

Job Report

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Project No. M-9-R-3 Date October 7, 1961
Project Name: Biological Survey of the Waters of the Laguna Madre of Cameron,
Willacy, and the Southern Half of Kenedy Counties and Adjacent
Waters
Period Covered: September 1, 1960 to August 31, 1961 Job No. E-4

Life History Studies of the Marine Flora of the Lower Laguna Madre Area

Abstract: Plans for detailed mapping and studies on growth rates and utilization were abandoned early in the period to avoid duplication of effort by another division of the Commission.

General observations revealed that a general northward migration of all five spermatophytic species is continuing and that a general increase in all species, especially shoal grass (*Diplanthera wrightii*), both in total area and in stand, has occurred. Root volume of the sparse bladed shoal grass in shallow water appears to be equal to that of the dense foliated plants in deeper water. The sparse bladed are more useful as food for the red-headed duck, while the densely foliated plants are most suitable as habitat for shrimp, crabs, and small fish. (A benefit of all vegetation is to tie down the bay bottom and reduce turbidity.)

Objectives: To determine the range, seasonal variations in abundance, and growth of various species of marine vegetation in the area and to determine the benefit of these species to the ecology of the area.

Procedure: Plans were made to map the range of each species of vegetation, to note variations in seasonal abundance and rate of growth and, to determine the benefits of each species, particularly as it pertains to food and protection for larval and juvenile fish and invertebrates. The role of plants in the utilization of CO₂ and production of O₂ and in decreasing water turbidity was also to be studied, as was the effects of dredging and other marine operations on vegetation.

Findings: This job was abandoned shortly after the beginning of the period. Mr. James Pipkin, Wildlife Biologist for the Game and Fish Commission, arrived in this area to conduct a series of studies on the submerged vegetation of the lower Laguna Madre. The first study included a checklist of the vegetation, a detailed survey to map the range of each species, and a survey of the seasonal and area variation in emergent stems and submergent roots.

While our interest in the vegetation lies with its importance to marine fauna, and the Division of Wildlife Restoration of the Commission is most concerned with this vegetation as food for wintering waterfowl, it was felt that the continuation of M-9-R-3, Job E-4, would be a duplication of effort. Furthermore, Mr. Pipkin, by devoting full time to the project, was able to conduct a more extensive study.

Some general observations were made with reference to a comparison of the vegetation of the area with past years. All five species of attached spermatophytic plants have extended their range northward.

Shoal grass, *Diplanthera wrightii*, in addition to extending its range to the

land cut, has appeared along the edges of the Arroyo Colorado as far as one mile west of the Laguna Madre. Various isolated areas throughout the bay now support substantial shoal grass beds where little or none was observed a few years ago. A survey of the extensive flats east of Three Islands and Green Islands shows shoal grass to be present in water as shallow as four inches at normal tide. While this water is crystal clear, the emergent stems are so slender and sparse as to be almost invisible on casual observation. The roots of these plants, however, are normal in size and volume and compare favorably with the root production of more heavily foliated shoal grass plants in deeper waters. While these stunted plants do not seem to harbor shrimp, crabs, or larval and juvenile fish, they are valuable to fisheries. When utilized by waterfowl as feeding grounds, they would relieve the winter grazing pressure on more valuable fish and shrimp nursery and spawning areas.

Widgeon grass, Ruppia maritima, continued the extension of its range north into Redfish Bay; but while its range is extensive, the area actually covered is very small. Widgeon grass normally appears as small patches adjacent to the channels or surrounding spoil banks.

Turtle grass is extensive throughout most of Port Isabel Bay. Manatee grass has extended its range generally northward to include all of Port Isabel Bay; in fact, one isolated patch of 10 square feet was located adjacent to a spoil bank at Marker 29, at Three Islands. Halophila engelmani remains interspersed with shoal grass throughout the area.

Comments: The progress of the Division of Wildlife Management will be followed with keen interest as though their projects and studies were our own. The results of their efforts in their present and future studies will be of equal benefit to the management of both marine fisheries and migratory waterfowl.

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Accepted by Terrance R. Leary