



The UTS Fish Ecology lab has had an eventful and successful 2014! While we sadly farewelled Kerryn after a decade at UTS, Sam Philp has ably stepped up to the plate as Lab technical officer. The departure of David Feary (Univ Nottingham) and Ash Fowler (NSW DPI Fisheries) has also left quite a gap, but both are gainfully employed and great contacts for the future! Grant success in the form of an Ian Potter award and several Industry research grants, plus an impressive swag of lab publications have added to the good progress we are making in research. We have been assisted by a number of lab and field volunteers.

I also want to particularly thank all lab members for support given to me during my bereavement this year, it really helped! Especially to Selma for her help in eroding the mountain of marking that arrived at the wrong time! I hope this short newsletter is the first of many (to summarise events in the previous quarter), it's a great way to summarise what we are doing, for ourselves and also to others. If you didn't contribute to it please stand by for the next call for info, around February.

Hope everyone has a break over the Christmas period and has a great 2015.

Cheers,

Dave



Prof. Dave Booth with crate habitat structure at Andrew Charlton Pool.

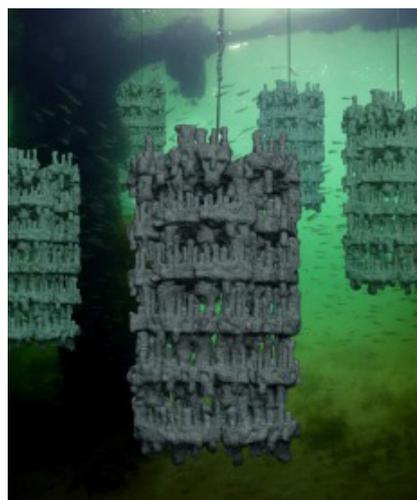
## RECENT WORK/PROJECT UPDATES

DAVID BOOTH & SAM PHILP

### Habitat enhancement of boating infrastructure to promote fish recruitment.

(Project funded by Transport for NSW)

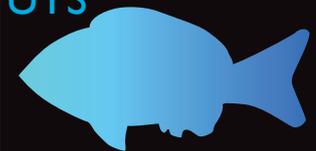
Public floating pontoons throughout Sydney Harbour, Pittwater, Botany Bay and Port Hacking have had simple habitat structures attached to their undersides in an attempt to provide shelter and promote larval fish recruitment thus making pontoons more 'fish friendly' at minimal cost. Crates have been rolled out throughout the four waterways with a second stage looking introducing them to Port Hacking as well as a reef-plate unit (Reef Design Lab<sup>®</sup>) comparison.



Reef plates to be trialed.



Fish already curious about the new milk crate reefs in the background.

**DAVID BOOTH**

Vagrant fish surveys will soon begin and have reached a milestone of 15 years of continual observation.

New work on deep sea video archive footage with Shell-Todd has begun and there is potential for more of this work with BHP.

**JENNI DONELSON**

Jenni is currently two years into her research fellowship at UTS. The past year has been spent running a large scale experiment on fish collected from the Northern Great Barrier Reef. This experiment included adults and recent recruits of up to 15 species of coral reef fish. She is currently started to analyse the data from this experiment.

In early 2014 Dave and Jenni had a paper published in PLoS One. The paper focussed on the ability for a reef damselfish to improve reproductive performance when reared at elevated temperature for its entire life.

In late 2014 at team that Jenni is a part of was successful in receiving a large grant from the King Abdullah University of Science and Technology. The grant money will be used to investigate the transcription program and the epigenome of transgenerational acclimation to climate change in reef fishes.

**SELMA KLANTEN**

Selma recently completed some work in the PC2 Molecular Laboratories at the Sydney Institute of Marine Science in Chowder Bay. This work involved amplifying three mitochondrial loci (cytochrome b, control region and cytochrome oxidase I) for two vagrant fish species; *Pomacentrus coelestis* and *Abudefduf vaigiensis*.

A total of 207 samples were sequenced and the results of analysis are to be published. Preliminary results for one individual of *Chaetodon auriga* has shown the incredible ability of very young fish to 'travel' roughly 2500km from Lizard Island in north Qld to Merimbula in southern NSW. This preliminary result was presented by Selma at the recent Australian Coral Reef Society conference which took place in Brisbane last August.

**NIKKI BRAMWELL**

Nikki's research aims to describe trends in seagrass fish communities with distance from intertidal rocky reefs or platforms in Jervis Bay. To do this, Nikki lay transects in the seagrass with increasing distance away from the reef and several parameters were measured along these transects.

Nikki is also collecting fish using seine netting and recording fish abundance via GoPro<sup>®</sup> footage. Much of this year had been spent in the lab sorting through and processing material collected over the January-February 2014 sampling period.

Nikki will also be running an aquarium experiment in early 2015 as part of her project. This will be in order to observe habitat choice in fishes when offered several habitat combinations. These different combinations include variations in food availability and predator presence/absence.

**GWENAEL CADIOU**

Gwen is currently busy analysing data and writing up his PhD thesis. At the end of June this year Gwen had completed extensive work with the Department of Primary Industry to retrieve acoustic receivers from Newcastle to Moruya as well as in the Georges, Shoalhaven and Clyde rivers.

Some of Gwen's work was presented at the recent Australian Marine Sciences Association conference in Canberra last July.

**RECENT GRANTS**

Transport for NSW (\$30,000): Habitat enhancement of boating infrastructure to promote fish recruitment.

Shell-Todd (\$40,000): Assessment of the fish and invertebrate communities associated with gas platforms off the northwest coast of New Zealand.

Paloma Matis has also received an APA award to go towards her PhD work.



## PUBLICATIONS (since Sept 2014)

**Fowler A.**, Macreadie P., **Booth D.** (in press). Should we 'reef' obsolete oil platforms? *Proc National Academy of Sciences*

McGowan N., **Fowler A. M.**, **Parkinson K.**, Bishop D. P., Ganio K., Doble P.A., **Booth D. J.** (2014). Beyond the transect: An alternative micro-chemical imaging method for fine scale analysis of trace elements in fish otoliths during early life. *The Science of the Total Environment*, 494-495.

Thomson A. C. G., York P. H., Smith T. M., Sherman C., **Booth D. J.**, Keough M. J., Ross D. J., Macreadie P. I. (2014). Seagrass Viviparous Propagules as a Potential Long-Distance Dispersal Mechanism. *Estuaries and Coasts*

Vergés A., Steinberg P. D., Hay M. E., Poore A. G. B., Campbell A. H., Ballesteros E., Heck Jr K. L., **Booth D. J.**, Coleman M.A., **Feary D.A.**, Figueira W., Langlois T., Marzinelli E. M., Mizerek T., Mumby P.J., Nakamura Y., Roughan M., van Sebille E., Gupta A. S., Smale D.A., Tomas F., Wernberg T. and Wilson S. K. (2014). The tropicalization of temperate marine ecosystems: climate-mediated changes in herbivory and community phase shifts. *Proc. R. Soc. B*

**Donelson J. M.**, McCormick M. I., **Booth D. J.**, Munday P. L. (2014). Reproductive Acclimation to Increased Water Temperature in a Tropical Reef Fish. *PLoS ONE* 9(5): e97223

## STUDENTS IN THE LAB

## PhD STUDENT

## HAYDEN BECK

Congratulations are in order for Hayden (soon to be Dr!) as he submitted his PhD thesis in November. Hayden's PhD looks at tropical fish recruitment success and how it varies among temperature reef habitats which could potentially impact their range expansion.

Since submitting his thesis, Hayden has been working as an environmental advisor to a dredging project in Western Australia.

An oral presentation of Hayden's thesis can be seen on the 17th of December at UTS.

## HONOURS STUDENTS

## ALYSSA KANYASI

Alyssa completed her honours thesis in November which looked at the age, growth and movement of short fin mako sharks in Australian waters. Alyssa achieved 1st Class Honours for her thesis which is an awesome result! Congratulations Alyssa.

## GRAEME POLEWESKI

Keep the applause going for our second honours student, Graeme who also received 1st Class Honours for his work looking at the potential of

## UNDERGRAD RESEARCH PROJECT STUDENTS

## ALICE PIDD

This year Alice has been looking at independent and combined effects of temperature and salinity on estuarine species *Enoplosus armatus* which is endemic to Australia. This project aims to highlight implications of climate change on the species.

## JONATHAN LEE

Jonathan's project this year was also looking at the implications of climate change on *Enoplosus armatus* in terms of temperature and salinity in Botany Bay, NSW.

## JUSTIN TIERNY

Justin's work involved tropical vagrant reef fish and the influence of different developmental water temperatures and their effect on growth, body condition and energy allocation. The primary species of focus was *Abudefduf vaigiensis*.

## SHANNEN SMITH

Shannen worked on determining the coastal migratory behaviour of *Mugil cephalus* in coastal NSW by using otolith microchemistry.



## PROSPECTIVE GRANTS

For students with projects relating to the below areas of study may be interested in trying to attain grants.

<http://www.australiancoralreefsociety.org/student-awards>

<http://www.amsa.asn.au/students/international.php>

<http://www.ecolsoc.org.au/students/awards-and-grants/jill-landsberg>

<http://www.gbrmpa.gov.au/managing-the-reef/how-the-reefs-managed/science-and-research/science-for-management-awards>

## CONFERENCES: PAST AND FUTURE

## AUSTRALIAN CORAL REEF SOCIETY 2014

There was no escape from UTS at ACRS with the Fish Ecology Lab contributing five papers as well as having three members on the ACRS Council.

## AUSTRALIAN MARINE SCIENCE ASSOC. 2015

The 2015 AMSA conference will be held from the 5th - 9th of July in Geelong, Victoria.

## ASFB/ISSESER 2015

UTS will play host to this upcoming conference, see above right.



ASFB & ISSESER 2015  
SYDNEY - AUSTRALIA

On behalf of the Organising Committee, you are invited to attend the

**2015 Australian Society for Fish Biology  
Annual Conference**

and

**5<sup>th</sup> International Symposium on Stock  
Enhancement and Sea Ranching**

to be held at

**Aerial Function Centre, University of  
Technology, Sydney, Australia**

from the

**11<sup>th</sup>-14<sup>th</sup> October 2015**

For more information please contact [matt.taylor@dpi.nsw.gov.au](mailto:matt.taylor@dpi.nsw.gov.au)

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## MEDIA EXPOSURE

## BBC WORLD

<http://www.bbc.com/news/world-australia-29705818>

## THE GUARDIAN

“Small fish in a big pond - the plight of the lemon damselfish”.

## ABC OVERNIGHT

Radio interview on sustainable seafood.

David Booth and other lab researchers have also been busy getting exposure at conferences and public seminars:

ACRS - Seminars given by Jenni Donelson, Selma Klanten, Dave Booth, Paloma Matis and Jack O'Connor.

David Booth - Northside forum Great Barrier Reef (<http://northsideforum.org.au/forum-31-great-barrier-reef-nov-1/>) (Picture next page)

David Booth - Central Coast discovery centre public lecture series.

David Booth - Keynote Address, DECOMM world workshop Kuala Lumpur, Nov 2014: Environmental Aspects of oil rig decommissioning.



Northside forum GBR talk and panel discussion.



Northside forum with Val Taylor,



Labor NSW Marine Parks Announcement.



Tagging shot for 'Guardian' story, James Woodford.



Nikki in battle regalia at Jervis Bay.



Gwen diving in the Clyde River.

Thanks for reading, happy holidays and see you in the new year for the next installment of the Fish Ecology Lab newsletter.