



1. The current state of the Rowley Shoals

- a) Coral Communities
- b) Shark +predatory fishes
- c) Movement of predators







The current state of Rowley Shoals: coral communities



AIMS: Australia's tropical marine research agency.

A tale of two reefs: local conditions, disturbances, coral life histories and the climate catastrophe

James P. Gilmour, Kylie L. Cook, Nicole M. Ryan, Marjetta L. Puotinen, Rebecca H. Green, Andrew J. Heyward



Coral Reefs https://doi.org/10.1007/s00338-019-01795-8

REPORT

The state of Western Australia's coral reefs

James P. Gilmour^{1,2} · Kylie L. Cook¹ · Nicole M. Ryan¹ · Marjetta L. Puotinen¹ · Rebecca H. Green^{2,3,4} · George Shedrawi^{5,16} · Jean-Paul A. Hobbs⁶ · Damian P. Thomson⁷ · Russell C. Babcock⁸ · Joanna Buckee^{9,10} · Taryn Foster¹ · Zoe T. Richards^{6,11} · Shaun K. Wilson^{2,5} · Peter B. Barnes¹² · Teresa B. Coutts¹² · Ben T. Radford^{1,2,13} · Camilla H. Piggott^{1,2,14} · Martial Depczynski^{1,2} · Scott N. Evans¹⁵ · Verena Schoepf^{2,3,4} · Richard D. Evans^{2,5} · Andrew R. Halford¹⁶ · Christopher D. Nutt¹⁷ · Kevin P. Bancroft^{5,18} · Andrew J. Heyward¹ · Daniel Oades¹⁹



Year

Scott reefs

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Rowley Shoals

















0 1994 1996 1998 2000 2002 2004 2006 2008 2010 2012 2014 2016 2018 2020 Year



Australian Governmen





Australian Gove





Australian Governm















Australian Governm



Rowley Shoals

















The current state of Rowley Shoals: Fish and sharks



AIMS: Australia's tropical marine research agency.

Isolated reefs exhibit stable fish communities with high abundances of regionally exploited species

Matthew J. Birt, Katherine Cure, Shaun Wilson, Euan S. Harvey, Stephen J. Newman, Mark Meekan, Conrad Speed, Andrew Heyward, Jordan Goetze, James Gilmour

Submitted: Ecology and Evolution

Introduction

The Rowley shoals

- Low human visitation
- El Nino impacts low relative to northern reefs
- Protected and enforced

What do fish look like under these ideal conditions?

were plentiful. Rather indifferent catches were made by our crew at Scott Reef, Seringapatam Reef and Ashmore Reef, but the Rowley Shoals (Mermaid Reef) were found to be literally an angler's paradise and good catches were also made at Wood-

D.L. Serventy, 1952





Methods

Baited remote underwater video systems

- Three shoals (Imperieuse, Clerke and Mermaid)
- Status (fished and unfished)
- Three habitats (lagoon, slope, mesophotic)
- Year (2004, 2013 and 2018)





Results/Discussion

Fish assemblages

- No differences among shoals or status
- Unique assemblages within each habitat

Regionally exploited species

- Mesophotic habitat important for some species
- Remarkable stability through time



Results/Discussion

How do the Rowley Shoals compare to other remote reefs?

- High abundances of regionally exploited species
- Isolation alone doesn't always translate to 'pristine' conditions
- Island geomorphology, geographic location and historical fishing important factors













The current state of Rowley Shoals: Movement and connectivity of marine predators



AIMS: Australia's tropical marine research agency.

Movement and connectivity of marine predators within remote coral reef systems

Luciana C. Ferreira¹, Ronen Galaiduk¹, Ben Radford¹, Michele Thums¹, Mark Meekan¹, Robert Harcourt², Kate A. Lee^{2,3}, Eric Treml⁴

¹Australian Institute of Marine Science ²Macquarie University ³Sydney Institute of Marine Science ⁴Deakin University

Manuscript prepared for journal: Movement Ecology

l.ferreira@aims.gov.au

Aims

Understand movement patterns of coral reef predators and how they might affect connectivity

- How movement varies among species and sites
- Core sites and habitats
- Habitat use among species and reef systems

Methods

IMOS Animal Tracking Facility https://portal.aodn.org.au/

Acoustic tracking data



Network analyses







Rowley Shoals







- Grey reef shark movements promote connectivity between coral reefs
- Existing MPA at Rowley Shoals are likely effective for protecting connectivity at a local-scale promoted by mesopredators
- The large-scale connectivity within and between reefs maintained by sharks, however, is still left unprotected.







The current state of the Rowley Shoals

QUESTIONS?

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