STATE: Texas

DATE : April 1, 1951 to June 30, 1951

QUARTERLY REPORT

THE LIFE HISTORIES OF THE TROUT AND REDFISH

Biologist: Dewey W. Miles

Boat: Manatee

Crew: Santos Pulido, Boat Captain

INTRODUCTION

The quarterly period of April, May, and June, 1951, was spent in the examination of this year's spawning sea-trout and further experimentation on the fertilizing of Copano Lake.

Previous collections of trout ovaries and testes which had been preserved in Bouin's solution were embedded in paraffin, sectioned, and mounted for photographical purposes and further analysis of the trout and redfish sexual development.

Some fish tagging was carried out in the field on trout of the second year class.

Experimentation was begun on the analysis of age groups and year classes by the otolith method of determination.

STATUS OF THE PROJECT AT TIME OF LAST REPORT

DECEMBER 31, 1950

Monthly collections of sea-trout had been made from Aransas Bay, Copano Bay, and Redfish Bay for sexual, growth, and maturity examinations. To this date, March 31, 1951, no freely running male or female sea-trout had been collected in any of the bays or Gulf of

Mexico. Plankton samples revealed no eggs or early larval or post-larval stages of same.

AREAS WORKED

Areas worked on the Trout and Redfish problem for the quarterly period ending June 30, 1951 were as follows:

Aransas Bay: All of the area from old North Pass to the Copano Bay causeway.

Copano Bay: All of Copano Bay.

Copano Lake: An area of approximately five acres which lies adjacent to the head of Copano Bay.

Cedar Bayou: From the mouth of Cedar Bayou to the fish trap and all of Mud Slough including the bay and gulf approaches.

Redfish Bay: That part specifically known as California Hole.

Additional information was obtained from sea-trout which were brought to the Marine Laboratory cleaning table from Mesquite Bay, San Antonio Bay, St. Charles Bay, and Corpus Christi Bay.

BIOLOGICAL DATA

All of the areas worked during the past quarter showed a marked increase in salinity over the same areas during the first quarter. This has been due to the lack of rainfall and fresh water run-off in this area. Back-bay stations which had previously risen to 27-29 p.p.t., are now 32 to 36 p.p.t. or approaching the salinity of the Gulf. This has seemed to have had a marked effect upon the small 0 year class now found in those areas. Last year's population

SEA-TROUT

Month	Running Males	Running Females	Ripe Males	Ripe Females	Immatures
April 1951	19%	8 %	19 %	21%	?
May 1951	21%	3.5%	7 %	14%	3.5%
June 1951	26%	5.5%	18.5%	48%	2.2%

Examinations of the fishes shown in the above table indicated that the 2, 3, and 4 year olds on which the table is based made up the spawning trout for the past quarter.

The one year old trout examined thus far were in granular and ripe conditions but were not spawning. Thus far, reabsorption of the granular eggs does not seem to be possible.

All running females examined during the past three months revealed irritated pectoral and pelvic fins. This condition, after a great deal of thought indicated that they probably engaged in courtship activity while spawning or scraped the bottom of the bay during the activity. This was synonymous with an irritated anal aperture on both sexes.

At one time in Copano Bay, during the month of May, sea-trout were seen jumping over the surface of the water much the same as mullet. A strike net was set around the fish which were found to be running or spawning male and female sea-trout. This activity was presumably part of their courtship activity.

Microscopic slides of sectioned trout gonads have been mounted and stained to show gradual development of the sexual organs from the resting stage through the entire spawning period. This operation

Ten counts showed 16,000 to 22,000 copepods/liter water. Diatoms were absent except for a few Navicula.

After this sample was taken, 1200 pounds super phosphates were added at salinity 30.3 p.p.t., and bottom temperature 28.2 C°.

On June 18, 1951, plankton samples revealed the copepod count to be between 250,000 and 500,000 copepods/liter. The salinity was 30.0 p.p.t. and bottom temperature 28.3 C°.

On June 21, the copepod count had dropped to 77,000 to 100,000/liter water. Salinity had risen to 32.0 and bottom temperature to 31.0 C°.

The last plankton check of Copano Lake, on June 27, showed the copepod count to be 560,000-600,000/liter water. An increased doseage of super phosphates will be added in July.

OTHER ACTIVITIES

Talks on the trout and redfish conservation program were made to representatives of the game and fish commission, and practical demonstrations were made in the field.

The marine laboratory open house was a demonstration to the public on how the projects were set up and operated. Eight hours of lecture were given to the public by each biologist on his particular project.

Several school classes were taken through the marine laboratory during the quarterly period as well as individual groups of people from out of state.

Two talks were made to the Rotary Club at Raymondville, and the Rotary Club in Rockport. The conservation problems of trout and

redfish was the subject of both talks.

A meeting between the marine laboratory staff, Southwest Research Foundation, and the Copano Research Foundation was attended at which time plans for the ecological survey of the Laguna Madre were drawn up.

UTILIZATION OF TIME

Project	Biologist Hours	Crew Hours
Collecting and examining fish for sexual development	148	148
Tagging trout and redfish	66	66
Trawling for specimens	20	20
Testing and construction of new beam trawls	24	24
Work on Trout and Red bulletin	24	
Work on otoliths	36	
Work on cleaning table	36	36
Openhouse at Marine Laboratory	12	12
School classes	9	
Work shop class for A & I	10	10
Talks to civic organizations	18	
Photography	12	
Correspondence	30	
Histological technique of sexual development investigation in laboratory	100	
	545	316
Routine laboratory work on project	100	
Boat Maintenance and daily care		100
TOTAL	645	416