

**Trends in the Relative Abundance, Size and Harvest of
Selected Finfishes and Shellfishes in Galveston Bay,
Texas: November 1975 - December 1997**

Lance Robinson

Lance has been employed by Texas Parks and Wildlife's Coastal Fisheries Division since 1991 and has held the position of Galveston Bay Ecosystem Leader since 1992. Prior to coming to Texas Lance worked for four years as a Senior Research Associate for Auburn University's Department of Fisheries and Allied Aquacultures conducting applied research on marine fisheries issues.

He received his B.S. degree in Zoology (Marine Biology) from Auburn University and M.S in Biology from Fairleigh Dickinson University and the West Indies Laboratory in the U.S. Virgin Islands. With TPW, Lance and his staff are responsible for the collection of fisheries data from the Galveston ecosystem, including the Texas Territorial Seas in the Gulf of Mexico and the compilation of commercial landings statistics for Texas.

Lance holds professional membership in the American Fisheries Society (Parent Society, Texas Chapter, Marine Fisheries Section and Computer Users Section), the National Shellfisheries Association and the American Institute of Fishery Research Biologists. He holds a position on the Special Mackerel Scientific and Statistical Committee for the Gulf of Mexico Fishery Management Council.

Trends in the Relative Abundance, Size, and Catch of Selected Finfish and Shellfish from Galveston Bay: 1978 - 1996

Lance Robinson
Texas Parks & Wildlife
Coastal Fisheries Division

The recreational and commercial fisheries of Texas are a valuable resource to the citizens of Texas. For 1996 (the most recent year data from both fisheries are available) the total economic impact of these fisheries to Texas was \$1.4 billion (\$887.6 million recreational and \$554.7 million commercial). Of this total, approximately one third can be attributed to the Galveston Bay system.

The Coastal Fisheries Division of Texas Parks and Wildlife (TPW) has been collecting data on the finfish and shellfish resources of Galveston Bay and their harvest since the early 1970's. The status and trends data collected through these programs provide us with a measure of the health of the ecosystem in the form of sustainability and quality of harvest. This paper will examine the long-term trends in relative abundance, size and catch for two popular recreational finfish species [red drum (*Sciaenops ocellatus*) and spotted seatrout (*Cynoscion nebulosus*)] and two commercial shellfish species [blue crab (*Callinectes sapidus*) and oysters (*Crassostrea virginica*)].

Fisheries Dependent Sampling Programs

Bay and pass sport-boat harvest is measured through on-site creel surveys where fishermen are interviewed upon their return from fishing. Information collected includes county of residence for all anglers, length of trip, bait use, species sought, and lengths of species landed. Estimates of total landings can be made using this information in conjunction with measures of relative pressure from all sites within the system.

Commercial landings are collected through a self-reported system where seafood dealers report their monthly purchases from commercial fishermen to TPW. Data collected include pounds, processing (filet, gilled and gutted, or whole), gear, and water body where each species was caught.

Fisheries Independent Sampling Programs

Coastal Fisheries staff collect monthly data on finfish and shellfish resources throughout the Galveston Bay system. Four different gears are used to target different age classes and habitat. Bag seines (18.3 m x 1.8 m; 1.3 cm stretched mesh) are used along shorelines and provide recruitment information on various species found in this habitat. Shrimp trawls (6.1 m, 3.8 cm stretched mesh) are used in mid-bay habitats and provide information on demersal species. Monofilament gill nets (183 m x 1.2 m; separate 45.7 m sections of 7.6, 10.2, 12.7, and 15.2 cm stretched mesh), set perpendicular to shorelines, are used to sample sub-adult and adult species. Oyster reefs are sampled using a Louisiana style 9-tooth dredge (46 cm wide) and are separated into spat, small (2.5 - 7.5 cm) and market (>7.5 cm) classes. All sample sites are randomly selected and are stratified temporally within each month. Basic water quality parameters (temperature, salinity, dissolved oxygen and

turbidity) are measured at each station.

Based on data collected by Coastal Fisheries Division for Galveston Bay, the overall quality of the fisheries in Galveston Bay remain healthy. Recreational fishing pressure continues to be high for the Galveston Bay system yet the quality of fishing has remained stable. Recreational catch rates for both red drum and spotted seatrout have declined slightly since 1977 yet mean annual lengths and weight have risen. The trend in commercial landings (pounds) and ex-vessel value for blue crab and oysters have increased over this same time period.

The challenge facing fisheries managers in the future is to maintain a quality fishery in the face of increased fishing pressure and habitat degradation. Texas Parks and Wildlife will be evaluating new tools to address these important issues.