

Dr Andrew Barton

BE(Env)(Hons) MEngSc PhD MIEAust MIAHR MASCE

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Research interests

- Water resources – reservoir and water supply operations, environmental flows, drought and climate change, bulk entitlements, water resource modelling, water resource planning.
- Optimisation –operations of pipeline systems, operation of multiple reservoir water supply systems.
- Hydraulics and hydrology – biological fouling of hydraulic conduits, flow measurement, flow resistance, hydraulic structures, experimental methods, catchment analysis, climate change and climate variability, ecohydraulics and ecohydrology.
- Systems understanding and logic – systems modelling, system dynamics, strategic approaches to integrated water cycle problems.

Research Output

Book Chapters

Barton, A. F., Keller, R. J. and Katopodis, C. (2008). A free surface model of a vertical slot fishway to numerically predict velocity and turbulence distributions. *Advances in Fisheries Bioengineering*. S. V. Amaral, D. Mathur and E. P. Taft. Baltimore, American Fisheries Society. Chapter 2.

Refereed Journal Papers:

Godoy, W., **Barton, A.F.** and Martin, J. (2009). Modelling the Future Use of Reservoirs: A Case Study Exploring the Impact of Operating Rules and Climate Change. *Australian Journal of Water Resources*. (Online).

Barton, A. F., Keller, R. J. and Katopodis, C. (2009). "Verification of a Numerical Model for the Prediction of Low Slope Vertical Slot Fishway Hydraulics." *Australian Journal of Water Resources*. 13(1): 53-60.

Sargison, J. and **Barton, A.F.** (2009) Investigating changes to irrigation scheme. *Water Engineering Australia*. Engineers Australia. 3(2): p. 34-35.

Barton, A. F., Wallis, M., Sargison, J., Buia, A. and Walker, G. (2008). "Hydraulic Roughness Of Biofouled Pipes, Biofilm Character, And Measured Improvements From Cleaning." *ASCE Journal of Hydraulic Engineering* 134(6): 852-857.

Barton, A. F., Wallis, M., Sargison, J. and Walker, G. (2008). "A Case Study of the Improvements Gained in Conduit Efficiency by Cleaning a Biofouled Pipeline." *Australian Journal of Water Resources* 12(3): 223-232.

Sargison, J. E., **Barton, A. F.**, Walker, G. and Brandner, P. (2008). "Design and Calibration of a Water Tunnel for Skin Friction Research." *Australian Journal of Mechanical Engineering* (Online) pp.1-14.

Refereed Conference Papers:

Barton, A. F., Briggs, S., Prior, D. and McRae-Williams, P. (2009). Coping With Severe Drought: Stories from the front line. 32nd Hydrology and Water Resources Symposium. Newcastle, Engineers Australia.

Godoy, W. and **Barton, A.F.** (2009). Modelling the Environmental Water Reserve: A case study exploring the effects of the environment's water entitlement in the Wimmera-Mallee. 32nd Hydrology and Water Resources symposium. Newcastle, Engineers Australia.

Mitra, R., **Barton, A. F.**, Orbell, J., Briggs, S. and Prior, D. (2009). Freshwater Bryozoan Infestations in the Northern Mallee Pipeline System. 32nd Hydrology and Water Resources Symposium. Newcastle, Engineers Australia.

Godoy, W., **Barton, A.F.** and Martin, J. (2008). Modelling the Future Use of Reservoirs: A Case Study Exploring the Impact of Operating Rules and Climate Change. Proceedings of the 9th National Conference on Hydraulics in Water Engineering. CD ROM, 23 - 26 September, Darwin Convention Centre Engineers Australia.

Sargison, J. E. and **Barton, A.F.** (2008). Application of HEC RAS to Hydraulic Modelling of an Irrigation Scheme to Determine Potential for Capacity Increase. Proceedings of the 9th National Conference on Hydraulics in Water Engineering. CD ROM, 23 - 26 September, Darwin Convention Centre Engineers Australia.

Andrewartha, J., Sargison, J., **Barton, A. F.**, Denne, T. and Cribbin, N. (2006). Roughness Issues in Hydro Tasmania Water Conveyance Structures. Corrosion & Prevention 2006, "Steel & Concrete - Nothing Lasts Forever", Hotel Grand Chancellor, Hobart, Tasmania, Australia.

Bagirov, A., J. Ugon, **Barton, A.F.** and Briggs, S. (2008). Optimisation of Operations of a Water Distribution System for Reduced Power Usage. Proceedings of the 9th National Conference on Hydraulics in Water Engineering. CD ROM, 23 - 26 September, Darwin Convention Centre Engineers Australia.

Barton, A. F., Brandner, P., Sargison, J. and Walker, G. (2007). A force balance to measure the total drag of biofilms on test plates. 16th Australasian Fluid Mechanics Conference, Gold Coast.

Barton, A. F., Coombes, P. and Rodriguez, J. (2007). Understanding Ecological Response in Urban Catchments. 13th International Rainwater Catchment Systems Conference and 5th International Water Sensitive Urban Design Conference, 21-23 August 2007, Sydney, Australia.

Barton, A. F., P. Coombes, Sharma, A.(2007). Impacts of Innovative WSUD Approaches on Infrastructure Deterioration. 13th International Rainwater Catchment Systems Conference and 5th International Water Sensitive Urban Design Conference, 21-23 August 2007, Sydney, Australia.

Barton, A. F., Sargison, J. and Walker, G. (2007). Effects of Freshwater Biofilms on Flow Over Rough Surfaces. IAHR 6th International Symposium on Ecohydraulics. 18-23 February, Christchurch Convention Centre, Christchurch, New Zealand. CD-ROM.

Barton, A. F., Sargison, J., Walker, G., Osborn, J. and Brandner, P. (2005). A baseline study of the effect of freshwater biofilms in hydraulic conduits. XXXI IAHR Congress, Seoul, Korea, Conference Proceedings CD ROM.

Osborn, J. E., Bae, Y.-S., Grenness, M.J., Sargison, J.E., **Barton, A.F.**, Sprent, A.S., Walker, G.J. and Bendall, T. (2005). Mapping Surface Biofilms to Improve the Efficiency of Water Conveyance. Spatial Sciences Congress, Melbourne, Spatial Sciences Institute of Australia, September 2005.

Barton, A. F., Sylvester, M., Sargison, J., Walker, G. and Denne, A. (2004). Deterioration of Conduit Efficiency Due to Biofouling. 8th National Conference on Hydraulics in Water Engineering, 13-16 July, ANA Hotel Gold Coast, Queensland, Australia, Engineers Australia.

Barton, A. F. and R. J. Keller (2003). 3D Free Surface Model of a Vertical Slot Fishway. XXX IAHR Congress, Thessaloniki, Greece, International Association of Hydraulic Engineering and Research.

Barton, A. F., R. J. Keller, Katopodis, C. (2002). A free surface model of a vertical slot fishway to numerically predict velocity and turbulence distributions. 4th Bio-engineering symposium, 132nd Annual American Fisheries Society Conference, Baltimore.

Conference Abstracts:

Barton, A. (2008). Northern-Mallee Pipeline Optimisation: Planning for the Future. 4th WIDCORP Research Forum. University of Ballarat: Horsham.

Barton, A. F., L. Barmuta, L., Sargison, J.E., Walker, G. and Osborn, J. (2005). Measuring the Near Wall Flow Characteristics of Freshwater Biofilms. The 44th ASL National Congress, University of Tasmania, Australian Society for Limnology. Conference Abstract.

Reports:

Barton, A. F. (2007). Friction, Roughness and Boundary Layer Characteristics of Freshwater Biofilms in Hydraulic Conduits. Hobart, Tasmania, Australia, PhD Thesis, University of Tasmania.

Barton, A. F., Coombes, P.J., Rodríguez J., Sharma, A., Daniell, T., Hardy, M. and Micevski, T. (2007). eWater CRC Milestone Report. Project E.2: Innovative Approaches Urban. Callaghan, University of Newcastle.

Barton, A. F. and A. Buia (2005). Tarraleah Power Station - Hilltop Pipeline Cleaning and Headloss Estimation, Report No. 18/03. Reviewed by, J. Sargison, G. Walker, C. Ludlow and M. Wallis, University of Tasmania, Hobart.

Barton, A. (2004). Poatina Power Scheme - Penstock Cleaning and Power Conduit Headloss Estimation, Report No. 21/04. Reviewed by, J. Sargison, G. Walker, C. Ludlow and M. Wallis, University of Tasmania, Hobart.

Barton, A. and J. Sargison (2004). Tarraleah Headworks - Paint trials in Canal No. 1 and Pond No. 1, Report No. 20/04. Reviewed by, G. Walker and T. Denne, University of Tasmania, Hobart.

Barton, A. F. (2004). A Numerical Model for the Hydraulics of the Vertical Slot Fishway, Master of Engineering Science (Research) Thesis. Monash University, Department of Civil Engineering. Melbourne, Australia.

Barton, A. and J. Sargison (2003). Wilmot Power Station - Penstock Cleaning and Power Conduit Headloss Estimation, Report No. 17/03. Reviewed by, G. Walker and M. Wallis, University of Tasmania, Hobart.

Barton, A. F. (2000). A study of water quality and streamflows in the Moorabool River, Victoria, Australia. SEJ443 Engineering Projects. School of Engineering and Technology. Geelong, Victoria, Deakin University.