

Curriculum Vitae

Barbara Robson

Principal Research Scientist
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Precis

I am a Principal Research Scientist and Coastal Biogeochemical Modeller at the Australian Institute of Marine Science and Visiting Scientist at CSIRO Oceans and Atmosphere.

My research focuses on modelling water quality in aquatic ecosystems, especially coastal and marine systems of the Great Barrier Reef, to provide input to policy and management decisions by National, State and regional government bodies and industry. I am regularly commissioned to provide independent review of hydrodynamic modelling and water quality research and to sit on steering committees and science review panels for work conducted to inform policy decisions. I am also a member of the NZ Ministry of Business and Innovation Board of Assessors for grant applications.

I have been recognised as a Fellow of the International Environmental Modelling and Software Society (FiEMSS), a Fellow of the Peter Cullen Trust, and serve on the Science Panel of the Fitzroy Partnership for River Health. I am an Associate Editor of two leading journals in my field, *Environmental Modelling & Software* and *Limnology and Oceanography Letters*.

I was a key early contributor to the development of the ELCOM-CAEDYM modelling suite, which has now been used to simulate lake and coastal ecosystem dynamics in more than 65 countries. More recently, I played a key role in leadership and development of the eReefs marine modelling suite, which supports monitoring, management and policy for the Great Barrier Reef and was a finalist for the 2018 Australian Museum Eureka Prize for Scientific Excellence.

I employ a range of modelling approaches, from physics-based, coupled hydrodynamic-biogeochemical-ecosystem models, to data-based regression models and machine learning techniques. I work with interdisciplinary teams to build a sound link between observational evidence, theory and model predictions. My research interests include:

- Multidisciplinary and interdisciplinary research to inform management of aquatic ecosystems, including rivers, estuaries and coastal systems
- Modelling the function of aquatic ecosystems and their responses to changes in management and climate change
- Improved best practise for environmental modelling.

Education

Doctor of Philosophy in Oceanography, University of New South Wales, 2000

Bachelor of Environmental Science (1st class Honours), Murdoch University, 1994

Career History

January 2018 – present.: **Principal Research Scientist**, Australian Institute of Marine Science. Also:

January 2018 – present: Visiting Scientist, CSIRO Oceans and Atmosphere

July 2013 – January 2018: **Principal Research Scientist**, CSIRO Land & Water, including:

Sept 2017-December 2018: Coordinator, MDBA-CSIRO Partnership

June 2016 – June 2017: Research Group Leader, Managing Water Ecosystems, CSIRO Land and Water. Led a group of 23, including 10 research scientists, 5 technical staff, and 8 students and a portfolio of approximately \$4M/annum worth of research. As a Research Group Leader, I managed three geographically dispersed research teams and played a key role in strategic planning for the group, including managing collaborations and external relationships, planning strategic research directions and impact targets, and contributing to budgetary and workforce planning.

July 2014 – June 2016.: Team Leader, Modelling Water Ecosystems. As Team leader, I led a team of up to 8 research scientists, including planning of performance targets, performance management and contributing to strategic planning of research directions and external and internal engagement.

July 2008 – June 2013: **Senior Research Scientist**, CSIRO Land & Water, including:

July 2006 – June 2014: Team Leader, Aquatic Systems Modelling.

Oct 2002 – June 2008: **Research Scientist**, CSIRO Land & Water

Sept 1999 – Sept 2002: **Postdoctoral Research Associate** (Level A), Centre for Water Research, School of Environmental Engineering, University of Western Australia

Feb 1995 – Aug 1999: **PhD student and casual lecturer**, School of Geography and Oceanography, University of New South Wales at ADFA

External Boards and Committees

Mar 2019 – pres. Science Panel Member, Fitzroy Partnership for River Health.

Nov 2018 – pres. Steering Committee Member, Queensland Water Modelling Network Climate Change Review.

Jul 2018 – pres. Management Committee Member, Queensland Water Modelling Network External Engagement Program.

Jul 2016 – Jun 2017: Executive Committee Member, Murray Darling Freshwater Research Centre. Overseeing CSIRO's collaborative engagement with La Trobe University, the University of Canberra and the Murray Darling Basin Authority.

Fellowships, Awards and Keynotes

2019 Occasional Address, UNSW@Canberra graduation ceremony.

2019 Keynote, "eReefs: A near real-time tropical marine ecosystem model", Nutrient Cycling in Tropical Harbours Symposium, World Harbour Project and Australian Academy of Science, Singapore.

2018 Keynote, “Modelling to support policy and management of the Great Barrier Reef”, the international Estuarine & Coastal Sciences Association conference (ECSA 57), Perth, Western Australia

2018 Eureka Prize Finalist for Excellence in Science (team award, eReefs project)

2018 CSIRO Medal Finalist (team award, eReefs project)

2014 Fellow of the International Environmental Modelling and Software Society (FIEMSS).

2013 Peter Cullen Trust Fellow.

2012 Keynote, “Nutrient dynamics in riverine estuaries: understanding, modelling and managing inputs” Symposium, University of Technology, Sydney, New South Wales, Australia

2005 Early Career Research Excellence Award, Modelling and Simulation Society of Australia and New Zealand.

2004 CRC Shield, Cooperative Research Centre for Coastal Zone, Estuary and Waterways Management (team award, Fitzroy Contaminants project).

2003 Excellence in Science Award, Cooperative Research Centre for Coastal Zone, Estuary and Waterways Management (team award, Fitzroy Contaminants project).

2000 Ria de Groot Prize, University of New South Wales (most outstanding female postgraduate graduating from UNSW@Canberra)

1995-1998 Australian Postgraduate Award with ADFA top-up scholarship

1994 Vice-Chancellor’s Commendation for Academic Excellence, Murdoch University

1994 Alcoa Prize in Environmental Science (best student graduating from Environmental Science at Murdoch University, from a class of ~200)

Publications

I am an author of >100 research publications including 45 peer-reviewed journal articles, 35 peer-reviewed, full-text conference papers, 40 technical and client reports and 2 scientific book chapters. Collectively, these publications have >2,500 citations in Google Scholar (h-index 22). Full citation data and links to my papers are available from [Google Scholar](#) or [Publons](#).

Peer-reviewed journal papers

1. Steven, A.D.L., Baird, M.E., Brinkman, R., Car, N.J., Cox, S.J., Herzfeld, M., Hodge, J., Jones, E., King, E., Margvelashvili, N., Robillot, C., **Robson, B.**, Schroeder, T., Skerratt, J., Tickell, S., Tuteja, N., Wild-Allen, K., Yu, J., 2019. eReefs: An operational information system for managing the Great Barrier Reef. *Journal of Operational Oceanography* 1-17.
2. Magno-Canto, M.M., McKinna, L.I., **Robson, B.J.** and Fabricius, K.E., 2019. Model for deriving benthic irradiance in the Great Barrier Reef from MODIS satellite imagery. *Optics Express*, 27(20), pp.A1350-A1371.
3. Frassl, M.A., Abell, J.M., Botelho, D.A., Cinque, K., Gibbes, B.R., Jöhnk, K.D., Muraoka, K., **Robson, B.J.**, Wolski, M., Xiao, M. and Hamilton, D.P., 2019. A short review of contemporary developments in aquatic ecosystem modelling of lakes and reservoirs. *Environmental Modelling and Software*, 117, pp.181-187.
4. Skerratt, J.H., Mongin, M., Baird, M.E., Wild-Allen, K.A., **Robson, B.J.**, Schaffelke, B., Davies, C.H., Richardson, A.J., Margvelashvili, N., Soja-Wozniak, M. and Steven, A.D.L., (2018). Simulated nutrient and plankton dynamics in the Great Barrier Reef (2011–2016). *Journal of Marine Systems*.

5. Bainbridge, Z., Lewis, S., Bartley, R., Fabricius, K., Collier, C., Waterhouse, J., Garzon-Garcia, A., **Robson, B.**, Burton, J., Wenger, A. and Brodie, J., 2018. Fine sediment and particulate organic matter: A review and case study on ridge-to-reef transport, transformations, fates, and impacts on marine ecosystems. *Marine Pollution Bulletin*, 135, pp.1205-1220.
6. Margvelashvili, N., Andrewartha, J., Baird, M., Herzfeld, M., Jones, E., Mongin, M., Rizwi, F., **Robson, B.J.**, Skerratt, J., Wild-Allen, K. and Steven, A., 2018. Simulated fate of catchment-derived sediment on the Great Barrier Reef shelf. *Marine Pollution Bulletin*, 135, pp.954-962.
7. Webb, J.R., Santos, I.R., Maher, D.T., Macdonald, B., **Robson, B.**, Isaac, P. and McHugh, I., 2018. Terrestrial versus aquatic carbon fluxes in a subtropical agricultural floodplain over an annual cycle. *Agricultural and Forest Meteorology*, 260, pp.262-272.
8. **Robson, B.J.**, Arhonditsis, G.B., Baird, M.E., Brebion, J., Edwards, K.F., Geoffroy, L., Hebert, Marie-Pier, van Dongen-Vogels, V., Jones, E.M., Kruk, C, Mongin, M., Shimoda, Y., Skerratt, J.H., Trevathan-Tackett, S.M., Wild-Allen, K., Kong, X. and Steven, A. (2018). Towards evidence-based parameter values and priors for aquatic ecosystem modelling. *Environmental Modelling & Software*. 100: 74-81.
9. Cherukuru, N., Brando, V.E., Blondeau-Patiessier, D., Ford, P.W., Clementson, L.A. and **Robson, B.** (2017). Impact of wet season river flood discharge on phytoplankton absorption properties in the southern Great Barrier Reef region coastal waters. *Estuarine, Coastal and Shelf Science*. 196: 379-286.
10. Rolls, R.J., Baldwin, D.S., Bond, N., Lester, R.E., **Robson, B.J.**, Ryder, D.S., Thompson, R.M., and Watson, G.A. (2017). A framework for evaluating food-web responses to hydrological manipulations in riverine systems. *Journal of Environmental Management*. 203(1): 136-150.
11. **Robson, B.J.**, Lester, R.E., Baldwin, D.S., Bond, N.R., Droart, R., Rolls, R.J., Ryder, D.S., Thompson, R.M. (2017). Modelling food-web mediated effects of hydrological variability and environmental flows. *Water Research*. 124(1): 108-128.
12. Melbourne-Thomas, J., Constable, A.J., Fulton, E.A., Corney, S.P., Trebilco, R., Hobday, A.J., Blanchard, J.L., Boschetti, F., Bustamante, R.H., Cropp, R., Everett, J.D., Fleming, A., Galton-Fenzi, B., Goldsworthy, S.D., Lenton, A., Lara-Lopez, A., Little, R., Marzaloff, M.P., Mataer, R., Mongin, M., Plaganyi, E., Proctor, R., Risbey, J.S., **Robson, B.J.**, Smith, D.C., Sumner, M.D. and van Putten, E.I. (2017) Integrated modelling to support decision-making for marine social–ecological systems in Australia. *ICES Journal of Marine Science*, fsx078.
13. Everett, J.D., Baird, M.E., Buchanan, P., Bulman, C., Davies, C., Downie, R., Griffiths, C., Heneghan, R., Kloser, R., Laiolo, L., Lopez, A.L., Lozano-Montes, H., Mataer, R.J., McEnulty, F., **Robson, B.**, Rochester, W., Skerratt, J., Smith, J.A., Strzlecki, J., Suthers, I.M., Swadling, K., van Ruth, P., Richardson, A.J. (2017). Modelling what we sample and sampling what we model: challenges for zooplankton model assessment. *Frontiers in Marine Science*. doi: 10.3389/fmars.2017.00077
14. Webb, J.R., Santos, I.R. **Robson, B.J.**, Macdonald B., Jeffrey, L., Maher, D.T. (2017). Constraining the annual groundwater contribution to the water balance of an

agricultural floodplain using radon: The importance of floods. *Water Resources Research*. 53(1): 544–562

15. Jones, E.M., Baird, M.E., Mongin, M., Parslow, J., Skerratt, J., Lovell, J., Margvelashvili, N., Matear, R.J., Wild-Allen, K., **Robson, B.**, Rizwi, F., Oke, P., King, E., Schroeder, T., Steven, A. and Taylor, J. (2016) Use of remote-sensing reflectance to constrain a data assimilating marine biogeochemical model of the Great Barrier Reef. *Biogeosciences* 13(23), 6441-6469.
16. Mongin, M., Baird, M.E., Tobrook, B. Mataer, R.J., Lenton, A., Herzfeld, M., Wild-Allen, K.A., Skerratt, J., Margvelashvili, N., **Robson, B.J.**, Duarte, C.M., Gustafsson, M.S.M., Ralph, P.J. and Stevn, A.D.L. (2016). The exposure of the Great Barrier Reef to ocean acidification. *Nature Communications*. 7. Article 10732.
17. **Robson, B.J.** and Mousquès, A., (2016). Can we predict citation counts of environmental modelling papers? Fourteen bibliographic and categorical variables predict less than 30% of the variability in citation counts. *Environmental Modelling & Software*, 75, pp. 94-104.
18. Webb, J.R., Santos, I.R., Tait, D.R., Sippo, J.Z., Macdonald, B.C., **Robson, B.** and Maher, D.T., (2016). Divergent drivers of carbon dioxide and methane dynamics in an agricultural coastal floodplain: post-flood hydrological and biological drivers. *Chemical Geology*, 440, pp.313-325.
19. Baird, M. E, M. P. Adams, R. C. Babcock, K. Oubelkheir, M. Mongin, K. A. Wild-Allen, J. Skerratt, **B. J. Robson**, K. Petrou, P. J. Ralph, K. R. O'Brien, A. B. Carter, J. C. Jarvis, M. A. Rasheed (2016) A biophysical representation of seagrass growth for application in a complex shallow-water biogeochemical model. *Ecological Modelling*. 325: 13-27
20. Baird, M.E., Cherukuru, N., Jones, E., Margvelashvili, N., Mongin, M., Oubelkheir, K., Ralph, P.J., Rizwi, F., **Robson, B.J.**, Schroeder, T. and Skerratt, J., (2016). Remote-sensing reflectance and true colour produced by a coupled hydrodynamic, optical, sediment, biogeochemical model of the Great Barrier Reef, Australia: Comparison with satellite data. *Environmental Modelling & Software*. 78: 79-96.
21. Bark, R.H., Kragt, M.E., and **Robson, B.J.** (2016). Evaluating an interdisciplinary research project: Lessons learned for organisations, researchers and funders. *International Journal of Project Management*, 34(8), 1449-1459.
22. Weijerman, M., Fulton, E.A., Janssen, A.B., Kuiper, J.J., Leemans, R., **Robson, B.J.**, van de Leemput, I.A. and Mooij, W.M., (2015). How models can support ecosystem-based management of coral reefs. *Progress in Oceanography*. 138: 559-570.
23. **Robson, B.J.** and Dourdet, V., (2015). Prediction of sediment, particulate nutrient and dissolved nutrient concentrations in a dry tropical river to provide input to a mechanistic coastal water quality model. *Environmental Modelling & Software*, 63, pp. 97-108.
24. Janssen, A.B.G., Arhonditsis, G.B., Beusen, A., Bolding, K., Bruce, L., Bruggeman, J., Couture, R.M., Downing, A.S., Elliott, J.A., Frassl, M.A., Gal, G., Gerla, D.J., Hipsey, M.R., Hu, F.J., Ives, S.C., Janse, J.H., Jeppesen, E., Johnk, K.D., Kneis, D., Kong, X.Z., Kuiper, J.J., Lehmann, M.K., Lemmen, C., Ozkundakci, D., Petzoldt, T., Rinke, K., **Robson, B.J.**, Sachse, R., Schep, S.A., Schmid, M., Scholten, H., Teurlincx, S., Trolle, D., Troost, T.A., Van Dam, A.A., Van Gerven, L.P.A., Weijerman, M., Wells, S.A. and Mooij, W.M. (2015)

Exploring, exploiting and evolving diversity of aquatic ecosystem models: a community perspective. *Aquatic Ecology*. 49(4), 513-548.

25. **Robson, B. J.** (2014). State of the art in modelling of phosphorus in aquatic systems: review, criticisms and commentary. *Environmental Modelling & Software*, 61, 339-359. [Web of Science Highly Cited Paper (2016); 3rd most downloaded paper from EM&S in the 90 days after publication, >50 citations in Google Scholar; ~9,000 downloads according to Mendeley]
26. Gal, G., Hipsey, M., Rinke, K. and **Robson, B.**, (2014). Novel approaches to address challenges in modelling aquatic ecosystems. *Environmental Modelling & Software*, 61, pp.246-248.
27. **Robson, B. J.** (2014). When do aquatic systems models provide useful predictions, what is changing, and what is next?. *Environmental Modelling & Software*, 61, 287-296.
28. Harmel, R. D., Smith, P. K., Migliaccio, K. W., Chaubey, I., Douglas-Mankin, K. R., Benham, B., ... & **Robson, B. J.** (2014). Evaluating, interpreting, and communicating performance of hydrologic/water quality models considering intended use: A review and recommendations. *Environmental Modelling & Software*, 57, 40-51
29. Matveev, V. and **Robson, B.J.**, (2014). Aquatic food web structure and the flow of carbon. *Freshwater Reviews*, 7(1), pp.1-24.
30. Bennett, N. D., B. F. W. Croke, G. Guariso, J. H. A. Guillaume, S. H. Hamilton, A. J. Jakeman, S. Marsili-Libelli, L. T. H. Newham, J. P. Norton, C. Perrin, S. A. Pierce, **B. Robson**, R. Seppelt, A. A. Voinov, B. D. Fath and A. Andreassian (2013). Characterising performance of environmental models. *Environmental Modelling & Software* (40) p. 1. doi:4010.1016/j.envsoft.2012.09.011 [Web of Science Highly Cited Paper; >550 citations in Google Scholar; >10,000 downloads according to Mendeley]
31. Kragt, M. E., **B.J. Robson** and C. J. A. Macleod (2013). Modellers' roles in structuring integrative research projects. *Environmental Modelling & Software* (39) p 322. doi:3910.1016/j.envsoft.2012.06.015.
32. Margvelashvili, N., J. Andrewartha, M. Herzfeld, **B. Robson** and V. Brando (2013). Satellite data assimilation and estimation of a 3D coastal sediment transport model using error-subspace emulators. *Environmental Modelling & Software* (40) p. 191. doi:4010.1016/j.envsoft.2012.09.009.
33. Burford, M.A., Revill, A.T., Palmer, D.W., Clemenston, L., **Robson, B.J.**, Webster, I.T., (2011). River regulation alters drivers of primary productivity along a tropical river-estuary system. *Marine and Freshwater Research* (62) 141-151
34. Radke, L.C., Ford, P.W., Webster, I.T., Atkinson, I., Douglas, G., Oubelkheir, K., Li, J., **Robson, B.**, Brooke, B., 2010. Biogeochemical Zones Within a Macrotidal, Dry-Tropical Fluvial-Marine Transition Area: A Dry-Season Perspective. *Aquatic Geochemistry* 16(1) 1-29
35. **Robson, B.J.**, Bukaveckas, P.A., Hamilton, D.P., (2008). Modelling and mass balance assessments of nutrient retention in a seasonally-flowing estuary (Swan River Estuary, Western Australia). *Estuarine Coastal and Shelf Science* 76(2) 282-292

36. **Robson, B.J.**, Hamilton, D.P., Webster, I.T., Chan, T., (2008). Ten steps applied to development and evaluation of process-based biogeochemical models of estuaries. *Environmental Modelling & Software* 23(4) 369-384 [>90 citations in Google Scholar]
37. **Robson, B.J.**, Webster, I.T., (2006). Representing the effects of subgrid-scale variations in bathymetry on light and primary production. *Environmental Modelling & Software* 21(6) 802-811
38. **Robson, B.**, (2005). Representing the effects of diurnal variations in light on primary production on a seasonal time-scale. *Ecological Modelling* 186(3) 358-365
39. Ford, P., Tillman, P., **Robson, B.**, Webster, I.T., (2005). Organic carbon deliveries and their flow related dynamics in the Fitzroy estuary. *Marine Pollution Bulletin* 51(1-4) 119-127
40. **Robson, B.J.**, Hamilton, D.P., (2004). Three-dimensional modelling of a Microcystis bloom event in the Swan River estuary, Western Australia. *Ecological Modelling* 174(1-2) 203-222 [>160 citations in Google Scholar]
41. **Robson, B.J.**, Hamilton, D.P., (2003). Summer flow event induces a cyanobacterial bloom in a seasonal Western Australian estuary. *Marine and Freshwater Research* 54(2) 139-151 [>90 citations in Google Scholar]
42. Chan, T.U., Hamilton, D.P., **Robson, B.J.**, Hodges, B.R., Dallimore, C., (2002). Impacts of hydrological changes on phytoplankton succession in the Swan River, Western Australia. *Estuaries* 25(6B) 1406-1415
43. *Hearn, C.J., **Robson, B.J.**, (2002). On the effects of wind and tides on the hydrodynamics of a shallow mediterranean estuary. *Continental Shelf Research* 22(18-19) 2655-2672
44. *Hearn, C.J., **Robson, B.J.**, (2001). Inter-annual variability of bottom hypoxia in shallow Mediterranean estuaries. *Estuarine Coastal and Shelf Science* 52(5) 643-657
45. *Hearn, C.J., **Robson, B.J.**, (2000). Modelling a bottom diurnal boundary layer and its control of massive alga blooms in an estuary. *Applied Mathematical Modelling* 24(11) 843-859

*Publications arising from my PhD.

Peer-reviewed full-text conference papers

Note: iEMSS, MODSIM and SPIE papers are ISI-indexed, others may not be.

46. **Robson, B.J.**, Cuddy, S., Glamore, W.C., Rogers, Z., Ferguson, A.J.P., Scanes, P., (in press). A collaborative review process supports better outcomes from environmental modelling, MODSIM 2019: The 23rd International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand: Canberra, Australia.
47. Quinlan, R., **Robson, B.**, Benthysen, J., (in press). Predicting subsurface water temperature from sea surface temperature in the Great Barrier Reef, MODSIM 2019: The 23rd International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand: Canberra, Australia.
48. **Robson, B.J.**, Andrewartha, J., Baird, M.E., Herzfeld, M., Jones, E.M., Margvelashvili, N., Mongin, M., Rizwi, F., Skerratt, J., Wild-Allen, K. (2017). Evaluating the eReefs Great

Barrier Reef marine model against observed emergent properties. MODSIM 2017 *International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand*, Hobart, Australia.

49. Baird, M.E. , Andrewartha, J., Herzfeld, M., Jones, E., Margevlashvili, N., Mongin, M., Rizwi, F., Wozniak, M., Skerratt, J., Wild-Allen, K., Schroeder, T., **Robson, B.**, da Silva, E. and Devlin, M. (2017). River plumes of the Great Barrier Reef: freshwater, sediment and optical footprints quantified by the eReefs modelling system. MODSIM 2017 *International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand*, Hobart, Australia.
50. **Robson, B.J.** and Mousques, A. (2014). Predicting citation counts of environmental modelling papers. In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), *Proceedings of the 7th International Congress on Environmental Modelling and Software (iEMSS)*, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2
51. **Robson, B.J.**, Skerrat, J., Mongin, M., Wild-Allen, K. and Baird, M. (2014). Varying temporal resolution of river nutrient boundary conditions to a coupled hydrodynamic-biogeochemical model of a coastal system has surprisingly little impact on model results. In: Ames, D.P., Quinn, N.W.T., Rizzoli, A.E. (Eds.), *Proceedings of the 7th International Congress on Environmental Modelling and Software (iEMSS)*, June 15-19, San Diego, California, USA. ISBN: 978-88-9035-744-2
52. **Robson, B.J.** (2013). A systematic review of the treatment of phosphorus in biogeochemical and ecological models. MODSIM 2013 *International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand*, Adelaide, Australia.
53. **Robson, B.J.** and Dourdet, V. (2013). Incorporating a generalised additive model of river nutrient concentrations into a mechanistic receiving water model. MODSIM 2013 *International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand*, Adelaide, Australia.
54. **Robson, B.J.**, Baird, M. and Wild-Allen, K. (2013). A physiological model for the marine cyanobacteria, *Trichodesmium*. MODSIM 2013 *International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand*, Adelaide, Australia.
55. Margvelashvili N., Griffiths, C., Dyt, C., **Robson, B.**, Nichol, S., (2012). Coastal sediment-transport modelling and observational needs, ACOMO Observation and Modelling Workshop 2012: Shine Dome, Canberra.
56. Chen, Y., Minchin, S., Seaton, S., Joehnk, K., **Robson, B.**, Bai, Q., (2011). eReefs - towards a new perspective on a sustainable future of the Great Barrier Reef, In: Chan, F., Marinova, D., Anderssen, R.S. (Eds.), MODSIM 2011, *19th International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand*, Perth, Western Australia, pp. 1195-1201
57. **Robson, B.**, (2010). W12: Breaking down disciplinary silos: what can environmental modellers in different domains learn from each other?, In: Swayne, D.A., Yang, W., Voinov, A.A., Rizzoli, A., Filatova, T. (Eds.), *International Congress on Environmental Modelling and Software, iEMSS 2010: Modelling for Environment's Sake. iEMSS: Ottawa, Canada*, pp. 34-36.

58. **Robson, B.J.**, (2010). A dynamic model of primary production and plant coverage in an oligotrophic tropical river, In: Swayne, D.A., Yang, W., Voinov, A.A., Rizzoli, A., Filatova, T. (Eds.), *International Environmental Modelling and Software Society (iEMSs) 2010 International Congress on Environmental Modelling and Software*. International Environmental Modelling and Software Society (iEMSS): Ottawa, Canada
59. **Robson, B.**, Cherukuru, N., Brando, V., (2010). Using satellite-derived optical data to improve simulation of the 3D light field in a biogeochemical model, In: Swayne, D.A., Yang, W., Voinov, A.A., Rizzoli, A., Filatova, T. (Eds.), *International Environmental Modelling and Software Society (iEMSs) 2010 International Congress on Environmental Modelling and Software*. International Environmental Modelling and Software Society (iEMSS): Ottawa, Canada
60. Cherukuru, N., **Robson, B.**, Brando, V., Dekker, A., (2009). Assimilation of Optical Remote Sensing Data into Coastal Aquatic Biogeochemical Models, Fifth WMO International Symposium on Data Assimilation of Observations in Meteorology, Oceanography and Hydrology. WMO: Melbourne, pp. 1-10
61. Cherukuru, N.R.C., **Robson, B.J.**, Brando, V.E., Dekker, A.G., (2008). Improving light propagation in coastal biogeochemical models: A case study in tropical coastal waters of Australia, *Ocean Optics Conference XIX: Italy*
62. **Robson, B.J.**, Brando, V.E., (2007). Using satellite observations to improve biogeochemical modelling of the Fitzroy River Estuary, *MODSIM 2007 International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand: ChristChurch, New Zealand*
63. Brando, V.E., **Robson, B.J.**, Cherukuru, N.R.C., Dekker, A.G., Webster, I.T., (2007). Towards assimilation of ocean colour satellite observation into coastal ocean biogeochemical models: the tropical Fitzroy River Estuary case study - art. no. 66850D, *Assimilation of Remote Sensing and in Situ Data in Modern Numerical Weather and Environmental Prediction Models*, pp. D6850-D6850
64. **Robson, B.J.**, Webster, I.T., Hamilton, D.P., Chan, T., Kokkonen, T., (2006). Ten steps applied to development and evaluation of process-based biogeochemical models of estuaries, In: Voinov, A., Jakeman, A.J., Rizzoli, A.E. (Eds.), *Proceedings of the iEMSs Third Biennial Meeting: "Summit on Environmental Modelling and Software"*. International Environmental Modelling and Software Society (iEMSS): Burlington, USA
65. Parslow, J., Volkman, J., Webster, I., **Robson, B.**, Herzfeld, M., Margvelashvili, N., Revill, A., Andrewatha, J., Sakov, P., (2004). Response to catchment flows and loads in Australian tropical and temperate estuaries, *Coast to Coast: Hobart, Tasmania*
66. Chan, T.U., Hamilton, D.P., **Robson, B.J.**, (2003). Modelling phytoplankton succession and biomass in a seasonal West Australian estuary, *Proceedings of the International Association of Theoretical and Applied Limnology (SIL): Melbourne, Australia*, pp. 1086-1088
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Book chapters

71. **Robson, B.J.**, Gehrke, P.C, Burford, M., Webster, I.T., Reville, A.T. and Palmer, D.W. (2014). The Ord River estuary: a regulated wet-dry tropical river system. In: Wolanski, E. (Ed.) Estuaries of Australia in 2050 and Beyond. Estuaries of the World Series. Springer.
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Technical and client reports

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74. **Robson, B.**, Canto, M., Collier, C., di Perna, S., Logan, M., Menendez, P., McKinna, L. Noonan, S. and Fabricius, K. (2019). Benthic light as ecologically-validated GBR-wide indicator for water quality. NESP Tropical Water Hub. Townsville, Australia.
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80. Nicol, S., Stratford, D., Baumgartner, L., Bond, M., Brown, P., Cooling, M., Cresswell, I., Cuddy, S., Hillman, T., Kingsford, R., Lester, R., Mallen-Cooper, M., McGinness, H., Nielsen, D., **Robson, B.**, Webb, J.A. (2017). A method to assess the relative environmental benefit of complementary measures: a scoping report and proof-of-concept. Report to the Murray Darling Basin Authority. CSIRO: Canberra.
81. CSIRO (2016) Methods report for the Mitchell catchment. A report from the CSIRO Northern Australia Water Resource Assessment to the Government of Australia. CSIRO, Australia (10/2016 EP164622)
82. CSIRO (2016) Methods report for the Fitzroy catchment. A report from the CSIRO Northern Australia Water Resource Assessment to the Government of Australia. CSIRO, Australia (10/2016 EP164619)
83. CSIRO (2016) Methods report for the Darwin catchments. A report from the CSIRO Northern Australia Water Resource Assessment to the Government of Australia. CSIRO, Australia (10/2016 EP164615)
84. Herzfeld, M., Andrewartha, J., Baird, M., Brinkman, R., Furnas, M., Gillibrand, P., Hemer, M., Joehnk, K., Jones, E., McKinnon, D., Margvelashvili, N., Mongin, M., Oke, P., Rizwi, F., **Robson, B.**, Seaton, S., Skerratt, J., Tonin, H., Wild-Allen, K.. (2016). eReefs Marine Modelling: Final Report. CSIRO: Hobart.
85. CSIRO Coastal Modelling Team. (2015). CSIRO Environmental Modelling Suite: Scientific description of the optical, carbon chemistry and and biogeochemical models. CSIRO Oceans and Atmosphere.
86. Neuman, L., Robertson, D., **Robson, B.** and Searle, S. (2014). Evaluating a prototype ensemble water quantity and quality forecasting system for the Fitzroy River Basin. eReefs report to the Great Barrier Reef Foundation
87. Joehnk, K., Revill, A. and **Robson, B.J.** (2014). Isotope fractionation model - Building stable isotope fractions into coupled hydrodynamic-biogeochemical models. CSIRO Land and Water, Australia.
88. **Robson, B.J.** (2013). Future Water modelling needs review. Report to the Environmental Protection Authority, Government of Victoria. CSIRO, Australia.
89. **Robson, B.J.**, Matveev, V., Baldwin, D., Ford, P. and Revill, A. (2013). Materials fluxes through freshwater ecosystems: Review and gap analysis. CSIRO Water for a Healthy Country National Research Flagship, Australia.

90. CSIRO. (2012). Assessment of the ecological and economic benefits of environmental water in the Murray–Darling Basin. CSIRO Water for a Healthy Country National Research Flagship, Australia.
91. Chen, Y., Seaton, S., Minchin, S.A., Joehnk, K.D., **Robson, B.J.**, B., Q., (2011). eReefs Pilot Report: Wealth from Oceans National Research Flagship, CSIRO. Canberra, p. 72
92. A J Jakeman, S El Sawah, S Cuddy, B Robson, N McIntyre and F Cook Faggotter, S., Burford, M., **Robson, B.J.**, Webster, I.T., (2011). Nutrients and Primary Production in the Flinders River. Tropical Rivers and Coastal Knowledge Research Consortium: Brisbane
93. Jakeman, A.J., El Sawah, S, Cuddy, S, Robson, B, McIntyre, N and Cook, F. 2018. QWMN Good Modelling Practice Principles. The State of Queensland (Department of Environment and Science), Brisbane
94. **Robson, B.J.**, Schult, J., Smith, J., Webster, I., Burford, M., Revill, A., Townsend, S., Haese, R., Holdsworth, D., (2010). Towards understanding the impacts of land management on productivity in the Daly River. Tropical Rivers and Coastal Knowledge: Darwin, N.T.
95. Grigg, N., **Robson, B.**, Webster, I., Ford, P., (2009). Nutrient Budgets and Biogeochemical Modelling of the Coorong. Water for a Healthy Country National Research Flagship, CSIRO: Canberra
96. **Robson, B.**, Brando, V., (2008). Simulating the response of Keppel Bay coastal waters to potential changes in sediment and nutrient loads: Final report to the Fitzroy Basin Association. Water for a Healthy Country National Research Flagship: Canberra
97. **Robson, B.J.**, Burford, M.A., Gehrke, P.S., Revill, A.T., Webster, I.T., Palmer, D.W., (2008). Response of the lower Ord River and Estuary to changes in flows and sediment and nutrient loads. Water for a Healthy Country National Research Flagship, CSIRO: Canberra, ACT
98. Ford, P.W., Radke, L.J., Webster, I.T., **Robson, B.J.**, Atkinson, I., Tindall, C., Verwek, P., (2006). Nutrient dynamics and pelagic primary production in coastal creeks delivering into Keppel Bay. Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management
99. **Robson, B.J.**, Webster, I.T., Margvelashvili, N., Herzfeld, M., (2006). Scenario modelling: simulating the downstream effects of changes in catchment land use. Cooperative Research Centre for Coastal Zone, Estuary & Waterway Management: Indooroopilly, Qld, Australia
100. **Robson, B.J.**, Webster, I.T., Rosebrock, U., (2006). Biogeochemical Modelling and Nitrogen Budgets for the Fitzroy Estuary and Keppel Bay. Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management: Australia
101. Webster, I., Atminskin, I., Bostock, H., Brooke, B., Douglas, G., Ford, P., Hancock, G., Herzfeld, M., Leeming, R., Lemckert, C., Margvelashvili, N., Noble, B., Oubelkheir, K., Radke, L., Revill, A., **Robson, B.**, Ryan, D., Schacht, C., Smith, C., Smith, J., Vicente-Beckett, V., Wild-Allen, K., (2006). The Fitzroy Contaminants Project - A study of the nutrient and fine-sediment dynamics of the Fitzroy Estuary and Keppel Bay. Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management

102. Radke, L.C., Ford, P.W., Webster, I.T., Douglas, G., Oubelkheir, K., Atkinson, I., **Robson, B.**, Verwey, P., MacKenzie, K., Clemenston, L., (2005). Results of two dry-season surveys of Keppel Bay and Casuarina Creek : biogeochemical properties of the water column and underlying sediments. Geoscience Australia, Canberra, A.C.T.
103. Douglas, G., Ford, P., Moss, A., Noble, B., Packett, B., Palmer, M., Revill, A., **Robson, B.**, Tillman, P., Webster, I., (2005). Carbon and nutrient cycling in a subtropical estuary (the Fitzroy), Central Queensland. Cooperative Research Centre for Coastal Zone, Estuary and Waterways Management
104. Ramsay, I., Harris, C., Howes, T., **Robson, B.**, Webster, I., (2005). Water Quality Knowledge Base (Stage 1): Modelling Approaches for Coastal Waters. Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management
105. Margvelashvili, N., **Robson, B.**, Sakov, P., Webster, I.T., Parslow, J., Herzfeld, M., Andrewartha, J., (2003). Numerical modelling of hydrodynamics, sediment transport and biogeochemistry in the Fitzroy Estuary. Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management
106. Parslow, J., Margvelashvili, N., Palmer, D., Revill, A., **Robson, B.**, Sakov, P., Volkman, J., Watson, R., Webster, I., (2003). The Response of the Lower Ord River and Estuary to Management of Catchment Flows and Sediment and Nutrient Loads: Final Client Report. CSIRO Marine Research / Land and Water Australia
107. Parslow, J., Margvelashvili, N., Palmer, D., Revill, A., **Robson, B.**, Sakov, P., Volkman, J., Watson, R., Webster, I., (2003). The Response of the Lower Ord River and Estuary to Management of Catchment Flows and Sediment and Nutrient Loads: Final Science Report. CSIRO Marine Research / Land and Water Australia
108. Webster, I.T., Ford, P.W., **Robson, B.**, Margvelashvili, N., Parslow, J., (2003). Conceptual models of the hydrodynamics, fine sediment dynamics, biogeochemistry and primary production in the Fitzroy Estuary. Cooperative Research Centre for Coastal Zone, Estuary and Waterway Management
109. Coade, G., **Robson, B.J.**, (2002). Eutrophication Potential of NSW Coastal Lakes. NSW EPA: Sydney, NSW
110. Hamilton, D.P., Sivapalan, M., **Robson, B.J.**, Brooker, A.M.H., Chan, T.U., Zammit, C., Horn, D.A., (2002). An integrated ecological model of catchment hydrology and water quality for the Swan-Canning Estuary. Centre for Water Research, University of Western Australia: Perth, W.A.
111. Davis, J.A., Horwitz, P., Hamilton, D., McComb, A.J., Oldham, C., Froend, R., McGuire, M.I., Gale, E.J., **Robson, B.J.**, (2001). Predicting Wetland Response to Changing Water Quality and Quantity. Murdoch University: Perth, Western Australia
112. **Robson, B.J.**, (1995). A preliminary numerical model for phytoplankton in the upper Canning River. Murdoch University: Perth, Western Australia (from my undergraduate thesis). ISBN 0869053841.

PhD thesis

113. **Robson, B.J.**, (2000). Hydrodynamics of shallow mediterranean estuaries, and relevance to some biogeochemical processes affecting *Nodularia* blooms. University of New South Wales: Canberra, Australian Capital Territory

Research Grants and Funding

Since 2008, I have been PI for projects that have earned over \$5.2 M in funding and have been part of the leadership teams for projects worth over \$22M.

Note: As national research organisations, CSIRO and AIMS not eligible to receive funding from the Australian Research Council.

External research funding (as PI or equivalent)

- 2019-2021 National Environmental Science Program Tropical Water Quality Hub (NESP-TWQ), Benthic light as ecologically-validated GBR-wide indicator for water quality: drivers, thresholds and cumulative risks. [\$174K cash funding; \$262K total investment] [Principal Investigator]
- 2019-2021 Queensland Water Modelling Network External Engagement Program [\$137K cash funding to AIMS][AIMS Project Leader; EEP Management Committee Member]
- 2016-2018 Department of Environment (Government of Australia). Murray-Darling Basin Environmental Water Knowledge and Research Project. (\$5M cash funding; \$10M total investment) [Leadership Team member – food webs theme]
- 2016-2017 Northern Australia Water Resources Assessment. [Activity Leader: Marine Ecology]. Funded by the Department of Agriculture and Water, Government of Australia.
- 2012-2016 Science Industry Endowment Fund [Category 1 Research Funding] / Great Barrier Reef Foundation. eReefs: An Advanced information system for managing the Great Barrier Reef Environment. (\$15M cash funding; \$20M total investment) [Activity leader – RECOM (2012-2015) and Interim activity leader – Catchment modelling (2014)]
- 2008 - 2010 Land and Water Australia / Queensland Smart State. Towards understanding the impacts of flow, sediment and nutrient loads in the Daly and Flinders Rivers. A Tropical Rivers and Coastal Knowledge research consortium project. [\$781K cash funding; \$1.6M total investment]. [Project Leader]
- 2007-2008 National Action Plan for Water Quality Improvement / Fitzroy Basin Association. Simulating the response of Keppel Bay coastal waters to potential changes in sediment and nutrient loads. \$120K cash funding [Project Leader]
- 2006-2008 Caring for Country / National Action Plan for Water Quality Improvement (Government of Australia). The response of the lower Ord River and Estuary to changes in sediment and nutrient loads. \$774K. [Project Leader]
- 2002 Australian Research Council Discovery Grant, “Critical flux paths influencing ecological processes in an urban estuary” [DP0211475], \$50K [Principal Investigator]

I have also been a contributing scientist to several other large, externally funded (including category 1) research projects at AIMS, CSIRO and UWA (list available on request).

Commissioned reviews

- 2017-2019 Hunter Water. Scientific Review Chair for Integrated Model for the Hunter River. \$108K
- 2013 Environmental Protection Authority (Government of Victoria). Future Waters project: review of current catchment to coast modelling in Victoria. \$22K
- 2012-2013 Sinclair-Knight Mertz. Hawkesbury-Nepean Modelling Review. \$102K
- 2005 South East Queensland Healthy Waterways Partnership. “Moreton Bay Water Quality Improvement Plan Water Quality Modelling”
- 2005 Queensland EPA / Cooperative Research Centre for Coastal Zone and Waterway Management. “Modelling Approaches for Coastal Waters”

CSIRO strategic competitive funding

- 2012-2016 CSIRO Office of the Chief Executive Priority Research Area. Using emerging measurement technologies to improve our ability to predict how freshwater and marine systems will respond to change. [Funding for PhD top-up scholarships 3x\$30K; proposer, PhD supervisor]
- 2013-2014 Building stable isotope fractions into coupled hydrodynamic/biogeochemical models \$139K CSIRO Land and Water Capability Development Fund. [Principal Investigator]
- 2012-2013 Review and gap identification of ecosystem responses to materials cycles. CSIRO Water for a Healthy Country Strategic Investment Fund. \$616K [Principal Investigator]
- 2011 Catchments to coasts modelling community of practise. CSIRO Land and Water Strategic Investment Fund. \$77K [Principal Investigator]
- 2011 Capturing a major flood event in Great Barrier Reef waters. CSIRO Wealth from Oceans and CSIRO Water for a Healthy Country collaborative investment. \$150K [Principal Investigator]
- 2010-2011 Towards a national framework for catchment to coast modelling. CSIRO Water for a Healthy Country Strategic Investment Fund. \$200K [Principal Investigator]
- 2011 Development of ecological modelling capacity. CLW Capability Development Fund. \$90K [Principal Investigator]
- 2008-2009 Fitzroy flood analysis and modelling. CLW Innovation Bank. \$560K [Principal Investigator]
- 2006-2007 Assimilation of ocean colour satellite observation into coastal ocean biogeochemical models: a case study for Fitzroy River Estuary. CLW Innovation Bank. \$70K [Principal Investigator]

Research project leadership

I have been Project Leader or Activity Leader for 19 projects since 2006, including several complex, multidisciplinary projects involving staff from multiple research organisations, located in multiple cities, and including both field campaigns and modelling. These are having an impact both scientifically and in water management. I work closely with clients and stakeholders and understand the importance of linking across both disciplinary and geographic boundaries.

Research Students

PhD Students

- 2019-pres. Chinenye Ani, PhD student at James Cook University. Biogeochemical modelling of tropical marine ecosystems in the context of climate change. AIMS@JCU scholarship [Primary supervisor]
- 2018-pres. Marites Canto, PhD student at James Cook University. Developing benthic irradiance algorithm for the Great Barrier Reef shelf waters using MODIS satellite imagery. AIMS@JCU scholarship [Primary supervisor]
- 2014-2017. Jackie Webb (*nee* Gatland), PhD. Southern Cross University. Greenhouse gas emissions from a coastal wetland (CSIRO OCE scholarship; Graduated with 6 papers published; winner of the Chancellor's Medal for Outstanding PhD Thesis) [Co-supervisor]

Masters Minor Project and Honours Students

- 2019 Rae Quinlan, James Cook University Minor Masters Project. Mapping sub-surface water temperatures in the Great Barrier Reef by combining remote sensing observations, glider data and models. Graduated with a peer-reviewed conference paper accepted for publication. [Primary supervisor]

2011 Lily Serna, Honours Project. University of Technology, Sydney. Sediment and nutrient loads in a Fitzroy River flood plume (Graduated with 1st Class Honours) [Co-supervisor]

Summer Research Interns

2017-18 Yunzhi Ling, Research Intern. "Assessing model parameter usage in aquatic ecosystem model studies"

2016 *Romain Drouart, Ecole Nationale Supérieure d'Ingénieurs de Limoges (ENSIL), France, "Literature review of aquatic foodweb modelling".

2016 Benjamin Mollier, Institut Polytechnique La Salle Beauvais, France, "Tracing the impact of influential ecology papers"

2016 *Mathilde Cardiguers, Institut Polytechnique La Salle Beauvais, France, "Modelling the long-term impact of coastal flood plumes"

2016 Phillip Balding, Research Intern, "Parameters for aquatic ecological modelling"

2016 *Benson Liu, CSIRO Summer Scholar, "Adapting a CSIRO marine model (EMS) to a Framework for Aquatic Biogeochemical Modelling (FABM)"

2015 Baptiste Clement, Ecole des Mines d'Alès, France, "Testing a Relocatable Estuary and Coastal Model"

2014 *Leonie Geoffroy, Institut Polytechnique La Salle Beauvais, France, "Developing a parameter prior database for aquatic ecological modelling"

2014 Julie Duchulais, Ecole des Mines d'Alès, France, "Examining the suitability of a marine ecological model for climate change scenarios"

2014 *Jerome Brebion, Ecole Nationale Supérieure d'Ingénieurs de Limoges (ENSIL), "Phytoplankton parameters for aquatic ecological models"

2013 *Aurélie Mousques, Ecole des Mines d'Alès, France, "Predicting citation counts of environmental modelling papers"

2012 *Vincent Dourdet, Ecole des Mines d'Alès, France, "Using generalised additive models to predict sediment and nutrient loads from a Great Barrier Reef catchment"

* Internships that resulted in publications of peer-reviewed papers or technical reports

Service, review panel and editorial roles

Examination

2019 PhD Thesis Examiner, Carlos Viera-Rocha, UNSW

2015 PhD Thesis Examiner, Yafai Zhu, Monash University

2010 PhD Thesis Examiner, Nina von Westernhagen, University of Waikato, New Zealand

2010 Honours Thesis Examiner, Chaturangi Wickramaratne, Australian National University

2009 PhD Thesis Examiner, Emlyn Jones, Flinders University

Editorial Roles

2010-pres. Associate Editor, *Environmental Modelling and Software*. EMS is the leading journal in the field, with an ISI impact factor of 4.552 and CiteScore of 5.08.

2016-pres. Associate Editor, *Limnology and Oceanography Letters*, a new journal of the Association for the Science of Limnology and Oceanography (ASLO).

2013-2014 Managing Editor of a thematic issue of *Environmental Modelling & Software*, "Novel Approaches in Aquatic System Modelling".

2013 Session Organiser and Editor, MODSIM 2013. "Combining mechanistic and statistical modelling approaches".

2012 Editorial selection of abstracts submitted to the 2012 National Cyanobacterial Workshop.
2007-2010 Editorial Board Member, *Environmental Modelling and Software*
2010 Session Chair, Australian Marine Science Association 2010 Conference, “Optical remote sensing of aquatic ecosystems: crossing boundaries from turbid coastal waters to the blue open ocean”.
2010 Session Chair, Organiser and Editor, “Breaking Down Disciplinary Silos: What can Environmental Modellers in Different Domains Learn from Each Other?” *International Environmental Modelling and Software Society (iEMSs) 2010 International Congress on Environmental Modelling and Software: Modelling for Environment’s Sake, Fifth Biennial Meeting, Ottawa, Canada*

Review Panel Activities

2016-pres. Member of the College of Assessors, New Zealand Ministry of Business, Innovation and Education (MBIE) Science Investment Round
2017 Proposal Reviewer, Fondecyt (Research Council of Chile)
2017 Scientific Advisory Panel lead, “Integrated Model for the Hunter River”, Hunter Water Corporation
2017 Reviewer, National Research Foundation (South Africa), Researcher Rating scheme
2016 Commissioned Review, “Lake Macquarie Integrated Environmental Model Methods”, Hunter Water Corporation
2016 Review Panellist, World Bank Global Environmental Fund
2013 Commissioned Review, “Future Water modelling needs”, for the Environmental Protection Authority, Government of Victoria.
2011 Review Panellist, UK National Environmental Research Council Large Grants project proposal
2013 Commissioned Review, “Hawkesbury-Nepean Water Quality Modelling”, by SKM for Sydney Water
2005 Commissioned Review, “Modelling Approaches for Coastal Waters”, for the Queensland EPA and Coastal Zone CRZ
2005 Scientific Review Panellist, “Moreton Bay Water Quality Improvement Plan Water Quality Modelling” for the South East Queensland Healthy Waterways Partnership

Selected Corporate Citizenship (in addition to formal research management roles listed earlier)

2017 Search Committee Chair for a Senior Research Scientist (River Ecosystem Modeller) position
2015 Led preparation of CSIRO Land and Water’s Critical Zone Science impact strategy, and contributed to development of our Coastal Zones impact statement.
2013 Acting Research Program Leader for 11 weeks (Catchment Biogeochemistry and Aquatic Ecology Program, CSIRO Land and Water), line-managing a staff of 25 scientists and associated students during a period of organisational restructure and change.
2009-2013 Organising Committee Member, CSIRO Catchment to Coast Modelling Community of Practise
2012 Acting Stream Leader for 4 weeks (Ecosystem Response to Catchment Processes, CSIRO Water for a Healthy Country National Research Flagship). This was an externally-facing leadership role, handling a portfolio of projects and clients.
2011 Acting Stream Leader for 6 weeks (Catchment and Aquatic Hydrology, CSIRO Water for a Healthy Country National Research Flagship). This was an externally-facing leadership role, handling a portfolio of projects and clients.

2013 Search Committee Panel Member for a Postdoctoral Research Fellow (Ecological Modeller) position
2010 Search Committee Chair for a Senior Research Scientist (Hydrodynamic Modeller) position
2007 Organising Committee Member, CSIRO Land and Water Science Retreat
2003-2008 Fire Warden

Speaking and public engagement

Speaking Invitations

External speaking invitations accepted since 2008. This section does not include keynotes already listed in the “Awards and Keynotes” section above, nor contributed conference presentations, community engagement fora or internal seminar series and workshops.

2019 “Benthic light as an ecologically-validated water quality indicator”, National Estuaries Network workshop, Broome, Western Australia

2018 “*Trichodesmium* in the eReefs marine models”, *Trichodesmium* workshop, Hobart, Australia

2017 “Evaluating models against emergent properties”, International Lake Modelling Workshop, Griffith University, Brisbane, Queensland, Australia

2017 “Evaluating models against emergent properties”, Queensland Water Modelling Network workshop on Model Evaluation and Uncertainty, Brisbane, Queensland, Australia

2017 “From cellular physiology to global emergent properties: How the eReefs marine models build from small-scale to large”, Australian Institute of Marine Science, Townsville, Queensland, Australia

2017 “The eReefs Marine Models”, Great Barrier Reef Pesticides Workshop, James Cook University, Townsville, Queensland, Australia

2016 “Process Rates and Traits for Model Evaluation”, Integrated Marine Observation System (IMOS) Zooplankton Ocean Observation and Modelling (ZOOM) workshop, Hobart, Tasmania, Australia

2015 “Developing a Universal Parameter Library for Aquatic Ecological Models”, Blue Carbon workshop, Brisbane, Queensland, Australia

2015 “Towards a Parameter Prior Library for Aquatic Ecological Models”, Aquatic Ecological Modelling Network (AEMoN), Driebergen, the Netherlands

2015 “Matching What We Model to What We Observe”, Catchment to Coast Modelling Community of Practise, Hobart, Tasmania, Australia

2014 “eReefs: A near-real time modelling suite for the Great Barrier Reef”, Plymouth Marine Laboratory, UK

2014 “A systematic review of treatment of phosphorus in aquatic systems modelling”, Netherlands Institute of Ecology (NIOO), the Netherlands

2014 “eReefs: A near-real time modelling suite for the Great Barrier Reef”, University of Wageningen, the Netherlands

2014 “eReefs: A near-real time modelling suite for the Great Barrier Reef”, Deltares, the Netherlands

2014 “A systematic review of treatment of phosphorus in aquatic systems modelling”, Kinneret Limnological Laboratory, Israel

2014 “A systematic review of treatment of phosphorus in aquatic systems modelling”, University of Toronto, Canada

- 2013 “Carbon in Estuaries”, International Blue Carbon Workshop, Sydney, New South Wales, Australia
- 2012 “Modelling Nutrient Dynamics in Estuaries: What has changed, what’s happening now and what’s next?”, Specialist Hydrodynamic and Water Quality Modelling Workshop, Sydney Institute of Marine Science, Sydney, New South Wales, Australia
- 2012 Invited Delegate, 5th High-Level Roundtable & Synthesis Workshop, Australia-China Environment Development Partnership, Hangzhou, China
- 2012 “Coupled Biogeochemical-Hydrodynamic Models for the Great Barrier Reef”, Chinese Academy of Science, Nanjing, China
- 2012 “Coupled Biogeochemical-Hydrodynamic Models for the Great Barrier Reef”, Hohai University, Nanjing, China; also repeated at Nanjing Normal University, China
- 2009 “The responses of oligotrophic and eutrophic rivers to changes in sediment and nutrient loads”, University of Venice, Venice, Italy, 2009
- 2009 “The responses of oligotrophic and eutrophic rivers to changes in sediment and nutrient loads”, National Institute of Oceanography and Experimental Geophysics (OGS), Trieste, Italy
- 2008 “Response of the lower Ord River and Estuary to Changes in Sediment and Nutrient Loads”, Department of Water, Government of Western Australia, Perth, Western Australia, Australia
- 2008 “Simulation modelling of the flood plume in Keppel Bay”, Fitzroy Flood Forum, Rockhampton, Queensland, Australia

Media and community outreach

- 2019: Video interview for Fitzroy River Health Partnership Fitzroy Basin Water Quality Report Card launch
- 2018: Video interview for Terrain Wet Tropics documentary
- 2018: Short article on how to write a research review paper published on Forbes and Apple News.
- 2018: Twitter post on measuring marine plastic pollution taken up by ABC TV as a news story (with film I took in the field).
- 2017-2018: Quora Top Writer. ~140k views and 780 upvotes/month, ~2300 followers. >1,000,000 total views as at 1 July 2019.
- 2017: Speaker at the launch of a Great Barrier Reef sculpture (Wellsprings, “ResOURce”), Canberra.
- 2017: Short article on Women in STEM published by Huffington Post, Business Insider, Forbes and Apple News.
- 2017: Short article on Climate Change Impacts on Plants and Animals published by Newsweek, Forbes and Huffington Post.
- 2016: Speaker at NESP/NAWRA community engagement forum in Broome and Derby (workshops to inform and seek input from indigenous communities and government stakeholders before commencing research projects in Northern Australia)
- 2016: Short article on machine learning in ecology published by Forbes Science
- 2016: Short article published by Inc.com (“The ultimate survival guide for introverts at work functions”).
- 2014-pres: Twitter account, @bjrobson, ~300 followers
- 2011: Speaker, National Science Week event at CSIRO Discovery, “Nemo in 2050: How will climate change affect the Great Barrier Reef?”

- 2011: Speaker at a Canberra Science Fiction Association book launch, “Ghost Ships and Ocean Currents”
- 2011: Speaker at the Fitzroy Flood Forum, Rockhampton
- 2010: Panellist, CSIRO Discovery National Science Week event (Meet and Greet a Geek)
- 2009: Panellist, CSIRO Discovery National Science Week event (Meet and Greet a Geek)
- 2008: Speaker and booth-holder, Natural Resource Management Community Day, Kununurra, Western Australia
- 2008: Ran a community science afternoon at our research site for Ord River Traditional Owners

Teaching and training

Undergraduate teaching

- 2019, 2017, 2011, 2010, 2009 and 2008
Guest lecturer on Ecosystem Modelling for “Environmental Modelling (MATHS 6102/MATHS 3133)” at the Australian National University. Presented lectures and tutorials for this small 3rd year class. Course co-ordinator: Assoc. Prof. Barry Croke.
- 2017 Guest lecturer on Water Quality and Eutrophication for the 2nd-year course, “Freshwater Biology” (10226.1) at the University of Canberra. Course co-ordinator: Dr Ben Kefford.
- 2002 Tutor, “Engineering Ethics”, University of Western Australia
- 2002 Tutor, The CWR ELCOM and CAEDYM models (professional training course), University of Western Australia
- 1998 and 1999 Lecturer, “Fisheries and Overfishing” (created course objectives, content, assessments and reading materials from scratch for this unit of new cross-disciplinary undergraduate course, presented lectures and marked submitted essays and exams), Australian Defence Force Academy, University of New South Wales

Teaching training

- 1998 Fundamentals of Teaching and Learning, University of New South Wales

Leadership and innovation training

- 2016 Lean Launchpad (ON:Innovation Program). A program to “to help Australia's best researchers and their collaborators translate great science and technology into commercially viable ventures that will form the foundations of Australia's future.”
- 2015 Experienced Leader Program, CSIRO Learning & Development. A two-week programme for experienced leaders at senior levels in CSIRO.
- 2015 PRINCE2 Project Management Certification, Axelos Global Best Practise.
- 2014 Psychological Health and Wellbeing for Managers, CSIRO Learning and Development.
- 2012 & 2014 Health, Safety and Environment for Leaders, CSIRO L&D.
- 2013 Peter Cullen Trust Science to Policy Leadership program. A selective and intensive training program that “builds leadership and communication skills specifically geared to bringing about positive change in water and catchment management in Australia.”
- 2013 Project Management Fundamentals, CSIRO L&D.
- 2012 New People Leader Program, CSIRO L&D. A week-long development programme for team leaders and project leaders.
- 2012 Leadership Development for Women, CSIRO Land and Water.
- 2011 Media Training, CSIRO L&D.
- 2007 Project Leadership Initiative (PLI), CSIRO L&D.

2007 Essentials of Stakeholder Relationships for Science (CSIRO/Bid Wizards).
2002 Leadership Development for Women, UWA.