Project MIROMEN: Migration Routes of Megaptera Novaeangliae (Humpback Whales) Reunion Island (France)

The project aims, through a better understanding of the migration routes of Megaptera Novaeangliae (Humpback Whales) to reinforce conservation measures or to trigger the implementation of new management plans for this emblematic species at a local and regional level. MIROMEN deployed 15 satellite tags on humpback whales in la Reunion to assess movements between breeding areas around Reunion and to identify the migration routes from Reunion to their feeding grounds. On the basis of this knowledge new marine protected areas may be created. The first results have already been startling, as the whales moved to unexpected locations.
Description of the project

The program named MIROMEN (Migration routes of Megaptera novaeangliae), led by Globice in partnership with WCS (Wildlife Conservation Society) and with Brigade Nature Océan Indien's (BNOI) support consists in studying the migratory routes of the humpback whales visiting Reunion island. Data was collected by means of satellite telemetry tracking in order to acquire better knowledge of the species’ movements around Reunion island and in the Indian Ocean, and thus highlight the routes and sites used by the species.

In order to do this, 15 Argos tags were deployed between 31 July and 16 August 2013, quickly transmitting surprising yet essential information to a better understanding of the species.

It is quite a delicate operation to fit an Argos tag on a whale, which is why it is imperative to properly understand the individuals’ behavior and thus identify each group member’s sex and role, as these parameters have an influence on the individuals’ migratory routes. We have thus tried to balance the “male/female ratio” when it came to choosing the individuals for tagging.

Also necessary is a perfect coordination between the pilot and the tagger in charge of fitting the tags onto the whales. This way, it is possible to approach the whales at the right distance for precise tagging under the whale’s dorsal fin, without presenting a threat to the crew or the animals. Tension was great during each tagging operation as any error or unexpected movement of the boat could send the tag into the water, along with all the precious data it could have collected.

Skin samples were simultaneously taken from each tagged animal for genetic analysis. Other parameters were also recorded by the team on board, such as GPS locations, animal behavior and photo-identification.

For the whole operation, 17 days and over 1,000 km at sea were necessary to tag all 15 whales. It was agreed, thanks to previous consultation with tourism operators, that the following procedure would be respected: no whales were to be tagged if they were already being watched by other boats, whereas pleasure boats were systematically informed when they approached during a tagging operation. Everyone was very cooperative and thus contributed to the mission’s success.

Although the analysis of the data will take time, information has already been brought by the transmitted locations.

At the level of Reunion island, there appears to be a high degree of connection between the western (Saint Gilles) and north-eastern (Sainte Marie) coasts, individuals preferentially using the area between Saint Benoît and Saint Leu. These data confirm what had been highlighted by the analysis of photo identifications, namely that the species potentially circulates all around the island (see map).

An important discovery was made at the level of the Indian Ocean: there exists a high degree of connection between Reunion island and Madagascar. At least 7 of the 15 whales went to Madagascar from Reunion. A few interannual recaptures (the fact of identifying the same individual in both places one or more years apart) had brought to light exchanges between both islands but the fact that such a big proportion of whales should visit Reunion, then Madagascar, in the same year is a major surprise and shows the important interrelated role that both islands play for the animals’ life cycle.

Another surprise at the regional level was the route taken by Karen that headed East up to Saint Brandon. So far, nothing indicated a connection between the Mauritian archipelago and Reunion island.