

Digestive Efficiencies of Ex Situ and In Situ West Indian Manatees (*Trichechus manatus latirostris*)

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In “Digestive Efficiencies of Ex Situ and In Situ West Indian Manatees (*Trichechus manatus latirostris*)” (*Physiological and Biochemical Zoology* 87:77–91), in six instances, values noted in the Discussion are incorrect and do not match the corresponding values in table 6. The corrected values are indicated in bold below. Table 6 is correct, and the conclusions of the article are unchanged. The authors regret the error.

The corrected paragraphs are as follows:

There are limited data describing consumption rates of in situ manatees, but Bengtson (1981, 1983) and Etheridge et al. (1985) reported that manatees feeding in the upper St. Johns River had mean consumption rates of 4%–9% (WM) of their body weight per day, depending on season, with lactating females consuming as much as 13% WM per day. Etheridge et al. (1985) estimated daily consumption rates by adults, juveniles, and calves eating hydrilla at 7.1%, 9.6%, and 15.7% (WM) of body mass per day, respectively. At the present time it is not technically feasible to directly measure feeding rates of in situ manatees, but we can use a simple bioenergetic approach to estimate their requirements. Daily food intake rates can be estimated by working backward through the bioenergetic scheme, by combining energy needs (metabolic rate; Irvine 1983; Worthy et al. 2000; G. A. J. Worthy and T. A. M. Worthy, unpublished data) with digestive efficiencies (this study) and published energy densities of potential foodstuffs (table 6). This

simple approach predicts that an ex situ adult manatee weighing 1,000 kg would consume **34.6 kg d⁻¹** (WM) of lettuce, while a similarly sized in situ manatee would eat **34.6 kg d⁻¹** of turtle grass or **78.7 kg d⁻¹** (WM) of manatee grass (table 6). This estimate of biomass intake for ex situ animals is consistent with what manatees were consuming during this study. Consumption requirements for manatee grass and turtle grass are opposite of what you might predict given that manatees prefer to eat manatee grass over turtle grass (Hartman 1979; Provan-cha and Hall 1991). These intake estimates are all less than the theoretical maximum daily intake rate for a manatee of this size (9% of body mass, or 90 kg d⁻¹; Bengtson 1983) and well below the 130 kg d⁻¹ (i.e., 13% of body mass) that has been suggested for lactating females (Bengtson 1983). Juvenile manatees would need to consume more than 9% of their body mass per day on a seagrass diet to meet their estimated energetic demands, although they could balance needs on a lettuce diet at a lower intake rate (table 6).

When manatees are exposed to water temperatures below the lower critical limit of the thermoneutral zone (20°C; Irvine 1983; Worthy et al. 2000), metabolic rate can increase by more than 50% (Worthy et al. 2000; G. A. J. Worthy and T. A. M. Worthy, unpublished data) and animals would need to increase consumption rates (table 6). A 1,000-kg manatee, under these conditions, could meet requirements by consuming **118.0 kg d⁻¹** (WM) of *Syringodium* (12.5% of its body mass) or **51.9 kg d⁻¹** (WM) of *Thalassia*, and a 250-kg juvenile manatee would need to consume **83.4 kg d⁻¹** (WM) of *Syringodium* (table 6), or 33% of body mass. This latter consumption rate is well above the theoretical maximum rate and is clearly not feasible.