

The Status and Trends of Selected Marine Resources of Galveston Bay: An Overview

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The Coastal Fisheries Division of the Texas Parks and Wildlife Department (TPWD) has collected data on selected marine resources of Galveston Bay since the mid-1950's. The objectives of the Division were defined and programs developed in the spring of 1975 to provide statistically valid data by which the TPWD Commission can regulate coastal finfish and shellfish resources. Fisheries dependent and fisheries independent sampling programs are utilized to determine long term trends in relative abundance, distribution, species composition, harvest and mortality of marine resources. Tools available to the Commission for management of saltwater finfish and shellfish resources include regulation of means, methods, times and places. Long-term trends also provide valuable information on the state of the resource in the event of natural or man-made disasters.

Methods

Fisheries independent monitoring programs are designed to sample finfish and shellfish resources at various stages in their life cycles and are conducted by Coastal Fisheries staff. Four main sample gears are utilized in the collection of data: bag seines, trawls, gill nets, and oyster dredges. Over 800 fisheries independent samples are taken in Galveston Bay annually. All organisms collected are identified, counted and sub-sampled for length. Basic water quality parameters (salinity, temperature, dissolved oxygen and turbidity) are also collected with each sample.

Fisheries dependent monitoring programs are designed to assess both sport and commercial fishing success. Information on recreational landings are collected through the Sport Harvest Monitoring Program. Over 140 recreational fishing surveys are conducted annually in the Galveston Bay system. These surveys target private-boat fishing activity throughout the bay. Seasonal landings, angling pressure, catch per unit effort, average length and weight of species, species composition, and angler socio-economic information are collected.

Commercial landings data are collected through a legislatively mandated monthly reporting system requiring seafood dealers to report their purchases of aquatic products. These reports include information on the quantity, ex-vessel value and capture location of commercial species taken from Texas waters.

Results

In terms of overall finfish recruitment, long-term trends in Galveston Bay continue to increase. Catch rates (no./ha) of total finfish from bag seines have increased over 70% since 1984, and catch rates (no./hour) of total finfish from 6.1 m trawls have increased over 250% from 1983 to 1995. However, these positive results are not being realized when the adult population is sampled. Catch rates for Atlantic croaker caught in spring gill nets have decreased 45%; Southern flounder catch rates have decreased 69% and 37% in spring and fall gill nets, respectively, over the thirteen year period.

Blue crabs also show declines, both in catch rate and average size from TPWD trawl catches in Galveston Bay (67.1% and 34.2%, respectively). Bag seine data show a 60.0% decrease in catch rate and a 27.2% decrease in mean carapace length. Commercial landings of blue crabs have fallen steadily since 1986 (49.04%) while price per pound has risen over 112%. Commercial fishing pressure on crabs has increased approximately 92% since 1985 as determined from 1996 aerial crab trap surveys conducted in Galveston Bay.

The recreational fishing pressure in Galveston Bay is extremely high. Recreational private-boat fishing pressure and landings from Galveston Bay comprised 41% and 34%, respectively, of the ten-year coastwide averages (1983-1992). Over 1.7 million man-hours were expended by private-boat fishermen in 1992. Almost 60% of the Atlantic croaker coastwide landings and over 45% of the flounder landings came from Galveston Bay.

Several actions have recently been implemented by TPWD to curb some of the trends seen in this data. Bag and size limits for flounder have been changed for both recreational and commercial fishermen. Workshops are being held with members of the commercial crab industry to identify ways to help reverse the declining trends in market-size crabs, and the bay shrimp industry is actively involved in trying to develop ways to reduce bycatch in their fishery. The use of standardized monitoring programs combined with input from recreational and commercial constituents are crucial in maintaining viable recreational and commercial fisheries in Texas.