

## FROM FIELD AND STUDY

**Fishing Rates in the Black Skimmer.**—Davis (Condor, 53, 1951:259) has published interesting data on the "fishing efficiency" of the Black Skimmer (*Rynchops nigra*). This relates to the amount of skimming time necessary to catch a fish. He observed that the rate of catch varies greatly, but he gave only his maximum figure. At the north cayo of Laguna Atascosa in Cameron County, Texas, he found that the Black Skimmers caught one fish per bird per 6.2 minutes of skimming time. While studying the feeding methods of the Black Skimmer in the same area, I obtained further data which demonstrate the variability of rates of catch. "Skimming time," recorded with a stop watch while I observed a bird through binoculars, represents time during which a flying bird had its lower mandible immersed. My field work was made possible through the cooperation of Luther Goldman, manager of the Laguna Atascosa National Wildlife Refuge, and by financial aid from the Mae P. Smith Research Fund of the American Museum of Natural History.

On the south cayo of Laguna Atascosa, where the water was very shallow and muddy, the birds fed either along the edges or tacked back and forth along the body of water. Here, on the morning of July 1, 1956, they caught one small fish per bird per 1.6 minutes of skimming time in the course of 19.2 minutes of skimming. The effective catch (fish swallowed) was close to the same figure because only one of the twelve fish caught during this time was dropped. At mid-afternoon of the same day the rate of catch was one small fish per bird per 4 minutes, based on observations over 28.5 minutes of skimming. None of the fish caught was dropped. Observations were made later along a wider part of the south cayo where the water was a maximum of three inches deep. On the afternoon of July 28, 1956, in 6.9 minutes of skimming, the birds caught fish at a rate of one per bird every 46 seconds (0.8 min.). One of the fish caught was dropped. On the following day the rate of catch averaged one fish per bird per 55 seconds (0.9 min.) in 13.8 minutes of skimming. However, four of the fifteen fish caught were dropped and three were lost to Laughing Gulls, reducing the effective rate of catch to about one-half the original rate.

The third area under observation was a deep rectangular pond, also on the Laguna Atascosa National Wildlife Refuge. Early in the morning, myriads of small fish appeared at the surface around the edges of the pond and formed a dense border two to three feet wide. The fish dispersed soon after sunrise and did not concentrate again in this manner until the following morning. Skimmers fed at this pond throughout the night, but they were especially active and numerous in the early morning, skimming only along the pond borders where the fish had concentrated. Between 6:30 and 7:00 a.m. the rate of catch averaged one fish per bird every 3 seconds (0.05 min.) in the course of 6 minutes of skimming! Of the 115 fish caught about 15 were dropped, producing an effective catch of one fish per bird per 3.6 seconds.

Davis (*ibid.*) stated that the efficiency of the Black Skimmer was comparable to that of diving birds such as the Least Tern (*Sterna albifrons*) and that it was much less than that of the Reddish Egret (*Dichromanassa rufescens*) and of the White Pelican (*Pelecanus erythrorhynchos*). Such comparisons are of doubtful validity, partly because the birds are not necessarily utilizing the same food niche and partly because it is more difficult to define the active feeding period of a heron or pelican than to define that of a skimmer.—RICHARD L. ZUSI, *Department of Zoology, University of Maine, Orono, Maine, February 27, 1959.*

**Distributional Records of the Common Goldeneye and the Crissal Thrasher in Southeastern California.**—On December 6, 1958, C. Jackson Selsor and the writers observed 11 Common Goldeneyes (*Bucephala clangula*) resting in a group on a small fresh-water reservoir in the heart of Brawley, Imperial County, California. The only previous record for Imperial County that we could find is that of Clary and Clary (Condor, 37, 1935:80) for the Salton Sea. According to Grinnell and Miller (Pac. Coast Avif. No. 27, 1944:85) the habitat of this species is "Typically, salt-water bays and estuaries; prefers open, quiet water of lesser depth."

Although the Crissal Thrasher (*Toxostoma dorsale*) occurs regularly in the low desert regions of southeastern California, it has not been recorded previously from eastern San Diego County. On December 12, 1958, C. Jackson Selsor and the authors observed four of these thrashers on the out-