

# QPWS project underway to assess impact of scuba divers on critically endangered grey nurse sharks at Wolf Rock and Flat Rock

by Amanda Delaforce and Carley Kilpatrick, Senior Conservation Officers, Great Barrier Reef and Marine Parks & Erin Atkinson, Ranger, Rainbow Beach

**Project Partners:** Great Barrier Reef and Marine Parks, Queensland Parks and Wildlife Service (QPWS), Queensland Threatened Species Unit, Environment and Heritage Protection (EHP), Sea Life Sunshine Coast/Sea Life Trust (Sea Life), Burnett Mary Regional Group (BMRG) and The University of Queensland (UQ).

**Project Funding (Wolf Rock):** Australian Government (National Landcare Program Regional Investment 2015-2018 – Healthy Habitats – Regional Recovery of Threatened Species and Ecological Communities within the Burnett Mary facilitated through BMRG) and the Sea Life Trust.



Wolf Rock located off Double Island Point

## THE PROJECT

A team from Queensland Parks and Wildlife Service Great Barrier Reef and Marine Parks, led by Dr Carley Kilpatrick and Amanda Delaforce, have undertaken a project to identify, obtain data and assess any impacts scuba divers have on the numbers, presence/absence and movements of grey nurse sharks (*Carcharias taurus*) within declared grey nurse shark designated areas at Wolf Rock located within the Great Sandy Marine Park and Flat Rock located within the Moreton Bay Marine Park.

### STAGE 1

In October 2016, a team of QPWS marine parks staff conducted Stage 1 range testing to ensure detailed movement patterns of tagged grey nurse sharks and tagged scuba divers can be obtained. The team also tested if the boundary receiver array can determine when a tagged grey nurse shark leaves the protected area of Wolf Rock and returns.



The QPWS marine parks project team had a few big days preparing equipment, deploying and retrieving all the equipment which included acoustic listening stations, sync tags, ropes, buoys, and chains. The range test

data collected was subsequently analysed and with a few minor changes the project team were given the okay to progress to Stage 2—equipment deployment for the study.

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*“Thanks to all those involved in preparation and field work for Stage 1 – QPWS: Mike Carr, Steve Hoseck, Sam Miles, Rohan Couch, David Thomas & Carli Lovell – QPWS GSMP vessel T. H. Thompson; UQ: Professor Mike Bennett and volunteer Michaela Rathbone; and CSIRO: Russ Bradford” Amanda and Carley.*

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## STAGE 2

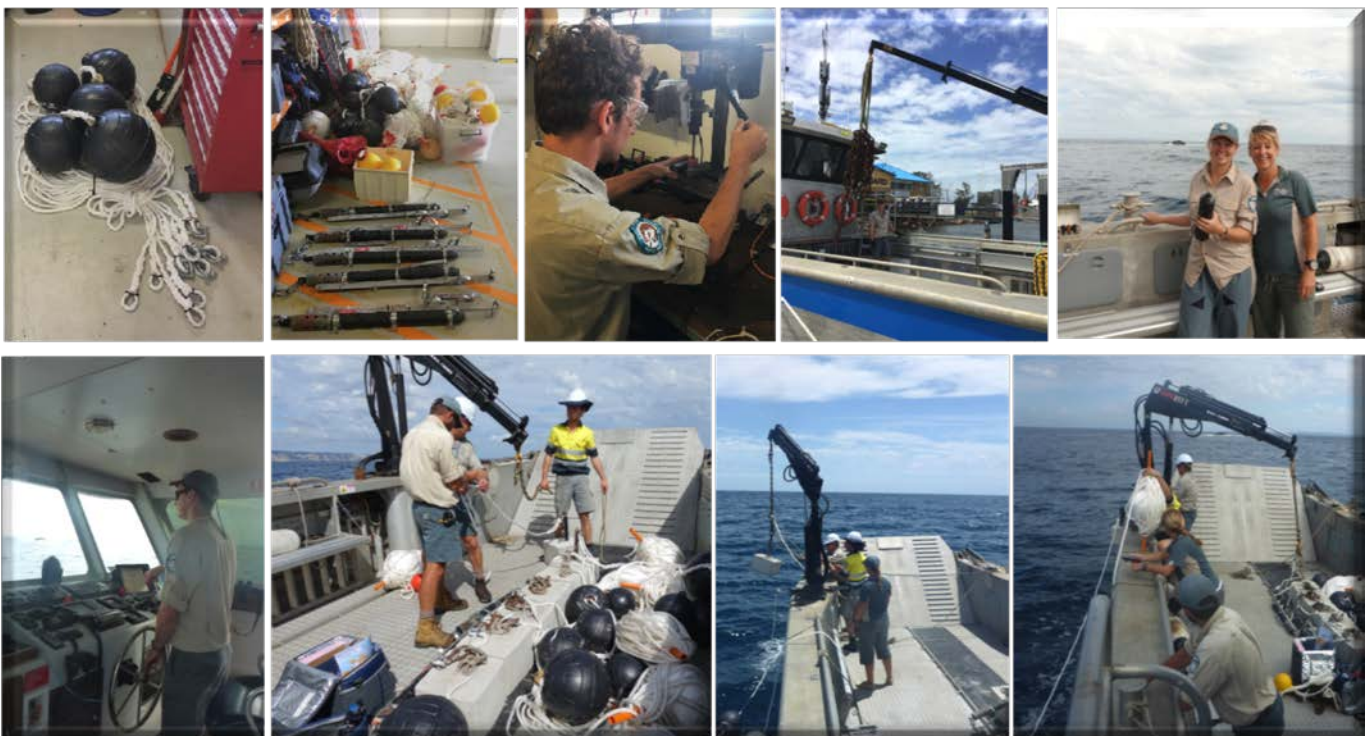
Stage 2 was conducted in December 2016. On the day, the team was fortunate to have good weather; around 8-10 knots, minimal current but relatively poor visibility for the divers (around 5-7m). The team were extremely positive, looked after each other and communicated well.

Day 1 (20<sup>th</sup> Dec 2016), the QPWS team headed north from Manly on their barge *Spoonbill* and anchored up at Double Island Point for some rest. However, the weather decided to challenge that idea with a wind change providing them with a not-so-comfortable side-on rock 'n' roll with acoustics.

After an at-sea transfer of Amanda and Carley from the contracted dive vessel to the *Spoonbill*, the QPWS team successfully deployed 13 acoustic receivers and their sync tags to pre-planned GPS positions on the sea floor to create the four VPS receiver arrays at

Wolf Rock. The team subsequently deployed five receivers with their sub-sea sonic releases, concrete mooring blocks and series of sub-surface floats around the 1.2km marine national park zone boundary surrounding Wolf Rock. As predicted, the depths were not as planned and some fast splicing by Zac was required to ensure sub-surface floats were at the depth required.

Finally, before the long steam home to Manly, two final receivers were deployed at nearby locations—The Pinnacles and Round Rock—and surface floats, no longer needed by the contracted dive team, were retrieved. Amanda and Carley were transferred back to the dive contractor's vessel and the *Spoonbill* and QPWS crew headed home with an increasing but following sea.



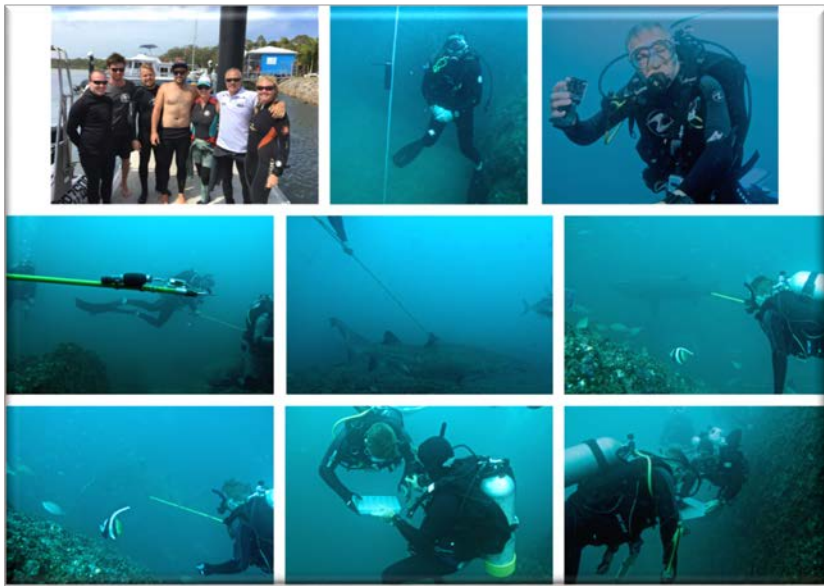
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*“Thanks to all those involved in preparation and field work for Stage 2 – QPWS: Mike Carr, Steve Hoseck, Andrew Lowe, Rohan Couch, Ben Cook & Zac Robba; Wolf Rock Dive: Kevin Phillips, Cheryl Maughan and Cassie Smith; CSIRO: Russell Babcock; and UQ volunteer: Michaela Rathbone” Amanda and Carley.*

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### STAGE 3

Stage 3 took place 22 December 2016 involving external tagging, genetic sampling and photo-identifying mature female grey nurse sharks at Wolf Rock. The project team successfully tagged four grey nurse sharks, obtained genetic samples from an additional five and collected photos for individual identification of as many sharks as possible in favourable, i.e. no current, relatively calm seas, yet challenging (5-7m visibility) dive conditions. Those involved made a dynamic project team. Everyone had their specific roles which included boat skipper, dive team supervision, shark tagging/genetic sampling, holding/transferring and keeping equipment and samples safe, photo identification and data collection; all of which went effortlessly.



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*“A big thank you to all those involved in this stage, great teamwork and communication - Wolf Rock Dive: James Nelson, Alex Heathcote and Fiona Nelson; Sea Life Sunshine Coast: Aaron Sprowl, Jesse Hart, Ade Lynch; Independent longstanding GNS research volunteers: Mike Carr and Ryan Keck; and CSIRO: Russell Babcock” Amanda and Carley.*

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### SOME EXCITING NEWS

*The first picture below, this GNS (ID number 1207) was photographed at Broughton Island, Port Stephens, NSW on 19 February 2008 as a juvenile, and from our recent tagging trip on 22 December 2016 the same shark, which is now a mature female adult with mating scars will carry the acoustic tag from this project.*

