Hedgpeth Coll.)

Ectopleura grandis (Fraser)

Palacios, Texas, May 5, 1938 (Hedgpeth Coll.)

Clytia coronata (Clarke)

Palacios, Texas, May 5, 1938 (Hedgpeth Coll.)

Clytia cylindrica L. Agassiz

Palacios, Texas, May 5, 1938 (Hedgpeth Coll.)

Zoobotryon pelucidum (Ehrenberg)

Coon Island in Tres Palacios Bay, June, 1960 and June, 1961.

Two occurrences of a type of "red tide" were observed in Matagorda Bay during the project year. One occurrence near Green's Bayou, Matagorda Bay, one and one-half miles long on August 13, 1960 was found to be the organism Gonyaulax sp. A second occurrence on the Palacios Bayou area about one mile long and one-quarter of a mile wide was found to be a Gonyaulax "bloom".

Bugula nerentina (Linnaeus) became abundant in the fall seasons of 1959 and 1960 in such concentrations as to prevent shrimping in certain areas. The areas were the eastern arm of Matagorda Bay, lower Tres Palacios Bay, and Turtle Bay.

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