

JOB REPORT

Joseph P. Breuer
Marine Biologist

Project No. M-9-R-1. Date: August 1, 1959

Project Name: Biological Survey of the Waters of the Laguna Madre of Cameron and Willacy Counties and Adjacent Waters.

Period Covered: June 1, 1958 to May 31, 1959. Job No. E-1

Life History Studies of the Important Sports and Commercial Fish of the Lower Laguna Madre.

Objective: To determine the life histories of the spotted trout, redfish, black drum, flounder, and other species of fish of importance to sports and commercial fishermen of the area.

Procedure: Use the standard methods of collecting biological samples to determine the time and circumstances of spawning, rate of growth, food habits, and movements and migrations of the fishes concerned; determine the physical, chemical, and meteorological factors which tend to influence the spawning, rate of growth, food habits, movements and migrations of these fish; and to correlate all information obtained so as to be able to recommend applications of these known facts to proper management of these important fishery species.

Findings: Meteorological and climatological factors appeared to be near normal during the period with several notable exceptions. Periods of cold extended on into the spring later than usual in 1959 so that migrations, growth, and spawnings were from 3 to 5 weeks later than normal. The heavy rains and resulting flooding in October and November of 1958 caused radical changes from the normal ecology of the area. The flooding greatly reduced salinity in all sections of the bay, increased turbidity, and caused some fish kills and caused many other fish to leave the area.

Most forms of vegetation appeared to have increased in production and/or extended their ranges during the period. Widgeon grass has increased in the Port Mansfield area, especially at Station 22 and along the east channel. Shoal grass, while starting growth in February, did not achieve full size until June due to cold spring weather.

The white shrimp population at the mouth of the Arroyo Colorado reached mature size in late August and started leaving the area by early September. The population had completely left the area by October. Brown shrimp were scarce in July, 1958, becoming very scarce by September, except near Port Isabel. Brown shrimp continued very scarce until March, when many larval shrimp forms were taken in plankton tows at the passes in March, 1959. By April, juvenile brown shrimp appeared over the entire project area in numbers never before encountered. Sizes were 20 to 70 mm with an average of 35 mm. Shrimp were plentiful through the end of the period.

Pinperch were plentiful at all stations at the start of the period but were of small size. Their numbers decreased in August and were very small by September and throughout the remainder of the calendar year. In January, adult pinperch were common at the passes and larval and juvenile perch common throughout the bay. Pinperch reached full summer population throughout the bay by the end of the period. Pigfish, which had never been common in the project area except near Brazos Santiago Pass, suddenly appeared in large numbers, especially north of the Arroyo Colorado in May, 1959. Large numbers of anchovies and juvenile golden croakers appeared over the entire project area in April, while juvenile spot croaker made an appearance in June.

Trout were common in the Arroyo Colorado at the start of the period. Trout populations in the bay proper were scattered in August and September. Trout left the bay with the October floods, except for good catches at the Queen Isabella Causeway in October and off the south jetty at Port Isabel in early November. Trout were absent from the bay from December through January and began appearing in Port Isabel and the Arroyo Colorado in February. By March, good trout catches were common over the entire project area. In April, trout were mostly scattered but fairly plentiful at the land cut. Spawning occurred in April and May, and by late May a large number of 20 to 30 mm trout were located in the shoal grass beds at Station 24.

Redfish were not as plentiful during the period as they were previously. Rat reds were common in the Arroyo during the summer months. Redfish populations were scattered over the bay from July until October. They left the bay with the arrival of flood waters in October and appeared at the jetties in November, and bulls were first reported in the surf in mid-December. In February, the II and III-year class redfish were taken in quantity at Port Isabel and in the Brownsville Ship Channel and were plentiful throughout the bay area by March.

Other fish populations behaved in a normal manner from the beginning of the period until October. In October, flounder were common at the causeway, and a few pike were present in the Brownsville Ship Channel. The Arroyo contained only gar, carp, and other fresh water fish. Drum, which had been abundant in the Three Islands area throughout the summer, left with the floods, presumably to the Gulf. Stingarees, sharks, and jacks were common in the surf. In December, 20 to 38 mm flounder were abundant near the passes, and large schools of drum were in the surf. Pike were abundant in the Brownsville Ship Channel. By January, many drum and sheephead had re-entered the bay. In February, three large schools of bull drum were located just north of Port Isabel. By March, Spanish mackerel were common in the gulf, and tarpon were in the bays. In April, the drum population seemed to be centered at Three Islands and at the land cut.

Comments: By the very nature of this job, it must be a long, continuing one. During the next period, particular attention will be made to commercial landings, vegetation growth and range, both white and brown shrimp growth and migration, and to trout and redfish spawning and nursery grounds.

Prepared by Joseph P. Breuer. Approved by Howard T. Lee
Howard T. Lee

Marine Biologist. Date Approved 25 Aug 59