UN environment programme CMS

Executive Summary

IOSEA Marine Turtle MOU

ASSESSMENT OF THE CONSERVATION STATUS OF THE HAWKSBILL TURTLE IN THE INDIAN OCEAN AND SOUTH-EAST ASIA REGION

Hawksbill Turtle - Photo: © Canva.com

HAWKSBILL TURTLES IN THE IOSEA REGION

The hawksbill turtle (*Eretmochelys imbricata*) is a critically endangered sea turtle species found in all tropical and temperate oceans. Hawksbill turtles are migratory animals that principally feed on algae and sponges, and therefore prefer coral and rocky reef habitats. Their nesting and foraging sites are widespread across the Indian Ocean and South-East Asia (IOSEA) region. As occurs with most migratory species, conservation of hawksbill turtles is particularly challenging due to their cross-border distribution and long-lived nature. Hawksbill turtles are comprised of numerous individual populations, which nest in separate locations to one another and display distinct life cycle characteristics. Nesting beaches occur in 32 nations within the IOSEA region, with most nations being Signatory States to the **Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia** (IOSEA Marine Turtle MOU).

Nesting turtles from different populations often share foraging destinations and migration routes. However, the exact distribution, abundance, biological characteristics and links between habitats used by turtles at different stages of their life cycle are still knowledge gaps for most populations. Collecting these data are necessary for the development of accurate population models used in designing and implementing effective management plans.

Threats to Hawksbill Turtles

Organised by the Advisory Committee of the IOSEA Marine Turtle MOU to help identify conservation priorities, this third species assessment identifies population risk levels and existing threat levels for each population of hawksbill turtles in the Indian Ocean and South-East Asia. The level of knowledge of any threat or biological trait varies greatly across the region. Geographical areas were linked to the threats and management options available when applicable.

Documentation was available for the following threats:

- Consumptive use of meat and/or eggs by local communities (either commercial or non-commercial), and by native and non-native fauna
- Climate change (i.e., increasing beach temperature and beach erosion)
- Coastal development (i.e., urban and industrial, and light horizon disorientation)
- Fisheries impacts, especially trawl and longline fisheries
- Entanglement in discarded fishing gear

Hawksbill turtle populations were heavily threatened by large-scale legal commercial trade which intensified from the 18th century until the 1990s. The tortoiseshell trade, although officially banned by CITES in 1977, still occurs in IOSEA region. This illegal trade of shells and shell products is especially prevalent in some southeast Asian countries and urgently requires international management interventions and effective enforcement of existing laws.

It should be noted that threats relevant to specific nesting populations may affect hawksbill populations occurring in other regions. For example, if a nesting beach is reduced by coastal development or faces high levels of egg harvest, a decline in the number of hatchlings leaving the beach can occur. Because the hatchlings eventually settle in a broad range of coastal habitats, this can also lead to declines in foraging populations elsewhere. The opposite can also occur: if for example there are losses of turtles at foraging areas, this can influence their numbers at a variety of nesting sites. These patterns and the long time frames involved make it hard to trace the causes for observed population declines. Insufficient quantitative data on most of these threats makes it difficult to assess the level of impact for each region, identify causes and effects, and devise effective conservation strategies considering the situation across each country or sub-region.

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Distribution of Nesting within the IOSEA Region

Within the IOSEA region, nine genetically distinct populations or management units have been identified and many other nesting sites are yet to be examined for genetic patterns. Management units are defined as distinct conservation units found within parts of the entire range of a species. Each management unit was categorised based on genetic data and knowledge of reproductive behaviour.

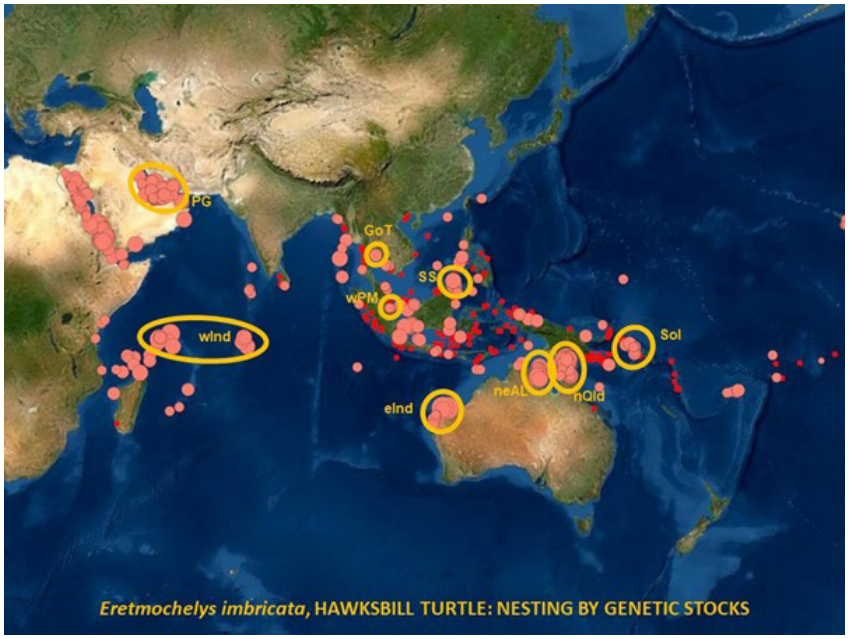

Figure 1. Distribution of hawksbill turtle nesting within the IOSEA region (after FitzSimmons and Limpus, 2014). Pink dots denote rookeries with quantified nesting and the size of the dot reflects the relative abundance. Red dots denote beaches where unquantified nesting has been recorded. Yellow circles indicate genetically distinct management units. Data source: https://apps.information.qld.gov.au/TurtleDistribution/

Key Topics

The assessment collated the following information on the conservation status of hawksbill turtles for each population or putative population throughout the IOSEA Region: 1) Ecological range and geographic spread of nesting and foraging sites; 2) Threats to hawksbill turtle populations; 3) Management and governance actions; 4) Biological data for breeding and foraging populations.

Information was sourced from scientific literature, grey literature, national reports from Signatory States to IOSEA, and experts within IOSEA's sub-regions (Western Indian Ocean, North-Western Indian Ocean, Northern Indian Ocean, and South-East Asia and Australia).

Key priorities include:

- Improve understanding of hawksbill turtle ecology and populations through research, monitoring and information exchange. This priority addresses knowledge/data gaps, enhances efficacy of recovery and management plans, and includes:
  - » Improving the collection and availability of data on life history traits, migratory routes and connectivity patterns among and between habitats, and on the key threats to hawksbill turtles in specific regions. Long-term monitoring would be particularly beneficial for the North-West Indian Ocean sub-region.
  - » Identifying fine-scale management units by collecting and analysing genetic samples from nesting and foraging animals throughout the region. This item is especially relevant for turtles nesting within the Red Sea and southeast Asia.
- Identify threats and evaluate and minimise their impact on hawksbill turtle populations. This priority includes, but is not limited to:
  - » Quantifying the impacts of marine debris on oceanic post-hatchling turtles.
  - » Quantifying the vulnerability of IOSEA hawksbill populations to climate change.
  - » Placing an increased emphasis on social, political and governance structures related to hawksbill turtle conservation.
- Identify the gaps between legislation and implementation/enforcement in hawksbill turtle governance, with the goal of streamlining protection from a local to a global scale. This priority is relevant for the entire IOSEA region and includes (a) identifying and articulating actual resource needs, and raising funds to increase human and material resources; (b) building field-level capacity at national and regional levels; and (c) identifying weaknesses in the judicial process and address these.
- Ensuring improved monitoring aboard large-scale and small-scale fisheries. Monitoring should also include accurate species identification and the collection of biological tissues for genetic analyses.

This assessment is a first step to enhancing cross-border conservation of hawksbill turtles within the IOSEA region. This review also serves as a guide for countries outside the IOSEA region to plan their own assessments. As more information on the conservation status of hawksbill turtles becomes available, the assessment will be regularly updated.

The full report will be available *here* from 25 March 2022