

LEATHERBACK MIGRATION

A first approach to understand the migration
behaviour of leatherback turtles in western Indonesia

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Project Fact Sheet



Summary

In January 2020, a field mission was conducted to the island Selaut Besar in Aceh, Indonesia, to deploy 2 satellite transmitters to nesting leatherback turtles. The aim of the mission was, to gather information about inter-nesting habitat-use and migrations of leatherback turtles in the Eastern Indian Ocean.

The participants of the mission who came from abroad traveled by plane from Medan to Sinabang on the island Simeulue, where they met with the local partners of Ecosystem Impact at the Mahi-Mahi Resort. The journey to Selaut Besar continued by car and by boat.

After arriving on Selaut Besar on January 23, in the early morning of January 24, the first turtle was tagged, while the second turtle was tagged the same day at 11 p.m.

The first turtle was named Eiola, and it kept sending signals until April 25 (91 days). During her journey, Eiola covered a distance of 5.325 km. The direction of her migration suggests, that she was swimming towards her feeding grounds west off Australia.

Skylene, the second turtle, sent signals until march 6 (42 days) and traveled 1.093 km during this time. During the rather short time of sending signals, the relatively small movements of Skylene can be interpreted as inter-nesting migration activities.

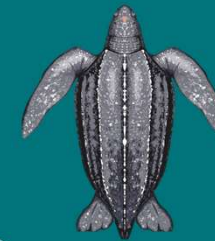
The satellite tags were purchased with financial support of a "State of the World's Sea Turtles (SWOT) Grant".

Year:
2020

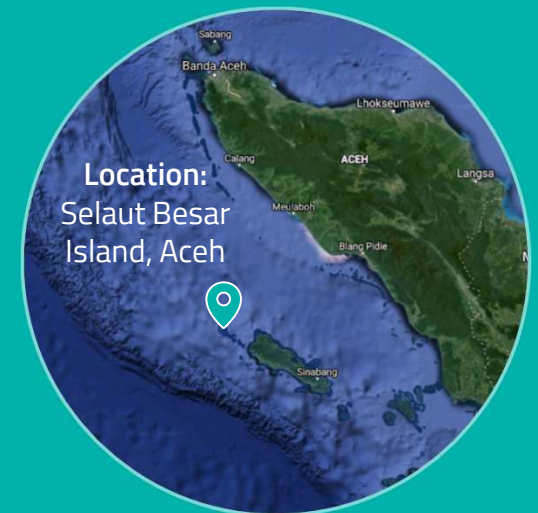


Country:
Indonesia

Species:
Leatherback Turtle
(*Dermochelys coriacea*)



Location:
Selaut Besar
Island, Aceh



Background



Leatherback turtles have been continuously declining at major nesting sites within the Indian and the Pacific oceans. They are classified in the IUCN Red List of Threatened species as 'critically endangered' in the Southwest Indian ocean and in the Pacific. As for the Northeast Indian Ocean subpopulation, which nests primarily in the Andaman and Nicobar Islands (India), the classification is 'data deficient'. There are major gaps on the knowledge of the geographic boundaries of this subpopulation.

The main threats to leatherback turtles in the Northeast Indian Ocean are fisheries by-catch, and in some regions, like west off Sumatra, poaching of eggs and of nesting turtles. Other threats include coastal development, climate change and pollution.

Since 2017, the Yayasan Penyu Indonesia (Turtle Foundation's implementing partner in Indonesia) has conducted several surveys west off Sumatra to identify leatherback nesting sites. The surveys revealed that leatherback nesting is widespread in the region, but due to a long history of overexploitation, the remaining nesting population seems to be very small and nesting density is rather low. Overall, the situation is in urgent need for a collaborative network to take action for the conservation of the western Indonesian leatherback turtles.

Project Activities I



Mission Objective

Under this context, the Turtle Foundation and research partners from MARE – ISPA, planned a mission to 1) deploy two satellite GPS tracking devices on two nesting leatherbacks, to assess their inter-nesting spatial distribution and their connectivity with foraging grounds, and 2) make the initial steps to create a collaborative network for the conservation of the Eastern Indian Ocean Leatherback under the name of EIOLA (Eastern Indian Ocean Leatherback Alliance). Results from the tracking data will also contribute to raise awareness towards this highly threatened population.

Selaut Besar Island

Selaut Besar has an area of 2.6 Km². Most of the island is surrounded by reef, except for the northwest shoreline, where the beach is up to 200 m in the widest part and thus provides good conditions for leatherbacks to nest.

The island is uninhabited, it has a lighthouse and three houses for the lighthouse keepers and technicians, who rotate every 2 months. Aside from these people, the island is visited by local coconut collectors and fishermen, who are known to poach turtle nests.

As one of the “strategic outer islands” of the Republic of Indonesia, Selaut Besar also is a boundary marker of the Indonesian territory. It doesn't have any status as protected area yet. However, all species of sea turtles are protected by Indonesian law.

Being adherents of Islam, the people of the Aceh province generally do not eat turtle meat, but they do eat turtle eggs. Additionally, Selaut Besar is considered to be a sacred island, and no blood should be spread there, so poaching of nesting turtles does not occur.



Project Activities II



Eiola

On the night of the 24 to the 25 January, one leatherback turtle came ashore at the main beach. The turtle did four nesting attempts, but sand kept falling inside the nest chamber, apparently because of lack of moisture in the sand.

At 6:30 the turtle stopped trying to nest and we deployed a SPOT 6 satellite tag, specifically designed for leatherback turtles, following the ©WildlifeComputers deployment protocol. At 7:30 the turtle, which we named Eiola, returned to the sea.

Project Activities III

Skylene

At 23:10, on the night of the 25 January, another leatherback turtle came ashore the main beach. This turtle did two nesting attempts, and in both cases, sand kept falling inside the nest chamber, apparently due to lack of moisture in the sand.

At the third nesting attempt, it was successful, and at 23:50 the turtle started to lay eggs. After about ten eggs had been laid, we deployed the SPOT 6 satellite tag. Due to carapace shape (i.e. elevation of the central ridge), this tag was placed further down the carapace length, compared to the first one. At 00:40 the turtle, which we named Skylene, returned safely to the sea.



Results I



Eiola

Unfortunately, both turtles didn't send positions as long as we were expecting and hoping.

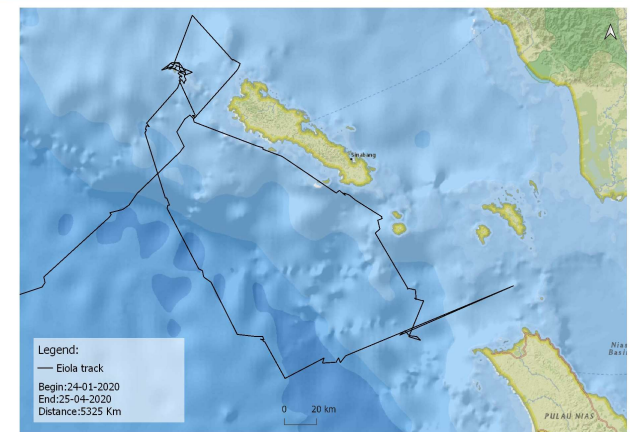
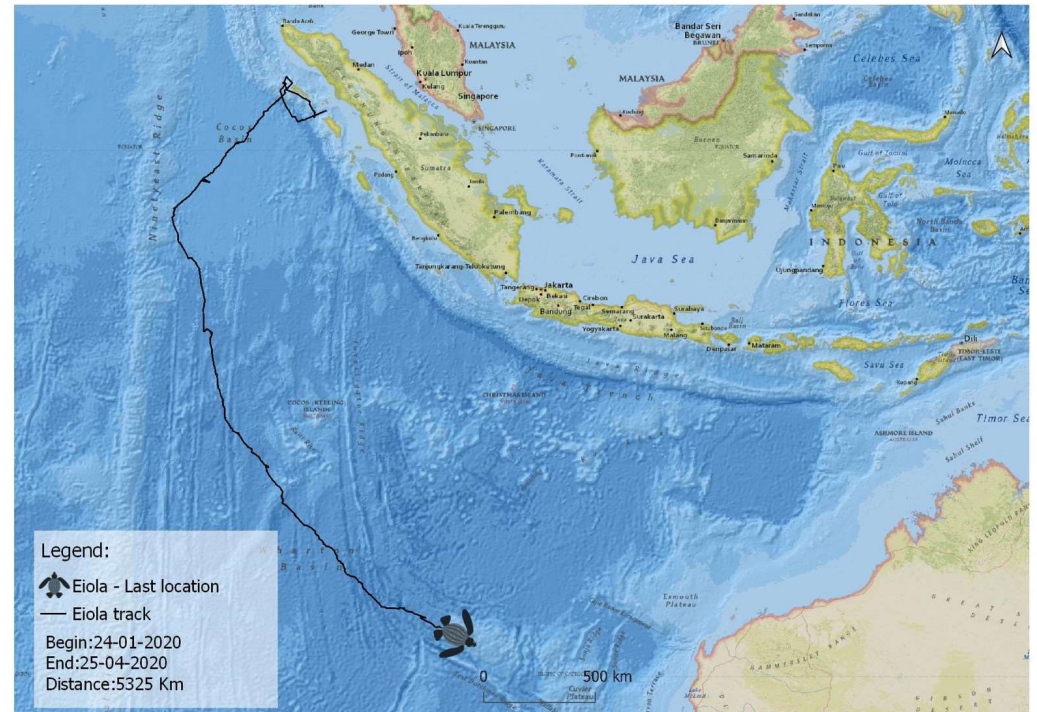
From the beginning, turtle 1 (Eiola) was sending more positions and of better quality (i.e. reduced error, Argos classifications 1, 2 and 3, accuracy within 100 to 1500m) compared to the second turtle.

However, after 91d 14h 39m 35s, the turtle stopped sending positions for unknown reasons.

After some time of inter-nesting movements, the turtle started to migrate into southwestern direction on February 14. and on February 27., Eiola made a sharp turn into southeastern direction towards the west coast of Australia.

Surveys conducted by Australian researchers have shown, that Western Australian waters are frequented by leatherback turtles who have their foraging grounds here. Unfortunately, there is also regular mortality of these migrating turtles caused by entanglement in float-lines to crayfish pots.

Eiola was also tagged with metal tags (left flipper tag: IDL0077 / right flipper tag: IDL0078) and with a PIT tag (no. 991001000600180). With a curved-carapace-length (CCL) of 162 cm, a curved-carapace-width (CCW) of 113 cm and a track width of 180 cm, she was slightly bigger than Skylene.



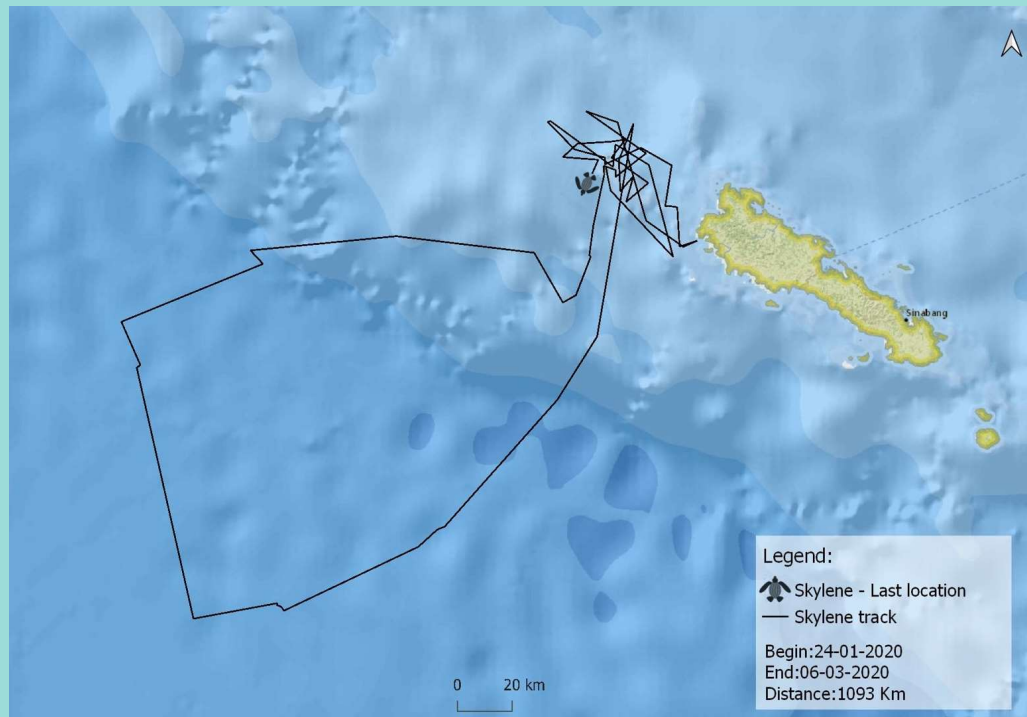
Results II

Skylene

Compared to the first turtle, turtle 2 (Skylene) sent less positions (B and O, accuracy $\leq 1500\text{m}$) and stopped sending positions after 42d 3h 9m 35s. We assume that there was an issue with this tag.

The traveling patterns of Skylene can be interpreted as Inter-nesting movements. On February 16, she started to move into southwestern direction, but on February 23, she turned back and kept moving between Selaut Besar and Simeulue until the tag stopped sending positions on march 6.

The turtle was also tagged with metal tags (Left flipper tag: IDL0079 / Right flipper tag: IDL0080) and with a PIT tag (no. 991001000600176). The curved-carapace-length (CCL) was 148 cm, the curved-carapace-width (CCW) was 108 cm and the track width was 175 cm.



Recommendations

While two leatherback turtles were tagged with satellite tags at Selaut Besar during this field mission, two green turtles (*Chelonia mydas*) were also seen nesting on the night of the 24 January.

On the evening of the 27 January, the beaches of Along and Lhok dalam, in northern Simeulue, were surveyed for sea turtle tracks, using a drone. The Along beach is 4.8 km long, and the Lhok dalam beach is 1 km long. At Along beach there were 15 leatherback tracks, whereas at Lhok Dalam beach there were 8 leatherback tracks.

Since both tagged turtles did only send positions for 91 and 42 days respectively, it is suggested to repeat satellite tagging in the region in order to gain more relevant results.

Furthermore, it is recommended to start a nesting beach protection programme on Selaut Besar and on the surveyed beaches on Simeulue.

And last but not least, the efforts to create the network EIOLA (Eastern Indian Ocean Leatherback Alliance) should be continued in cooperation with the Daskhin Foundation, India.



Partners And Participants



Dr. Hiltrud Cordes - Turtle Foundation

Meriussoni (Merius) Zai - Yayasan Penyu Indonesia

Ukie Resende - Fundação Tartaruga Cabo Verde

Prof. Paulo Catry - MARE – ISPA

Dr. Rita Patricio - MARE – ISPA & University of Exeter

Prastiano Septiawan - Ecosystem Impact Foundation

Mission participants and fishers from Simeulue. From left to right upper row: Prastiano Septiawan, Ukie Resende, Paulo Catry, fishermen 1, Hiltrud Cordes, fishermen 2. Left to right bottom row: fishermen 3, Rita Patrício, Merius Zai, fishermen 4.



Ecosystem
Impact Foundation

