

Ian Duggan: Publications

Journal articles

- Pearson, A.A.C. & **Duggan, I.C.** (2019), Dividing the algal soup: is there niche separation between native bivalves (*Echyridella menziesii*) and non-native *Daphnia pulex* in New Zealand? *New Zealand Journal of Marine and Freshwater Research* (in press).
- Moore, T.P., Collier, K.J. & **Duggan, I.C.** (2019), Interactions between Unionida and non-native species: a global meta-analysis. *Aquatic Conservation: Marine and Freshwater Ecosystems* 29: 1438-1451.
- Harrison, K.R. & **Duggan, I.C.** (2019), First record of the parasite *Transversotrema patialense* (Soparkar, 1924) within New Zealand, and its prevalence in *Melanoides tuberculata* (Müller, 1774) among captive and “wild” populations. *BioInvasions Records* 8: 729-735.
- Pearson, A.A.C. & **Duggan, I.C.** (2019), *Echyridella menziesii* (Bivalvia: Hyriidae) as a predator of zooplankton of different sizes; are large non-indigenous *Daphnia* a potential food source? *New Zealand Journal of Marine and Freshwater Research* 53: 327-337.
- Catlin, A.K., Collier, K.J. & **Duggan, I.C.** (2019), Diet of juvenile *Galaxias maculatus* (Galaxiidae) during the upstream migration period in the lower Waikato River, New Zealand. *Marine and Freshwater Research* 70: 816-823.
- Tremblay, L.A., Champeau, O., Cahill, P.L., Pullan, S., Grainger, N. & **Duggan, I.C.** (2019), Assessment of chemical and physical treatments to selectively kill non-indigenous freshwater zooplankton species. *New Zealand Journal of Marine and Freshwater Research* 53: 97-112.
- Pearson, A.A.C. & **Duggan, I.C.** (2018), A global review of zooplankton species in freshwater aquaculture ponds: what are the risks for invasion? *Aquatic Invasions* 13: 311–322.
- Duggan, I.C.**, Champion, P.D. & MacIsaac, H.J. (2018), Invertebrates associated with aquatic plants bought from aquarium stores in Canada and New Zealand. *Biological Invasions* 20: 3167-3178.
- Stewart, S.D., Hamilton, D.P., Baisden, W.T., Verburg, P. & **Duggan, I.C.** (2018), The role of mobile consumers in lake nutrient cycles: A brief review. *Hydrobiologia* 818: 11-29.
- Eivers, R.S., **Duggan, I.C.**, Hamilton, D.P. & Quinn, J.M. (2018), Constructed treatment wetlands provide habitat for zooplankton communities in agricultural peat lake catchments. *Wetlands* 38: 95-108.
- Stewart, S.S., Hamilton, D.P., Baisden, W.T., Dedual, M., Verburg, P., **Duggan, I.C.**, Hicks, B.J. & Graham, B.S. (2017), Variable littoral-pelagic coupling as a food-web response to seasonal changes in pelagic primary production. *Freshwater Biology* 62: 2008–2025.
- Montemezzani, V., **Duggan, I.C.**, Hogg, I.D. & Craggs, R.J. (2017), Control of zooplankton populations in a wastewater treatment High Rate Algal Pond using overnight CO₂ asphyxiation. *Algal Research* 26: 250-264.
- Branford, S.N. & **Duggan, I.C.** (2017), Grass carp (*Ctenopharyngodon idella*) translocations, including hitchhiker introductions, alter zooplankton communities in receiving ponds. *Marine and Freshwater Research* 68: 2216–2227.
- Duggan, I.C.** & Payne, R.J. (2017), Revisiting Elton’s copepods: lake construction has altered the distribution and composition of calanoid copepods in the British Isles. *Aquatic Invasions* 12: 159-166.
- Branford, S.N., **Duggan, I.C.**, Hogg, I.D. & Brandorf, G.O. (2017), Mitochondrial DNA indicates different North American east coast origins for New Zealand and German invasions of *Skistodiaptomus pallidus* (Copepoda: Calanoida). *Aquatic Invasions* 12: 167-175.

- Montemezzani, V., **Duggan, I.C.**, Hogg, I.D. & Craggs, R.J. (2017), Assessment of potential zooplankton control treatments for wastewater treatment High Rate Algal Ponds. *Algal Research* 24: 40-63.
- Duggan, I.C.** & Pullan, S.G. (2017), Do freshwater aquaculture facilities provide an invasion risk for zooplankton hitchhikers? *Biological Invasions* 19: 307-314.
- Burns, C.W., **Duggan, I.C.**, Banks, J.C. & Hogg, I.D. (2017), A new, subalpine species of *Daphnia* (Cladocera, Anomopoda) in the *D. carinata* species complex, in the South Island, New Zealand. *Hydrobiologia* 798: 151-169.
- Catlin, A.K., Collier, K.J. & **Duggan, I.C.** (2017), Zooplankton generation following inundation of floodplain soils: effects of vegetation type and riverine connectivity. *Marine and Freshwater Research* 68: 76–86.
- Montemezzani, V., **Duggan, I.C.**, Hogg, I.D. & Craggs, R.J. (2017), Screening of potential zooplankton control technologies for wastewater treatment High Rate Algal Ponds. *Algal Research* 22: 1-13.
- Lucena-Moya, P. & **Duggan, I.C.** (2017), Correspondence between zooplankton assemblages and the Estuary Environment Classification system. *Estuarine, Coastal and Shelf Science* 184: 1-9.
- Ginders, M.A., Collier, K.J., **Duggan, I.C.** & Hamilton, D.P. (2016), Influence of hydrological connectivity on plankton communities in natural and reconstructed side-arms of a large New Zealand river. *River Research and Applications* 32: 1675–1686.
- Montemezzani, V., **Duggan, I.C.**, Hogg, I.D. & Craggs, R.J. (2016), Zooplankton community influence on seasonal performance and microalgal dominance in wastewater treatment High Rate Algal Ponds. *Algal Research* 17: 168-184.
- Duggan, I.C.** (2016), The cultural history of the garden gnome in New Zealand. *Studies in the History of Gardens & Designed Landscapes* 36: 78-88.
- Rayes, C.A., Beattie, J. & **Duggan, I.C.** (2015), Boring through history: An environmental history of the extent, impact and management of marine woodborers in a global and local context: 500 BCE to 1930s CE. *Environment & History* 21: 477-512.
- Montemezzani, V., **Duggan, I.C.**, Hogg, I.D. & Craggs, R.J. (2015), A review of potential methods for zooplankton control in wastewater treatment High Rate Algal Ponds and algal production raceways. *Algal Research* 11: 211-226.
- Duggan, I.C.**, Wood, S.A. & West, D.W. (2015), Brown trout (*Salmo trutta*) removal by rotenone alters zooplankton and phytoplankton community composition in a shallow mesotrophic reservoir. *New Zealand Journal of Marine and Freshwater Research* 49: 356-365.
- Watson, N.T.N., **Duggan, I.C.** & Hogg, I.D. (2015), Assessing the diversity of New Zealand freshwater harpacticoid copepods (Crustacea: Copepoda). *New Zealand Journal of Zoology* 42: 57-67.
- Duggan, I.C.**, Neale, M.W., Robinson, K.V., Verburg, P. & Watson, N.T.N. (2014), *Skistodiaptomus pallidus* (Copepoda: Diaptomidae) establishment in New Zealand natural lakes, and its effects on zooplankton community composition. *Aquatic Invasions* 9: 195-202.
- Collier, K.J., Clapcott, J.E., **Duggan, I.C.**, Hamilton, D.P., Hamer, M. & Young, R.G. (2013), Spatial variation of structural and functional indicators in a large New Zealand river. *River Research and Applications* 29: 1277-1290.
- Górski, K., Collier, K.J., **Duggan, I.C.**, Taylor, C.M. & Hamilton, D.P. (2013), Connectivity and complexity of floodplain habitats govern zooplankton dynamics in a large temperate river system. *Freshwater Biology* 58: 1458–1470.
- Duggan, I.C.**, Robinson K.V., Burns, C.W., Banks, J.C. & Hogg, I.D. (2012), Identifying invertebrate invasions using morphological and molecular analyses: North American *Daphnia 'pulex'* in New Zealand fresh waters. *Aquatic Invasions* 7: 585-590.
- Parkes, S.M. & **Duggan, I.C.** (2012), Are zooplankton invasions in constructed waters facilitated by simple communities? *Diversity & Distributions* 18: 1199-1210.

- Duggan, I.C.** & Eastwood, K.R. (2012), Detection and distribution of *Craspedacusta sowerbii*: Observations of medusa are not enough. *Aquatic Invasions* 7: 271-275.
- Taylor, C.M. & **Duggan, I.C.** (2012), Can biotic resistance be utilized to reduce establishment rates of non-indigenous species in constructed waters? *Biological Invasions* 14: 307-322.
- Duggan, I.C.** (2012), Urban planning provides potential for lake restoration through catchment revegetation. *Urban Forestry & Urban Greening* 11: 95-99.
- Duggan, I.C.** & Duggan, K.S. (2011), Are botanical gardens a risk for zooplankton invasions? *Biological Invasions* 13: 2997-3003.
- Collier, K.J., Demetras, N.J., **Duggan, I.C.** & Johnston, T.M. (2011), Wild record of an apple snail in the Waikato River, Hamilton, New Zealand, and their incidence in freshwater aquaria. *New Zealand Natural Sciences* 36: 1-9.
- Lucena-Moya, P. & **Duggan, I.C.** (2011), Macrophyte architecture affects the abundance and diversity of littoral microfauna. *Aquatic Ecology* 45: 279-287.
- Trolle, D., Hamilton, D.P., Pilditch, C.A., **Duggan, I.C.** & Jeppesen, E. (2011), Predicting the effects of climate change on trophic status of three morphologically varying lakes: Implications for lake restoration and management. *Environmental Modelling & Software* 26: 354-370.
- Özkundakci, D., **Duggan, I.C.** & Hamilton, D.P. (2011), Does sediment capping have post-application effects on zooplankton and phytoplankton? *Hydrobiologia* 661: 55-64.
- Duggan, I.C.** (2010), The freshwater aquarium trade as a vector for incidental invertebrate fauna. *Biological Invasions* 12: 3757-3770.
- Duggan, I.C.** & White, M.A. (2010), Consequences of human-mediated marine intrusions on the zooplankton community of a temperate coastal lagoon. *New Zealand Journal of Marine and Freshwater Research* 44: 17-28.
- Makino, W., Knox, M.A. & **Duggan, I.C.** (2010), Invasion, genetic variation and species identity of the calanoid copepod *Sinodiaptomus valkanovi*. *Freshwater Biology* 55: 375-386.
- Banks, C.M. & **Duggan, I.C.** (2009), Lake construction has facilitated calanoid copepod invasions in New Zealand. *Diversity and Distributions* 15: 80-87.
- Balvert, S.F., **Duggan, I.C.** & Hogg, I.D. (2009), Zooplankton seasonal dynamics in a recently filled mine pit lake: the effect of non-indigenous *Daphnia* establishment. *Aquatic Ecology* 43: 403-413.
- Duggan, I.C.**, Boothroyd, I.K. & Speirs, D.A. (2007), Factors affecting the distribution of stream macroinvertebrates in geothermal areas: Taupo Volcanic Zone, New Zealand. *Hydrobiologia* 592: 235-247.
- Bailey S.A., **Duggan, I.C.** & Maclsaac, H.J. (2007), Sediments in Ships: Biota as Biological Contaminants. *Aquatic Ecosystem Health and Management* 10: 93-100.
- Duggan, I.C.**, Bailey S.A., van Overdijk C.D.A. & Maclsaac, H.J. (2006), Invasion risk of active and diapausing invertebrates from residual ballast in ships entering Chesapeake Bay. *Marine Ecology Progress Series* 324: 57-66.
- Duggan, I.C.**, Green, J.D. & Burger, D.F. (2006), First New Zealand records of three non-indigenous zooplankton species: *Skistodiaptomus pallidus*, *Sinodiaptomus valkanovi* and *Daphnia dentifera*. *New Zealand Journal of Marine and Freshwater Research* 40: 561-569.
- Ryan, E.F., **Duggan, I.C.**, Hamilton, D.P. & Burger, D.F. (2006), Phytoplankton community composition in lakes: is trophic state or mixing more important? *New Zealand Journal of Marine and Freshwater Research* 40: 389-398.
- Gray, D.K., **Duggan, I.C.** & Maclsaac, H.J. (2006), Can sodium hypochlorite reduce the risk of species introductions from diapausing invertebrate eggs in non-ballasted ships? *Marine Pollution Bulletin* 52: 689-695.
- Duggan, I.C.**, Rixon, C.A.M. & Maclsaac, H.J. (2006), Popularity and propagule pressure: determinants of invasion success in aquarium fish. *Biological Invasions* 8: 393-398.

- Duggan, I.C.**, van Overdijk, C.D.A., Bailey, S.A., Jenkins, P.T., Limén H. & Maclsaac, H.J. (2005) Invertebrates associated with residual ballast water and sediments of cargo-carrying ships entering the Great Lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 62: 2463-2474.
- Bailey, S.A., Nandakumar, K., **Duggan, I.C.**, van Overdijk, C.D.A., Johengen, T.H., Reid, D.F. & Maclsaac, H.J. (2005). *In situ* hatching of invertebrate diapausing eggs from ships' ballast sediment. *Diversity and Distributions* 11: 453-460
- Bailey, S.A., **Duggan, I.C.**, Jenkins, P.T. & Maclsaac, H.J. (2005) Invertebrate resting stages in residual ballast sediment of transoceanic ships. *Canadian Journal of Fisheries and Aquatic Sciences* 62: 1090-1103.
- Gray, D.K., Bailey, S.A., **Duggan, I.C.** & Maclsaac, H.J. (2005). Viability of invertebrate diapausing eggs exposed to saltwater: implications for Great Lakes' ship ballast management. *Biological Invasions* 7: 531-539.
- Rixon, C.A.M., **Duggan, I.C.**, Bergeron, N.M.N., Ricciardi A. & Maclsaac, H.J. (2005), Invasion risks posed by the aquarium trade and live fish markets to the Laurentian Great Lakes. *Biodiversity and Conservation* 14: 1365-1381.
- Bailey, S.A., **Duggan, I.C.**, van Overdijk, C.D.A., Johengen, T.H., Reid, D.F. & Maclsaac, H.J. (2004), Salinity tolerance of diapausing eggs of freshwater zooplankton. *Freshwater Biology* 49: 286-295.
- Grigorovich, I.A., Korniushev, A.V., Gray, D.K., **Duggan, I.C.**, Colautti, R.I. & Maclsaac, H.J. (2003), Lake Superior: an invasion coldspot? *Hydrobiologia* 499: 191-210.
- Bailey, S.A., **Duggan, I.C.**, van Overdijk, C.D.A., Jenkins, P.T. & Maclsaac, H.J. (2003), Viability of invertebrate diapausing eggs collected from residual ballast sediment. *Limnology and Oceanography* 48: 1701-1710.
- Hampton, S.E. & **Duggan, I.C.** (2003), Diel habitat shifts of macrofauna in a fishless pond. *Marine and Freshwater Research* 54: 797-805.
- Duggan, I.C.**, Scarsbrook, M.R. & Quinn, J.M. (2003), Comparison of coded abundance and fixed count rapid assessment techniques for biomonitoring in New Zealand streams. *New Zealand Journal of Marine and Freshwater Research* 37: 23-30.
- Duggan, I.C.**, Collier, K.J., Champion, P.D., Croker, G.F., Davies-Colley, R.J., Lambert, P.D., Nagels, J.W. & Wilcock, R.J. (2002), Ecoregional differences in macrophyte and macroinvertebrate communities between Westland and Waikato: are all New Zealand lowland streams the same? *New Zealand Journal of Marine and Freshwater Research* 36: 831-845.
- Duggan, I.C.** (2002), First record of a wild population of the tropical snail *Melanooides tuberculata* in New Zealand. *New Zealand Journal of Marine and Freshwater Research* 36: 825-829.
- Duggan, I.C.**, Collier, K.J. & Lampert, P.D. (2002), Evaluation of invertebrate biometrics and the influence of subsample size using data from some Westland lowland streams. *New Zealand Journal of Marine and Freshwater Research* 36: 117-128.
- Duggan, I.C.**, Green, J.D. & Shiel, R.J. (2002), Rotifer resting egg densities in lakes of different trophic state, and their assessment using emergence and egg counts. *Archiv für Hydrobiologie* 153: 409-420.
- Duggan, I.C.**, Green, J.D. & Shiel, R.J. (2002), Distribution of rotifer assemblages in North Island, New Zealand, lakes: relationships to environmental and historical factors. *Freshwater Biology* 47: 195-206.
- Duggan, I.C.**, Green, J.D. & Shiel, R.J. (2001), Distribution of rotifers in North Island, New Zealand, and their potential use as bioindicators of lake trophic state. *Hydrobiologia* 446/447: 155-164.
- Duggan, I.C.** (2001), The ecology of periphytic rotifers. *Hydrobiologia* 446/447: 139-148. (Invited review)
- Duggan, I.C.**, Green, J.D., Thompson, K. & Shiel, R.J. (2001), The influence of macrophytes on the spatial distribution of littoral rotifers. *Freshwater Biology* 46: 777-786.

Duggan, I.C., Green, J.D. & Thomasson, K. (2001), Do rotifers have potential as bio-indicators of lake trophic state? *Verhandlungen - Internationale Vereinigung fur Theoretische und Angewandte Limnologie* 27: 3497-3502.

Duggan, I.C., Green, J.D., Thompson, K. & Shiel, R.J. (1998), Rotifers in relation to littoral ecotone structure in Lake Rotomanuka, North Island, New Zealand. *Hydrobiologia* 387/388: 179-197.

Books and chapters

Duggan, I.C. & Collier, K.J. (2018), Management of non-indigenous lacustrine animals. In: Lake restoration handbook: a New Zealand perspective. D. Hamilton, K. Collier, J. Quinn, C. Howard-Williams (eds.). Springer International Publishing. Pp 299-331.

Taura Y. & **Duggan, I.C.** (2017), Impacts of willow and willow control on zooplankton. In: Te reo o te repo - the voice of the wetland: Connections, understandings and learnings for the restoration of our wetlands. Y. Taura, C. van Schravendijk-Goodman, B. Clarkson (eds.). Manaaki Whenua – Landcare Research; Waikato Raupatu River Trust. pp. 129-134.

Duggan, I.C. (2011), Aquaria. In: Encyclopedia of Biological Invasions. D. Simberloff & M. Rejmanek (eds). University of California Press. pp. 32-35.

Hamilton, D.P. & **Duggan, I.C.** (2010), Plankton. In: Waters of the Waikato: Ecology of New Zealand's Longest River. K.J. Collier, D.P. Hamilton, W. Vant & C. Howard-Williams (Eds.). Environment Waikato/University of Waikato, pp. 117-132.

Shiel, R.J., Smales, L., Sterrer, W., **Duggan I.C.**, Pichelin, S. & Green, J.D. (2009), Phylum Gnathifera: Lesser Jaw Worms, Rotifers, Thorny Headed Worms. In: New Zealand Inventory of Biodiversity. Volume 1. Kingdom Animalia: Radiata, Lophotrochozoa, Deuterostomia. D. Gordon (ed.). Canterbury University Press. pp. 137-158.

Duggan, I.C., Bailey, S.A., Colautti, R.I., Gray, D.K., Makarewicz, J.C. & MacIsaac, H.J. (2003), Biological invasions in Lake Ontario: past, present and future. In: State of Lake Ontario - Past, Present and Future. M. Munawar. (ed.). Ecovision World Monograph Series. pp. 541-557.