

ABSTRACTS

FISHES OF GATOR CREEK, INDIAN RIVER LAGOON: SPECIES COMPOSITION, HABITAT UTILIZATION AND SEASONAL ABUNDANCE PATTERNS by Douglas H. Adams and Derek M. Tremain.—Gator Creek, a polyhaline marsh creek located within the Merritt Island National Wildlife Refuge, northern Indian River Lagoon (IRL), represents an important habitat for estuarine fishes. Species composition, seasonal use, and abundance of fishes in Gator Creek were investigated during a monthly gillnet survey conducted from June 1991 to December 1993, as part of the Florida Department of Environmental Protection's (FDEP) Marine Fisheries-Independent Monitoring Program, a long-term, multi-gear project designed to monitor trends in the relative abundances of estuarine and near-shore marine fish throughout Florida. Each month, three 180 × 1.8-m multi-panel gillnets were deployed for 1–3 h during the evening crepuscular period at fixed sites within the creek. Each gillnet consisted of four 45-m panels (75 mm, 100 mm, 125 mm, 150 mm stretch mesh) designed to capture larger sub-adults as well as adult fishes. Twenty-four fish species representing 12 families were documented. Species composition varied seasonally. Species richness (number of species/month) was lowest during winter and spring months and highest during the late summer and fall months. Total abundance and total monthly catch per unit effort (CPUE, fish/net/h) followed similar seasonal trends and were positively correlated to water temperatures and negatively correlated with dissolved oxygen levels. Highest levels of species diversity were associated with periods of relatively low salinity. Members of the families Sciaenidae (drums), Mugilidae (mulletts), and Ariidae (sea catfishes) were numerically dominant during all seasons, accounting for 82.1 and 88.9% of the total catch in 1992 and 1993, respectively. Sub-adult *Sciaenops ocellatus* were the most abundant sciaenid in the creek, although the dominant sciaenid species varied seasonally. *Mugil cephalus* was the principal mugilid species collected, and individuals of this species were most abundant during the fall. Ariids, principally *Arius felis*, occurred in the creek during all seasons and at all life history stages, but were most abundant during their summer spawning season. When compared to similar gillnet sets in other IRL habitats, a relatively low percentage of large, primary piscivores (e.g., *Caranx hippos*, *Lepisosteus platyrhincus*) was collected in the creek (less than 1% of total catch in 1992 and 1993). Although the overall fish community was dynamic, sub-adults of some species appeared to show specificity for this creek habitat. For example, FDEP tag-return data indicated sub-adult *S. ocellatus* use the creek repeatedly or for extended periods of time during the year. Long-term, standardized, quantitative monitoring of all life-history stages of fish from a wide range of habitats will yield the most comprehensive and useful data regarding species diversity and abundance. The habitat structure of Gator Creek is similar to that of many other creek systems in the northeastern IRL. Therefore, this creek system may serve as an indicator of fish species diversity and abundance and, thus, of the relative environmental condition of creek systems in this region of the IRL. Data from Gator Creek, in conjunction with data gathered with multiple gears in other habitats monitored by the ongoing FDEP Fisheries-Independent Monitoring Program, will serve as baseline information for future fish faunal comparisons and subsequent management of the IRL.—Florida Department of Environmental Protection, Florida Marine Research Institute, 1220 Prospect Ave. Suite 285, Melbourne, Florida 32901, USA.

BOTTLENOSE DOLPHIN FEEDING AND INTERACTIONS WITH FISHERIES IN THE INDIAN RIVER LAGOON SYSTEM, FLORIDA by Nélio B. Barros and Daniel K. Odell.—Bottlenose dolphins (*Tursiops truncatus*) inhabiting the Indian River Lagoon System (IRL), on the central east coast of Florida, are apparently members of a discrete population, and are year-round residents of the lagoon. In order to assess potential conflicts with the fisheries operating in the IRL, the food habits of this population were investigated through the examination of stomach contents of stranded animals. Thirty-eight dolphins that stranded between 1976 and 1992 had food matter in their stomachs. Based on an index of relative importance, important prey (in decreasing order of importance) were: spotted seatrout, silver perch, striped mullet, Atlantic croaker, oyster toadfish, pinfish, pigfish, spot, weakfish, and southern kingfish. Energy requirements of captive bottlenose dolphins were used to calculate the food consumption of IRL dolphins. Assuming a hypothetical population of 400 dolphins, the annual food consumption of the population was estimated at 790 metric (m) tons of fish, and an equivalent energetic value of 11.4×10^8 kcal per year. For the six species important to both dolphins and commercial fisheries (spotted seatrout, striped mullet, Atlantic croaker, spot, weakfish, southern kingfish), dolphins consumed an estimated 598 m tons per year whereas the commercial fishery landed 1,113 m tons in 1990. However, due to the different market value of these species, the economic value of the fish taken by dolphins and fisheries was similar (estimated value of fish consumed by 400 dolphins: \$1,131,700, commercial fisheries landings in 1990: \$1,113,200). Length-frequency data available from the east Florida recreational fishery indicate that dolphins prey on fish of smaller size classes. If the same is true for the commercial fishery (data not available) this could imply that the dolphins' economic impact has been overestimated, assuming smaller fish generate corresponding lower revenues. Nonetheless, this study offers a first attempt at quantifying IRL dolphin food consumption, and suggests that dolphins and IRL fisheries