Creature Feature – Hawksbill turtle

Ocean wanderers

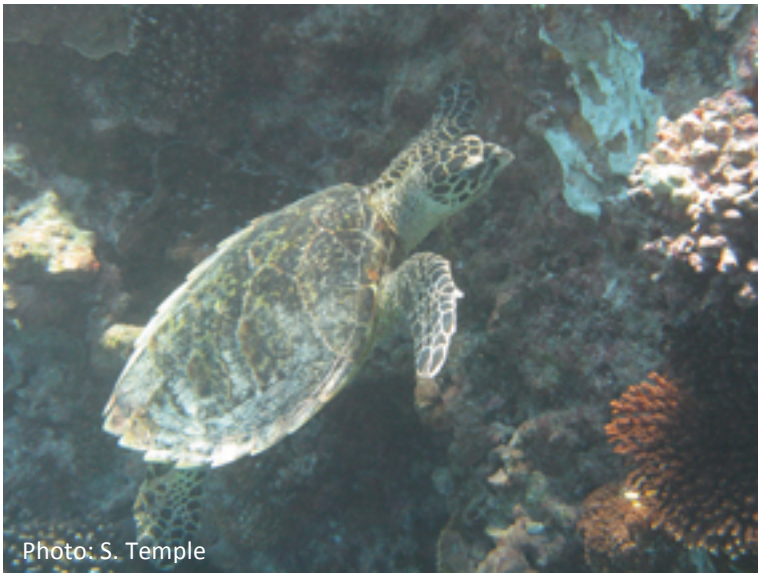
Photo: S. Temple

Each year, thousands of tiny turtle hatchlings will clamber out of their sand nests and run past the gauntlet of predators awaiting their emergence to find shelter in the ocean. Guided only by the moonlight, these little bite size morsels, will make their way out to the deep offshore waters, not taking time to rest or eat until they reach relative safety. They will then wander the seas, largely at the mercy of the predominant ocean currents, grazing on plankton and growing, for the next five to ten years. Finally they will settle on a feeding ground where they may spend decades before they once again head for open ocean, traveling perhaps thousands of kilometers, to reach the beaches where they were born. There are countless hazards along the way and only a very small percentage will make it back to breed. Hawksbill turtles are in global decline with trends indicating that populations in northeast Australia will decline by 90% in less than one generation of the species.

Fast Facts:

Taxonomy: Hawksbill turtles are reptiles that belong to the family Chelonidae. Their species name is *Eretmochelys imbricate* (Linnaeus, 1758).

Distribution: Hawksbill turtles are found in tropical, subtropical and temperate waters in all oceans around the globe, though they nest almost exclusively on tropical beaches. In Australia, there are two distinct populations: one in the northern Great Barrier Reef, Torres Strait, and Arnhem Land regions and the other on the North West Shelf of Western Australia. Within the Indian Ocean – Western Pacific Ocean region, Australia supports the largest remaining stocks of hawksbill turtle.

Identification: Hawksbill turtles have a high domed carapace covered with overlapping scutes. The beak of the hawksbill turtle has a distinct overbite compared with that of other sea turtles.

Average size: Females have a mean curved carapace length of approximately 82cm and weigh around 50kg. Hawksbill turtles are smaller than leatherback, loggerhead, and green turtles, but larger than Olive Ridley's.

Lifespan: It's estimated that hawksbill turtles live to around 50 years, but it is not known for sure. They don't reach sexual maturity until after 31 years of age.

Food: They primarily feed on jellyfish, but eat a variety of animals and plants including sponges, octopus and squid, marine snails, seagrass and algae. Young turtles eat plankton as they drift about on the ocean currents.

Habitat: These turtles spend the first five to ten years drifting about on the ocean currents and are often found hanging about rafts of a floating marine plant known as *Sargassum*. When the hawksbill turtles reach about 30 to 40 cm in length, they settle and forage in tropical tidal and sub-tidal coral and rocky reef habitat. They can also be found, though less frequently, within seagrass habitats of coastal waters and deeper habitats.

Life history: Hawksbill turtles grow very slowly. Females will lay clutches of eggs at two week intervals during the breeding season. In the Coral Sea region, turtles nest all year round with peak activity during January-February. The eggs must be buried in sand that is aerated, low in salt, high in humidity, and between 25^{o} and 33^{o}C. In northeastern Australia, the females will usually breed every five years.

Cool Fact: The sex of the hatchlings depends on the temperature of the nest during incubation. Cool nests produce males and warm nests produce females.

The hatchlings are dark brown and work their way down the beach and into the ocean. They won't eat or sleep until they enter the deep offshore water (a few days), after which time they will drift among the ocean currents eating plankton. At this stage, they are known as post-hatchlings and very little is known about this age class in Australian waters, but they will spend about five years in this oceanic pelagic phase. After this, they will settle in tidal and sub-tidal coral and rocky reef habitats where they spend their time eating. Once a turtle chooses a feeding, area, it appears to remain in that area for a long time, possibly decades.

Breeding males and females will move from their feeding grounds to the nesting areas where they will breed. The males will then return to their feeding grounds, while the females move up the beaches to lay their eggs. There is convincing evidence that females return to breed in their region of birth.

Movement patterns: Hawksbill turtles are highly migratory, moving up to 2,400km between foraging areas and nesting beaches. For example, a female turtle tagged at Milman Island in the northern Great Barrier Reef (GBR) was recaptured in the southern Gulf of Carpentaria, southeastern Indonesia, and southern Papua New Guinea. The Coral Sea is a migration corridor for Hawksbill turtles moving between foraging and nesting grounds.

Status: Listed as a vulnerable, marine and migratory species under the *Environment Protection and Biodiversity Conservation Act 1999.* There have been serious population declines of hawksbill turtles worldwide. The breeding population at Milman Island (northern GBR) has been declining 3-4% per year for the last decade. If this continues at this rate, the Torres Strait-northern GBR stock can be expected to decline by 90% by 2020, which is less than one generation for this species.

Threats: In Australia, the main current threats are disturbance and habitat damage due to coastal development, by-catch from fisheries and shark control, predation on nests, boat strikes, entanglement

and ingestion of marine debris, and unsustainable levels of indigenous harvest in some areas. Other threats include climate change, chance disasters such as oil spills and feral predator invasions.

Sources:
Limpus, C. 2009. A Biological Review of Australian Marine Turtles 3. Hawksbill Turtle, *Eretmochelys imbricata* (Linnaeus). State of Queensland. Environmental Protection Agency.

Australian Government. *Eretmochelys imbricate* – Hawksbill Turtle. Species Profile and Threats Database. Online source: www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=1766 [accessed 13th October, 2009].