



Fight to save endangered sea turtles turns high-tech

State-of-the-art mapping technology is delivering a compelling insight into threats facing sea turtle rookeries and a clearer understanding of the action required to prevent decline.

A dedicated group of Australian-based scientific researchers and volunteers have turned to sophisticated mapping technology in their fight to save three of the world's endangered sea turtle species: Loggerhead, Green and Hawksbill turtles.

With sea turtle populations in drastic decline globally, the *Gnaraloo Turtle Conservation Program* (GTCP) is part of a worldwide effort to better understand and manage the dangers these animals face from predators and encroaching human activity.



The environmental location intelligence solution, developed using world-leading Esri ArcGIS technology, enables the GTCP to map, analyse and interpret crucial data relating to sea turtle rookeries, providing a clearer understanding of the action required to prevent decline.

Among the threats to the turtles at Gnaraloo on the Ningaloo coast, Western Australia, are foxes and native crabs which disturb and prey on turtle eggs and hatchlings, coastal tourism developments and overenthusiastic visitors.

Gnaraloo's Environmental Advisor Karen Hattingh said the turtles' plight warranted action and innovative resource investment.

"Studies have revealed that, due to predation and other threats, only about one out of 10,000 sea turtle hatchlings survive to sexual maturity, making the survival of every hatchling critical to the future of the species globally," she said.

"As turtle populations have been on the decline worldwide, studying, understanding and protecting the location of their primary nesting sites is of utmost importance."

To facilitate a better understanding of such habitat at Gnaraloo, the GTCP partnered with data mapping and location intelligence specialists Esri Australia.

Esri Australia's location intelligence solution, underpinned by world-leading Geographic Information System (GIS) technology, equipped the GTCP with the ability to map, analyse and interpret crucial data and its implications.

"Location intelligence is an essential capability for our data analysis and decision-making, and has enabled us to better understand the sea turtle rookeries on Gnaraloo's coastline," said Ms Hattingh.

During the annual turtle nesting season at Gnaraloo (November to April), a team of scientific researchers patrol beaches along Gnaraloo, recording turtle nesting activities based on track monitoring and nest identification. This information is then entered into sophisticated GIS software for mapping and analysis, so the GTCP can determine their course of action for future protection.

At the end of each nesting season, the GTCP widely release their findings to government, environmental agencies and other researchers, for consideration in planning and management decisions of visitation or land-use activities which may have significant impacts on the coastal nesting habitat of the turtles.

Through their partnership with Esri Australia, the GTCP have significantly improved the quality of their reports, which has provided their research with greater credibility and scope. This will continue to highlight the need for protection of the Ningaloo sea turtles and critical coastal nesting habitat.

With Esri Australia's location intelligence solution, the GTCP have a more compelling insight into threats facing sea turtle rookeries and a clearer understanding of the action required to prevent decline.

“Location intelligence is an essential capability for our data analysis and decision-making, and has enabled us to better understand the sea turtle rookeries on Gnaraloo's coastline.”

Karen Hattingh,
Gnaraloo Environmental Advisor



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