A curious resident of the Moreton Bay Research Station display tank - an ocellaris clownfish - D. Alexander

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Cover images: A green turtle heads out to sea after laying her eggs – D. Chapman; a Humpback passing by MBRS – L. Trippett; a kangaroo casts a watchful eye over her joey – L. Trippett; Spoonbills take flight in Moreton Bay - L. Trippett; a close-up of a jellyfish washed ashore at Cylinder Beach – L. Trippett.
ISLAND RESEARCH STATIONS

Moreton Bay Research Station

Moreton Bay Research Station (MBRS) is located 40 kilometres east of Brisbane on the Moreton Bay side of North Stradbroke Island, providing direct access to the waters of Moreton Bay and the Pacific Ocean as well as the unique terrestrial environments of the 27,700 hectare sand island.

Lying on the convergence of the eastern Australian subtropical and temperate zones, North Stradbroke Island and the surrounding waters support an incredibly diverse range of terrestrial, coastal and marine ecosystems on which to base research and education activities.

Also owned and operated by the University of Queensland, the research station offers accommodation for up to 96 guests in a range of accommodation styles. Modern research laboratories, teaching space and lecture theatres, boating facilities and a fabulous location attract visiting scientists and academics from around the world each year. The permanent staff of five are available to assist with planning your visit and provide scientific and boating support as required.

Heron Island Research Station

Situated on the southern Great Barrier Reef, 80 km offshore from the city of Gladstone, Heron Island Research Station (HIRS) is the oldest and largest marine research station on the Reef. With crystal clear water and near pristine conditions, the Station provides easy and direct access to the marine environment.

Owned and operated by The University of Queensland, HIRS is internationally renowned for coral reef research and student training in marine sciences. Facilities and equipment rarely found in an offshore facility combined with its enviable position on the world’s largest reef make HIRS the ideal location for climate change research.

The Station caters to Australian and international researchers and educational groups, offering modern wet and dry laboratories, indoor and outdoor aquaria, a large animal holding tank, separate research and teaching laboratories, seminar facilities, a library, computer room and extensive boating and diving facilities. A permanent staff of ten are available to provide scientific services, boating, diving and technical support.
2015 has been a year of change, with the introduction of a new catering company, the creation of two station assistant positions and a new face in housekeeping. The caterer, 4 Simplicity, started at the station in September. With a fresh new menu and strong customer focus, feedback from clients has been overwhelmingly positive. We would also like to welcome our new staff: station assistants Morgan Chance and Matt Hayes and housekeeper, with Spotless, Andrew Perry.

Staff were recognised in the UQ Awards for Excellence and the Healthy Waterways Awards this year. At the UQ Awards, Morgan and Kathryn received an Award for Excellence in Innovation and Martin and I were part of a team who won the Award for Excellence in Wellness and Safety. Kathy and her team won the Healthy Waterways Research Award for their work on the impact of marine debris on sea turtles.

External funding from local mining company Sibelco Pty Ltd continued to support several of our outreach projects – including the MBRS Open Day and the ever-popular Mad Science Club. Sibelco will also provide funding for postgraduate grants to encourage research in 2016.

The station has been in the news this year, with the “turtles in swimsuits” story, highlighting the research of Owen Coffee, officially going viral. The story was featured in news outlets around the world and translated into multiple languages, helping raise the international profile of MBRS.

We have continued co-ordinating the maintenance and data download for the “Moreton Bay Array”, a joint venture between UQ, JCU, CSIRO, and DEHP consisting of 23 acoustic receiving stations placed strategically around Moreton Bay to track tagged animals. This data is shared on the IMOS - AATAMS network, benefiting many researchers.

We look forward to an exciting and productive 2016, filled with even more opportunities for collaboration, research and education and hope to welcome you back on station in the near future.
The year started off with a flurry of activity in the form of a significant round of maintenance works across the station. Much of the works involved repairs and upkeep to the building exteriors including carpentry work, plumbing and some painting. These works will help to ensure the facility remains at a high standard for our clients. Many thanks must go to all the clients who visited the station over that period for being incredibly patient of the works.

Upgrade and replacement of equipment remained a strong focus this year with the station investigating the purchase for a new research vessel, repairs to the rigid hull inflatable vessels, a new tractor and many other purchases across the station. We also began scoping plans to improve the stations seawater intake. 2016 promises to be very busy!

We welcomed Brad Latimer back to our Maintenance team. As a qualified electrician Brad’s skills are vital to the stations operations and can also be utilised by our researchers. Kimberly Condon joined the housekeeping team and has been a delightful addition. Kim’s hard working and friendly attitude has been wonderful to have around the station.

2015 was once again a strong year for the station. We welcomed first time groups and researchers to the station, many of which we’ll see again next year. With facility operations moving strongly forward our focus now turns to improvement and innovation. We are now looking at what new ideas might strengthen the stations standing as a world class research station. This process will rely heavily on input from our clientele so we strongly encourage you to provide feedback and ideas that we can implement to make the station more visible, dynamic and stronger.

We hope your 2015 was a safe and productive one and we look forward to seeing you in 2016!
MBRS RESEARCH HIGHLIGHTS IN 2015

The Research Station’s location on the second largest sand island, on the doorstep of Moreton Bay, allows visitors to conduct a wide range of both terrestrial and marine activities. With a diverse boat fleet and two four-wheel drives, the Island and Bay are open to explore. This year, the Station continued to host researchers from a broad range of disciplines.

Post-flood, grass not greener
Peter Hannington, a PhD candidate at The University of Queensland, utilised the station’s boating fleet to study the effect of a major flood event on seagrass in Moreton Bay. 50% of the seagrass meadow was lost, with massive potential impacts to the ecosystem and the organisms which rely on these important habitats.

Rising seas, turbid times
Increases in sea level can threaten mangrove forests. However, it is predicted that tidal wetlands can keep pace with sea level rise if soil build-up keeps pace with the sea level rise. UQ researcher, Cath Lovelock identified that there were few tests of these predictions in mangrove forests and set out to examine this in Moreton Bay. Cath found that the predictions were correct for fine sediments, but not necessarily coarse sediments. These findings will help researchers to better predict the impacts of sea level rise on coastal communities.

Filefish: create change
Ben Gilby, a UQ PhD candidate who spends much of his time at MBRS, has been investigating the ability of filefish to change their skin colouration when faced with the challenge of changing backgrounds in their habitat. The ability to camouflage well is a key factor in surviving predation.

Life and times of dolphins
Post-doctoral researcher, Ina Ansmann has been a regular station visitor throughout her PhD, taking advantage of the Station’s proximity to the Bay and boating fleet to monitor dolphins. She recently published her findings on how dolphins use resource partitioning for food and habitat providing valuable information for the management and conservation of this iconic species.

Turtle togs
The most well-covered research story this year focused on turtles in swimsuits. UQ PhD student Owen Coffee and researcher Carmen da Silva, have developed an ingenious solution for collecting turtle faeces in the open ocean by dressing the turtles in stylish, customised swimsuits. Owen is researching the diet of endangered sea turtles in the hope of locating their foraging areas to better protect the species.

Find more research highlights in the 2015 Publications!
Once again, HIRS saw a varied group of researchers pass through the Station in 2015 showcasing the breadth of research that can be carried out from the facility.

Taking a break
The station hosted Monash University PhD student Sean Williamson who was studying how long green sea turtle embryos take to break embryonic arrest following being laid. Using incubation experiments in the laboratory he looked at how variations in oxygen availability affected embryonic development.

One cell at a time
Dr Daniel Nielsen and Dr Katherina Petrou have been studying coral bleaching on Heron Island, one cell at a time. By building the first-ever live-imaging micro-fluidic chamber system they exposed coral cells to controlled environmental conditions such as high light, temperature and water chemistry to better understand their response and resilience to such conditions.

How sea cucumbers roll
University of Sydney PhD student Kennedy Wolfe spent a month on Heron Island delving into the ecological role of sea cucumbers to understand how reef function is affected by these animals. His research provides crucial information for the establishment of sustainable fisheries practices, sea cucumber conservation, and reef resilience, especially in the face of climate change.

Buoys at work
This year HIRS Boating and Diving staff assisted CSIRO in retrieving and redeploying their buoy system from the waters around Heron Island. This buoy has been established at Heron Island since 2009 and its primary mission is to evaluate the variability in air-sea CO₂ fluxes by conducting high resolution measurements.

Algae vs Coral
Dr Dorothea Bender spent many months on Heron this year with a large experimental setup. Her project aims to investigate the chemical effects of a benthic macroalga on a common coral, located downstream of the algae, under present and future conditions. In the future, ocean acidification and increasing seawater temperatures are expected to have negative effects on coral calcification and therefore on reef growth and survival. Benthic algae, amongst other organisms, are competing for space with reef-building corals.

For more information, check out the 2015 Publications!
A DAY IN THE LIFE  EDUCATION CO-ORDINATOR KATHY TOWNSEND

Dr. Kathy Townsend is a long-term team member at Moreton Bay Research Station. She has been a focal point for education, outreach, and research activities on the station since 2000. She is responsible for Stradbroke Island Science Camps, community outreach, and research liaison, and because of these commitments; her days are full and varied.

08:00  Walk to work.
08:15  Arrive at station, check in with guests.
08:30  Photograph and interview researchers, write press release on latest research happening at station. Update station Facebook page.
09:00  Liaise with school teachers about Stradbroke Island Science Camps.
10:00  Morning tea.
10:15  Respond to stranded sea turtle. Place on drip, clean, give freshwater bath. Inform QPWS and QYAC, organise transport, check throughout day.
10:45  Meet with visiting postgraduate students to discuss projects, provide local knowledge and technical advice.
11:00  Staff meet to discuss week ahead.
12:00  Lunch.
12:45  Arrange dive team and boats for Moreton Bay Array retrieval.
14:00  Mad Science Club at Dunwich State Secondary School, meet the senior Mad Scientists.
15:30  Guest lecture for overseas university group on marine conservation.
16:30  Walk home along the beach.
**MBRS**

MBRS strongly supports research programs that promote research relevant to Moreton Bay, its terrestrial habitats, surrounding waters, social and cultural environments. MBRS offers scholarships to UQ PhD and Honours students.

The Semester I Research Scholarship was awarded to Amber Jesse, an Honours student from the School of Biological Sciences. Amber is studying microbial fermentation in the hindgut of dugongs. The second Research Scholarship was awarded to Joshua Thia, a PhD student from the School of Biological Sciences, studying dispersal, connectivity, and local habitat partitioning in the Cocos frill goby.

The Semester II Research Scholarship was awarded to Daniel Huston, a PhD student from the School of Biological Sciences for his project investigating the life cycles of trematodes of Moreton Bay. The second Research Scholarship was awarded to Nicholas Wee, an Honours student from the School of Biological Sciences, identifying the number of species of Proctoeces trematodes in fishes in Moreton Bay.

**HIRS**

The Heron Island Research Scholarship is a merit-based scheme. It promotes early career research programs at Heron Island Research Station by helping researchers from The University of Queensland either develop new research projects at the Station or expand existing ones.

The Semester I Research Scholarship was awarded to James Sadler, a PhD candidate in the School of Earth Sciences. James is using coral cores to investigate the riddle of reef spur and grooves to provide valuable insights into how they form and evolve with time.

The Semester II Research Scholarship was awarded to Tahsha Say, a PhD student from the School of Biological Sciences for her project which aims to understand how free-swimming, sponge larvae sense their environment to find a suitable home on the Great Barrier Reef.

These scholarships are available every semester and further details can be found on the Station websites: [www.uq.edu.au/hirs/scholarships](http://www.uq.edu.au/hirs/scholarships) and [www.uq.edu.au/mbrs/scholarships](http://www.uq.edu.au/mbrs/scholarships)
For MBRS, 2015 was a year of community support, outreach and education.

Early in the year, the station, the Quandamooka Rangers, Sea World, and the Queensland Parks and Wildlife Service worked together to save Barry the turtle, who was found with a severe case of floating syndrome. Once Barry was stabilised, QPWS took him to Sea World for a full assessment and antibiotic treatment.

The Station hosted traditional Hawaiian Voyaging Canoe Hōkūleʻa as it sails around the World to promote Indigenous Knowledge, Ocean Restoration and Global Sustainability. The Captain of the Hōkūleʻa, Kālepa Baybayan, gave an excellent presentation about the vessel and journey.

Dr Kathy Townsend travelled to Heron Island for the 2015 Marine Teachers Association of Queensland Conference which provided a great opportunity to promote the Stradbroke Island Science Camps to teachers. MBRS is looking forward to hosting the 2016 MTAQ conference and to showcasing the Station facilities and what is unique to North Stradbroke Island.

The 2015 MBRS Open Day was once again a wonderful success. Supported by funding from Sibelco Australia and SEQ Catchments, the day had something for all of the 1000 plus guests who attended. A Welcome to Country by Quandamooka elders Aunty Margaret Iselin and Aunty Bernice Fischer set the scene for the sharing of knowledge between cultures. UQ Associate Professor Ian Tibbetts lead guided marine walks on the foreshore, and Quandamooka man Matthew Burns took guests on a Goompie Trail, sharing his traditional knowledge of the area. The research talks from twenty experts in their field were well attended, while the art workshops, Gecko Wildlife show and Mad Science Club Show were a hit with the kids.

We were honoured by the presence of multiple VIP’s, including Redland City Councillor Craig Ogilvie, the Goodman Family (long term supporters of UQ and MBRS), and Professor Ian Gentle, Deputy Executive Dean (Science). However, the biggest thanks goes to the 30 Open Day volunteers. Without their help, the event would not have been such a success.

The team of volunteers and staff at the 2015 MBRS Open Day; without them, the day would not have been possible - K. Townsend

Barry the green sea turtle in triage at MBRS. A second turtle, Billy, arrived with similar symptoms a week later, highlighting the need to keep plastic and other rubbish out of the ocean - K. Townsend
2015 was an exciting year for HIRS with a strong focus on community engagement and education.

The station once again had a presence at the **UQ St Lucia Open Day**. It was wonderful to have so many high school students coming up enquiring about a future in marine science. This year we also held our very own **Open Day** on the island. Coinciding with school holidays, we welcomed over 200 resort guests to the station to learn more about the facility, the research that happens here and citizen science. Thanks to the Coral Reef Ecosystem Lab for their wonderful tour of the Climate Change project.

The station had a great time hosting the **Marine Teachers Association of Queensland** annual conference this year. This conference brings together marine teachers to discuss the syllabus and learn new techniques for engaging students in Marine Science.

It was a privilege and an honour to welcome **Sir David Attenborough** to the station late last year. Accompanied by a large film crew, they spent the week filming, with a particular focus on the epaulette sharks and their amazing walking ability and the climate change experiment.

Wondering what the visibility is like before you get out on the water? With a **live camera feed** now setup at Harry’s Bommie you can find out. A collaborative project between AIMS and UQ saw the installation of a live camera feed at Harry’s Bommie this year. You can see what’s happening underwater without even getting wet!
The location and facilities of MBRS make the Station popular with secondary and tertiary groups alike. With an extensive diversity of both marine and terrestrial habitats on your doorstep, learning experiences can be tailored to fit your needs.

“I would like to express my warmest thanks to all our course faculty and assistants for their expertise and enthusiasm, and to the Manager and staff of the Moreton Bay Research Station for their friendly and efficient support.” - Noosa Christian College

“The trip to MBRS was a really fantastic educational experience for my students. Many told me that prior to the visit, they had not thought that the environment was important, but that their trip to Straddie changed their mind. It was a very valuable experience, and the MBRS provided an excellent venue which was an important factor.” - UQ Environmental Systems Engineering

“The support we received from the staff at MBRS during the planning of our course was only a precursor to the amazingly helpful, accommodating and flexible assistance we received during our time at the station. Nothing was a problem.” - Lesley Douglas, Blue Planet Marine
Senior high school, undergraduate and postgraduate groups use HIRS facilities as an integral part of their degree programs. World class facilities and immediate access to the reef provide exceptional opportunities for hands-on learning.

"HIRS is as well presented as ever. It's nice to see some improvements and that the station is being well maintained. All staff were very efficient and friendly, nothing was a trouble." - Jamison High School

“We appreciate the wonderful opportunities that this world class facility offers our students. The resident scientific staff and visiting researchers are always accommodating.” - Coombabah State High School

We were delighted to hear that St Andrew's Anglican College student Emily Korrum won the Senior Scientist Award at the University of Sunshine Coast’s 2015 Science Research Awards for her experiment ‘Coral Surface Area and Morphology’. Emily’s experiment compared the distribution of coral at varying depths off Heron Island. Emily spent a week at the research station in April designing her experiment and then collecting her data. It is great to see her recognised and we hope to see Emily back on station soon.
ISLAND RESEARCH

Situated on a coral cay in the Great Barrier Reef and on one of Australia’s largest sand islands are the Heron Island Research Station and the Moreton Bay Research Station. Both facilities are situated in the heart of Australia’s most biodiverse environments and are completely dedicated to research and education of Australia’s coastal and marine environments. These facilities attract national and international visitation from high schools to Universities alike and play a crucial role in advancing cutting edge research and promoting the importance of Australia’s wonderful coastal and marine habitats. By supporting the Research Stations with cash or in-kind donations, your gift will contribute to ground-breaking research, advancing global education and creating a sustainable future.

Find out more!
Find out how you can get involved in supporting our Island Research Stations by visiting www.uq.edu.au/hirs/get-involved or www.uq.edu.au/mbrs/get-involved

FRIENDS OF THE STATION

Supporters who give $500 or more (tax-deductible) can become a Friend of the Station.

As a Friend of the Station, some of the benefits you will receive include a supporter t-shirt, a personalised tour of the Station of your choice, your name on a plaque on the Station as well as your name printed in the newsletter which you will receive a copy of each year.

CURRENT SUPPORTERS

Kerry and Peter Skellem generously decided to encourage guests at their combined birthday party to donate to the Heron Island Research Station. The Station staff were happy to welcome Kerry and Peter’s daughter when she visited the Station with her high school and thank the family personally for their generosity.

Jack Goodacre kindly donated to HIRS and his donation was matched by his employer, Quadrant Energy.

Sibelco Australia Ltd, a mineral and metal extraction company on North Stradbroke Island, continues to provide financial support for MBRS Open Day and the Mad Science Club.
The Central Boating and Diving Facility was commissioned in 2005 as a central service for marine fieldwork. Providing research vessels, specialised scuba equipment and highly qualified personnel; boating and diving facilities at the Faculty of Science provide unmatched support for research and education.

The Central Boating and Diving Facility continues to offer the ADAS Part 1 Restricted (Scientific) Dive Course (80927ACT) and once again its was popular with students across The University of Queensland.

UQ was the first university to offer a nationally accredited scientific diving course and remains the only Group of Eight Universities to provide this level of training in-house. The intense three week dive course gives participants the necessary knowledge and skills to safely perform scientific diving tasks in a range of environments. Safety is a course priority, and we ensure that students master basic skills with scuba equipment before task loading participants with work and environmental challenges.

There was also some new equipment introduced to the facility this year. Finding deployed equipment can be like searching for a needle in a haystack so this year the Facility upgraded the GPS/Sounder units on Proteus and Scarus to assist in this often difficult task.

The new units update the GPS much more frequently than preceding units, adding to the accuracy of the GPS position and increasing the ability of the skipper to put the boat back on the same spot every time.

The units are also equipped with the latest generation of scanning sonar, allowing researchers to visualise underwater terrain without resorting to towed cameras or divers. This will aid in identification of suitable areas for deployment of equipment and increase the capacity to locate and check on the orientation of deployed equipment.

Email central.boating.diving@uq.edu.au to find out how we can assist you with your boating and diving needs today!

The freshwater Karawatha Quarry, the primary training site for students completing the ADAS course - C. Heatherington

Proteus' new sounder in action - M. Phillips

Recent cohort of ADAS students pool training - C. Heatherington
Hirs


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**MBRS**


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