CV: Mike McWilliam

PERSONAL

Email: mjmcwilliam@outlook.com
Citizenship: British (J1 Exchange Visitor to the US)
Website | Twitter | GitHub

CURRENT POSITION

18.08.2019 to Present — Postdoctoral Research Fellow in Quantitative Ecology
Hawaii Institute of Marine Biology, University of Hawaii Manoa, USA
Project: *The demographic dimensions of coral reef diversity*
Funding: NSF grant 1948946 with Prof. Joshua Madin

PRIOR POSITIONS

03.09.2018 to 12.07.2019 — Research Associate in Coral Reef Biodiversity
ARC Centre of Excellence for Coral Reef Studies, James Cook University, Australia
Project: *The functional biogeography of the Pacific Ocean*
Funding: Laureate fellowship to Prof. Terry Hughes

EDUCATION

05.01.2015 to 03.09.2018 — PhD (*Cum Laude*), Natural and Physical Sciences
ARC Centre of Excellence for Coral Reef Studies, James Cook University, Australia
Thesis title: *The functional diversity and redundancy of corals*
Supervisors: Prof. Terry Hughes, Associate Prof. Mia Hoogenboom
Funding: Australian Postgraduate Research Scholarship

09.10.2009 to 15.06.2012 — BA (Hons 1st Class) Biological Sciences
University of Oxford, UK
Dissertation: *Evolutionary radiations of Antarctic Hydrocorals*

RESEARCH INTERESTS

Demography	Trade-offs in demographic rates; comparative demography and traits [9]
Biogeography	Global patterns of biodiversity using spatial and functional trait data [2, 5]
Resilience	Long-term dynamics; disturbance, recovery and regime shifts [7]
Climate Change	Response of populations and ecosystems to warming; coral bleaching [1, 3]
Ecosystem function	Diversity-productivity relationships; facilitation and response diversity [4, 8]

PUBLICATIONS - Google Scholar

2017 [1] Hughes, T. P., Kerry, J. T., Álvarez-Noriega, M., Álvarez-Romero, J. G., Anderson, K. D., Baird, A. H., ... & **McWilliam, M.J.** (2017). Global warming and recurrent mass bleaching of corals. *Nature*, 543(7645), 373 ***Cover feature** ⇒

2018 [2] **McWilliam, M.,** Hoogenboom, M. O., Baird, A. H., Kuo, C. Y., Madin, J. S., & Hughes, T. P. (2018). Biogeographical disparity in the functional diversity and redundancy of corals. *Proceedings of the National Academy of Sciences,* 115 (12) 3084-3089 ⇒

[3] Hughes, T. P., Kerry, J. T., Baird, A. H., Connolly, S. R., Dietzel, A., Eakin, C. M., ... & **McWilliam, M. J.** (2018). Global warming transforms coral reef assemblages. *Nature*, 556.7702 (2018): 492 ***F1000 recommended** ⇒

4 **McWilliam, M,** Chase, T.J., Hoogenboom, M.O. (2018). Neighbor Diversity Regulates the Productivity of Coral Assemblages. *Current Biology* 28.22 (2018): 3634-3639 ***Cover feature *F1000 recommended** ⇒

2019 5 Doszpot, N. E., **McWilliam, M. J.,** Pratchett, M. S., Hoey, A. S., & Figueira, W. F. (2019). Plasticity in Three-Dimensional Geometry of Branching Corals Along a Cross-Shelf Gradient. *Diversity*, 11(3), 44. ⇒

2020 6 **McWilliam, M.,** Pratchett, M. S., Hoogenboom, M. O., & Hughes, T. P. (2020). Deficits in functional trait diversity following recovery on coral reefs. *Proceedings of the Royal Society B*, *287*(1918), 20192628. ⇒

7 Chase, T. J., Pratchett, M. S., **McWilliam, M. J.,** Hein, M. Y., Tebbett, S. B., & Hoogenboom, M. O. (2020). Damselfishes alleviate the impacts of sediments on host corals. *Royal Society Open Science*, 7(4), 192074. ⇒

8 Pratchett, M. S., **McWilliam, M. J.,** & Riegl, B. (2020). Contrasting shifts in coral assemblages with increasing disturbances. *Coral Reefs*, 1-11 ⇒

2021 9 Roach, T. N., Yadav, S., Caruso, C., Dilworth, J., Foley, C. M., **McWilliam, M. J.,** ... & Madin, J. S. (2021). A field primer for monitoring benthic ecosystems using structure-from-motion photogrammetry. *JoVE (Journal of Visualized Experiments)*, (170), e61815. ⇒

2022 10 Bridge, T. C., Baird, A. H., Pandolfi, J. M., **McWilliam, M. J.,** & Zapalski, M. K. (2022). Functional consequences of Palaeozoic reef collapse. *Scientific Reports*, *12*(1), 1-10. ⇒

SUBMITTED PUBLICATIONS –

2022 **McWilliam, M.,** Madin J.M., Chase, T.C, Hoogenboom, M.H., Bridge, T. C., Intraspecific variation drives coral community responses to a warming, acidifying gradient. *Submitted.*

Madin, J. S., **McWilliam, M.,** Quigley, K., Bay, L. K., Bellwood, D., Doropoulos, C., ... & Zhou, H. X. Selecting species for restoration in foundational assemblages. *Submitted*

McWilliam, M., Dornelas M., Álvarez-Noriega, M., Baird, A.H., Connolly, S.R., Madin. J.S. Quantifying fitness and life history traits to explain persistent differences in abundance among similar species. *Submitted.*

MEDIA COVERAGE

2020 Recovery study[6] featured in *'When reef ecosystems fail to recover'* China Daily.

2019 Reef productivity study[4] highlighted on F1000 Prime.

2018 Coral bleaching study[3] reaches the 2018 Altmetric Top 100 (#9); over 200 news articles

Biogeography study[2] in a PNAS featurette *'Diversity in tropical reef ecosystems'*

Biogeography study[2] in a Coral COE article, *'Redundancy offers reassurance to reefs'*

2017 Coral bleaching study[1] reaches the 2017 Altmetric Top 100 (#21); over 350 news articles

2016 *'13 Messages from Marine Biologists Fighting for the Great Barrier Reef '* Buzzfeed

PRESENTATIONS & WORKSHOPS

2022 Session Host (confirmed): "*Can functional studies provide a sustainable future for coral reefs?"* International Coral Reef Symposium (ICRS), Bremen, Germany

2020 Species Choice Workshop, Virtual workshop to apply trait-based ecology for the selection of species to be used in assisted evolution and restoration.

Presenter: "*Navigating coral trait space*" Department of Biology Seminar Series, University of Hawaii Manoa

2019 Coral Demography Workshop, Boone Center for Science and Environmental Leadership at the Wrigley Marine Science Center on Santa Catalina Island

2018 Presenter: "*The functional diversity and redundancy of corals*", PhD Exit Seminar, ARC Centre of Excellence for Coral Reef Studies; [video]

2017 Session Host: "*Species, traits and Coral Reef Processes"* European Coral Reef Symposium (ECRS), Oxford, United Kingdom.

Presenter: "*Linking coral assemblages to community productivity*", European Coral Reef Symposium (ECRS), Oxford, United Kingdom.

Presenter: "*Regional disparity in the diversity and redundancy of coral functional roles*." Australian Coral Reef Society (ACRS) Conference, Townsville, Australia.

2016 Presenter: "*Functional collapse on Caribbean Coral Reefs.*", International Coral Reef Symposium (ICRS), Honolulu, Hawai'i, USA.

FUNDING

2021 Leverhulme Early Career Research Fellowship (GBP 345,378), University of St Andrews

2015 JCUPRS Scholarship, Postgraduate Research Scholarship (AUD 204,872)

AWARDS

2019 Australian Marine Science Association (AMSA, NQ Division) Award for Research

2018 Virginia Chadwick Award for outstanding publication in an international journal

2017 Vikki Harriot Award for outstanding conference presentation

2012 Brasenose Travel Grant (GBP 500, for coral reef ecology workshop, Bermuda)

Bermuda Institute Of Ocean Sciences Scholarship (GBP 2000)

2009 Brasenose Travel Grant (GBP 500, for a research work placement, Indonesia)

RESEARCH EXPEDITIONS

2019 [16] Kaneohe Bay, Oahu (Bleaching surveys, multiple surveys over 6 months); [15] Palau (Coral trait variation study, duration: 21 Days)

2018 [14] Southern Coral Sea (Coral Sea Monitoring, duration: 20 Days); [13] Orpheus Island (Coral recruitment study, duration: 7 Days); [12] Central Coral Sea (Coral Sea Monitoring, duration: 17 Days)

2017 [11] Palm Island Reefs, Great Barrier Reef (AIMs expedition, duration: 10 days), [10] Whitsunday Island Reefs (Coral recruitment study, duration: 6 days); [9] Central Great Barrier Reef (AIMs expedition, duration: 15 days); [8] Orpheus Island, Australia (Reef productivity study, 2 Months)

2016 [7] Great Barrier Reef, Cairns to Cooktown (Bleaching Mortality Surveys, duration: 28 days), [6] Heron Island, Great Barrier Reef (Fish behaviour study; duration; 21 days); [5] Opal Reef, Great Barrier Reef (Fish behaviour study; duration: 4 days); [4] Great Barrier Reef, Cairns to Cooktown (Bleaching surveys, duration: 28 days)

2015 [3] Palm Island Reefs (Cross-shelf growth study, duration: 7 days), [2] Orpheus Island, Great Barrier Reef (Pre-bleaching surveys; duration: 14 days); [1] Lizard Island, Great Barrier Reef (Fish movement study; duration; 21 days).

TEACHING

2021 Instructor – Emerging technologies in coral reef conservation, Hawaii Institute of Marine Biology

2020 Instructor – Data visualisation in *ggplot2*, R coding workshop for the University of Hawaii Manoa Student Association

2019 Co-supervisor for Masters Research Project – *Oxygen Uptake and Ionoregulatory Development in Early Life Stages of Two Coral Reef Fishes* (Leteisha Prescott, JCU).

POLICY REPORTS

2017 Briefing to MP's on Great Barrier Reef Bleaching, delivered to MP's at 'Science Meets Parliament' in Canberra, Australia

2016 Advancing Climate Action in Queensland and Science-based policy plan for the Great Barrier Reef, written and submitted to MP's for the Australian Coral Reef Society

OTHER SKILLS & ACTIVITIES

SCUBA Instructor Marine Science and PADI SCUBA Instructor (15/06/2012-05/01/2015), employed at dive centers in the Caribbean, the Maldives, the Great Barrier Reef, and Southern Australia

Reviewer Reviewer of manuscripts for *Proceedings of the Royal Society B*, *Functional Ecology, Ecology & Evolution, Coral Reefs, Biological Conservation, Marine and Freshwater Research,* and *Biodiversitas; Indonesian Journal of Biodiversity.* Reviewer of grant proposals for the National Science Foundation (NSF) and Centre de synthèse et d'analyse sur la biodiversité (CESAB).