

A Career Retrospective

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Angela's early years were spent in Mt Gambier and Adelaide, South Australia, and later Rotorua and Christchurch, New Zealand, all places where her father held various positions as a forester. She attended the Whakarewarewa Māori School and Rotorua High School before the family moved to Christchurch and another rewarding role for their father with the New Zealand Forest Service. She completed the New Zealand School Certificate and University Entrance at Christchurch Girls High School, followed by a BSc Degree with First Class Honours at the University of Canterbury, majoring in zoology, with chemistry, botany and philosophy as subsidiary subjects. Encouraged by her favourite lecturer, a Canadian entomologist, she applied for PhD scholarship funding at MacDonald College of McGill University, Montreal, and completed her PhD in entomology and ecology by oral examination and thesis in 1969. A special feature of the PhD graduation process was giving a research presentation to the examining professors, who then took the candidate out to a sumptuous lunch in Sainte-Anne-de-Bellevue, a small town located at the western tip of the Island of Montreal in south-western Quebec, Canada.

Four years of superb research training in insect taxonomy, morphology, pest management and general ecology led to a lectureship in the Entomology Department, University of Queensland, Brisbane, in 1970. Angela established student field

classes in the dry sclerophyll ('wallum') forests, patterned fen wetlands and dune lakes of North Stradbroke Island, known as Minjerribah by its traditional owners, the Quandamooka People. Crossing to the island involved backing a university Land Rover down two narrow metal ramps onto an antiquated barge, watched by contingents of fishermen already well into their eskies full of stubbies, in high spirits and eager to see how a 'sheila' managed this tricky feat. Surveys of benthic, littoral and planktonic invertebrates and limnological data from Brown Lake and Blue Lake led to her first scientific paper (Bensink & Burton, 1975) published by The Royal Society of Queensland as part of a special issue on Stradbroke Island as a place for teaching.

Further studies established the unique features of oligotrophic sand dune lakes and their specialised biota, which included several species new to science (a primitive freshwater worm (*Rhizodrilus arthingtonae*), two dragonflies and several species of Trichoptera (caddisflies); one is named *Westriplectes angelae*). New distribution records for freshwater fishes, *Pseudomugil mellis* and *Nannoperca oxleyana*, and an assessment of threats to their habitats, led to IUCN and Australian 'Threatened' species listings and the development of species recovery plans (Knight et al., 2012). These early findings informed another special issue of The Royal Society of Queensland *Proceedings: A Place of Sandhills: Ecology, Hydrogeomorphology and Management*

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of Queensland's Dune Islands (Arthington et al., 2011; Hadwen & Arthington, 2011). Freshwater biodiversity discoveries and ecological insights helped to prevent sandmining on Moreton and Fraser Island and contributed to the World Heritage listing of Fraser Island and the Cooloola Sand Mass in 1992.

Angela joined the School of Australian Environmental Studies at Griffith University, Brisbane, in 1975, and it has been her academic home ever since. As well as establishing undergraduate courses in freshwater ecology, she soon began new lines of research on the ecology of urban streams. Her first project was focused on the development of biological indicators to assess effects of organic pollution on polluted Bulimba Creek. Invertebrate diversity, and patterns of association between pollution gradients and the distribution of dragonfly species that breed only in running waters (e.g. *Austroepigomphus praeruptus*) and remain close to oviposition habitat (Watson et al., 1982), were deemed useful pollution indicators. An invitation to explore the incidence and implications of alien fishes in South East Queensland waterways gave rise to studies on the ecology and impacts of the mosquitofish (*Gambusia holbrooki*) and the cichlid (*Oreochromis mossambicus*, the Mozambique mouthbrooder) in particular. Collaboration with the Curator of Fishes at the Queensland Museum was inspiring, and a string of publications followed (e.g. Arthington et al., 1983). The highlight of this period was a meeting of the Global Invasive Species Program (GISP) Expert Consultation (2003) held at the Smithsonian Institute in Washington DC, and a 'white paper' on the global problems of alien cichlid (tilapia) species in freshwater systems (Canonico et al., 2005).

Another milestone was establishment of the Centre for Catchment and In-Stream Research (CCISR), one of 12 Centres of Concentration established in 1987 by the Australian Water Research Advisory Council (AWRAC), Department of Primary Industry, Canberra. CCISR was funded initially by a five-year grant to develop freshwater biodiversity and river basin studies, drawing upon the expertise of faculty members and new appointees. Eminent Griffith University colleagues joined CCISR and one wit said that our major theme should be research 'at the cutting edge' of freshwater science. This was prophetic. Supported by numerous research grants, commissioned projects

and postgraduate research, CCISR's research program soon diversified and morphed into the globally prominent Australian Rivers Institute (ARI) of today. Leading CCSIR for five years was a challenge and a profound honour.

Research on the ecological water requirements (environmental flows, also known as e-flows) of freshwater species became the central theme of Angela's research from the 1990s, starting with the effects of a new dam on Barker-Barambah Creek near Murgon, a study funded by the Queensland Water Commission. Further investigations on fish communities and flow regimes of Queensland's major coastal rivers were supported by the Land and Water Resources Research and Development Corporation (LWRRDC), the Rainforest Cooperative Research Centre (CRC) and the Queensland Government, producing a mass of basic data on the habitat requirements and ecology of 79 freshwater fish species. In 2004, Brad Pusey, Mark Kennard and Angela assembled this information and related literature in *Freshwater Fishes of North-Eastern Australia* (Pusey et al., 2004). This volume won the 2005 Whitley Medal, awarded annually since 1979 by the Royal Zoological Society of New South Wales to commemorate Gilbert Whitley (1903–1975), an eminent Australian ichthyologist. Whitley awards celebrate publication of the best books containing new information about the natural history of the fauna of the Australasian region. Presentation ceremonies are wonderful events held at the Australian Museum in Sydney where a prominent scientist reads the nomination and applauds each book's achievements. The medal itself is beautiful.

Research on fish ecology in floodplain rivers continued via projects with the Rainforest CRC and the Marine and Tropical Sciences Research Facility (MTSRF), a 4-year \$40m component of the Commonwealth's Environment Research Facilities program. A fruitful collaboration with colleagues from James Cook University and CSIRO led to a suite of publications and an associated PhD program on floodplain rivers of the Wet Tropics (Arthington et al., 2015; Godfrey et al., 2017, 2022; Pearson et al., 2013) and new models of floodplain connectivity (Karim et al., 2012, 2014). These studies helped to drive new policy directives for the protection and restoration of interconnected catchment, riverine, floodplain and estuarine systems, as part of the

Great Barrier Reef 2050 Long-Term Sustainability Plan 2018, an overarching strategy for managing the GBR over the next 30 years (Arthington et al., 2020a). Angela is presently contributing freshwater science perspectives into the 2022 Scientific Consensus Statement (SCS) on land-based water quality impacts on the Great Barrier Reef.

Moving away from coastal rivers in 2005, Angela joined the 'Dryland Refugium Project' funded by the Freshwater CRC to research patterns of fish diversity and recruitment in floodplain rivers of the Lake Eyre Basin (LEB). This period of research in the remarkable river systems of Australia's arid interior produced new insights into the community ecology and 'boom and bust' dynamics of fish species adapted to long periods of aridity punctuated by extensive floods (Arthington & Balcombe, 2011). Angela has applied this information as a member of the Scientific Advisory Panel for the LEB, currently focused on a review of the Lake Eyre Basin Rivers Assessment (LEBRA) and development of new indicators to measure emerging threats to arid-zone rivers and their endemic species. One of the most threatened species is the Cooper Creek catfish, *Neosiluroides cooperensis*, now listed as endangered on the IUCN Red List of Threatened Species (Arthington et al., 2019).

Springs of the Great Artesian Basin (GAB) became another research interest when working with the Commonwealth's Independent Expert Scientific Committee (IESC) on Coal Seam Gas and Large Coal Mining Development. Seeing the need for a compendium of recent scientific and management information, Angela and a team of editors produced *Springs of the Great Artesian Basin*, a Special Issue of the *Proceedings of The Royal Society of Queensland* published in 2020. This volume of 19 papers gives easy access to interesting and compelling information about GAB springs, which are biodiversity havens for many rare and endemic species. One of them is the critically endangered red-finned blue-eye (*Scaturiginichthys vermeilipinnis*) found only in Edgbaston (Byarri) Springs. Papers in this volume record the passion of Indigenous Peoples, pastoralists, scientists, governments and conservation groups working together to improve stewardship of spring ecosystems and their supporting aquifers (Arthington et al., 2020b; Rossini et al., 2020).

Angela's ongoing river ecology and fish research has contributed to several novel frameworks for assessing the environmental flow requirements of riverine biota. Collaboration with river scientists from South Africa led to wonderful field work in rivers of the Lesotho Highlands, and development of the e-flows framework known as DRIFT (Downstream Response to Imposed Flow Transformation) and its fish component (Arthington et al., 2003). Several years of international collaboration also produced a precursor paper and eventually the multi-faceted e-flows framework known as ELOHA (Ecological Limits of Hydrologic Alteration) (Arthington et al., 2006; Poff et al., 2010). Numerous publications and practical experiences with e-flow studies and recommendations for Queensland's coastal rivers culminated in the book *Environmental Flows: Saving Rivers in the Third Millennium* (University of California Press, 2012), since translated into Chinese. Angela was honoured to receive the 'Making a Difference Award' from the US Instream Flow Council during their annual Flows Conference held in Portland in 2015. In his presentation speech the conference President recommended a single paper (Bunn & Arthington, 2002) as an absolute "must read" for anyone interested in environmental flows; that paper has clocked up 4036 citations (Google Scholar, 29 October 2022). Another highly cited publication (Dudgeon et al., 2006) arose from meetings of the freshwaterBIODIVERSITY program of DIVERSITAS, aimed at developing a new global science agenda for biodiversity in support of sustainable freshwater ecosystems and human well-being. This seminal paper on freshwater biodiversity values and threats has been cited in 6773 subsequent publications (Google Scholar, 29 October 2022).

In 2018 Angela led the compilation and publication of the *Brisbane Declaration and Global Action Agenda on Environmental Flows*, a status review and call for action to protect the dynamic flow regimes and freshwater biodiversity of the world's rivers and wetlands (Arthington et al., 2018). A renewed definition of environmental flows and some elements of the associated Global Action Agenda have been taken up by the Food and Agriculture Organization (FAO), as custodian UN agency for Sustainable Development Goal Indicator 6.4.2

'level of water stress: freshwater withdrawal as a proportion of available freshwater resources'. Accelerated implementation of e-flows also forms part of an Emergency Recovery Plan to "bend the curve" of freshwater biodiversity loss towards recovery and protection (Tickner et al., 2020). This plan's 6-point action agenda is explicitly aligned with the goals and indicators of the emerging Post-2020 Global Biodiversity Framework and its mission to 'Halt the loss of species, ecosystems and genetic diversity by 2030; restore and recover biodiversity to ensure a world of people "living in harmony with nature" by 2050'.

During her career Angela has supervised 20 Honours, Masters and PhD candidates, written/edited four books, edited four journal special issues and published over 300 papers, book chapters and research/consultancy reports (h-index 73). Her efforts have brought \$9m into the Griffith University's research budget since 1980. She has served on many advisory panels, including the Australian Water Research Advisory Council (AWRAC), the Land and Water Resources Research and Development Corporation (LWRDC), Land and Water Australia, the DIVERSITAS Freshwater Cross-cutting Network,

the Environmental Water Scientific Advisory Panel (EWSAP) (advising the Commonwealth Environmental Water Holder), the LEB Scientific Advisory Panel (SAP) and the Commonwealth's Independent Expert Scientific Committee (IESC) on Coal Seam Gas and Large Coal Mining Development. Her achievements in research, education, leadership and management of freshwater biodiversity have been recognised by her inclusion in the 2015 Hall of Fame of the Australian Society for Fish Biology (ASFB), and by the award of the 2018 Australian Society for Limnology (ASL) Medal for outstanding contributions to Australian freshwater science. Another highly valued honour was giving the 19th Annual H.B.N. Hynes Lecture in 2020 entitled *Progress with Environmental Flows to Maintain Healthy Rivers and Healthy Societies* (Figure 1). The Canadian Rivers Institute initiated its annual lecture series in 2002 by the conferring of an Honorary Doctoral Degree to Dr H. B. N. Hynes (1917–2009). As the world's most renowned freshwater biologist and 'the father of running water ecology', Professor Hynes was a role model for many river scientists, and his definitive textbook on river ecology, *The Ecology of Running Waters* (2001), remains inspiring.

The Canadian Rivers Institute presents 19th Annual
H.B.N. HYNES LECTURE SERIES
FEATURING
DR. ANGELA ARTHINGTON
Professor Emeritus | Australian Rivers Institute

VIRTUAL SCIENCE LECTURE: PROGRESS WITH ENVIRONMENTAL FLOWS TO MAINTAIN HEALTHY RIVERS AND HEALTHY SOCIETIES (** REGISTRATION REQUIRED **)
TUESDAY, NOV 10th 2020, 9:00 a.m. - 11:00 a.m. (GMT-03:00) Atlantic Standard/Daylight Time Canada

VIRTUAL PUBLIC LECTURE: A CAREER IN FRESHWATER SCIENCE (PRE-RECORDED)
TUESDAY, NOV 10th 2020 at 1:00p.m. (GMT-03:00) Atlantic Standard/Daylight Time Canada

Live Q&A
11:00 a.m.
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FIGURE 1. Advertising Angela Arthington's 19th Annual H.B.N. Hynes 2020 Lecture (reproduced with permission from The Canadian Rivers Institute).

Angela is now working as an Adjunct Emeritus Professor in the Australian Rivers Institute at Griffith University, writing, editing and reviewing for many journals. She is an editor of the journal *Aquatic Conservation: Marine and Freshwater Ecosystems* and currently holds the position of Specialty Chief Editor of *Frontiers in Environmental Science – Freshwater Science*. The journal's broad statement of scope, highlighted in her 'Grand challenges' paper (Arthington, 2021), offers many opportunities to publish freshwater science and promote the conservation of freshwater biodiversity in our changing world.

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Literature Cited

- Arthington, A. H. (2021). Grand challenges to support the Freshwater Biodiversity Emergency Recovery Plan. *Frontiers in Environmental Science*, 9, 664313. <https://doi.org/10.3389/fenvs.2021.664313>
- Arthington, A. H., & Balcombe, S. R. (2011). Extreme hydrologic variability and the boom and bust ecology of fish in arid-zone floodplain rivers: a case study with implications for environmental flows, conservation and management. *Ecohydrology*, 4(5), 708–720. <https://doi.org/10.1002/eco.221>
- Arthington, A. H., Bunn, S. E., Poff, N. L., & Naiman, R. J. (2006). The challenge of providing environmental flow rules to sustain river ecosystems. *Ecological Applications*, 16(4), 1311–1318. [https://doi.org/10.1890/1051-0761\(2006\)016\[1311:TCOPEF\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2006)016[1311:TCOPEF]2.0.CO;2)
- Arthington, A. H., Bhaduri, A., Bunn, S. E., Jackson, S. E., Tharme, R. E., Tickner, D., Young, B., Acreman, M., Baker, N., Capon, S., Horne, A. C., Kendy, E., McClain, M. E., Poff, N. L., Richter, B. D., & Ward, S. (2018). The Brisbane declaration and global action agenda on environmental flows 2018. *Frontiers in Environmental Science*, 6, 45. <https://doi.org/10.3389/fenvs.2018.00045>
- Arthington, A. H., Godfrey, P. C., Pearson, R. G., Karim, F., & Wallace, J. (2015). Biodiversity values of remnant freshwater floodplain lagoons in agricultural catchments: evidence for fish of the Wet Tropics Bioregion, northern Australia. *Aquatic Conservation, Marine and Freshwater Ecosystems*, 25(3), 336–352. <https://doi.org/10.1002/aqc.2489>
- Arthington, A. H., Jackson, S. E., Tomlinson, M., Walton, C. S., Rossini, R. A., & Flook, S. C. (2020b). Springs of the Great Artesian Basin – Oases of Life in Australia's Arid Interior. *Proceedings of The Royal Society of Queensland*, 126, 1–10.
- Arthington, A., Sternberg, D., Cockayne, B., & Schmarr, D. (2019). *Neosiluroides cooperensis*. The IUCN Red List of Threatened Species 2019: e.T122900149A123382031. <https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T122900149A123382031.en>
- Arthington, A. H., Milton, D. A., & McKay, R. J. (1983). Effects of urban development and habitat alterations on the distribution and abundance of native and exotic freshwater fish in the Brisbane region, Queensland. *Australian Journal of Ecology*, 8, 87–101. <https://doi.org/10.1111/j.1442-9993.1983.tb01597.x>
- Arthington, A. H., Page, T., Rose, C. W., & Sathyamurthy, R. (Eds.). (2011). A Place of Sandhills: Ecology, Hydrogeomorphology and Management of Queensland's Dune Islands. *Proceedings of The Royal Society of Queensland*, 117.
- Arthington, A. H., Pearson, R. G., Godfrey, P. C., Karim, F., & Wallace, J. (2020a). Integrating freshwater wetland science in planning for Great Barrier Reef sustainability. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 30(9), 1727–1733. <https://doi.org/10.1002/aqc.3339>
- Arthington, A. H., Rall, J. L., Kennard, M. J., & Pusey, B. J. (2003). Environmental flow requirements of fish in Lesotho Rivers using the DRIFT methodology. *River Research and Applications*, 19(5–6), 641–666. <https://doi.org/10.1002/rra.728>
- Bensink, A. H. A., & Burton, H. (1975). North Stradbroke Island – a place for freshwater invertebrates. *Proceedings of The Royal Society of Queensland*, 86, 29–45.

- Bunn, S. E., & Arthington, A. H. (2002). Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity. *Environmental Management*, 30(4), 492–507. <https://doi.org/10.1007/s00267-002-2737-0>
- Canonica, G. C., Arthington, A., McCrary, J. K., & Thieme, M. L. (2005). The effects of introduced tilapias on native biodiversity. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 15(5), 463–483. <https://doi.org/10.1002/aqc.699>
- Council of The Royal Society of Queensland. (2022). The Royal Society of Queensland, award of life membership to Angela Arthington, 18 June 2022. *Proceedings of The Royal Society of Queensland*, 131, 177–178. <https://doi.org/10.53060/prsq.2022-21>
- Dudgeon, D., Arthington, A. H., Gessner, M. O., Kawabata, Z., Knowler, D., Lévéque, C., Naiman, R. J., Prieur-Richard, A., Soto, D., Stiassny, M. L. J., & Sullivan, C. A. (2006). Freshwater biodiversity: importance, threats, status, and conservation challenges. *Biological Reviews*, 81(2), 163–182. <https://doi.org/10.1017/S1464793105006950>
- Godfrey, P., Arthington, A. H., Pearson, R. G., Karim, F., & Wallace, J. (2017). Fish larvae and recruitment patterns in floodplain lagoons of the Australian Wet Tropics. *Marine and Freshwater Research*, 68(5), 964–979. <https://doi.org/10.1071/MF15421>
- Godfrey, P. C., Pusey, B. J., Pearson, R. G., & Arthington, A. H. (2022). Predictable hydrology, habitat and food resources determine fish recruitment dynamics in an incised tropical Australian river. *Ecohydrology, Early View*, e2457. <https://doi.org/10.1002/eco.2457>
- Hadwen W. L., & Arthington, A. H. (2011). Visitor impacts and climatic variability will shape the future ecology of Fraser Island's perched dune lakes. *Proceedings of The Royal Society of Queensland*, 117, 485–493.
- Karim, F., Kinsey-Henderson, A., Wallace, J., Arthington, A. H., & Pearson, R. (2012). Modelling wetland connectivity during overbank flooding in a tropical floodplain in north Queensland, Australia. *Hydrological Processes*, 26(18), 2710–2723. <https://doi.org/10.1002/hyp.8364>
- Karim, F., Kinsey-Henderson, A., Wallace, J., Arthington, A. H., & Pearson, R. (2014). Modelling hydrological connectivity of tropical floodplain wetlands via a combined natural and artificial stream network. *Hydrological Processes*, 28(23), 5696–5710. <https://doi.org/10.1002/hyp.10065>
- Knight, J. T., Arthington, A. H., Holder, G. S., & Talbot, R. B. (2012). Conservation biology and management of the endangered Oxleyan pygmy perch (*Nannoperca oxleyana* Whitley) in Australia. *Endangered Species Research*, 17, 160–178. <https://doi.org/10.1002/AQC.936>
- Pearson, R. P., Godfrey, P., Arthington, A. H., Wallace, J., Karim, F., & Ellison, M. (2013). Biophysical status of remnant lagoons on a tropical floodplain in the Great Barrier Reef catchment: a challenge for assessment and monitoring. *Marine and Freshwater Research*, 64(3), 208–222. <https://doi.org/10.1071/MF12251>
- Poff, N. L., Richter, B. D., Arthington, A. H., Bunn, S. E., Naiman, R. J., Kendy, E., Acreman, M., Apse, C., Bledsoe, B. P., Freeman, M. C., Henriksen, J., Jacobson, R. B., Kennen, J. G., Merritt, D. M., O'Keeffe, J. H., Olden, J. D., Rogers, K., Tharme, R. E., & Warne, A. (2010). The Ecological Limits of Hydrologic Alteration (ELOHA): a new framework for developing regional environmental flow standards. *Freshwater Biology*, 55(1), 147–170. <https://doi.org/10.1111/j.1365-2427.2009.02204.x>
- Pusey, B. J., Kennard, M. J., & Arthington, A. H. (Eds.). (2004). *Freshwater Fishes of North-Eastern Australia*. CSIRO Publishing.
- Rossini, R. A., Arthington, A. H., Jackson, S. E., Tomlinson, M., Walton, C. S., & Flook, S. C. (2020). Springs of the Great Artesian Basin – Synthesis of Research and Management Priorities. *Proceedings of The Royal Society of Queensland*, 126, 305–321.
- Tickner, D., Opperman, J. J., Abell, R., Acreman, M., Arthington, A. H., Bunn, S. E., Cooke, S. J., Dalton, J., Darwall, W., Edwards, G., Harrison, I., Hughes, K., Jones, T., Leclerc, D., Lynch, A. J., Leonard, P., McClain, M. E., Muruven, D., Olden, J. D., Ormerod, S. J., Robinson, J., Tharme, R. E., Thieme, M.,

- Tockner, K., Wright, M., & Young, L. (2020). Bending the curve of freshwater biodiversity decline – An Emergency Recovery Plan. *Bioscience*, 70(4), 330–342. <https://doi.org/10.1093/biosci/biaa002>
- Watson, J. A. L., Arthington, A. H., & Conrick, D. L. (1982). Effect of sewage effluent on dragonflies (Odonata) of Bulimba Creek, Brisbane. *Marine and Freshwater Research*, 33(3), 517–528. <https://doi.org/10.1071/MF9820517>

Angela Arthington's Selected Bibliography

1975

Bensink, A. H. A., & Burton, H. (1975). North Stradbroke Island – a place for freshwater invertebrates. *Proceedings of The Royal Society of Queensland*, 86, 29–45.

1978

Watson, J. A. L., & Arthington, A. H. (1978). A new species of *Orthetrum* Newman from dune lakes in eastern Australia (Odonata: Libellulidae). *Journal of the Australian Entomological Society*, 17, 151–157.

<https://onlinelibrary.wiley.com/doi/epdf/10.1111/j.1440-6055.1978.tb00001.x>

1982

Arthington, A. H., & Watson, J. A. L. (1982). Dragonflies (Odonata) of coastal sand dune fresh waters of south-eastern Queensland and north-eastern New South Wales. *Australian Journal of Marine and Freshwater Research*, 33, 77–88.

<https://doi.org/10.1071/MF9820077>

Watson, J. A. L., Arthington, A. H., & Conrick, D. L. (1982). Effect of sewage effluent on dragonflies (Odonata) of Bulimba Creek, Brisbane. *Marine and Freshwater Research*, 33(3), 517–528.

<https://doi.org/10.1071/MF9820517>

1983

Arthington, A. H., Milton, D. A., & McKay, R. J. (1983). Effects of urban development and habitat alterations on the distribution and abundance of native and exotic freshwater fish in the Brisbane region, Queensland. *Australian Journal of Ecology*, 8, 87–101.

<https://doi.org/10.1111/j.1442-9993.1983.tb01597.x>

1986

Arthington, A. H. (1986). Introduced cichlid fishes in Australian inland waters. In P. De Deckker, & W. D. Williams (Eds.), *Limnology in Australia* (pp. 239–248). CSIRO & Dr W. Junk.

https://doi.org/10.1007/978-94-009-4820-4_14

Arthington, A. H., Burton, H., Williams, R., & Outridge, P. M. (1986). The ecology of humic and non-humic dune lakes, Fraser Island, with emphasis on the effects of sand infilling in Lake Wabby. *Australian Journal of Marine and Freshwater Research*, 37, 743–764.

<https://doi.org/10.1071/MF9860743>

Arthington, A. H., & Mitchell, D. S. (1986). Aquatic Invading species. In R. H. Groves, & J. J. Burdon (Eds.), *Ecology of biological invasions* (pp. 34–53). Australian Academy of Science (and SCOPE).

1988

Arthington, A. H. (1988). The characteristics, distribution and conservation status of lakes in the wet tropics and subtropics of Queensland. *Proceedings of The Ecological Society of Australia*, 15, 177–189.

Arthington, A. H., & Hegerl, E. J. (1988). The distribution, conservation status and management problems of Queensland's athalassic and tidal wetlands. In J. McComb, & P. S. Lake (Eds.), *The conservation of Australian wetlands* (pp. 59–101). Surrey Beatty & Sons.

1989

Arthington, A. H., & Lloyd, L. N. (1989). Introduced poeciliids in Australia and New Zealand. In G. K. Meffe, & F. F. Snellson (Eds.), *Evolution and ecology of livebearing fishes (Poeciliidae)* (pp. 333–348). Prentice-Hall.

Arthington, A. H., Miller, G. J., & Outridge, P. M. (1989). Water quality, phosphorus budgets and management of Queensland dune lakes used for recreation. In *Water quality and management for recreation and tourism* (pp. 111–118). Water Science and Technology Series. Pergamon Press.

<https://doi.org/10.2166/WST.1989.0036>

Outridge, P. M., Arthington, A. H., & Miller, G. J. (1989). Limnology of naturally acidic,

- oligotrophic dune lakes in subtropical Australia, including chlorophyll – phosphorus relationships. *Hydrobiologia*, 179, 39–51.
<https://doi.org/10.1007/BF00011928>
- 1990**
- Bluhdorn, D. R., Arthington, A. H., & Mather, P. B. (1990). The introduced cichlid, *Oreochromis mossambicus*, in Australia: a review of distribution, population genetics, ecology, management issues and research priorities. In D. A. Pollard (Ed.), *Introduced and translocated fishes and their ecological effects* (pp. 83–92). Bureau of Rural Resources Proceedings No. 8., Australian Government Publishing Service.
- 1991**
- Arthington, A. H. (1991). The ecological and genetic impacts of introduced freshwater fishes in Australia. *Canadian Journal of Fisheries and Aquatic Sciences*, 48(Suppl. 1), 33–44.
<https://doi.org/10.1139/F91-302>
- 1992**
- Arthington, A. H., King, J. M., O'Keeffe, J. H., Bunn, S. E., Day, J., Pusey, B. J., Bluhdorn, D. R., & Tharme, R. (1992). Development of an holistic approach for assessing environmental flow requirements of riverine ecosystems. *Proceedings of an International Seminar and Workshop on Water Allocation for the Environment* (pp. 69–76). Centre for Water Policy Research, Armidale.
- 1993**
- Pusey, B. J., Arthington, A. H., & Read, M. G. (1993). Spatial and temporal variation in fish assemblage structure in the Mary River, S.E. Queensland: the influence of habitat structure. *Environmental Biology of Fishes*, 37, 355–380.
<https://doi.org/10.1007/BF00001996>
- 1994**
- Dudgeon, D., Arthington, A. H., Chang, W. Y. B., Davies, J., Humphrey, C. L., Pearson, R. G., & Lam, P. K. S. (1994). Conservation and management of tropical inland waters: Problems, solutions and prospects: A synthesis. In D. Dudgeon, & P. Lam (Eds.), *Inland waters of tropical Asia and Australia: Conservation and management* (pp. 369–386). Mitteilungen (Communications), Societas Internationalis Limnologiae (SIL) 24.
- 1995**
- Arthington, A. H., & Welcomme, R. L. (1995). The condition of large river systems of the world. In C. W. Voigtlander (Ed.), *Proceedings of the World Fisheries Congress* (pp. 44–75). Oxford & IBH Publishing Co Pty Ltd.
- Pusey, B. J., Arthington, A. H., & Read, M. G. (1995). Species richness and spatial variation in fish assemblage structure in two rivers of the Wet Tropics of Northern Queensland, Australia. *Environmental Biology of Fishes*, 42, 181–199.
<https://doi.org/10.1007/BF00001996>
- Pusey, B. J., Read, M. G., & Arthington, A. H. (1995). The feeding ecology of freshwater fishes in two rivers of the Australian Wet Tropics. *Environmental Biology of Fishes*, 43, 85–103.
<https://doi.org/10.1007/BF00001820>
- Ward, S., Arthington, A. H., & Pusey, B. J. (1995). The effects of chronic application of Chlorpyrifos on invertebrate communities in an outdoor artificial stream system: species responses. *Ecotoxicology and Environmental Safety*, 30, 2–23.
<https://doi.org/10.1006/EESA.1995.1002>
- 1996**
- Arthington, A. H. (1996). The effects of agricultural land use on tributaries of the Darling River, Australia. *GeoJournal*, 40 (1–2), 115–125.
<https://doi.org/10.1007/BF00222537>
- Arthington, A. H., & Bluhdorn, D. R. (1996). The effects of species interactions resulting from aquaculture operations. In D. J. Baird, M. C. Beveridge, L. A. Kelly, & J. F. Muir (Eds.), *Aquaculture and water resource management* (pp. 114–138). Blackwell Science.
- 1997**
- Arthington, A. H., Marshall, J., Rayment, G., Hunter, H., & Bunn, S. (1997). Potential impacts of sugarcane production on the riparian and freshwater environment. In B. A. Keating, & J. R Wilson (Eds.), *Intensive sugar cane production: Meeting the challenges beyond 2000* (pp. 403–421). CAB International.
- Pusey, B. J., Bird, J., Kennard, M. J., & Arthington, A. H. (1997). The distribution of the Lake Eacham rainbowfish in the Johnstone River, north Queensland. *Australian Journal of Zoology*, 45, 75–84.
<https://doi.org/10.1071/ZO96009>

1998

Mosisch, T. D., & Arthington, A. H. (1998). The impacts of power boating and water skiing on lakes and reservoirs. *Lakes and Reservoirs: Research and Management*, 3, 1–17.

<https://doi.org/10.1111/j.1440-1770.1998.tb00028>

Pusey, B. J., Arthington, A. H., & Read, M. G. (1998). Freshwater fishes of the Burdekin River, Australia: biogeography, history and spatial variation in assemblage structure. *Environmental Biology of Fishes*, 53(3), 303–318.

<https://doi.org/10.1023/A:1007468417947>

Pusey, B. J., Kennard, M. J., Arthur, J. M., & Arthington, A. H. (1998). Quantitative sampling of stream fish assemblages: single versus multiple pass electroshocking. *Australian Journal of Ecology*, 23, 365–374.

<https://doi.org/10.1111/J.1442-9993.1998.TB00741.X>

1999

Arthington, A. H., & Marshall, C. J. (1999). Diet of the exotic Mosquitofish, *Gambusia holbrooki*, in an Australian lake and potential for competition with indigenous fish species. *Asian Fisheries Science*, 12(1), 1–8.

Hughes, J. M., Ponniah, M. H., Hurwood, D. A., Chenoweth, S., & Arthington, A. H. (1999). Strong genetic structuring in a habitat specialist, the Oxleyan Pygmy Perch *Nannoperca oxleyana*. *Heredity*, 83, 5–14.

<https://doi.org/10.1038/sj.hdy.6885390>

2000

Pusey, B. J., Arthington, A. H., & Read, M. G. (2000). The dry-season diet of freshwater fishes in monsoonal tropical rivers of Cape York Peninsula, northern Australia. *Ecology of Freshwater Fishes*, 9, 177–190.

<https://doi.org/10.1111/J.1600-0633.2000.EFF090307.X>

Pusey, B. J., Kennard, M. J., & Arthington, A. H. (2000). Discharge variability and the development of predictive models relating stream fish assemblage structure to habitat in north-eastern Australia. *Ecology of Freshwater Fishes*, 9, 30–50.

<https://doi.org/10.1034/j.1600-0633.2000.90105.x>

2001

Mosisch, T. D., & Arthington, A. H. (2001) Polycyclic aromatic hydrocarbon residues in the

sediments of a dune lake as a result of power boating. *Lakes and Reservoirs: Research and Management*, 6, 21–32.

<https://doi.org/10.1111/J.1440-1770.1998.TB00028.X>

Pusey, B. J., Arthington, A. H., Bird, J., & Close, P. G. (2001). Reproduction in three species of rainbowfishes (Melanotaeniidae) from rainforest streams in northern Queensland, Australia. *Ecology of Freshwater Fish*, 10, 75–87.

<https://doi.org/10.1034/j.1600-0633.2001.100202.x>

2002

Bunn, S. E., & Arthington, A. H. (2002). Basic principles and consequences of altered hydrological regimes for aquatic biodiversity. *Environmental Management*, 30, 492–507.

<https://dx.doi.org/10.1007/s00267-002-2737-0>

Pusey, B. J., Close, P. G., Arthington, A. H., & Bird, J. (2002). Larval fishes in rainforest streams: recruitment and microhabitat use. *Proceedings of The Royal Society of Queensland*, 110, 27–46.

2003

Arthington, A. H., & Pusey, B. J. (2003). Flow restoration and protection in Australian rivers. *River Research and Applications*, 19(5–6), 377–395.

<https://doi.org/10.1002/rra.745>

Arthington, A. H., Rall, J. L., Kennard, M. J., & Pusey, B. J. (2003). Environmental flow requirements of fish in Lesotho Rivers using the DRIFT methodology. *River Research and Applications*, 19(5–6), 641–666.

<https://doi.org/10.1002/rra.728>

Hadwen, W. L., & Arthington, A. H. (2003). The significance and management implications of perched dune lakes as swimming and recreation sites on Fraser Island, Australia. *The Journal of Tourism Studies*, 14(2), 35–44.

Hadwen, W. L., Arthington, A. H., & Mosisch, T. D. (2003). The impact of tourism on dune lakes on Fraser Island, Australia. *Lakes & Reservoirs: Research and Management*, 8(1), 15–26.

<https://doi.org/10.1046/J.1440-1770.2003.00205.X>

Mackay, S. J., Arthington, A. H., Kennard, M. J., & Pusey, B. J. (2003). Spatial variation in the distribution and abundance of submersed aquatic macrophytes in an Australian subtropical river. *Aquatic Botany*, 77, 169–186.

[https://doi.org/10.1016/S0304-3770\(03\)00103-7](https://doi.org/10.1016/S0304-3770(03)00103-7)

Poff, N. L., Allan, J. D., Palmer, M. A., Hart, D. D., Richter, B. D., Arthington, A. H., Meyer, J. L., Stanford, J. A., & Rogers, K. H. (2003). River flows and water wars: Emerging science for environmental decision-making. *Frontiers in Ecology and the Environment*, 1(6), 298–306.

[https://dx.doi.org/10.1890/1540-9295\(2003\)001\[0298:RFAWWE\]2.0.CO;2](https://dx.doi.org/10.1890/1540-9295(2003)001[0298:RFAWWE]2.0.CO;2)

Pusey, B. J., & Arthington, A. H. (2003). Importance of the riparian zone to the conservation and management of freshwater fish: a review. *Marine and Freshwater Research*, 54, 1–16.

<https://doi.org/10.1071/MF02041>

2004

Pusey, B. J., Kennard, M. J., & Arthington, A. H. (Eds.). (2004). *Freshwater Fishes of North-Eastern Australia*. CSIRO Publishing.

2005

Arthington, A. H., Balcombe, S. R., Wilson, G. A., Thoms, M. C., & Marshall, J. (2005). Spatial and temporal variation in fish assemblage structure in isolated waterholes during the 2001 dry season of an arid-zone floodplain river, Cooper Creek, Australia. *Marine and Freshwater Research*, 56, 25–35.

<https://dx.doi.org/10.1071/MF04111>

Canonica, G. C., Arthington, A., McCrary, J. K., & Thieme, M. L. (2005). The effects of introduced tilapias on native biodiversity. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 15(5), 463–483.

<https://doi.org/10.1002/AQC.699>

Close, P. G., Pusey, B. J., & Arthington, A. H. (2005). Larval description of the sympatric species, *Craterocephalus stercusmuscarum stercusmuscarum* (Pisces: Atherinidae) and *Mogurnda adspersa* (Pisces: Eleotridae) from tropical streams of north-east Queensland, Australia. *Journal of Fish Biology*, 66(3), 668–684.

<https://doi.org/10.1111/j.0022-1112.2005.00632.x>

Hadwen, W. L., Bunn, S. E., Arthington, A. H., & Mosisch, T. D. (2005). Within-lake detection of the effects of tourist activities in the littoral zone of oligotrophic dune lakes. *Aquatic Ecosystem Health and Management*, 8(2), 159–173.

<https://doi.org/10.1071/MF04068>

Kennard, M. J., Arthington, A. H., Pusey, B. J., & Harch, B. D. (2005). Are alien fish a reliable

indicator of river health? *Freshwater Biology*, 50, 174–193.

<https://doi.org/10.1111/j.1365-2427.2004.01293.x>

2006

Arthington, A. H., Bunn, S. E., Poff, N. L., & Naiman, R. J. (2006). The challenge of providing environmental flow rules to sustain river ecosystems. *Ecological Applications*, 16(4), 1311–1318.

[https://doi.org/10.1890/1051-0761\(2006\)016\[1311:TCOPEF\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2006)016[1311:TCOPEF]2.0.CO;2)

Balcombe, S., Arthington, A. H., Foster, N., Thoms, M., Wilson, G., & Bunn, S. E. (2006). Fish assemblages of an Australian dryland river: abundance, assemblage structure and recruitment patterns in the Warrego River, Murray–Darling Basin. *Marine and Freshwater Research*, 57, 619–633.

<https://doi.org/10.1071/MF06025>

Brooks, A. P., Howell, T., Abbe, T. B., & Arthington, A. H. (2006). Confronting hysteresis: wood based river rehabilitation in highly altered riverine landscapes of southeastern Australia. *Geomorphology*, 79, 399–422.

<https://doi.org/10.1016/j.geomorph.2006.06.035>

Dudgeon, D., Arthington, A. H., Gessner, M. O., Kawabata, Z., Knowler, D., Lévéque, C., Naiman, R. J., Prieur-Richard, A., Soto, D., Stiassny, M. L. J., & Sullivan, C. A. (2006). Freshwater biodiversity: importance, threats, status, and conservation challenges. *Biological Reviews*, 81(2), 163–182.

<https://doi.org/10.1017/S1464793105006950>

Kennard, M. J., Harch, B. D., Pusey, B. J., & Arthington, A. H. (2006). Accurately defining the reference condition for summary biotic metrics: a comparison of four approaches. *Hydrobiologia*, 572, 151–170.

<https://doi.org/10.1071/MF06183>

Kennard, M. J., Pusey, B. J., Arthington, A. H., Harch, B. D., & Mackay, S. (2006). Development and application of a predictive model of freshwater fish assemblage composition to evaluate river health in eastern Australia. *Hydrobiologia*, 572, 33–57.

<https://doi.org/10.1007/s10750-005-0993-8>

Kennard, M. J., Pusey, B. J., Harch, B. H., Dore, E., & Arthington, A. H. (2006). Estimating local stream fish assemblage attributes: sampling

- effort and efficiency at two spatial scales. *Marine and Freshwater Research*, 57, 635–653.
<https://doi.org/10.1071/MF06062>
- Pusey, B. J., Burrows, D., Arthington, A. H., & Kennard, M. J. (2006). Translocation and spread of piscivorous fishes in the Burdekin River, north-eastern Australia. *Biological Invasions*, 8, 965–977.
<https://doi.org/10.1007/s10530-005-0708-0>
- Welcomme, R. L., Bene, C., Brown, C. A., Arthington, A. H., Dugan, P., King, J. M., & Vasu, S. (2006). Predicting the water requirements of river fisheries. In J. T. A. Verhoeven, B. Beltman, R. Bobbink, & D. F. Whigham (Eds.), *Wetlands and natural resource management* (pp. 123–154). Springer-Verlag.
- 2007**
- Balcombe, S. R., Bunn, S. E., Arthington, A. H., Fawcett, J. H., McKenzie-Smith, F. J., & Wright, A. (2007). Fish larvae, growth and biomass relationships in an Australian arid zone river: links between floodplains and waterholes. *Freshwater Biology*, 52, 2385–2398.
<https://doi.org/10.1111/j.1365-2427.2007.01855.x>
- Hadwen, W. L., & Arthington, A. H. (2007). Food webs of two intermittently open estuaries receiving 15N-enriched sewage effluent. *Estuarine, Coastal and Shelf Science*, 71, 347–358.
<https://doi.org/10.1016/j.ecss.2006.08.017>
- Hadwen, W. L., Russell, G. L., & Arthington, A. H. (2007). Gut content- and stable isotope-derived diets of four commercially and recreationally important fish species in two intermittently open estuaries. *Marine and Freshwater Research*, 58(4), 363–375.
<https://doi.org/10.1071/MF06157>
- Kennard, M. J., Olden, J. D., Arthington, A. H., Pusey, B. J., & Poff, N. L. (2007). Multiscale effects of flow regime and habitat and their interaction on fish assemblage structure in eastern Australia. *Canadian Journal of Fisheries and Aquatic Sciences*, 64, 1346–1359.
<https://doi.org/10.1139/f07-108>
- Stewart-Koster, B., Kennard, M. J., Harch, B. D., Sheldon, F., Arthington, A. H., & Pusey, B. J. (2007). Partitioning the variation in stream fish assemblages within a spatio-temporal hierarchy. *Marine and Freshwater Research*, 58, 675–686.
<https://doi.org/10.1071/MF06183>
- 2008**
- Bond, N. R., Lake, P. S., & Arthington, A. H. (2008). The impacts of drought on freshwater ecosystems: an Australian perspective. *Hydrobiologia*, 600(1), 3–16.
<https://doi.org/10.1007/s10750-008-9326-z>
- Fryirs, K., Arthington, A., & Grove, J. (2008). Principles of river condition assessment. In G. J. Brierley, & K. A. Fryirs (Eds.), *River futures: An integrative scientific approach to river repair* (pp. 100–118). Island Press.
- Medeiros, S. E. F., & Arthington, A. H. (2008). Diel variation in food intake and diet composition of three native fish species in floodplain lagoons of the Macintyre River, Australia. *Journal of Fish Biology*, 73(4), 1024–1032.
<https://doi.org/10.1111/j.1095-8649.2008.01959.x>
- Medeiros, S. E. F., & Arthington, A. H. (2008). The importance of zooplankton in the diets of three native fish species in floodplain waterholes of a dryland river, the Macintyre River, Australia. *Hydrobiologia*, 614, 19–31.
<https://doi.org/10.1007/s10750-008-9533-7>
- Knight, J. T., & Arthington, A. H. (2008). Distribution and habitat associations of the endangered Oxleyan pygmy perch, *Nannoperca oxleyana* Whitley, in eastern Australia. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 18(7), 1240–1254.
<https://doi.org/10.1002/aqc.936>
- 2009**
- Arthington, A. H. (2009). Australian lungfish, *Neoceratodus forsteri*, threatened by a new dam. *Environmental Biology of Fishes*, 84, 211–221.
<https://doi.org/10.1007/s10641-008-9414-y>
- Balcombe, S. R., & Arthington, A. H. (2009). Temporal changes in fish abundance in response to hydrological variability in a dryland floodplain river. *Marine and Freshwater Research*, 60, 146–159.
<https://doi.org/10.1071/MF08118>
- Likens, G. E., Walker, K. F., Davies, P. E., Brookes, J., Olley, J., Young, W. J., Thoms, M. C., Lake, P. S., Gawne, B., Davis, J., Arthington, A. H., Thompson, R., & Oliver, R. L. (2009). Ecosystem science: toward a new paradigm for managing Australia's inland aquatic ecosystems. *Marine and Freshwater Research*, 60(3), 271–279.
<https://doi.org/10.1071/MF08188>

2010

Arthington, A. H., Naiman, R. J., McClain, M. E., & Nilsson, C. (2010). Preserving the biodiversity and ecological services of rivers: new challenges and research opportunities. *Freshwater Biology*, 55(1), 1–16.

<https://doi.org/10.1111/j.1365-2427.2009.02340.x>

Arthington, A. H., Olden, J. D., Balcombe, S. R., & Thoms, M. C. (2010). Multi-scale environmental factors explain fish losses and refuge quality in drying waterholes of Cooper Creek, an Australian arid-zone river. *Marine and Freshwater Research*, 61(8), 842–856.

<https://doi.org/10.1071/MF09096>

Jiang, X., Arthington, A., & Changming, L. (2010). Environmental flow requirements of fish in the lower reach of the Yellow River. *Water International*, 35(4), 381–396,

<https://doi.org/10.1080/02508060.2010.506261>

Leigh, C., Sheldon, F., Kingsford, R. T., & Arthington, A. H. (2010). Sequential floods drive ‘booms’ and wetland persistence in dryland rivers: a synthesis. *Marine and Freshwater Research*, 61(8), 896–908.

<https://doi.org/10.1071/MF10106>

Mackay, S. J., James, C. S., & Arthington, A. H. (2010). Macrophytes as indicators of stream condition in the Wet Tropics region, Northern Queensland, Australia. *Ecological Indicators*, 10, 330–340.

<https://doi.org/10.1016/j.ecolind.2009.06.017>

Medeiros, E. S. F., & Arthington, A. H. (2010). Allochthonous and autochthonous carbon sources for fish in floodplain lagoons of an Australian dryland river. *Environmental Biology of Fishes*, 90, 1–17.

<https://doi.org/10.1007/s10641-010-9706-x>

Park, S., Kim, J., Ko, I. H., Arthington, A., Jones, G., & Yum, K. T. (2010). Assessment of hydraulic fish habitat condition using integrated toolkit: a case study of the Geum river basin, Republic of Korea. *Water Science and Technology*, 62(12), 2811–2818.

<https://doi.org/10.2166/wst.2010.425>

Pusey, B. J., Arthington, A. H., Stewart-Koster, B., Kennard, M. J., & Read, M. G. (2010). Widespread omnivory and low temporal and spatial variation in the diet of fishes in a hydrologically variable northern Australian river.

Journal of Fish Biology, 77(3), 731–753.

<https://doi.org/10.1111/j.1095-8649.2010.02712.x>

Poff, N. L., Richter, B. D., Arthington, A. H., Bunn, S. E., Naiman, R. J., Kendy, E., Acreman, M., Apse, C., Bledsoe, B. P., Freeman, M. C., Henriksen, J., Jacobson, R. B., Kennen, J. G., Merritt, D. M., O’Keeffe, J. H., Olden, J. D., Rogers, K., Tharme, R. E., & Warne, A. (2010). The Ecological Limits of Hydrologic Alteration (ELOHA): a new framework for developing regional environmental flow standards. *Freshwater Biology*, 55(1), 147–170.

<https://doi.org/10.1111/j.1365-2427.2009.02204.x>

Sheldon, F., Bunn, S. E., Hughes, J. M., Arthington, A. H., Balcombe, S. R., & Fellows, C. S. (2010). Dryland river waterholes: A review of the ecological roles and threats to aquatic refugia in arid landscapes. *Marine and Freshwater Research*, 61(8), 885–895.

<https://doi.org/10.1071/MF09239>

2011

Arthington, A. H., & Balcombe, S. R. (2011). Extreme hydrologic variability and the boom and bust ecology of fish in arid-zone floodplain rivers: a case study with implications for environmental flows, conservation and management. *Ecohydrology*, 4(5), 708–720.

<https://doi.org/10.1002/eco.221>

Arthington, A. H., Page, T., Rose, C. W., & Sathyamurthy, R. (Eds.). (2011). A Place of Sandhills: Ecology, Hydrogeomorphology and Management of Queensland’s Dune Islands. *Proceedings of The Royal Society of Queensland*, 117.

Balcombe, S. R., Arthington, A. H., Thoms, M. C., & Wilson, G. G. (2011). Fish assemblage patterns across a gradient of flow regulation in an Australian dryland river system. *River Research and Applications*, 27(2), 168–183.

<https://doi.org/10.1002/rra.1345>

Hadwen, W. L., & Arthington, A. H. (2011). Visitor impacts and climatic variability will shape the future ecology of Fraser Island’s perched dune lakes. *Proceedings of The Royal Society of Queensland*, 117, 485–493.

Hadwen, W. L., Arthington, A. H., Boon, P. I., Taylor, B., & Fellows, C. S. (2011). Do climate or institutional factors drive seasonal patterns of tourism visitation to protected areas across

- diverse climate zones in eastern Australia? *Tourism Geographies*, 13, 187–208.
<https://doi.org/10.1071/MF11198>
- Kereczi, A., Balcombe, S. R., Arthington, A. H., & Bunn, S. E. (2011). Continuous recruitment underpins fish persistence in the arid rivers of far western Queensland, Australia. *Marine and Freshwater Research*, 62, 1178–1190.
<https://doi.org/10.1071/MF11021>
- 2012**
- Arthington, A. H. (2012). *Environmental flows: Saving rivers in the third millennium*. University of California Press.
- Hadwen, W. L., Boon, P. I., & Arthington, A. H. (2012). Not for all seasons: Why timing is critical in the design of visitor impact monitoring programs for aquatic sites within protected areas. *Australian J. Environmental Management*, 19(4), 241–254.
<https://doi.org/10.1080/14486563.2012.721225>
- Hadwen, W. L., Boon, P. J., & Arthington, A. H. (2012). Aquatic ecosystems in inland Australia: tourism and recreational significance, ecological impacts and imperatives for management. *Marine and Freshwater Research*, 63, 325–340.
<https://doi.org/10.1071/MF11198>
- Howell, T. D., Arthington, A. H., Pusey, B. J., Brooks, A. P., Creese, B., & Chaseling, J. (2012). Responses of fish to experimental introduction of Structural Woody Habitat in riffles and pools of the Hunter River, New South Wales, Australia. *Restoration Ecology*, 20(1), 43–55.
<https://doi.org/10.1111/j.1526-100X.2010.00747.x>
- Knight, J. T., Arthington, A. H., Holder, G. S., & Talbot, R. B. (2012). Conservation biology and management of the endangered Oxleyan pygmy perch (*Nannoperca oxleyana* Whitley) in Australia. *Endangered Species Research*, 17, 160–178.
<https://doi.org/10.1002/AQC.936>
- Karim, F., Kinsey-Henderson, A., Wallace, J., Arthington, A. H., & Pearson, R. (2012). Modelling wetland connectivity during overbank flooding in a tropical floodplain in north Queensland, Australia. *Hydrological Processes*, 26(18), 2710–2723.
<https://doi.org/10.1002/hyp.8364>
- Sternberg, D., Balcombe, S. R., Marshall, J. C., Lobegeiger, J., & Arthington, A. H. (2012). Subtle ‘boom and bust’ response of *Macquaria ambigua* to flooding in an Australian dryland river. *Environmental Biology of Fishes*, 93, 95–104.
<https://doi.org/10.1007/s10641-011-9895-y>
- Zhang, Y., Arthington, A. H., Bunn, S. E., Mackay, S., Xia, J., & Kennard, M. (2012). Classification of flow regimes for environmental flow assessment in regulated rivers: the Huai River Basin, China. *River Research and Applications*, 28(7), 989–1005.
<https://doi.org/10.1002/rra.1483>
- 2013**
- Arthington, A. H., Kennard, M. J., Pusey, B. J., & Balcombe, S. R. (2013). Assemblages. In P. Humphries, & K. Walker (Eds.), *The ecology of Australian freshwater fishes*. CSIRO Publishing.
- Pahl-Wostl, C., Arthington, A., Bogardi, J., Bunn, S., Hoff, H., Lebel, L., Nikitina, E., Palmer, M., Poll, L., Richards, K., Schlüter, M., Schulze, R., St-Hilaire, A., Tharme, R. E., Tockner, K., & Tsegai, D. (2013). Environmental flows and water governance: managing sustainable water uses. *Current Opinion in Environmental Sustainability*, 5(3–4), 341–351.
<https://dx.doi.org/10.1016/j.cosust.2013.06.009>
- Kereczi, A., Balcombe, S. R., Tischler, M., & Arthington, A. H. (2013). Fish movement strategies in an ephemeral river in the Simpson Desert, Australia. *Austral Ecology*, 38(7), 798–808.
<https://doi.org/10.1111/aec.12075>
- Pearson, R. P., Godfrey, P., Arthington, A. H., Wallace, J., Karim, F., & Ellison, M. (2013). Biophysical status of remnant lagoons on a tropical floodplain in the Great Barrier Reef catchment: a challenge for assessment and monitoring. *Marine and Freshwater Research*, 64(3), 208–222.
<https://doi.org/10.1071/MF12251>
- 2014**
- Acreman, M. C., Arthington, A. H., Colloff, M. J., Couch, C., Crossman, N. D., Dyer, F., Overton, I. C., Pollino, C. A., Stewardson, M. J., & Young, W. (2014). Environmental flows for natural, hybrid and novel riverine ecosystems in a changing world. *Frontiers in Ecology and Environment*, 12, 466–473.
<https://doi.org/10.1890/130134>

- Arthington, A. H., Bernardo, J. M., & Ilhéu, M. (2014). Temporary rivers: linking ecohydrology, ecological quality and reconciliation ecology. *River Research and Applications*, 30(10), 1209–1215.
<https://doi.org/10.1002/rra.2831>
- Arthington, A. H., Rolls, R., Sternberg, D., Mackay, S. J., & James, C. S. (2014). Fish assemblages in sub-tropical rivers: low flow hydrology dominates hydro-ecological relationships. *Hydrological Sciences Journal*, 59(3–4), 594–60.
<https://doi.org/10.1080/0262667.2013.844345>
- Balcombe, S. R., Arthington, A. H., & Sternberg, D. (2014). Fish body condition and recruitment responses to antecedent flows in dryland rivers are species and river specific. *River Research and Applications*, 30(10), 1257–1268.
<https://doi.org/10.1002/rra.2797>
- Davies, P. M., Naiman, R. J., Warfe, D. M., Pettit, N. E., Arthington, A. H., & Bunn, S. E. (2013). Flow–ecology relationships: closing the loop on effective environmental flows. *Marine and Freshwater Research*, 65(2), 133–141.
<https://doi.org/10.1071/MF13110>
- Karim, F., Kinsey-Henderson, A., Wallace, J., Arthington, A. H., & Pearson, R. (2014). Modelling hydrological connectivity of tropical floodplain wetlands via a combined natural and artificial stream network. *Hydrological Processes*, 28(23), 5696–5710.
<https://doi.org/10.1002/hyp.10065>
- Kerezsy, A., Arthington, A. H., & Balcombe, S. R. (2014). Fish diversity in far western Queensland, Australia: the importance of habitat, connectivity and natural flows. *Diversity*, 6, 380–395.
<https://dx.doi.org/10.3390/d6020380>
- Mackay, S. J., Arthington, A. H., & James, C. S. (2014). Classification and comparison of natural and altered flow regimes to support an Australian trial of the Ecological Limits of Hydrologic Alteration (ELOHA) framework. *Ecohydrology*, 7, 1485–1507.
<https://doi.org/10.1002/eco.1473>
- Medeiros, E. S. F., & Arthington, A. H. (2014). Fish diet composition in floodplain lagoons of an Australian dryland river in relation to an extended dry period following flooding. *Environmental Biology of Fishes*, 97(7), 797–812.
<https://doi.org/10.1007/s10641-013-0180-0>
- Rolls, R. J., & Arthington, A. H. (2014). How do low magnitudes of hydrologic alteration impact riverine fish populations and assemblage characteristics? *Ecological Indicators*, 39, 179–188.
<https://doi.org/10.1016/j.ecolind.2013.12.017>
- 2015**
- Arthington, A. H. (2015). Environmental flows: a scientific resource and policy tool for river conservation and restoration. *Aquatic conservation: Marine and freshwater ecosystems*, 25(2), 155–161.
<https://doi.org/10.1002/aqc.2560>
- Arthington, A. H., Godfrey, P. C., Pearson, R. G., Karim, F., & Wallace, J. (2015). Biodiversity values of remnant freshwater floodplain lagoons in agricultural catchments: evidence for fish of the Wet Tropics Bioregion, northern Australia. *Aquatic Conservation, Marine and Freshwater Ecosystems*, 25(3), 336–352.
<https://doi.org/10.1002/aqc.2489>
- Balcombe, S. R., Turschwell, M. P., Arthington, A. H., & Fellows, C. S. (2015). Is fish biomass in dryland river waterholes fuelled by benthic primary production after major overland flooding? *Journal of Arid Environments*, 116, 71–76.
<https://doi.org/10.1016/J.JARIDENV.2015.01.020>
- Davis, J., O’Grady, A. P., Dale, A., Arthington, A. H., Gell, P. A., Driver, P. D., Bond, N., Casanova, M., Finlayson, M., Watts, R. J., & Capon, S. J. (2015). When trends intersect: the challenge of protecting freshwater ecosystems under multiple land use and hydrological intensification scenarios. *Science of the Total Environment*, 534, 65–78.
<https://dx.doi.org/10.1016/j.scitotenv.2015.03.127>
- 2016**
- Arthington, A. H., Dulvy, N. K., Gladstone, W., & Winfield, I. J. (2016). Fish conservation in freshwater and marine realms: Status, threats and management. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 26(5), 838–857.
<https://doi.org/10.1002/aqc.987>
- Cooke, S. J., Allison, E. H., Beard, T. D., Arlinghaus, R., Arthington, A. H., Bartley, D. M., Cowx, I. G., Fuentevilla, C., Leonard, N. J., Lorenzen, K., Lynch, A. J., Nguyen, V. M., Youn, S.-J., Taylor, W. W., & Welcomme, R. L. (2016). On the sustainability of inland fisheries: Finding a future for the forgotten. *Ambio*, 45(7), 753–764.
<https://dx.doi.org/10.1007/s13280-016-0787-4>

- James, C., Mackay, S. J., Arthington, A. H., & Capon, S. (2016). Does flow structure riparian vegetation in subtropical catchments? *Ecology and Evolution*, 6(16), 5950–5963.
<https://doi.org/10.1002/ece3.2249>
- Marshall, J., Menke, N., Crook, D., Lobegeiger, J., Balcombe, S., Huey, J., Fawcett, J., Bond, N., Starkey, A., Sternberg, D., Linke, S., & Arthington, A. H. (2016). Go with the flow: the movement behaviour of fish from isolated waterhole refugia during connecting flow events in an intermittent dryland river. *Freshwater Biology*, 61(8), 1242–1258.
<https://doi.org/10.1111/fwb.12707>
- 2017**
- Arthington, A. H., & Balcombe, S. R. (2017). Natural flows drive the ‘boom and bust’ ecology of fish in Cooper Creek, an arid-zone floodplain river. In R. T. Kingsford (Ed.), *Lake Eyre Basin rivers – the search for sustainability* (pp. 43–54). CSIRO Publishing.
- Arthington, A. H., Finlayson, C. M., & Pittock, J. (2017). Freshwater ecological principles. In C. M. Finlayson, A. H. Arthington, & J. Pittock (Eds.), *Freshwater ecosystems in protected areas: Conservation and management* (pp. 34–53). Taylor & Francis.
<https://doi.org/10.4324/9781315226385>
- Arthington, A. H., Finlayson, C. M., Roux, D. J., Nel, J. L., Rast, W., Froend, R., van Niekerk, L., & Turpie, J. (2017). Managing specific freshwater ecosystems. In C. M. Finlayson, A. H. Arthington, & J. Pittock (Eds.), *Freshwater ecosystems in protected areas: Conservation and management* (pp. 144–176). Taylor & Francis.
- Craig, L.S., Olden, J. D., Arthington, A. H., Entrekin, S., Hawkins, C. P., Kelly, J. J., Kennedy, T. A., Maitland, B. M., Rosi, E. J., Roy, A. H., Strayer, D. L., Tank, J. L., West, A. O., & Wooten, M. S. (2017). Meeting the challenge of interacting threats in freshwater ecosystems: A call to scientists and managers. *Elementa: Science of the Anthropocene*, 7, 72.
<https://doi.org/10.1525/elementa.256>
- Finlayson, C. M., Arthington, A. H., & Pittock, J. (Eds.). (2017). *Freshwater ecosystems in protected areas: Conservation and management*. Taylor & Francis.
- Finlayson, C. M., Arthington, A. H., & Pittock, J. (2017). An introduction to issues for managing freshwater ecosystems in protected areas. In C. M. Finlayson, A. H. Arthington, & J. Pittock (Eds.), *Freshwater ecosystems in protected areas: Conservation and management* (pp. 1–16). Taylor & Francis.
- Finlayson, C. M., Arthington, A. H., & Pittock, J. (2017). The conservation and management of freshwater ecosystems in protected areas: a synthesis. In C. M. Finlayson, A. H. Arthington, & J. Pittock (Eds.), *Freshwater ecosystems in protected areas: Conservation and management* (pp. 256–272). Taylor & Francis.
- Godfrey, P., Arthington, A. H., Pearson, R. G., Karim, F., & Wallace, J. (2017). Fish larvae and recruitment patterns in floodplain lagoons of the Australian Wet Tropics. *Marine and Freshwater Research*, 68(5), 964–979.
<https://doi.org/10.1071/MF15421>
- Horne, A. C., O'Donnell, E. L., Acreman, M., McClain, M. E., Poff, N. L., Webb, J. A., Stewardson, M. J., Bond, N. R., Richter, B., Arthington, A. H., & Tharme, R. E. (2017). Moving forward: The implementation challenge for environmental water management. In A. Horne, A. Webb, M. Stewardson, B. Richter, & M. Acreman (Eds.), *Water for the environment: Policy, science, and integrated management*. Elsevier Academic Press.
<https://doi.org/10.1016/B978-0-12-803907-6.00027-9>
- Horne, A. C., Webb, J. A., O'Donnell, E., Arthington, A. H., McClain, M., Bond, N., Acreman, M., Hart, B., Stewardson, M. J., Richter, B., & Poff, N. L. (2017). Research priorities to improve future environmental water outcomes. *Frontiers in Environmental Science*, 5(4).
<https://doi.org/10.3389/fenvs.2017.00089>
- Poff, N. L., Tharme, R. E., & Arthington, A. H. (2017). Evolution of environmental flows assessment science, principles and methodologies. In A. Horne, A. Webb, M. Stewardson, B. Richter, & M. Acreman (Eds.), *Water for the environment: Policy, science, and integrated management*. Elsevier Academic Press.
<https://doi.org/10.1016/B978-0-12-803907-6.00011-5>
- Rose, C. W., Arthington, A. H., Connell, D. W., & Rickson, R. E. (2017). Environmental studies at Griffith University: A brief history of the

- foundation years. *Proceedings of The Royal Society of Queensland*, 122, 59–65.
- Webb, A. J., Arthington, A. H., & Olden, J. D. (2017). Models of ecological responses to flow regime change to inform environmental flow assessments. In A. Horne, A. Webb, M. Stewardson, B. Richter, & M. Acreman (Eds.), *Water for the environment: Policy, science, and integrated management*. Elsevier Academic Press.
<https://doi.org/10.1016/B978-0-12-803907-6.00014-0>
- 2018**
- Arthington, A. H., Bhaduri, A., Bunn, S. E., Jackson, S. E., Tharme, R. E., Tickner, D., Young, B., Acreman, M., Baker, N., Capon, S., Horne, A. C., Kendy, E., McClain, M. E., Poff, N. L., Richter, B. D., & Ward, S. (2018). The Brisbane declaration and global action agenda on environmental flows 2018. *Frontiers in Environmental Science*, 6, 45.
<https://doi.org/10.3389/fenvs.2018.00045>
- Arthington, A. H., Kennen, J. G., Stein, E. D., & Webb, J. A. (2018). Recent advances in environmental flows science and water management – Innovation in the Anthropocene. *Freshwater Biology*, 63(8), 1022–1034.
<https://doi.org/10.1111/fwb.13108>
- Capon, S. J., Leigh, C., Hadwen, W. L., George, A., McMahon, J. M., Linke, S., Reis, V., Gould, L., & Arthington, A. H. (2018). Transforming environmental water management to adapt to a changing climate. *Frontiers in Ecology and the Environment*, 6, 80.
<https://dx.doi.org/10.3389/fenvs.2018.00080>
- Cosens, B., & Arthington, A. H. (2018). Assessing adaptive water governance for the Lake Eyre Basin and linked portions of the Great Artesian Basin in Australia. In B. Cosens, & L. Gunderson (Eds.), *Practical panarchy: Linking law, resilience and adaptive water governance of regional scale social ecological systems* (pp. 131–147). Springer.
https://doi.org/10.1007/978-3-319-72472-0_9
- 2019**
- Adame, M. F., Arthington, A. H., Waltham, N., Hasan, S., Selles, A., & Ronan, M. (2019). Managing threats and restoring wetlands within catchments of the Great Barrier Reef, Australia.
- Aquatic Conservation: Marine and Freshwater Ecosystems*, 29(5), 829–839.
<https://doi.org/10.1002/aqc.3096>
- Anderson, E. P., Jackson, S., Tharme, R. E., Douglas, M., Flotemersch, J. E., Zwarteeven, M., Lokgariwar, C., Montoya, M., Wali, A., Tipa, G. T., Jardine, T. D., Olden, J. D., Cheng, L., Conallin, J., Cosens, B., Dickens, C., Garrick, D., Groenfeldt, D., Kabogo, J., Roux, D. J., Ruhi, A., & Arthington, A. H. (2019). Understanding rivers and their social relations: a critical step to advance environmental water management. *WIREs Water*, 6(6), 1–21.
<https://doi.org/10.1002/wat2.1381>
- Arthington, A. H., Mackay, S. J., Ronan, M., James, C. S., & Kennard, M. J. (2019). Freshwater wetlands of Moreton Bay, Quandamooka and catchments: Biodiversity, ecology, threats and management. In I. R. Tibbetts, P. C. Rothlisberg, D. T. Neil, T. A. Homburg, D. T. Brewer, & A. H. Arthington (Eds.), *Moreton Bay Quandamooka & catchment: Past, present, and future* (pp. 319–333). The Moreton Bay Foundation.
- Arthington, A., Sternberg, D., Cockayne, B., & Schmarr, D. (2019). *Neosiluroides cooperensis*. The IUCN Red List of Threatened Species 2019: e.T122900149A123382031.
<https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T122900149A123382031.en>
- Brooks, S., Espinoza, T., Kennard, M., Arthington, A., & Roberts, D. (2019). *Neoceratodus forsteri*. The IUCN Red List of Threatened Species 2019: e.T122899816A123382021.
<https://dx.doi.org/10.2305/IUCN.UK.2019-3.RLTS.T122899816A123382021.en>
- Tibbetts, I. R., Rothlisberg, P. C., Neil, D. T., Homburg, T. A., Brewer, D. T., & Arthington, A. H. (Eds.). (2019). *Moreton Bay Quandamooka and catchment: Past, present and future*. The Moreton Bay Foundation.
- 2020**
- Acreman, M., Hughes, K., Arthington, A. H., & Duenas-Lopez, M. D. (2020). Protected areas and freshwater biodiversity: a novel systematic review distils eight lessons for effective conservation. *Conservation Letters*, 13, e12684.
<https://doi.org/10.1111/conl.12684>
- Arthington, A. H. (2020). Environmental flows: Ecological effects of hydrologic alterations, assessment methods for rivers, challenges and global uptake. In K. Tockner (Ed.),

- Encyclopedia of inland waters* (pp. 561–575). Elsevier Academic Press.
- Arthington, A. H., Jackson, S. E., Tomlinson, M., Walton, C. S., Rossini, R. A., & Flook, S. C. (2020). Springs of the Great Artesian Basin – Oases of Life in Australia's Arid Interior. *Proceedings of The Royal Society of Queensland*, 126, 1–10.
- Arthington, A. H., Pearson, R. G., Godfrey, P. C., Karim, F., & Wallace, J. (2020). Integrating freshwater wetland science in planning for Great Barrier Reef sustainability. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 30(9), 1727–1733.
<https://doi.org/10.1002/aqc.3339>
- Cruz, D. O., Kingsford, R. T., Suthers, I. M., Rayner, T. S., Smith, J. A., & Arthington, A. H. (2020). Connectivity but not recruitment: response of the fish community to a large-scale flood on a heavily regulated floodplain. *Ecohydrology*, 13(3), e2194.
<https://doi.org/10.1002/eco.2194>
- Godfrey, P. C., Pearson, R. G., Pusey, B. J., & Arthington, A. H. (2020). Drivers of zooplankton dynamics in a small tropical lowland river. *Marine and Freshwater Research*, 72(2), 173–185.
<https://dx.doi.org/10.1071/MF20067>
- Rossini, R. A., Arthington, A. H., Jackson, S. E., Tomlinson, M., Walton, C. S., & Flook, S. C. (2020). Springs of the Great Artesian Basin – Synthesis of Research and Management Priorities. *Proceedings of The Royal Society of Queensland*, 126, 305–321.
- Tickner, D., Opperman, J. J., Abell, R., Acreman, M., Arthington, A. H., Bunn, S. E., Cooke, S. J., Dalton, J., Darwall, W., Edwards, G., Harrison, I., Hughes, K., Jones, T., Leclère, D., Lynch, A. J., Leonard, P., McClain, M. E., Muruven, D., Olden, J. D., Ormerod, S. J., Robinson, J., Tharme, R. E., Thieme, M., Tockner, K., Wright, M., & Young, L. (2020). Bending the curve of freshwater biodiversity decline – An Emergency Recovery Plan. *Bioscience*, 70(4), 330–342.
<https://doi.org/10.1093/biosci/biaa002>
- 2021**
- Arthington, A. H. (2021). Grand challenges to support the Freshwater Biodiversity Emergency Recovery Plan. *Frontiers in Environmental Science*, 9, 664313.
<https://doi.org/10.3389/fenvs.2021.664313>
- 2022**
- Arthington, A. H. (2022). Environmental flows: History of assessment methods, ecosystem frameworks and global uptake. In J. F. Shroder (Ed.), *Treatise on geomorphology* (pp. 1277–1295). Elsevier Academic Press.
<https://doi.org/10.1016/b978-0-12-409548-9.12450-9>
- Godfrey, P. C., Pusey, B. J., Pearson, R. G., & Arthington, A. H. (2022). Predictable hydrology, habitat and food resources determine fish recruitment dynamics in an incised tropical Australian river. *Ecohydrology, Early View*, e2457.
<https://doi.org/10.1002/eco.2457>