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January 1998

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### Recommended Citation

Groves, Fred H. (1998) "Inedible Objects Offered during Courtship Feeding by Black Skimmers," *Florida Field Naturalist*. Vol. 26 : Iss. 4 , Article 8.

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Florida Field Naturalist 26(4):127, 1998.

## INEDIBLE OBJECTS OFFERED DURING COURTSHIP FEEDING BY BLACK SKIMMERS

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Male Black Skimmers (*Rynchops niger*) sometimes offer the female a food item such as a fish or shrimp during courtship (Pettingill 1937, Welty 1976, Burger and Gochfeld 1990). Burger and Gochfeld (1990) further noted that the female swallows the fish after copulation. During observations of skimmer courtship in Florida, I observed that males occasionally offered an inedible object to the female instead of an edible one, and that the use of inedible objects extended copulation time significantly.

I studied social behavior of Black Skimmers in the Tampa Bay area of Florida during the breeding seasons of 1975, 1976, and 1977. Study sites were nesting colonies along beaches adjoining the west causeway of the Howard Frankland Bridge (Pinellas County), which crosses Tampa Bay, and at Ft. DeSoto Park in St. Petersburg (Pinellas County). I observed a total of 37 instances of courtship feeding. These feeding episodes were measured to the nearest second with a wristwatch with sweep-second hand.

During my observations of courtship feeding, small fish were the only type of food item offered by males to females, but males occasionally offered an inedible item, such as a small stick or piece of shell. Typically a female approached the male on the ground from a position in front of the male, took the object, pivoted 180 degrees, and allowed the male to mount. Of the 37 observations of copulation attempts, 10 (27%) involved presentation of a fish, 13 (35%) involved an inedible object, and 14 (38%) involved no gift at all.

In all cases where an object was offered, the female allowed the male to mount until the object was either swallowed (edible item) or discarded (inedible item), whereupon she broke contact with the male. When a fish was accepted, the male was able to stay mounted for up to 5 s (mean = 3.3 s), which was the time needed for the female to swallow the fish. However, when an inedible object was offered, the times were significantly longer (mean = 5.0 s, *t*-test,  $P < 0.01$ ). During this time, the female would try unsuccessfully to swallow the object. Upon discarding it, she would move out from under the male. When no object was offered (mean = 2.8 s), mounting time was significantly less from that with an inedible object ( $P < 0.01$ ), but not significantly different ( $P > 0.10$ ) from when a fish was offered.

Substitutions of inedible objects for edible ones may reduce energy expenditure by males by eliminating the time needed to search for a food item. Also, the increased mounting time may enhance copulation success.

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