



Dr Ian McLeod

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## AIMS@JCU News

### AIMS@JCU awards:

Each year, AIMS@JCU invites competitive applications for science communication and pilot research awards and sponsors new AMSA memberships.

Congratulations to the winners of the first round of pilot research awards:

Danilo Malara received \$1,000 towards laboratory costs for his project: Gnotobiotic microalgae culture using cationic porphyrin, supervised by Kirsten Heimann and Michael Oelgemoeller (JCU) and Lone Hoj (AIMS).

Molly Scott was awarded \$1,000 towards research for her project: The influence of increasing temperature on predator-prey interactions and consumption rates of coral trout; *Plectropomus leopardus*, supervised by Morgan Pratchett and Andrew Tobin (JCU) and Michelle Heupel (AIMS).

The following students have been awarded a one-year membership of AMSA, in recognition of Joe Baker who has personally sponsored such awards for the past 6 years. We hope that Carlos Bohorquez Rueda, Felicity Kuek, Rodrigo Gurdek and Molly Scott will find their membership of AMSA valuable for their research and networking.

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Photographs in this publication were submitted by AIMS@JCU members unless otherwise stated

### About the AIMS@JCU Newsletter:

This newsletter is produced quarterly and distributed by email to AIMS@JCU members, AIMS and JCU staff.

If you'd like to be added to our mailing list, or have a query regarding this newsletter, please contact:

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The following ten students have received a science communication award to attend the International Coral Reef Symposium (ICRS) in Honolulu, USA (19-24 June 2016): Catalina Aguilar, Kristen Anderson, Kathryn Berry, Patrick Buerger, Amin Mohamed Esmail, Tiffany Sih, Jordan Matley, Sam Matthews, Blake Ramsby and Molly Scott.

In addition, the following students have also received science communication awards for other conferences: Geoff Collins - Australian Society for Fish Biology Annual Conference in Hobart (04-08 September 2016); Danilo Malara - The IV International Conference on Antimicrobial Research (ICAR2016) in Torremolinos, Malaga, Spain (29 June – 1 July 2016); and Peter Morse - Congress of the International Society for Behavioural Ecology in Exeter, UK (28 July – 03 August 2016).

A second round of Pilot Research Awards will be advertised mid-year, please keep an eye on our website and Facebook page for more information.

AIMS@JCU alumni update:

Congratulations to Sarah Castine on the birth of your beautiful baby girl, Elsie Rose and on your new position teaching aquaculture courses for the TAFE in Hobart.

Charlotte Johansson's daughter Lucy was born on the 28th of April in the morning, weighing 3.2 kg at 49cm - well done Charlotte!

ATSIMS: From just one of its partner schools, of the four ATSIMS alumni graduating last year, three are headed to University (all first in their family to do so, with two headed to JCU) and the fourth is doing a Traineeship with the Department of Aboriginal and Torres Strait Islander Partnerships). AIMS@JCU has committed to supporting ATSIMS with a \$2,000 commitment per year for two years. We look forward to welcoming ATSIMS alumni into the AIMS@JCU program, in due course.



Photograph courtesy of Heidi Luter

Samantha Sherman

## 2016 PhD Scholarship recipients

Rodrigo Gurdek

Rodrigo completed his Bachelor of Biological Sciences (Oceanography) with Honours at the University of the Republic of Uruguay in 2012 and has since completed a Masters in Geosciences at the same Institution. His research focused on analysing spatial and temporal change in community parameters of coastal fish and the relationships between these biological parameters (as well as fish functional traits) and geomorphological and abiotic factors. During his M.Sc. position Rodrigo visited the University of Sao Paulo (Brazil) and the University of Lisbon (Portugal), where he participated in the analysis of coastal fish communities and environmental parameters, as well as of population genetics of target fishery relevant species.



During the last three years, Rodrigo worked as a research assistant at the Oceanography and Marine Ecology Department of the University of the Republic of Uruguay where he was involved in teaching Biological Oceanography, Physical Oceanography and Ichthyology (undergraduate) courses. During this time, Rodrigo worked in different of projects, focusing on the collection, identification and ecological study of coastal fish species.

Rodrigo is undertaking a PhD in Natural and Physical Sciences under the supervision of Dr. Lynne van Herwerden (JCU), Dr. Jessica Benthuisen (AIMS) and Dr. Mark Baird (CSIRO). His project, Connectivity within fisheries species along the Great Barrier Reef: genomics and modelling, will investigate connectivity from economically and ecologically important coral reef fish, *Lutjanus carponotatus* (Stripey snapper), along the Great Barrier Reef. Due to the importance, life history characteristics and fishing pressure of *L. carponotatus*, a more sophisticated and comprehensive understanding of the population connectivity at contemporary time scales is required. To achieve this, a combination of genetic and

Patrick Buerger

## 2016 PhD Scholarship recipients

Rodrigo Gurdek continued

genomic analyses along with hydrodynamic and biogeochemical models, as part of the eReefs project, will be used. Through the study of genetic connectivity, patterns of connectivity among populations will be estimated, as well as of simulations of larval dispersal and survival, under varying climatic conditions. Results will inform policies for reef managers and fisheries agencies to ensure that management practices achieve their objectives and avoid overfishing.

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## 2016 PhD Scholarship recipients

Vanessa Haller



While originally from Germany, Vanessa has lived in Australia since 2009, first working and then studying at JCU. Vanessa completed her Bachelor of Science and Bachelor of Science with Honours (Marine Biology) in 2015 at James Cook University. Her honours research focused on fish ecology under the supervision of Geoff Jones (JCU). Her thesis examined the distribution and behaviour of surgeonfish (*Acanthuridae*) within marine reserves in Papua New Guinea.

Vanessa has started her PhD under the supervision of Michael Bode (ARC Centre of

Excellence, JCU), Garry Russ (JCU), Ken Anthony (AIMS) and Terry Walshe (AIMS) in January. Her project will focus on the management approach of ecosystems under multiple threats. It aims to integrate these threats in an ecologically meaningful way and tie the level of cumulative impacts into management decisions.

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Patrick Buerger

## Current student update

Jordan Matley

Investigation of movement patterns and resource use by sympatric coral trout (*Plectropomus spp.*)

Supervisors: Michelle Heupel (AIMS), Colin Simpfendorfer (JCU), Andrew Tobin (JCU)

Many coral reef fisheries target multiple species with varying life-history traits, abundances, and economic value. Often, similar species are managed or identified as one group for simplicity or due to uncertainty. This can be problematic if biological, ecological, and demographic differences exist among species. 'Coral trout' refers to a species group consisting of several targeted species (*Plectropomus spp.* and *Variola spp.*). However, because *Plectropomus leopardus* forms the majority of catches, other species are usually grouped with *P. leopardus*. As a result, little is known about how 'lesser' species interact with and exploit their environment.



My Ph.D. examines how different species of 'coral trout' differ in their temporal and spatial patterns of movement or feeding. I am expressly interested in determining if and how these species partition resources and habitat. Over the course of two years, I acoustically tagged ~150 individuals (*P. leopardus*, *P. laevis*, and *P. maculatus*) at inshore and offshore reefs. I also collected tissue samples from >100 individuals to identify temporal and spatial variation in prey selection between species using stable isotope analysis.

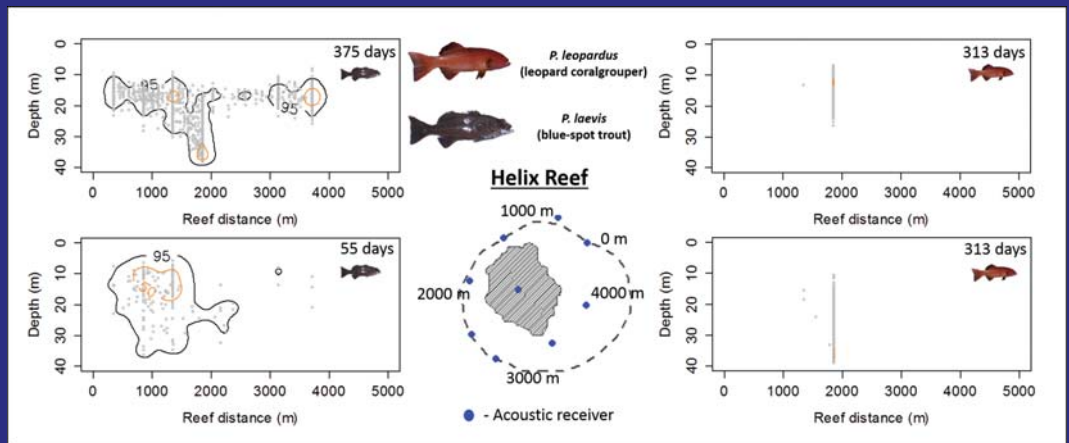
By using two different, yet complimentary techniques (acoustic telemetry and stable isotope analysis), I found that broad resource and habitat selection trends differ between sympatric species. For example, at offshore reefs there was spatial overlap between *P. laevis* and *P. leopardus*, however the former used an area ~2 times greater and consumed distinct prey. At the inshore reef, *P. maculatus* and *P. leopardus* rarely overlapped spatially, but had the same home range size and consumed similar prey.

Kathryn Berry

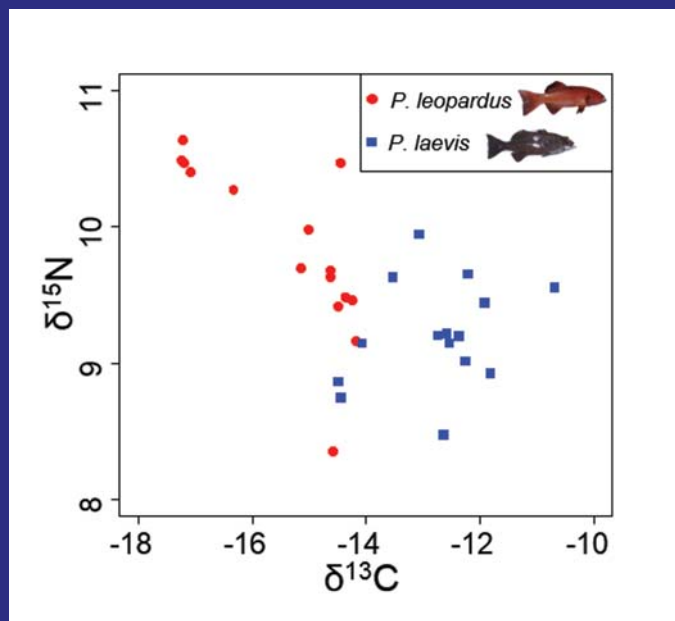
# Current student update continued

Jordan Matley

These differences indicate that, at least where they co-occur, each species has a unique ecological role that may have been shaped by niche partitioning. With ever-growing concerns of human and environmental stresses on coral reefs, there is need to understand how closely related species select resources and utilise their environment. By understanding how these species differ, we are better suited to identify vulnerabilities within a population and plan for future disturbances.



Comparison of space use between two species of coral trout (*Plectropomus leopardus* and *P. laevis*). The reef distance is measured as a linear representation of Helix Reef. Contour plots indicate where most of the time (detection period indicated) was spent (50% and 95% level). These individual plots demonstrate that blue-spot trout move more than the leopard coralgroupers.



Stable isotope ( $\delta^{15}\text{N}$  and  $\delta^{13}\text{C}$ ) bi-plot. The overall separation between species indicates different prey selection patterns.

Blanche D'nastasi

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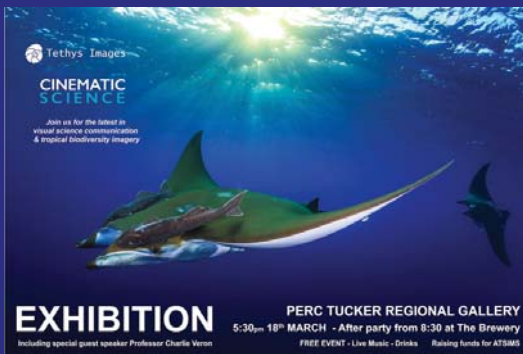
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## AIMS@JCU Alumni update

AIMS@JCU Alumni Dr Ian McLeod has been keeping busy since graduating from his PhD thesis in 2015. Along with working as a Principal Investigator at TropWATER, James Cook University focussing on Coastal Repair he is a co-founder of a media company called Cinematic Science.

Cinematic Science, a mini-multi-national with bases in north Queensland (Ian McLeod and Dr Mark Ziembicki) and California (Jon Rawlinson), is a collaboration between scientists, photographers and videographers. They use professional cinematic techniques and socially innovative campaigns to tell unique science-based stories.



They had their Australian launch party and pop-up exhibition at the Perc Tucker Regional Gallery on Friday 16th March along with friends and collaborators from Tethys Images. The launch was a real success with 300 attendees on the night, plenty of prints sold and over \$1,000 raised for ATSIMS - Aboriginals and Torres Strait Islanders in Marine Science. Guest speakers included esteemed scientist Dr Charlie Veron and Wilfred Reuben, a successful alumni from the ATSIMS program.



The Cinematic Science and Tethys Images teams  
From left: Matt Curnock, Ian McLeod, Mark Ziembicki, Ed Roberts and Tom Bridge

Learn more about Cinematic Science at [www.CinematicScience.com](http://www.CinematicScience.com)

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Kathryn Berry

## Research Director report

Graduation is a highlight of my year, and the ceremony last week was no exception with four AIMS@JCU students receiving their PhD plus an additional three in absentia. Those that came to the ceremony were: Dr Leanne Currey, Dr Justin Rizzari, Dr James Chun Hong Tan and Dr Nicolas John Ferre von Alvensleben. The following additional AIMS@JCU students did not attend graduation, but were awarded their PhD in absentia: Dr Young Koo Jin, Dr Jerome Genodepa and Dr Peter Yates.

AIMS@JCU will again convene a two week intensive course in biostatistics using R, to be taught by Murray Logan of AIMS. Preference will be given to AIMS@JCU students but as usual, it is likely there to be additional places available for other JCU students and both JCU and AIMS staff. The course will be held at the JCU City campus between 18th - 22nd July and 1st - 4th August.

Congratulations to the students who have been awarded AIMS@JCU awards as outlined earlier in this newsletter. So far this year, we have awarded \$17,250 in awards and we look forward to update from the students of their subsequent science communication outputs.

AIMS@JCU's move into the Division of Research and Innovation is almost complete, which should make many of our processes run much more smoothly. This also coincides with our physical move of offices along our 1st floor corridor in building 17 - we have now acquired four offices and have made one of these a dedicated "hot desk" room with three available desk spaces (Room 145) - all connected to the data ports. My new room is Room 147 and the main AIMS@JCU administration office housing Lauren and Melissa is Room 146. We also have a meeting room available, Room 144. Please feel free to pop in just to say hello, or to let us know of any issues you may be having.

Libby Evans-Illidge, AIMS@JCU Research Director

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Stacy Bierwagen