

Peer Review

Review of: "Feeding Ecology and Activity Rhythms of the Critically Endangered Hawksbill Turtle"

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Feedback on Abstract

The abstract is well-structured and effectively summarizes the study's objectives, methodology, key findings, and broader ecological implications. The mention of an innovative approach—using animal-borne video cameras—is especially noteworthy, as it emphasizes the methodological novelty of the research. The identification of previously undocumented prey items (Aplysinidae and Irciniidae) also adds to the study's originality and scientific contribution.

Feedback on Introduction

The introduction provides a strong framework based on current literature that explains the role of sea turtles within the ecosystem. The inclusion of examples regarding their interactions with macroalgae, sponges, and other species effectively highlights the ecological significance of the study. The literature cited is up-to-date, and the author(s) demonstrate a clear command of the subject.

The research problem is clearly stated in the study, and its place in the literature along with its scientific contribution is well positioned. The information provided in the introduction regarding sponge biology and evolutionary history—such as the sentence, "*During their evolutionary transition from unicellular to multicellular life, sponges developed recognition systems...*"—although not directly related to the ecological observations that this study focuses on, offers valuable context for understanding the role of sponges in the ecosystem and their interactions with habitat specialists such as *Eretmochelys imbricata*. Since the importance of sponges as prey is particularly emphasized, presenting this background information in the introduction can be considered reasonable. However, for the sake of maintaining the coherence and flow

of the text, it might be beneficial to present these biological details more concisely or, if necessary, relocate them to a dedicated background section.

Feedback on Material and Methods

The *Materials and Methods* section generally presents the sampling process, the analyzed parameters, and the statistical methods used in a clear and informative manner. The methodology, ethical approval process, individual capture and tagging techniques, as well as the technological equipment employed, are described in detail. The clear explanation of the technical specifications of the devices and the data collection process supports the replicability of the study. Overall, the methodology is well-structured, up-to-date, and consistent with the relevant literature.

The references to Supplementary Tables S.1 and S.2 within the Materials and Methods section may lead to confusion, as the content of these tables includes findings related to behavioral categorization and dietary composition. These elements are more appropriately considered part of the results rather than methodological details. Therefore, it would be more logical to cite these supplementary tables within the Results section instead of the Materials and Methods. The authors are encouraged to reconsider the placement of these references to better align with the structure and flow of the manuscript.

Feedback on Results

In Table 1, there are missing morphological measurements for some individuals (e.g., certain CCL and CCW values for deployments #1 and #6). The manuscript does not provide any explanation regarding the reasons for these gaps. For the sake of transparency and data integrity, it would be helpful for readers if a brief clarification about the cause of these missing data were included. This would allow a better assessment of the potential impact of the missing values on the study's results.

The behavioral time budget analyses are quite comprehensive, and the detailed classification of behavioral categories derived from video data adds depth to the study. However, the criteria used to reduce the 44 behavioral categories presented in Figure 3 and mentioned in the Materials and Methods section into eight main classes are explained only by referencing a single study:

"A total of 44 distinct behavioral categories were identified and used to systematically label the video recordings (Table S.1); these categories, which closely mirror those previously established for green turtle behavior in Martinique [27], were further..."

Providing more extensive support from the literature for this classification would strengthen the scientific foundation of the study. In this context, especially by including more recent works that address

similar classification criteria—one of which focuses on the studied species, *Eretmochelys imbricata*—would enhance the reliability of the methodology.

- Jeantet, L., Zondo, K., Delvenne, C., Martin, J., Chevallier, D., & Dufourq, E. (2024). Automatic identification of the endangered hawksbill sea turtle behavior using deep learning and cross-species transfer learning. *Journal of Experimental Biology*, 227(24), jeb249232.
- Jeantet, L., Dell'Amico, F., Forin-Wiart, M. A., Coutant, M., Bonola, M., Etienne, D., ... & Chevallier, D. (2018). Combined use of two supervised learning algorithms to model sea turtle behaviours from tri-axial acceleration data. *Journal of Experimental Biology*, 221(10), jeb177378.

Overall, the results section presents the study findings clearly and systematically, and it is well-structured. The data are presented in a logical order, and tables and figures are used effectively to help readers understand the findings. These results provide a solid foundation for the discussion section of the study.

Feedback on Discussion

The author(s) present the study findings clearly and comprehensively in the discussion section, contextualizing the results through comparisons with the existing literature. The detailed analysis of behavioral data, such as feeding duration, depth preferences, and prey species, notably enhances the originality and value of the study. Emphasizing data specific to the Martinique region is important for highlighting regional ecological differences.

By providing previously uncollected data, the study offers a new perspective on the species' feeding ecology. Although the imbalance in the number of male and female individuals in the sample (5 males, 1 female) is clearly mentioned, it would be beneficial to explicitly state this as a limitation in the discussion section and discuss its potential impact on the strength of comparisons and generalizations. While this limitation is understandable given the high cost and technical challenges of the method, a more balanced sex ratio (e.g., three males and three females) could have allowed for more robust preliminary comparisons. Unequal sex distribution may limit the accuracy and interpretability of results, especially when examining size and behavioral differences. Emphasizing the need for a more balanced sample in future studies would make the discussion more comprehensive and constructive.

Declarations

Potential competing interests: No potential competing interests to declare.