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Redheads in Winter: 'Tis the Season for Adding Fat

Fat accumulation in wintering waterfowl serves as a means of energy storage that offsets the costs of foraging, molt, and spring migration and enhances overall survival. Abdominal fat, which is deposited within the body cavity of a bird, is an indicator of overall fat reserves. The accumulation of abdominal fat in redheads (*Aythya americana*) over winter was investigated as part of a larger study of redhead winter ecology in southern Texas.

The western Gulf of Mexico, specifically southern Texas and northern Mexico, is the winter home for about 80% of North America's population of redheads. As many as 600,000 redheads may winter in southern Texas alone. These birds feed on rhizomes of shoalgrass (*Halodule wrightii*), a seagrass found in the shallow estuaries and in the Laguna Madre of southern Texas.

Redheads Were Collected From the Texas Coast

We collected 453 adult redheads by shotgun during the winters (November through March) of 1988–89 ($n = 247$) and 1989–90 ($n = 206$). The

birds were weighed in the field, kept on ice, and frozen later the same day. After thawing in the laboratory, each bird was dissected, and organs and tissues were removed and measured. Using forceps, we removed all abdominal fat attached to the wall of the body cavity and to internal visceral organs and weighed it to the nearest 0.1 g. We used analysis of variance to examine abdominal fat weights by month and sex.

Fat Accumulation Was the Same for Both Sexes

We found that abdominal fat weight did not differ between sexes ($P > 0.05$). Males and females showed a significant increase ($P < 0.01$) from November through March for each month except February (Figure). The drop in abdominal fat weights for birds collected in February, although not statistically different from January, may be attributed to the collection site (Baffin Bay, Texas) for that month during 1989. Earlier studies have shown that birds collected from Baffin Bay have lower body masses—possibly because of high salinities (i.e., inferior habitat)—than birds

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collected from other sites in southern Texas. Only in February 1989 did the collection of redheads occur almost entirely in Baffin Bay.

Other research has shown that redheads wintering in Louisiana also experience increased fat reserves over winter. These studies also showed no difference in fat accumulation between sexes.

Shoalgrass Is Important to Redheads

This investigation of fat reserves in redheads demonstrates that redheads benefit energetically from their diet of shoalgrass rhizomes while wintering in southern Texas. Shoalgrass beds

in the Laguna Madre of Texas and the Laguna Madre of Tamaulipas, Mexico, must be conserved if this area is to remain the most important wintering habitat for redheads.

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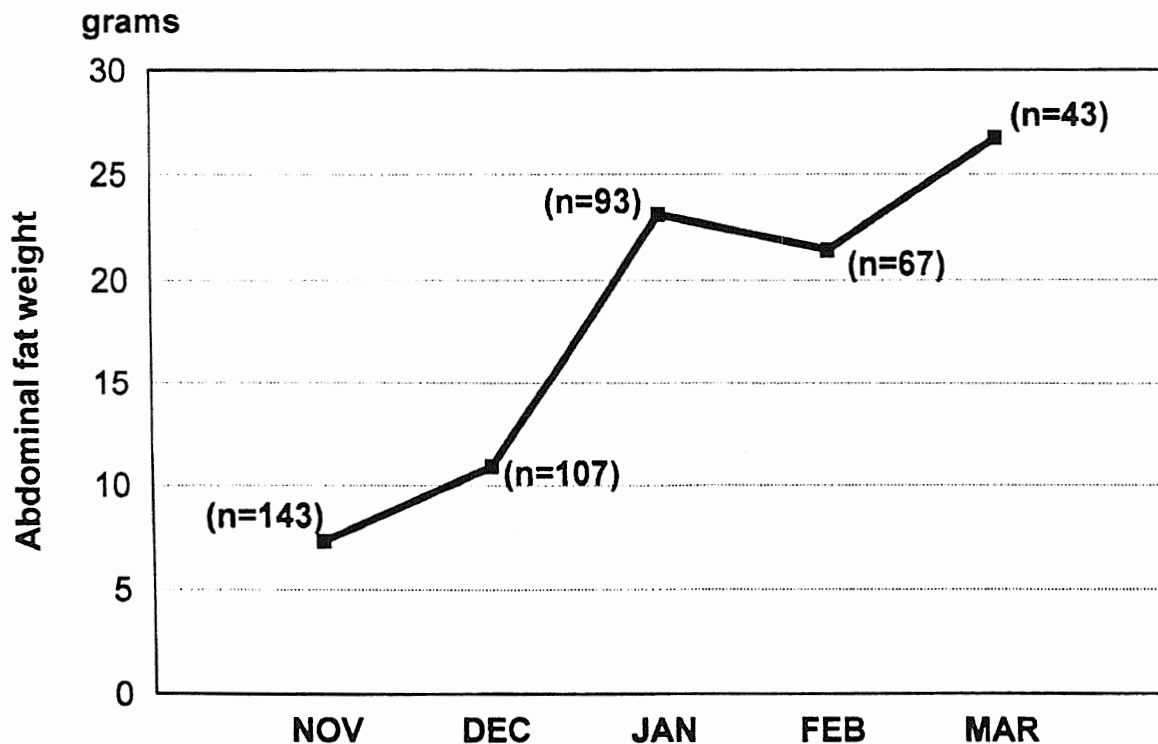


Figure. Changes by month in abdominal fat weight of adult redheads (*Aythya americana*) from Texas during the winters of 1988-1990. Sexes are combined; sample sizes for each month are shown in parentheses.