Acct# 2150

Job Report

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Project Name: Analysis of Populations of Sports and Commercial Fin-Fish and of Factors Which Affect These Populations in the Coastal Bays of Texas

Period Covered: January 1, 1964 to December 31, 1964 Job No. 1

Coordination of Coastwide Fin-Fish Investigations Project

Abstract: A coastwide total of 701 juvenile fish samples taken in 1964 indicated that all species experienced an increase in numbers over 1963 except trout, which declined slightly in numbers.

Adult fish samples taken in 1964 totaled 74 drag seine samples and 167 trammel net samples. Adult trout increased in numbers over those in 1963, while little or no change was indicated by all other species.

Analysis of tag returns indicate no pattern of interbay migrations. Fish movements were generally between shallow and deep water and were correlated with season and water temperature.

Objective: To prepare for dissemination a report on the trends and developments of the fin-fish populations of the Texas coast based on analysis of data received from area biologists.

Procedures: The principal sports and commercial fin-fish under consideration at this time are the speckled trout (Cynoscion nebulosus), redfish (Sciaenops ocellatus), black drum (Pogonias cromis), sheepshead (Archosargus probatocephalus), and southern flounder (Paralichthys lethostigma).

To sample the juvenile forms of these species, the primary collecting device used was a 60-foot seine, 6 feet deep and of 3/4-inch stretched mesh. In some areas, supplementary sampling was accomplished with a 6-foot bar-seine of 1/4-inch stretched mesh and a 10-foot trawl of 1 1/4-inch stretched mesh with a 1/4-inch mesh liner.

Adult fish were sampled with either trammel net or drag seine. Trammel nets used were 40 inches deep with inside webbing of 3-inch stretched mesh and outside webbing of 12-inch stretched mesh. Length of the trammel nets used ranged from 1,200 feet to 2,400 feet. Drag seines used were 4 to 8 feet deep, of 2 1/2-inch stretched mesh and ranged in length from 1,200 feet to 3,600 feet.

Drag seines were used in the Galveston Bay, Aransas Bay, Corpus Christi Bay, and Upper Laguna Madre areas. Trammel nets were used in the Matagorda Bay, San Antonio Bay, and Lower Laguna Madre areas.

In the Aransas Bay, Corpus Christi Bay, and Upper Laguna Madre areas, crews, boats, and nets were combined to secure the drag seine samples in each of these regions. Two samples were taken monthly in each area.

In Matagorda and San Antonio Bays, crews, boats, and nets were combined to make the adult trammel net strikes in each area. While 4 stations were established in each area, only 2 were sampled in each month, so that each station was sampled every 2 months.

The drag seine operations in the Galveston Bay area and trammel net strikes in the Lower Laguna Madre were worked independently from any other area.

In all juvenile and adult samples taken, the total area sampled was recorded and the catch by species expressed in pounds per acre (adults) or in numbers per acre (juveniles). All fish taken in juvenile and adult samples were measured in total or fork lengths. Weights for adult fish were calculated from length-weight tables.

Adult fish in good condition after capture were tagged and released. Supplementary fish were obtained for tagging by the use of gill nets, trotlines, or by other methods.

Findings: Juvenile Sports and Commercial Fish - Coastwide juvenile fish data were based on 554 samples taken with the 60-foot seine involving 61 stations in all coastal bay areas. A total of 138 samples were taken by 6-foot bar-seine in Galveston and Matagorda Bay systems. Nine trawl samples were taken in the Galveston Bay area.

While sample locations in some areas have remained unchanged for several years, considerable changes have been made in number and location of juvenile sample locations in other areas, which made comparison of yield by area in 1964 over 1963 somewhat difficult. In some areas, some species were taken so infrequently that no valid comparison of fluctuations could be made. In general; however, the following coastwide observations can be made.

Speckled Trout - Juvenile trout declined in abundance, coastwide, in 1964. It should be remembered; however, that 1963 was an excellent year for juvenile trout and that the 1964 comparison was relative and no significant decline in trout populations is expected. The decline in juvenile trout in 1964 was reported in the Galveston, Matagorda, Corpus Christi, and Upper Laguna Madre areas. Only in the Aransas Bay and the Lower Laguna Madre areas were increases reported. No significant changes were noted in the San Antonio Bay area.

Redfish - Increased yields in juvenile redfish were reported from all areas in 1964. This was expected; however, considering the very successful spawn in the 1963-64 season and the very poor spawn in the 1962-63 season.

Black Drum - Galveston Bay and San Antonio Bay area samples indicate a decrease in juvenile black drum in 1964, while all other area samples indicate an increase.

Flounder - Juvenile flounder were reported increased over 1963 in most areas. In Corpus Christi Bay and the Upper Laguna Madre, no change over 1963 was noted. No decrease in abundance was noted in any area.

Sheepshead - Increases were noted in Matagorda Bay, Aransas Bay, and in the Lower Laguna Madre areas. No changes were reported in the Galveston Bay, San Antonio Bay, and Upper Laguna Madre areas. Only in Corpus Christi Bay was a decrease noted.

Coastwide, 1964 samples contained an increase in numbers of juvenile fishes over 1963 in all species except speckled trout, which declined slightly. All species spawned successfully, and no severe natural mortalities were experienced.

Adult Sports and Commercial Fish - Coastwide adult fish data were based on 74 samples taken with a drag seine and 167 samples taken by trammel net. Sample areas ranged from 4 to 36 acres in size. Stations were sampled monthly, although few samples were taken in January, February, March, and December.

Type sample device, sample area size, and frequency of sampling varied considerably from area to area and even from month to month within an area, which made specific comparisons difficult. Some general statements can be made; however, to compare 1964 coastwide data with those of 1963 by species.

Speckled trout - A general increase in adult trout was noted in 1964. No valid biological data were available for the Galveston Bay area, and commercial landings from this area indicated a decrease in adult trout since 1963. No comparison was possible for the San Antonio Bay area. In all other areas; however, a definite increase in adult trout was reported.

Redfish - Generally, there was little change coastwide in adult redfish populations since 1963. (In this report, any redfish one year of age and over will be considered an adult). In the Galveston Bay area, commercial fish landings indicated an increase, although biological samples did not agree. Matagorda Bay recorded an increase, with San Antonio Bay reporting no comparable data. The Aransas and Corpus Christi Bay areas indicate no change until late 1964 when one-year-old fish entered the catch. The Upper and Lower Laguna Madre areas report a decrease since 1963.

Black Drum - Matagorda Bay samples indicated an increase over 1963, with the Lower Laguna Madre indicating a decrease. All other areas had no comparable data or reported no change since 1963.

Sheepshead - Galveston Bay reports indicate an increase in commercial landings. Biological samplings indicate a slight decrease. In all other areas there was no change or there were insufficient data to compare.

Flounder - No significant change was reported from any bay system. In most cases, data were insufficient to make any valid comparisons.

In general, trout samples were decidedly up in 1964 over 1963, while all other species indicated little change except for the redfish increase in late 1964.

In all areas, adult fish sampling was expressed quantitatively, i.e., pounds per acre by species. While future comparisons of accumulated data may be possible, 1964 was the first year of coastwide reporting in this manner, and no comparison to previous years is possible in this report.

Fish Tagging - In each area, those adult fish in good condition after capture by standard and supplementary sampling methods were tagged and released. During 1964, there were 3,136 speckled trout, 3,096 black drum, 1,021 sheepshead, 834 redfish and 100 flounder tagged and released coastwide. While many tags from these fish have already been reported, returns cannot be considered complete until 1967.

Tag returns in 1964 totaled 534 coastwide. Of these returns, 327 were tagged in 1964, 190 in 1963, and 17 in 1962. No tags were reported from prior to 1962.

Analysis of tagging data showed no significant interarea movement or migrations. Movement of tagged fish was generally between shallow and deep water and was correlated with season and water temperature.

Comments: At the present time, fin-fish sampling devices are standard, coastwide, in that in each area, one or more of three standard juvenile sampling devices and one of the two adult sampling devices is used. The species under consideration, measurements, length-weight tables, and sampling frequency have also been standardized. Each bay area; however, differs from its neighbor and is sampled by different personnel, and it is doubtful that any comparison of one bay to another can be as rewarding as comparisons within a bay area from one year to the next.

One important need at this time is to examine more closely at what is commonly termed "insufficient data". Perhaps some of this "insufficient data", while not as abundant as would be desired, is actually sufficient to make certain comments of a positive nature.

It would also appear to be appropriate to examine all fin-fish jobs in all areas with the view to terminating any job in any area where all informational sources indicate that the study is not warranted.

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