World Science Festival Brisbane

IT'S LIVE! in Queensland

MEET THE TURTLES

Loggerhead Turtle *Caretta caretta*

Flatback Turtle *Natator depressus*

LOGGERHEAD TURTLE

Caretta caretta

Loggerhead turtles are found throughout the world's tropical and subtropical waters.

Mon Repos, near Bundaberg, is the best-known and most widely visited Queensland turtle rookery.

Loggerhead Turtles nest from late October to March with hatchlings beginning to emerge from late December onwards.

Female turtles can lay as many as six clutches of ping pong ball sized eggs in a breeding season. Each clutch contains around 125 eggs. The turtles usually breed every three to four years.

They eat mostly shellfish, crabs, sea urchins and jellyfish. These turtles get their name from their large heads and powerful jaws that enable them to crush hard-shelled prey.

FLATBACK TURTLE

Natator depressus

Flatback Turtles are only found in the waters of the Australian continental shelf and feed between the Tropic of Capricorn north to the waters of Papua New Guinea and Indonesia.

Females turtles can lay three to four clutches of eggs per season with as many as 50 billiard ball sized eggs. The turtles usually breed every two to three years.

Young Flatback Turtles remain in shallow, inshore waters, unlike the young of other marine turtles which live in the open ocean.

These turtles eat soft bodied invertebrates (sea pens, soft corals, Bêche-de-mer) and can remain under the water for up to two hours.

In eastern Australia, the Flatback Turtle population has remained relatively stable over the past 30 years. In the Gulf of Carpentaria they are severely threatened by the loss of eggs and hatchlings through predation by feral pigs and dogs.

Where have the turtles come from?

50 Loggerhead Turtle eggs were collected from the Mon Repos rookery on the Bundaberg coast. As many as 190,000 eggs were laid this season. With the help of volunteers around 76,000 eggs were relocated from nests that were at risk of flooding from high tides and cyclones. This has helped to increase hatchling production by around 40%.

The Loggerhead Turtle eggs were collected between the 16-20 January and are incubating at 29.9°C. They are due to hatch between 10-13 March during the World Science Festival Brisbane.

The Flatback Turtles (in the aquarium) were collected on 7 February.

Turtle Hatching is a collaboration between Department of Environment and Heritage Protection, SEA LIFE Mooloolaba, and the Queensland Museum. It has been made possible with kind support from Aqua One, SEA LIFE Trust ANZ, and James Cook University. This project has received official approved by the Queensland Museum Animal Ethics Committee.

Where will they go from here?

The Loggerhead hatchlings will spend several days in the incubator after they hatch. At this stage of life they would still be buried deep within the nesting chamber and cannot crawl to the surface until their bodies have fully straightened. Once this happens, they will be ready to begin their journey.

Each day, the more advanced hatchlings will be transported to SEA LIFE Mooloolaba until all the eggs have hatched.

Once all the turtles have hatched, Museum and SEA LIFE staff and volunteers will release them 20km off the coast of Mooloolaba to avoid predators that hunt in the shallow coastal waters.

The hatchlings will ride the Eastern Australian Current, taking them past the northern tip of New Zealand and on to the coasts of Chile and Peru. They won't return to Queensland waters for 16 years and won't breed for a further 13 years.

The hatchling Flatback Turtles in the aquarium will be cared for by SEA LIFE marine biologists in Mooloolaba. They'll grow until their shells are 15 cm long before being fitted with transmitters and released off the Bundaberg coast. The transmitters will tell researchers how the young turtles live and move during early life and will help us find new ways to protect their habitats.

Threats to survival

Marine turtles are threatened on many fronts. Some of these threats include:

Fishing: Longline fisheries have been implicated in turtle deaths in the open ocean. Turtles also drown when they become entangled in the float lines of crab pots and abandoned nets (ghost nets). Between 1977 and 1992 there was a 50-80% loss of nesting Loggerhead Turtles in Queensland, but changes in fishing techniques have helped to reverse the losses.

Coastal development and habitat disturbance: Lighting from our houses and businesses can deter nesting turtles and disorient hatchlings which move towards bright light and away from the sea. Uncontrolled vehicle access to beaches causes erosion, damages nests and disturbs nesting females.

Feral predators: Turtle eggs and hatchlings are eaten by introduced predators such as pigs, dogs and foxes.

Pollution: Agricultural and industrial pollutants impact important turtle habitats, especially coral reefs. Discarded rubbish is often consumed by turtles, clogging their digestive tracts, causing death through starvation. Young turtles feed near the surface and can swallow plastic rubbish.

Boat Strike: Turtles die from collisions with boats and are frequently found with propeller damage on their carapaces (shells).

Climate change: Rising sea levels and an increase in the frequency and intensity of cyclonic events will erode beach profiles damaging nesting habitat.

Marine turtles require nest temperatures between 25°C and 33°C for successful embryo development. Male hatchlings are produced at the lower temperatures in this range, thus rising nest temperatures are likely to skew the sex ratio, leading to a greater production of female hatchlings.

How does the turtle population benefit from this project?

Both species are under threat with Loggerheads ranked as a critical priority. This project aims to:

1. Raise awareness of the current conservation status of these species
2. Highlight ways that individuals can assist in the preservation of turtle habitats in South East Queensland

Is it ethical to remove turtles from their natural habitat?

Ideally, these turtles would carry out their breeding, feeding and migration cycles around the world without interruption. However, human factors including development, pollution and fishing practices have impacted on turtle populations worldwide. Some minimal and carefully monitored human intervention has been necessary to bring stability to the turtle population of South East Queensland.

This project allows museum visitors to witness nature at work and connects them with a Queensland-based conservation success story. It was designed by Dr Colin Limpus, who co-ordinates the Queensland Turtle Research Program for the Department of Environment and Heritage Protection (DEHP), and is overseen by Patrick Couper, Queensland Museum's Reptile Curator. The project was officially approved by the DEHP and the Queensland Museum's Animal Ethics Committee.

How can you help?

- Choose reusable bags and water bottles.
- Keep waterways and beaches clean by disposing of rubbish thoughtfully.
- Choose products with minimal packaging.
- Join a local turtle monitoring group. For more information contact turtle.volunteers@ehp.qld.gov.au
- Report sightings of all sick, injured or dead marine turtles to the RSPCA on: 1300 ANIMAL (1300 264 625) at any time.

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