

Marloo's Journey

The sad end to an unusual journey for a loggerhead turtle

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In August 2016, a loggerhead turtle named Marloo washed up on Melville Island, Northern Territory. She had died from malnutrition. Her journey to the NT from Gnaraloo in Western Australia was an unusual one.

Not your normal trip

Marloo was one of ten female loggerhead turtles that were satellite tracked from Gnaraloo Bay and Gnaraloo Cape Farquhar, about 80km south of Coral Bay, by the Gnaraloo Wilderness Foundation, as part of its scientific turtle research program, which has been in place since 2008.

Her epic journey of about 5,970 kilometres [Figure 1B] which ended with her death, was not typical of the paths taken [Figure 1D] by the other four females tracked north from the two Gnaraloo turtle rookeries, who travelled close to shore when rounding the northwest corner of Western Australia at Cape Range - Exmouth on their way to their home foraging grounds where they arrived between mid February and early March 2016.

After losing more than half of her front left flipper, probably near her Gnaraloo Bay nesting beach, Marloo was taken well offshore by a local current [Figure 1A]. Now injured, and with reduced flipper propulsion during her journey, she went through two eddies - see the north-westerly deviations in her track between 27 February - 27 March 2016, and 27 March - 27 April 2016 - which pushed her even further offshore [Figure 1B].

Trip monitoring

The satellite tag which Marloo was equipped with [Figure 2B] has wet/dry and temperature sensors, and its repetitive signals when on the surface enable the ARGOS polar orbiting satellite system to triangulate a latitude and longitude position to within 250m.

When combining this data with the output from oceanographic models like OceanMAPS (CSIRO-BOM) [Figure 1C], we can see the likely currents which Marloo experienced during her journey.

We were not sure why she was going so far offshore, but now after recovering her, we gained insight into understanding why she took a longer and wider than normal journey.

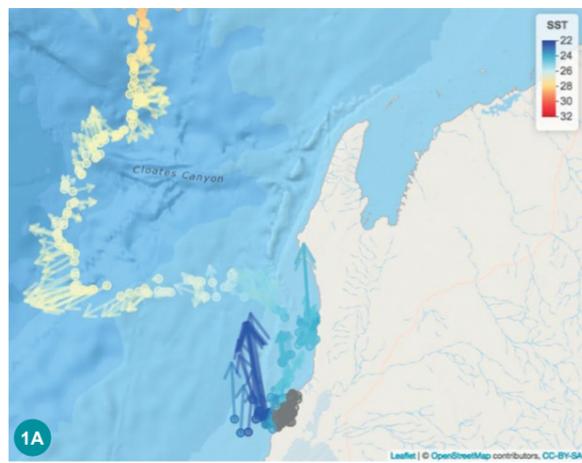


FIGURE 1A: Online interactive map of the model oceanographic currents experienced by Marloo. By dirk.slawinski@csiro.au

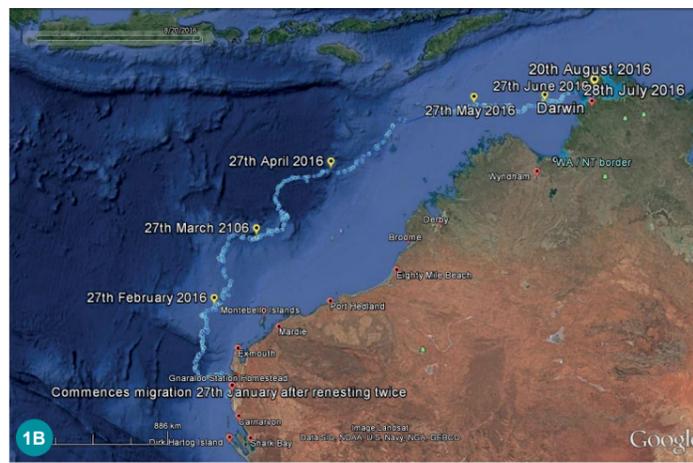


FIGURE 1B: Marloo's track along the WA coast.

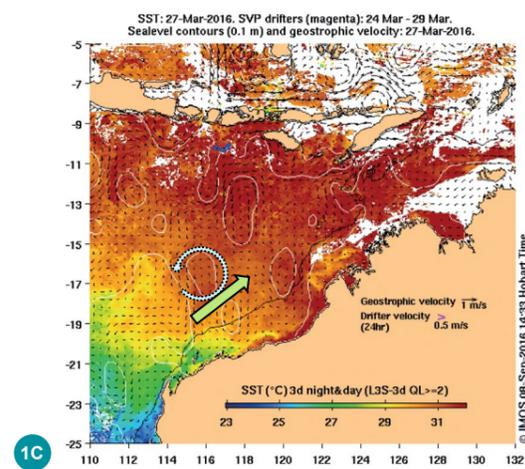


FIGURE 1C: Locations of the eddies which Marloo had to navigate. [Green arrow indicates Marloo's general track at the time]

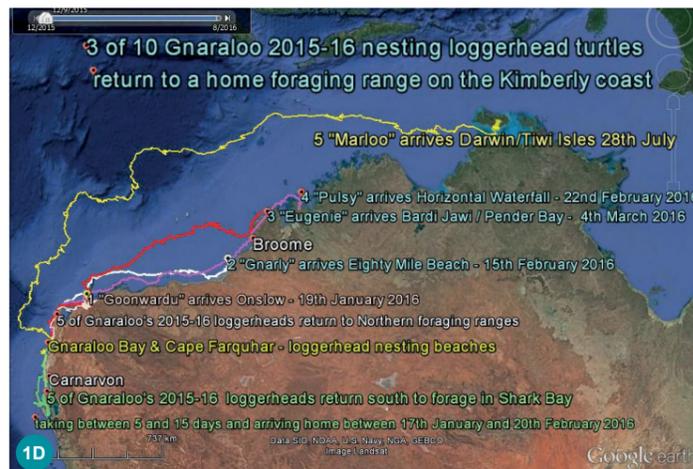


FIGURE 1D: Migratory routes and then foraging ranges of the ten Gnaraloo loggerhead females satellite tracked in 2015/16.

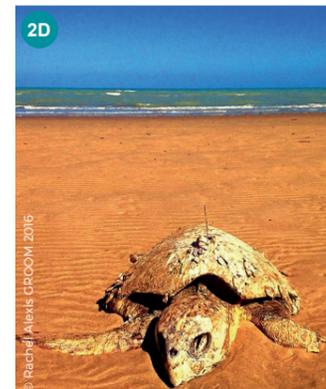


FIGURE 2A: Marloo with her front flipper intact on 10 December 2015 when having her satellite tracker attached.

FIGURE 2B: The Wildlife Computers 'Spot' satellite tag that made it possible for us to follow her movements on a daily basis.

FIGURE 2C: Showing Marloo's emaciated condition 8 1/2 months later, and the remaining half, but healed, left front flipper stump at the start of the necropsy on 29 August 2016.

FIGURE 2D: Marloo on Melville Island, 28 August 2016.

Marloo arrives too late for dinner?

Other studies have suggested that marine turtles do not eat during either leg of their nesting migration, and Marloo's necropsy revealed no food in her crop or upper intestines, with a small amount of material including sea urchin spines in the bowel, possibly there from prior to her migration.

Three of the ten tracked Gnaraloo females had returned by the end of March 2016 to the Kimberley Coast after their migration from their nesting grounds further south at Gnaraloo [Figure 1D]. They were able to begin replenishing their body and fat reserves. Marloo's extra four months of swimming may have meant that she was too weak to commence foraging when she arrived at the southern end of the Tiwi Islands in Beagle Bay (NT) at the end of July 2016. Her necropsy after her death a month later at the end of August 2016 found no fat left stored in her body.

The Gnaraloo Turtle Conservation Program's satellite tracking project highlights the importance of the near shore regions along the northwest of WA, including the Kimberley Coast, as part of the foraging range of the nesting WA loggerheads, where they feed on various macro-invertebrates that thrive here, like sea cucumbers, shellfish and crustaceans.

FOR FURTHER INFORMATION:
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