

**DR TRACY DANIELLE AINSWORTH**

Senior Research Fellow

BIOGRAPHY. I am a Research Fellow studying meta-organism response to environmental stressors, host-microbe interactions, and symbioses in diverse environments. My research aims to determine how host-microbe interactions influence organism physiology, adaptation and acclimation, and responses to climate change. I have been a research fellow (APD 2008-2011, Super Science 2011 – 2014) in the ARC Centre of Excellence for Coral Reefs Studies, prior to which I received a PhD at the University of Queensland (Links between stress and disease in coral) (Dean’s List), a Master of Science (Aquaculture: Immunological Markers) and a Bachelor of Science from James Cook University.

RESEARCH METRICS

- 44 publications in press/print, 40 publications during an 8-year FTE research experience.
- 2 publications awaiting decision following invited revision.
- Citations 978
- h-index 17, i10-index 26.
- Average Impact Factor of top 10 publications = 15.5
- Highest IF publications: Science IF 33.6 (2016, 2 articles)
- Senior Author in >50% of peer review articles published
- Highest altmetric 690.

TERTIARY QUALIFICATIONS

Doctor of Philosophy (Research)	University of Queensland	2004 –2008.
Masters of Science (Research)	James Cook University	1998 - 2001
Masters of Science Qualification	James Cook University	1997 – 1998
Bachelor of Science	James Cook University	1994 – 1996

RESEARCH EXPERIENCE

Senior Research Fellow (Level C)                      James Cook University                      07/2014 - 07/2017

This position requires independent self-directed research, collaborative research, the development of international research collaborations, and postgraduate research teaching and supervision.

Super Science Research Fellow                      James Cook University                      07/2011 - 07/2014

I was awarded an ARC Super science research fellowship in 2011. This position requires independent self-directed research, collaborative research, the development of international research collaborations, and postgraduate research teaching and supervision.

Queensland International Fellow                      Hawaiian Institute for Marine Biology                      08/2012 -12/2012

I was awarded a QIF from Queensland government in 2012 and am a visiting research fellow at the Hawaiian Institute For Marine Biology, where I am conducting a research project of the microbial interactions of deep-sea coral reefs of the Hawaiian Archipelago.

ARC Postdoctoral Research Fellow                      James Cook University                      01/2009 - 06/2011

As an ARC APD I was promoted in January 2009 to a Senior Research Fellow within the University. This position requires independent self-directed research, collaborative research, the development of international research collaborations, and postgraduate research teaching and supervision.

ARC Postdoctoral Research Fellow                      James Cook University                      01/2008 - 06/2011

I was appointed to JCU via a successful Australian Research Grant Discovery application, awarded in 2007 for funding from 2008. My position requires independent research and the development of new research projects to facilitate further career development.

Visiting Faculty Member                      Hawaii Institute for Marine Biology                      05/2007 - 07/2007

I was an invited faculty member at the Hawaii Institute for Marine Biology for the summer Pauley program in 2007. As an invited faculty member I was required to lead and supervise student research projects and give seminars on my research directions and interests, and lead an Ethics in Science discussion session.

Visiting Researcher                      Tel Aviv University, Israel                      02/2005 – 09/2005

During 2005 I conducted a 6-month research project at the University of Haifa and Tel Aviv University, Israel investigating the annual coral bleaching event and the role of host-microbe interactions. This successful research project resulted in 3 research publications, one of which was highlighted in the



**COMPETITIVE FUNDING SUCCESS**

- 2013 Australian Research Council Discovery (Leggat et al, funding 2013 -2016) \$310,000
- 2013 Great Barrier Reef Foundation Research Grant \$650,000 (2013-2017)
- 2012 Queensland International Fellowship \$20,000
- 2011 Ian Potter Foundation Science Research Grant \$20,000
- 2011 L'Oreal Women in Science Fellowship \$20,000
- 2011 James Cook University Seed Research Grant, \$15,000
- 2011 John and Laurine Proud 2011 Fellowship at Lizard Island \$11,000
- 2010 Australian Academy of Sciences International Linkages Award \$11,650
- 2008 Ian Potter Foundation Conference Travel Award (\$2,600)
- 2008 Linkage Infrastructure, Equipment Grants 2009 funding round. (\$190,000). Environmentally Controlled Infrastructure to Investigate the Effects of Climate Change on the Great Barrier Reef. Investigators: Dr Philip Munday, Prof Bette Willis, Prof David Miller, Dr William Leggat, A/Prof Mark McCormick, Dr Andrew Baird, **Dr Tracy Ainsworth**, et al.
- 2007 ARC Discovery Project APD Fellowship commencing 2008 – 2010 (\$234,000)

**RESEARCH PUBLICATIONS** (\* TOP 10 PUBLICATIONS)

**2016**

1. Hernandez, A. Leggat W. Bongaraerts P, and **Ainsworth TD**. The Microbial Signature Provides Insight into the Mechanistic Basis of Coral Success across Reef Habitats Accepted MBIO June 29th 2016. IF 6.75.
2. \* **Tracy D Ainsworth**, Scott Herron, Alana Grech, Albert Haig, Daisie Ogawa , William P Leggat. Climate change disables coral bleaching protection on the Great Barrier Reef. *SCIENCE* Vol. 352, Issue 6283, pp. 338-342. IF 33.6.
3. \***Ainsworth TD** and Gates RD. Corals' Microbial Sentinels. *SCIENCE*. Vol. 352, Issue 6293, pp. 1518-1519. IF 33.6.
4. Joshua E. Cinner, Morgan S. Pratchett, Nicholas AJ Graham, Mariana MPB Fuentes, Christopher J. Fulton, Natalie C. Ban, Joana Figueiredo Lucie Penin, Louisa S Evans, David H. Williamson , Jennie Mallela Line K Bay , Vimoksalehi Lukoschek , Michael Fabinyi , Pedro Fidelman , Ashley J. Frisch, Simon Dunn, Vanessa Messmer, Christina Hicks, Jodie L. Rummer, Jessica L. Blythe, Aurelie Moya, **Tracy Ainsworth**. (2015). A framework for understanding climate change impacts on coral reef social-ecological systems. *Regional Environmental Change* 1-14.
5. Adrienne M.S. Correa, **Tracy D. Ainsworth**, Stephanie Rosales, Andrew R. Thurber, Christopher R. Butler, Rebecca L. Vega Thurber. (2016) Cryptic viral outbreak in corals driven by

an *in situ* bleaching event: atypical herpes-like viruses and a new Megavirus infecting *Symbiodinium*. **Accepted 27 January 2016**. *Frontiers in Microbiology*. 22 February 2016 doi.org/10.3389/fmicb.2016.00127

**2015**

6. Bourne D, **Ainsworth TD**, and Willis B. (Editor Harvell, D) 205. White Syndrome of the Pacific and Indian Oceans. (Ed, Cheryl Woodley). *Pathology of Coral Disease*. **Book Chapter**

7. Casey JM, Connolly SR, and **Ainsworth TD**. (2015) Coral transplantation triggers shift in microbiome and promotion of coral disease associated potential pathogens. *Scientific Reports Volume 5*. **IF5.2**.

8. JAJM van de Water, **TD Ainsworth** Leggat W, Bourne DG, Willis BL, van Oppen MJH (2015) The coral immune response facilitates protection against microbes during tissues regeneration. *Molecular Ecology* 24 (13) 3390-3404. **IF5.8**

9. **Ainsworth TD**, Seneca F, Ukani, L, Knack B, Weiss Y, & Leggat WP. (2015). Cell and tissue specific gene expression patterns associated with disease related tissue loss and mortality in reef building corals using *in situ* hybridization. *Disease of Aquatic Organisms* Accepted 22 May 2015. Doi10.3354/dao02882

10. Sybille Hess<sup>1</sup>, Amelia S. Wenger, **Tracy Ainsworth**, Jodie L. Rummer (2015). Exposure of clownfish larvae to suspended sediment levels found on the Great Barrier Reef: Impacts on gill structure and microbiome. *Nature Scientific Reports Volume 5*. **IF5.2**

11. Casey JM, Connolly SR and **Ainsworth TD**. (2015) Transplantation changes the bacterial community of corals and increases the prevalence of coral disease associated microbes and black band disease. *Nature Scientific Reports* Decision pending email from editor 06/2015. *Nature Scientific Reports Volume 5*. **IF5.2**

12. van de Water JAJM, Leggat W, Bourne DG, van Oppen MJH, Willis BL, **Ainsworth TD** (2015) Elevated seawater temperatures have a limited impact on the coral immune response following physical damage. *Hydrobiologia* 1-14. IF 2.2

13. \***Ainsworth TD**, Bridge T, Torda G, Raina, JB, Gates, R, Padilla-Gamino J, Smith C, Woosley E, Krause L, Zakrzewski M, Bongaerts P, Spalding H, Bourne D, Hoegh-Guldberg O, Leggat W (2015) The coral core microbiome identifies rare bacterial taxa as ubiquitous endosymbionts. *The ISME Journal* (accepted 13<sup>th</sup> February 2015) **IF 9.3**

14. Li X, Gorle AK, **Ainsworth TD**, Heimann K, Woodward CE, Collins GJ, Keene FR (2015) RNA and DNA binding of inert oligonuclear ruthenium (ii) complexes in live eukaryotic cells. *Dalton Transactions* **IF 4.1**.

15. Bourne DG, **Ainsworth TD**, Pollock FJ, Willis BL (2015) Towards a better understanding of white syndromes and their causes on Indo-Pacific coral reefs. *Coral Reefs* 34 (1) 233-242 IF 3.6

**2014**

16. \*Casey JM, **Ainsworth TD**, Choat JH, Connolly SR (2014) Farming behaviour of reef fishes increases the prevalence of coral disease associated microbes and black band disease. *Proceedings of the Royal Society B: Biological Sciences* 281 (1788): 20141032 IF 5.3

**2013**

17. Ogawa D, Bobeszko T, **Ainsworth TD**, Leggat W (2013) The combined effects of temperature and CO<sub>2</sub> lead to altered gene expression patterns in *Acropora aspera*. *Coral Reefs*. 32:895-907 IF 3.6

18. Weiss Y, Forêt S, Hayward DC, **Ainsworth TD**, King R, Ball EE, Miller DJ (2013) The acute transcriptional response of the coral *Acropora millepora* to immune challenge: expression of GiMAP/IAN genes links the innate immune responses of corals with those of mammals and plants. *BMC genomics* 14 (1), 400 IF 4.0

**2011**

19. \***Ainsworth TD**, Wasmund K, Ukani L, Seneca F, Yellowlees D, Miller D, Leggat W (2011) Defining the tipping point. A complex cellular life/death balance in coral in response to stress. *Scientific Reports*. 1:160 IF 5.1 (7 citations)

20. Leggat W, Seneca F, Wasmund K, Ukani L, Yellowlees D, **Ainsworth TD** (2011) Differential responses of the coral host and their algal symbionts to thermal stress. *PLoS One*. 6(10):e26687 IF 3.5 (22 citations)

21. Bay LK, Cumbo VR1, Abrego D, Kool J, **Ainsworth TD**, Willis BL (2011) Infection dynamics vary between *Symbiodinium* types and cell surface treatments during establishment of endosymbiosis with coral larvae. *Diversity* 3:356-374 (No impact factor as new journal, 6 citations)

22. Gates RD and **Ainsworth TD** (2011) The nature and taxonomic composition of coral symbiomes as drivers of performance limits in scleractinian corals. *Journal of Experimental Marine Biology and Ecology* 408:94-101 IF 2.5 (11 citations)

23. \*Graham NC, **Ainsworth TD**, Baird AH, Ban NC, Bay LK, Ciner JE, De Freitas DM, Diaz-Pulido G, DornelasM, Dunn SR, Fidelman PIJ, Foret S, Good TC, Kool J, Mallela J, Penin L, Pratchett MS, Williamson DH (2011) From microbes to people: tractable benefits of no-take areas for coral reefs. *Oceanography and Marine Biology: An Annual Review* 49:105-135 **IF 11.1 (35 citations)**

**2010**

24. Kvennefors EC, Leggat W, Kerr CC, **Ainsworth TD**, Hoegh-Guldberg O, Barnes AC (2010) Analysis of evolutionarily conserved innate immune components in coral links immunity and symbiosis. *Developmental and Comparative Immunology*. 34:1219-1229 (I.F. = 3.7, 22 citations)

25. Andersen SB, Vestergaard ML, **Ainsworth TD**, Hoegh-Guldberg O, Kühl M. (2010)

Microenvironment of tabular *Acropora* corals affected by White Syndrome studied with oxygen microsensor. *Aquatic Biology*. 10:99-104 (I.F. = 1.1, 3 citations)

26. Brooker RM, **Ainsworth TD**, Munday PL. (2010) Diets of coral-dwelling fishes of the genus *Gobiodon* with evidence of corallivory. *Journal of Fish Biology* 76:2578–2583 IF 1.7 (16 citations)

27. \***Ainsworth TD**, Gates R, Vega Thurber R (2010) The future of coral reefs: a microbial perspective. *Trends in Ecology and Evolution* 25(4): 233-240. **IF 15.4** (65 citations).

### **2006 - 2009**

28. Olson ND, **Ainsworth TD**, Gates RD, and Takabayashi M. (2009) Diversity, abundance and distribution of diazotrophic symbionts in Hawaiian *Montipora* corals. *Journal of Experimental Marine Biology and Ecology* 371:140-146 IF 2.5 (47 citations)

29. **Ainsworth TD** and Hoegh-Guldberg O. (2009) Bacterial communities associated with coral tissues vary under experimental and natural reef conditions and thermal stress. *Aquatic Biology* 4:289-296 IF 1.1 (39 citations)

30. **Ainsworth TD**, Hoegh-Guldberg O, Heron SF, Skirving WJ, Leggat W (2008) Early cellular changes are indicators of pre-bleaching thermal stress in the coral host. *Journal of Experimental Marine Biology and Ecology* 364:63-71 IF 2.5 (48 citations)

31. **Ainsworth TD**, Hoegh-Guldberg O, Leggat W (2008) Imaging the innate fluorescence of marine invertebrates and their associated flora. *Journal of Microscopy* 232:197-199. IF 2.1 (4 citations)

32. \***Ainsworth TD**, Roff G, Fine M, and Hoegh-Guldberg O. (2008) Bacteria are not the cause of mass coral bleaching. Re-visiting the annual bleaching of *Oculina patagonica* in the Mediterranean Sea. *The ISME Journal* (2008) 2:67–73 **IF 9.3** (45 citations)

33. **Ainsworth TD** and Hoegh-Guldberg O. (2008) Cellular mechanisms of bleaching in the Mediterranean coral *O. patagonica*. *Coral Reefs* 27:593-597 (I.F. = 3.6, 13 citations)

34. \*Leggat W, **Ainsworth TD**, Bythell J, Dove S, Gates R, Hoegh-Guldberg O, Iglesias-Prieto R, Yellowlees D (2007) The hologenome theory disregards the coral holobiont. *Nature Reviews Microbiology* 5(10):doi:10.1038/nrmicro1635-c1 **IF 23.3** (13 citation)

35. **Ainsworth TD**, Kvennefors EC, Blackall L, Fine M, Hoegh-Guldberg O. (2007) Disease and cell death in White Syndrome of Acroporid corals on the Great Barrier Reef. *Marine Biology* 151(1): 19-29. IF 2.4 (**54 citations**)

36. **Ainsworth TD**, Kramasky–Winter E, Loya Y, Hoegh-Guldberg O and Fine M. (2007) Coral Disease Diagnostics: What’s between a plague and a band? *Applied and Environmental Microbiology* 73(3):981-992 IF 3.9 (**55 citations**)

37. Yarden O, **Ainsworth TD**, Roff G, Leggat W, Fine M, Hoegh-Guldberg O (2007) Increased prevalence of ubiquitous ascomycetes in an acropoid coral (*Acropora formosa*) exhibiting symptoms of brown band syndrome and skeletal eroding band. *Applied and Environmental Microbiology* 73:2755-2757 IF 3.9 (24 citations)
38. Henderson M, **Ainsworth T**, Hoegh-Guldberg O (2007) Coral microbial ecology under the microscope *Microbiology Australia* 28 (3), 111-112
39. Fine M, Roff G, **Ainsworth TD**, Hoegh-Guldberg O (2006) Phototrophic microendoliths bloom during coral “white syndrome”. *Coral Reefs* 25 (4), 577-581 IF 3.6 (17 citations)
40. Leggat W, **Ainsworth TD**, Dove S, Hoegh-Guldberg O (2006) Aerial exposure influences bleaching patterns. *Coral Reefs* 25(3):452 IF 2.6 (6 citations)
41. **Ainsworth TD**, Fine M, Blackall LL, Hoegh-Guldberg O (2006) Fluorescence in situ hybridization and spectral imaging of coral-associated bacterial communities *Applied and environmental microbiology* 72 (4), 3016-3020 IF 3.9 (**45 citations**)
42. **Ainsworth, T.D.** (2004) Immunological markers for monitoring the health of the tiger prawn *Peneaus mondodon*. *Journal and Proceedings of the Royal Society of New South Wales*; 137:3.
43. Arveland M, McCormick MI, **Ainsworth T** (2000). Effects of photoperiod on growth of larvae and juveniles of the anemomnefish *Amphiprion melanopus*. *Naga The ICLARM Quartlery* 23(2)18-23/ 29 citations.

**Other**

44. Ainsworth TD. Family Friendly Science. *Science Careers* May 2012. DOI 10.1126/science.caredit.a.1200057
45. Ainsworth TD. 2008. Disease and Stress in Reef Building Corals. PhD Thesis University of Queensland.