

SUMMARY

Cilacap Bays, crucial nesting sites for sea turtles, confront habitat alterations due to tourism. Despite these challenges, studies have yet to explore the nesting ecology and species diversity of sea turtles on Cilacap beaches. This research addresses this gap by assessing the suitability of sea turtle nesting beaches in Cilacap Regency.

Through genetic analysis and ecological assessments of nesting, it aims to fill the dearth of data on turtle species diversity in Turtle Bay, Cilacap, Indonesia, highlighting critical environmental impacts and guiding targeted conservation efforts. Data were collected at eight observation stations for the nesting ecology component, including temperature, pH, humidity, beach slope and width, sand particle size, and vegetation distribution.

Results showed a temperature range of 28°C -36.3°C, mean pH of 6.8, mainly medium sand of 0.212-0.500 mm, beach slope between 11.50%-20.99%, and width from 28.8m-81.8m. Common vegetation included *Pandanus odorifer*, *Cocos nucifera*, *Ipomoea pes-caprae*, *Cyprus rotundus*, and *Casuarina equisetifolia*. Sidaurip Beach was identified as suitable for nesting due to its favorable conditions. Morphological identification involves meticulous observations and precise physical measurements of sea turtles. mtDNA Barcoding precisely identified species, amplifying DNA control regions from different individuals, including two tissues and two embryos, using specific primers (VF2_t1, FishF2_t1, FishR2_t1, FR1d_t1). Genetic analysis results showed 100% similarity and identity compared to sequences in BOLDsystems and GenBank. Among the four sea turtle species known to inhabit Turtle Bay of Cilacap (*Lepidochelys olivacea*, *Chelonia mydas*, *Eretmochelys imbricata*, and *Dermochelys coriacea*), the study identified *L. olivacea* (3 samples) and *E. imbricata* (1 sample).

Keywords: bay, DNA, ecology, nesting, turtle