Jodi Thomas BSc(Hons)

ARC CENTRE OF EXCELLENCE Coral Reef Studies

CONTACT

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RESEARCH SKILLS

Bench work:

- RNA and DNA extraction
- PCR and gel electrophoresis
- Reverse transcription
- QPCR
- Cryosectioning
- Immunohistochemistry
- Radioimmunoassay
- High performance liquid chromatography (HPLC)
- Fish handling and care
- Fish dissection
- Making sustained release pellets
- Recording auditory evoked potentials in fish
- Fluorescence microscopy of whole fish

Fieldwork:

- Fish collection
- Behavioural observation
- Data collection while scuba diving and snorkelling

Software:

- RStudio
- Lyx
- MEGA (sequence alignment and constructing phylogenetic trees)
- Primer3 (primer design)

EDUCATION

2018 ongoing **PhD**
ARC Centre of Excellence for Coral Reef Studies, James Cook University, Townsville, Australia

2016 **BSc (Hons), Neuroscience**
University of Otago, Dunedin, New Zealand
Endorsed with First Class Honours, GPA = 9 (out of 9)

2015 **BSc, Neuroscience and Zoology**
University of Otago, Dunedin, New Zealand
Cumulative GPA = 8.6 (out of 9)

RESEARCH EXPERIENCE

2018 **PhD Research**
James Cook University
Supervisors: Prof. Philip Munday, Dr. Sue-Ann Watson
Thesis: The neurobiological mechanisms through which ocean acidification alters marine invertebrate behaviours.

2017 **Assistant Research Fellow**
University of Otago
Supervisor: Prof. Neil Gemmell
Investigating sex change in fishes, focusing on the neuroendocrine regulatory mechanisms and molecular mechanisms underlying female to male sex change in the New Zealand spotty wrasse.

2016 - 2017 **Summer Research Studentship**
University of Otago
Supervisors: Prof. Neil Gemmell, Assoc. Prof. Mark Lokman, Dr. Erica Todd
Report: Investigating early genetic regulators of sex change in the New Zealand spotty (*Notolabrus celidotus*)

- Quantified the expression of two gonadal genes in female, early, mid and late sex changers, and terminal phase male, and initial phase male spotty wrasse.

2016 **Honours Research**
University of Otago
Supervisors: Prof. Neil Gemmell, Assoc. Prof. Mark Lokman, Dr. Erica Todd
Dissertation: Investigating potential early regulators of teleost sex change: A candidate gene approach in the bluehead wrasse (*Thalassoma bifasciatum*)

- Quantified the expression of two gonadal genes, and two brain genes in females, across six stages of the sex change process, terminal phase male, and initial phase male bluehead wrasse.
- Developed the necessary laboratory protocols to carry out bisulphite sequencing of one gonadal gene.

2014 - 2015 **Summer Research Student**
Institute of Marine Science, Leigh, University of Auckland
Supervisor: Dr. Craig Radford
Report: Auditory evoked potentials as a new technique to quantify lateral line function and ototoxicity

- Developed the use of auditory evoked potentials as a novel technique to quantify lateral line function, and dysfunction (after neomycin treatment) in the New Zealand common triplefin (*Forsterygion lapillum*)

VOLUNTEER WORK

2017 **Co-chair for the Anatomy Department Teaching and Research Day**

- University of Otago, Dunedin, New Zealand

2017 **Conference Volunteer**

- Annual Conference of the Genetics Society of Australasia with the NZ Society For Biochemistry & Molecular Biology, Dunedin, New Zealand
- Helping with room and poster set up, managing presentations, timing presentations etc.

2015 **Underwater Africa, Mozambique**
3 weeks Assisted MMF (Marine Megafauna Foundation) collect data for conservation research.

- Included species identification and recording environmental conditions whilst scuba diving and snorkeling.

2015 **Lilongwe Wildlife Centre, Malawi**
3 months Supporting staff to rehabilitate injured and orphaned animals

- Included bottle feeding, chopping and delivering food to animals, and designing and making enrichment activities for the animals.

Collected data for behavioural and conservation research.

- Included using telemetry to follow baboon troops in the bush and quantifying baboon behavior.

2012 **Research Assistant**
2 weeks Assisted a Masters student (Conservation and Biosecurity) collect data for her research on Little Barrier Island.

- Included collecting data on variation in fruiting and flowering patterns of flora on the island.

TEACHING EXPERIENCE

2016 **Demonstrator**
Zoology Department, University of Otago, Dunedin
Taught in a 2nd year zoology laboratory (Animal designs for living)
- Included supervising and helping with classifying organisms, animal dissections, fieldwork and report writing.

2014 - 2015 **Tutor**
Tutored groups of first year students at residential colleges as well as one on one tutoring for the Disability Information and Support Centre.

AWARDS

2018 Prestige Research Training Stipend, James Cook University
2017 Runner up at the Otago Medical School Research Society, Summer Student Speaker Awards
2016 First prize for oral presentation at the Zoology Postgraduate Symposium
2016 Department of Anatomy Postgraduate Travel Fund
2016 University of Otago Neuroscience Prize
- Student gaining the highest level of overall attainment in Neuroscience papers at 400-level

2016 Summer Research Scholarship, Health Science, University of Otago
2015 Premiere Undergraduate Prize (Science)
- Most outstanding student completing a first undergraduate degree in the Divisions of Science, University of Otago

2015 GH Satchell Prize
- General excellence in Zoology at 300-level, University of Otago

2015 Nomination for the Prince of Wales Cambridge International Scholarship
- For graduates of high academic ability to study at Cambridge University, Britain

2014 The University of Otago Women's Scholarship
2014 Summer Research Scholarship, Marine Institute of the University of Auckland
2013 University of Otago Scholarship in Science
2012 The University of Otago Leaders of Tomorrow Scholarship
- Awarded for all round ability and leadership potential

2011 New Zealand Qualifications Authority Scholarship in Biology

PUBLICATIONS

Thomas JT, Todd EV, Muncaster S, Lokman PM, Damsteegt EL, Liu H, Soyano K, Gleonnec F, Lamm MS, Godwin JR, Gemmell NJ (2019). Conservation and diversity in expression of candidate genes regulating socially-induced female-male sex change in wrasse. *PeerJ Preprints.* https://doi.org/10.7287/peerj.preprints.27461v1

Thomas JT, Liu H, Todd EV, Gemmell NJ (2018). Sex Change in Fish. In M. K. Skinner (Ed.), Encyclopedia of Reproduction. vol. 6, pp. 192–197. Academic Press: Elsevier. http://dx.doi.org/10.1016/B978-0-12-809633-8.20555-4

Todd EV, Liu H, Lamm MS, Rutherford K, Godwin JR, **Thomas JT**, Gemmell NJ (2017). Female mimicry by sneaker males has a transcriptomic signature in both the brain and gonad in a sex changing fish. *Molecular Biology and Evolution* **35:** 225 - 241. https://doi.org/10.1093/molbev/msx293

Thomas JT, Todd EV, Liu H, Lamm MS, Rutherford K, Godwin JR, Lokman PM, Gemmell NJ (2017). Investigating early genetic regulators of sex change in labrid fish. *New Zealand Medical Journal* **130:** 88. https://search.proquest.com/openview/044d02f1665c94f4f18b6853d093e352/1?pq-origsite=gscholar&cbl=1056335

PRESENTATIONS

Thomas JT, Todd EV, Liu H, Lamm MS, Rutherford K, Godwin JR, Lokman PM and Gemmell NJ (2017). *Investigating early genetic regulators of sex change in labrid fish*. Otago Medical School Research Society Summer Student Speaker Awards, Dunedin, New Zealand.

Thomas JT, Todd EV, Liu H, Lamm MS, Rutherford K, Godwin JR, Lokman PM and Gemmell NJ (2016). *Investigating potential early regulators of teleost sex change: A candidate gene approach in the bluehead wrasse (Thalassoma bifasciatum)*. 5th Australian Sex Summit, Lancefield, Victoria, Australia.

Thomas JT (2016). *Investigating the molecular mechanisms underlying teleost sex change*. Anatomy Research Day, Dunedin, New Zealand.

Thomas JT, Todd EV, Liu H, Lamm MS, Rutherford K, Godwin JR, Lokman PM sand Gemmell NJ (2016). *Investigating potential early regulators of teleost sex change: A candidate gene approach in the bluehead wrasse (Thalassoma bifasciatum).* Zoology Postgraduate Symposium, Dunedin, New Zealand

POSTER

Thomas JT, Todd EV, Liu H, Lamm MS, Godwin JR, Muncaster S, Lokman PM and Gemmell NJ (2017). *Early genetic regulators of sex change in fish*. Annual Conference of the Genetics Society of Australasia with the NZ Society For Biochemistry & Molecular Biology, Dunedin, New Zealand.

OTHER ACHIEVEMENTS

- PADI Rescue diver certification
- Emergency first response certification
- Duke of Edinburgh Bronze, Silver and Gold Awards
- The 'Captains Award' on a Spirit of New Zealand journey