UNSW Water Research Laboratory

UNSW SYDNEY

Tommy Fellowes

Project Engineer

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Tommy is a Project Engineer at the Water Research Laboratory. He completed a PhD at Macquarie University in 2020, focusing on the coastal processes of open coast beaches classifying them and their storm response. He has over 5 years of experience working on a range of projects investigating processes of beaches, estuaries, coral reefs, and coral reef islands.

Tommy is a recognised expert in coastal processes, having worked on projects with collaborators from industry, government, and academia in Australia, New Zealand, the USA, and the Pacific. He has published 21 journal publications emphasising the processes and climate drivers impacting the evolution of different coastal environments, considering geo-physical, biological, human, and legal dimensions. He is adept at conducting fieldwork, collecting and analysing geospatial, remote sensing and hydrodynamic data, writing technical reports and managing projects. In 2024, he finished a 4-year postdoctoral research position at the University of Sydney, where he investigated climate threats to coral islands in Australia and Tuvalu, quantified climate drivers of island stability and developed a coral island vulnerability assessment.

Qualifications and affiliations

PhD (Marine Geoscience), Macquarie University, 2020
MSc (Marine Science and Management), The University of Sydney, 2015
BSc (Environmental Biology), University of Technology, Sydney, 2011

Professional history

July 2024 – Present:	Project Engineer, WRL UNSW.
Sept 2023 – Jun 2024:	Postdoctoral Research Fellow, The University of Sydney / Pacific Community (SPC) Fiji
Aug 2020 – Aug 2023:	Postdoctoral Research Associate, The University of Sydney / Geoscience Australia.
Jan 2020 – July 2020:	Associate Lecturer, The University of Sydney

Expertise

- Coastal processes, erosion and recovery
- Open coast and estuarine beach processes
- Nearshore hydrodynamics
- Coral reef island morphodynamics
- Coral Island vulnerability assessment
- Sediment dynamics, transport and deposition
- Instrument programming and deployment
- Fieldwork and hydro and spatial data collection

Summary of relevant experience

Coastal process and estuarine studies
2016–2023: East Sydney beach monitoring, NSW
2022: Oyster reef hydrodynamics, NSW
2022: Rose Bay beach, Woollahra Council, NSW
2016–2019: PhD (headland beach morphodynamics)
2016–2023: Pittwater/Botany Bay beaches, NSW

Coral reef and island process studies
2024: Tuvalu, coral island vulnerability, SPC (Fiji)
2024: Great Barrier Reef, cyclone impacts to islands
2023: Great Barrier Reef, DFAT training workshop
2020-2023: Offshore coral islands, Geoscience Australia

Field Investigation and Data Collection
2023: Funafuti, island stability assessment, Tuvalu
2020–2023: Coral Sea, island monitoring, QLD
2014, 2016, 2018–2023: One Tree Island, GBR, QLD
2016–2023: East Sydney, beach monitoring, NSW

Publications

Selected technical reports

Fellowes, T.E., Izaguirre, C., Lee, G., et al. (2024) Resilient Boundaries for the Blue Pacific Technical Report – Tuvalu, Pacific Community (SPC) Fiji and the University of Sydney

Vila-Concejo, A., Perris, L., **Fellowes, T.E.**, Whitehead, J., and Liu, B., (2022) Woollahra coastal processes study, Sydney Institute of Marine Sciences and the University of Sydney

Selected journal publications

Fellowes, T.E., Vila-Concejo, A., Bruce, E., Byrne, M., and Baker, B., (2024) Risk Classification of Low-Lying Coral Reef Islands and Their Exposure to Climate Threats. *Science of the Total Environment*, 912

Vila-Concejo, A., **Fellowes, T.E.,** Gallop, S.L., *et al.*, (2024). A review of the geomorphology of beaches in estuaries and bays (BEBs): Insights and future research directions. *Coastal Futures*

Roncolato, F.R., **Fellowes, T.E.,** Duce, S., Johansson, O., Mora, C., Stratchan, I., Bugnot, A., Erickson, K., Figueira, W., Gribben, P.E., Pine, C., Morgan, B., and Vila-Concejo, A., (2024) Ecomorphodynamics of oyster reefs and their influence on oyster reef morphology. *Geomorphology*

Kennedy, D.M., McCarroll, R.J., **Fellowes, T.E.,** Vila-Concejo, A., Gallop, S.L., McSweeney, S., Ierodiaconou, D., and Tran., Q.T., (2023) Geological Control on Estuarine Beaches Behaviour: Port Phillip Bay, Australia. *Marine Geology*, 463

Fellowes, T.E., Anggadi, F., Vila-Concejo, A., Byrne, M., Bruce, E., and Baker, E., (2022) Stability of coral reef islands and associated legal maritime zones in a changing ocean, *Environmental Research Letters*, 17

Fellowes, T.E., Vila-Concejo, A., Gallop, S.L., Harley, M.D., and Short., A.D., (2022) Wave shadow zones as a primary control of embayed beach storm erosion and recovery. *Geomorphology*, 399

Rahbani, M., Vila-Concejo, A**., Fellowes. T.E.,** Gallop, S.L., WinklerPrins, L., and Largier, J., (2022) Spatial variance in wave energy signatures (sea, swell and infragravity) on beaches in estuaries and bays, *Geomorphology*, 398

Talavera, L., Vila-Concejo, A., Webster, J.M., Duce, D., Salles, T., Harris, D.L., **Fellowes, T.E.,** Hill, J., Figueira, W., and Hacker, J., (2021) Geomorphic evolution and morphodynamics of a rubble cay: a 41-year record from One Tree Island, Southern Great Barrier Reef. *Remote Sensing*, 13(8)

Fellowes, T.E., Vila-Concejo, A., Gallop, S.L., Schosberg, R., de Staercke, V., and Largier, J.L., (2021) Decadal shoreline erosion and recovery of beaches in modified and natural estuaries, *Geomorphology*

Fellowes, T.E., Vila-Concejo, A., Gallop, S.L., (2019) Morphometric classification of swell-dominated embayed beaches. *Marine Geology*, 411

Fellowes, T.E., Gacutan, J., Harris, D.L., Vila-Concejo, A., Webster, J.M., and Byrne, M., (2017) Patterns of sediment transport using foraminifera tracers across sand aprons on the Great Barrier Reef. *Journal of Coastal Research*, 33(4)