

{rokbox title=|Improving the statistical reporting of hatching success data: the case of sea turtles
:: Image: Authors|
thumb=|images/stories/ieo/imagenespublicaciones/centro-oceanografico-baleares-ieo-csic-repo
ting-hatching-success-data-bibi-et-al-2025-thumb.png|images/stories/ieo/imagenespublicacion
es/centro-oceanografico-baleares-ieo-csic-repoting-hatching-success-data-bibi-et-al-2025.png{/
rokbox}

Pilar Santidrián Tomillo, Alejandro Martínez-Abraín, Verónica Valverde, James R. Spotila,
Frank V. Paladino ,2025.

[Improving the statistical reporting of
hatching success data: the case of sea turtles](#)

.The case of sea turtles, 2025, <https://doi.org/10.1007/s00227-025-04665-w>

Abstract: Estimating hatching success of egg clutches is essential for quantifying reproductive success in sea turtles. Thus, proper reporting is necessary to provide meaningful information for knowledge acquisition and management. Here we review how hatching success has been reported in the scientific literature and use our own multi-annual multi-species datasets to explore the best ways for describing hatching success data. Despite non normality, the central tendency of hatching success data was most often described using arithmetic means. Only 17 out of 203 (8%) studies reported the median, compared to 192 (95%) that reported the mean (6 studies reported both). In 24% of studies, a dispersion metric was not provided. In our comparison, the arithmetic mean was only a good predictor of central tendency in leatherback turtles (*Dermochelys coriacea*), with the median (0.45) being only slightly above the mean (0.43). In leatherbacks, hatching success was characterized by high variability, and not by a consistently low hatching success, as indicated by the low skewness and large spread of data. On the contrary, hatching success data were strongly skewed and skewed toward high values in green turtles (*Chelonia mydas*) (25% and 75% percentiles: 0.88 and 0.98) and olive ridley turtles (*Lepidochelys olivacea*) (25% and 75% percentiles: 0.75 and 0.97) respectively, with presence of outliers in both cases. Basic statistics, appropriate for characterizing non-normal distributions such as the median, skewness or kurtosis, together with boxplots, provided accurate description of hatching success data. Using these straightforward statistics would greatly improve the ecological understanding of hatching success in sea turtles..

Keywords: embryo mortality,leatherback turtle,green turtle,olive ridley turtle,non-normality,median,mean, reporting of statistical data