

# THE ECOLOGY OF WHALE SHARKS IN THE ARABIAN GULF AND GULF OF OMAN: TAGGING JENAN

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Keywords: Whale shark, Qatar, Arabian Gulf, Tag

Note: This article was first published in the September issue of Emirates Diving Association magazine and the content has been modified for inclusion into this edition of Wildlife Middle East News.

On 9 July, 2011 two satellite tags were deployed on two male whale sharks *Rhincodon typus*, that were 4-5m in size. The tags were deployed in the Al Shaheen area of offshore Qatar. Field surveys are ongoing and have been conducted in collaboration with the Qatar Ministry of Environment (QMOE) since April 2011. The project aims to collect information on the whale sharks found in Qatari waters as part of the Qatar Whale Shark Research Project. To date, seven satellite tags have been deployed on whale sharks in Qatari waters. The tags deployed on this date were supported by both the Emirates Diving Association (EDA) in association with Al Ghurair Foods and the Emirates Natural History Group (ENHG). The EDA named their tagged whale shark 'Jenan'.

The field survey conducted on 9 July 2011 revealed an unprecedented aggregation of whale sharks for this region with the number of individual animals estimated at 100+. Data were collected on the whale sharks themselves including spot pattern IDs, sex and size as well as environmental conditions, plankton samples and tissue biopsies for genetic analysis.

The tags used were Wildlife Computers MK10 PAT tags. These devices collect data on location, temperature (Fig 1) and depth (Fig 2) at an interval of 10 seconds. The MK10 is an archival tag, which means that it collects and stores data. As sharks are underwater for the majority of time, familiar GPS tags, such as the ones deployed on turtles, cannot be used for fish. The tag is programmed to collect data for a defined period of time, in this case 120 days. After the set time period the tag automatically detaches itself from the animal and floats to the surface where it transmits the collected archival data back via satellite.

The spot pattern IDs of the sharks were compared to the Sharkwatch Arabia database and it was confirmed that none of the sharks had been encountered before in this region.

Towards the end of July, notification was received that the deployed tags had detached prematurely after 19 days and started to transmit the collected data. The tags slowly transmitted the data over a five-day period via the ARGOS satellite system. Both tags managed to transmit that they had activated a premature detachment because the tags had been at a constant depth of 56m and 52m for a period of 192 hours (Fig 3).

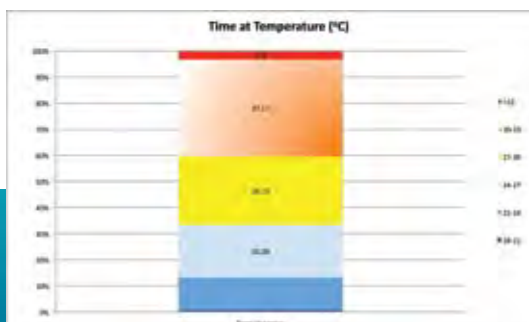


Fig 1. Percentage time 'Jenan' spent at temperature.



Fig 2. Percentage of time 'Jenan' spent at depth.

Examination into the behaviour of the sharks prior to the premature release revealed a normal diving pattern, with the shark swimming between the surface and bottom everyday through temperatures varying from 20 to 34°C. 192 hours before the tags detachment the sharks dived deep to 56m and 52m respectively and the tags never resurfaced. These final dives occurred within 24 hours of each other. It was concluded that there are two possible scenarios:

- 1.) that the sharks both died and the tags and the sharks sunk to the bottom
- 2.) that the tags became snagged on something at depth and pulled out of the sharks by the anchor

Both tags showed that there were distinct behaviour patterns relating to depth and temperature throughout the day and that both sharks displayed strong site fidelity during the time the tags were attached. Jenan spent certain times of the day at the surface, presumably feeding and then, at night, the majority of time was spent at depth between 20m and 50m.

Both tags, although deployed for a relatively short period of time, provided valuable insights into how whale sharks utilise the water column in the Arabian Gulf and this will be built upon as the other tags that have been deployed transmit their collected data. To date, three other tags have popped off, one after a 73 day deployment and two more after a full 120 day deployment.



Figure 3. The daily location track Jenan made in red and the tag's GPS locations in green after it detached.

## Support

Please support the Sharkwatch Arabia database by reporting any encounters of whale sharks in the Arabian Gulf or Gulf of Oman at [www.sharkwatcharabia.com](http://www.sharkwatcharabia.com). You can also join Sharkwatch Arabia on Facebook for regular updates.

## Acknowledgments

I would like to thank the Emirates Diving Association, Al Ghurair Foods and the Emirates Natural History Group for their continued support of this research project.



Fig 1. Corn crake on Qaru island (Aris Vidalis)