

A Pilot Study into the Movement and Dispersal of Sawfishes

Project 1.15

Project Summary

The aim of this project is to test the utility of satellite telemetry to elucidate the movement and dispersal in large sub-adult and adult sawfishes, which is a poorly understood life-history phase of this globally and nationally threatened group.

In 2021, research and monitoring surveys carried out by DPIRD (Fisheries) provide a unique opportunity to capture and tag larger size classes of sawfishes in northern Western Australia.

This project seeks to generate a preliminary data-set on the suitability of satellite telemetry to study the movement and dispersal to guide future research on this taxon and inform the Sawfish and River Shark multi-species Recovery Plan.

Problem

Sawfishes are globally threatened, with all species listed by the International Union for the Conservation of Nature as Critically Endangered or Endangered. While the habitat requirements of neonate and juvenile sawfishes are being increasingly elucidated, there is a limited understanding of the movement and distribution of larger sub-adult and adult sawfishes, despite this knowledge being crucial in addressing issues identified by the recovery plan.

How Research Addresses the Problem

Satellite tagging is a commonly used technique to elucidate the movement and distribution of large marine animals but can provide challenges for benthic species such as sawfish and in highly turbid environments such as northern Australia. This project will test two readily available types of satellite tags to identify the best method to track the movements of sawfish to ultimately further inform the multispecies recovery plan.

General Project Information

The project involves close collaboration with Western Department Australia's of Primary Industries and Regional Development (Fisheries) who is undertaking fisheries surveys throughout the Kimberley region, a global hotspot for sawfish. Although gillnet surveys are not targeting sawfish, their relative abundance in coastal waters and propensity to be caught in gill-nets results in a unique opportunity to access sawfish for scientific study in some of Australia's remotest Once captured, regions. all sawfish are measured and a DNA



sample is taken, before a satellite tag is attached on a small tether fixed to the leading edge of the dorsal fin. It is hoped that up to 10 sawfish are captured and tagged as part of this project.

We will test two separate satellite tag technologies, one based on live uplinks to the ARGOS system, and another based on estimates on position based on the timing of sunrise and sunset ("light-level geolocation"). While the former provides highly resolved location data, it relies on the tag breaking the water surface to estimate a position, the latter does not rely on the sawfish swimming near the surface but is characteristic of lower locational accuracy and this project will compare them based on the number locations received from each sawfish, as well as their accuracy.



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