



November 2018

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Student Seminar Day

As always, it was a pleasure to be a part of the annual AIMS@JCU Student Seminar day where our student members showcase their research. The presentations were of an extremely high standard and here in the AIMS@JCU office, we were proud of the professional attitude you showed and the hard work that you all put in to making this such a high quality event. See page 8 for the Research Director's report of the day.

Congratulations to prize awardees:

Seminar Talk

- First: **Mikaela Nordborg** \$1,500
- Runner Up: **Vanessa Haller** \$1,200
- Joint People's Choice: **Mikaela Nordborg** and **Ana Paula Barbosa Martins** \$300 each

Speed Talk (3MT)

- Joint first place: **Mikaela Nordborg** and **Hannah Epstein** \$700 each
- Runner up: **Cecilia Pascelli** \$400

Poster

- First: **Katarina Damjanovic** \$800

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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:

Editor: Lauren Gregory
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AIMS@JCU Student Seminar Day

continued

Photography/imagery (\$100 each)

Research in Action:



Mikaela Nordborg

It takes a village to raise coral larvae

Research Subject:



Christopher Brunner

Coral releasing egg-sperm bundles into the water through the polyps

Photomicrograph/Macro:



Michael Jarrold

'The Eye of Sauron' - Mouth of Fungia Coral

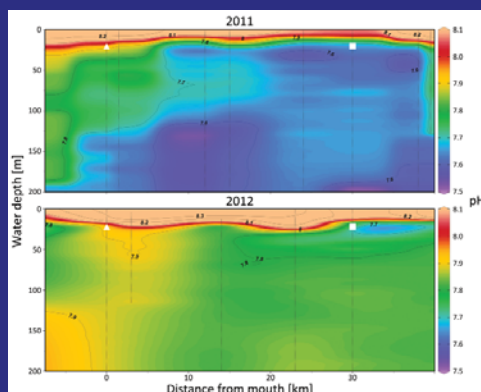
People's Choice:



Mikaela Nordborg

Underwater labelling and inventory of corals to be collected

Quantitative Marine Science:



Christopher Brunner

pH profile of the upper 200 m along the entire fjord Comau (Patagonia) in 2011 and 2012. Straight black lines indicate profiles along the fjord axis measured with a pH-sensor connected to a Conductivity-Temperature-Depth multiprobe. The location of sites where *Desmophyllum dianthus* corals have been cross-transplanted are indicated by a triangle (Lilihuapi) and cube (Cross-Huinay)

Christopher Brunner

Pilot Research Award report

Tiffany Sih

Pilot research funding allowed me to analyse extra otolith chemistry samples, broadening my pilot investigation of the elemental chemical concentrations of deepwater snapper. In 2015 I attended a special *Fish at Night* conference hosted by the Bulletin of Marine Science journal. It was a unique experience as much of the research presented demonstrated just how little we know about fish ecology once the sun goes down or if they inhabit deeper environments. I presented my Baited Remote Underwater Video Station research, which included discovering new fish species not previously recorded in the Great Barrier Reef. The International Coral Reef Symposium was the following year and it is an event not to be missed in a graduate student's career! It was the largest conference I have attended and presenting to a packed room in the Mesophotic Coral Ecosystems session was a feeling I will not forget. But I believe one of the most important aspects of communicating your science is also having the opportunity to hear other researchers and learn from them, all thanks to the generous support of AIMS@JCU!



Figure 1: My research collaborators on a glassy day transiting to the reef aboard the *R/V Cape Ferguson*. From left to right: Dr James Daniell (Lecturer, James Cook University), Dr Leanne Currey (AIMS), Dr Tom Bridge (Queensland Museum).



Figure 2: Balancing multiple research objectives, the crew aboard the *R/V Cape Ferguson* communicate well and work hard and that safety is a priority. Pictured here: First Mate Ragini and Lead Scientific Officer Peter Speare.

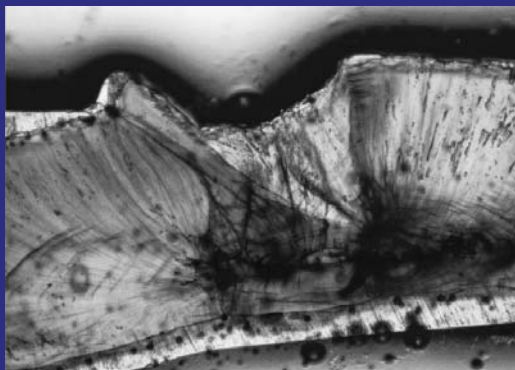


Figure 3: An otolith section prepared for chemical analyses.



Figure 4: Performing pre-checks before a long day of laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) at the Advanced Analytical Centre at JCU.

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Michael Jarrold

Pilot Research Award report

Lachlan George

In 2017 I was very grateful to receive an AIMS@JCU pilot award to assist with the research I was conducting during my honour's. The topic of my honour's project was the movement and habitat use of juvenile blacktip reef sharks (*Carcharhinus melanopterus*) in a nearshore environment. Whilst there are a number of studies investigating the movements of juvenile blacktip reef sharks, there is very limited information surrounding their fine-scale movements (on the scale of metres). Therefore, one of the main aims for this project was to describe the fine-scale movements of juveniles and determine the ecological drivers that influence their behaviour and habitat use. To do this we used active acoustic telemetry to track juvenile blacktip reef sharks in Pioneer Bay at Orpheus Island.



Image by Colin Simpfendorfer

With the help of the AIMS@JCU pilot award I was able to carry out three field trips to Orpheus Island. These trips generally lasted for two weeks and required at least two volunteers to ensure field work was productive and successful. The award paid for accommodation at Orpheus Island Research Station

(OIRS) and the food that was necessary to sustain the team for the duration of the field trips. A total of six juveniles were tracked during the project, several over multiple days. Juveniles were found to move in synchrony with the tidal cycles, remaining in the shallow waters on the reef flat and reef crest during outgoing, low and incoming tides, while using inundated mangrove habitat during high tides. Interestingly the juveniles never left the bay or entered deeper water beyond the fringing reef. During low tide heights when juveniles were moving with the incoming or outgoing tide, linearity (how straight movement paths were) and rate of movement were significantly higher, whilst these measures were significantly lower during higher tide heights when juveniles were occupying mangrove habitat. This behaviour is likely to be a predator avoidance strategy suggesting this is one of the main ecological drivers influencing the movements and habitat use of juveniles in this area.

The support of the AIMS@JCU pilot award greatly assisted in being able to implement successful field trips. As a result, the data generated will contribute to my first scientific publication.

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Science Communication Award report

Samantha Sherman

In June 2018, I was fortunate to receive an AIMS@JCU Travel Funding Award to attend the Sharks International conference in Joao Pessoa, Brazil. This conference is held once every four years so this was the only chance for me to attend during my candidature. The travel award, in addition to an award for a poster presentation at AIMS@JCU day, significantly contributed to the cost of flights and conference registration. This conference was a fantastic networking opportunity for me as I was able to discuss future projects with leaders in my field.



I presented my research entitled "When sharks are away, rays will play: consequences of top predator removal on coral reef ecosystems." Using baited remote underwater video systems (BRUVS), I looked at the behaviour of small rays in areas with varying predator abundance. Rays in areas of low predator abundance returned to the BRUVS multiple times throughout a deployment and spent longer in front of the camera. These results are important in understanding how top predator removal does not just affect community composition but also animal behaviour. As I only had preliminary results at the time, presenting this work enabled me to get expert feedback for writing the manuscript of this project.



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Christopher
Brunner

Happy holidays AIMS@JCU members!

We would like to invite you to our end of year gathering on Thursday 29th November at The Loft Bar (upstairs at the Seaview Hotel on the Strand) from 6pm to 8.30pm for drinks and nibbles.

At the conclusion of this function, share cabs will be offered to those ready to go home.

Please RSVP to aims@jcu.edu.au with dietary requirements prior to 19th November.

We look forward to seeing you there!



Summary of her AIMS@JCU experience from **Tiffany Sih**:

"I am very grateful for the extra opportunities and funding that AIMS@JCU made accessible during my tenure as a PhD student. I have received both pilot research and science communication awards, which allowed me to broaden my research and to exchange ideas with other scientists around the world. However, the benefits that the AIMS@JCU partnership extended well beyond these awards. I appreciate that AIMS@JCU also provided student support beyond monetary funds by hosting an awesome annual AIMS@JCU student day, sponsoring R statistics courses with the brilliant Murray Logan (so good I had to attend it twice!), mindfulness workshops with Sharn Rocco, and providing ship-time aboard the *R/V Cape Ferguson* for my research and my collaborators"

Thank you Tiffany for your kind words, we hope lots of students have similar experiences and see the added value in being a part of the AIMS@JCU community.

Where are they now?

Danilo Malara



Danilo Malara, enrolled at JCU Townsville in 2013 and successfully completed his PhD in December 2017. He investigated the potential use of porphyrins to sterilize aquaculture water and live feed organisms. During his PhD, Danilo obtained a range of

important skills such as laboratory molecular techniques, statistical programming and animal husbandry.

Since successfully completing his PhD, Danilo has been educating visitors to the Great Barrier Reef as a Marine biologist and dive instructor in Cairns. In March 2018 he started a new role as Dive Safety Officer and Junior Aquarist at Cairns Aquarium and Reef Research Centre. Although the role is not as research based as Danilo would have hoped, he is using the skills gained through his studies. His principle tasks are to ensure the animals are behaving and living well. This means feeding correctly, cleaning tanks, sumps and skimmers when necessary as well as monitoring the water quality, looking after any sick or injured animals and managing disease.

The role allows Danilo to get close to many inhabitants of the Great Barrier Reef and tropical freshwater such as giant perch, bullrout, mud crabs, spiny tropical lobsters, porcupine pufferfish, eupelette shark, bluespot stingrays, Australian Canouse Stingray, honeycomb stingray, black, white and grey reef sharks, Queensland groupers.

Danilo applies his passion and curiosity to his work and hopes to continue to use his ever-broadening knowledge of marine industry to conduct practical and relevant marine science research.



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Christopher
Brunner

Research Director Report

We had yet another fantastic AIMS@JCU seminar day in September, many thanks to everyone who participated. This day is a highlight of the Townsville marine science calendar! The quantity and quality of all presentations was again incredible, and it was a pleasure to catch up with many of you and learn more about your research progress. Congratulations to not just the category winners, but all presenters on their achievement in science communication.

Samantha Munroe's Alumni keynote address was brilliant. I hope that everyone found her experiences inspiring – she gave a great case study of how to apply all those transferrable skills into life-after-PhD.

Health and safety is so important in everything we do. When commuting to AIMS, please put your safety first when making decisions about mode of transport. We do provide you with ANCAP 5 star safety rated vehicles based at the JCU Douglas campus. However, we do understand that this location is not always convenient.

Drumroll please...

After much behind-the-scenes negotiating, I am happy to announce that there will soon be a city-side option for you. We have added another vehicle to our fleet to be based at the AIMS Vessel Facility (AVF) in South Townsville. This secure compound is convenient to anyone travelling to AIMS from the city side of Townsville. Procedures for accessing this facility are being finalised, and will be announced to all commuters soon. We hope that the addition of this option will make your commute safer.

Finally – many thanks to everyone for making 2018 another wonderful year for AIMS@JCU. Special thanks are reserved for Lauren Gregory and Melissa McLean – these two people are the heart and soul of AIMS@JCU, and we couldn't operate without them! Have a Merry Christmas and holiday season, and I look forward to working with you all again in 2019.

Libby Evans-Illidge, AIMS@JCU Research Director

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Christopher
Brunner