

Dr. Joseph Thorley

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About

Dr. Joseph Thorley R.P.Bio., is a computational biologist who mostly works on fish populations but also analyses morphological, hydrological, paleontological, medical, genetic, water quality and wildlife data.

Education

Joseph has an honours degree in Biological Sciences from Oxford University and a Ph.D. in Evolutionary Biology from Bristol University. His Ph.D. was supervised by [Dr. Mark Wilkinson](#).

Employment

Prior to forming [Poisson Consulting](#) in 2007, Dr. Thorley worked for the Scottish Executive as a fisheries biologist for three years.

Analysis

Joe performs statistical analysis using both Maximum Likelihood and Bayesian inference. He teaches an introductory [course](#) on Bayesian analysis and maintains the R packages [tmbr](#) to facilitate Maximum Likelihood analysis using TMB and [jmbr](#) to facilitate Bayesian analysis using JAGS.

Online examples of his analyses include trout [indexing](#) and [spawning](#) on the Columbia River, [recruitment](#) on the Lardeau River and [survival](#) in Quesnel Lake.

Software

He is the (co)developer of over 40 R packages including [rpdo](#) and [rtide](#) on CRAN and [cccharts](#) and [wqbc](#) on [GitHub](#) as well as a codeveloper of the [RadCon](#) C++ program.

Publications

Joe's [publications](#) include over 50 professional reports and 20 peer-reviewed journal articles.

Chadwick, S., B. Knights, J. L. Thorley, and A. Bark. 2007. "A Long-Term Study of Population Characteristics and Downstream Migrations of the European Eel *Anguilla Anguilla* (L.) and the Effects of a Migration Barrier in the Girnock Burn,

North-East Scotland." *Journal of Fish Biology* 70 (5): 1535–53. doi:[10.1111/j.1095-8649.2007.01439.x](https://doi.org/10.1111/j.1095-8649.2007.01439.x).

Irvine, R. L., J. L. Thorley, R. Westcott, D. Schmidt, and D. DeRosa. 2014. "Why Do Fish Strand? An Analysis of Ten Years of Flow Reduction Monitoring Data from the Columbia and Kootenay Rivers, Canada." *River Research and Applications*, August, n/a–n/a. doi:[10.1002/rra.2823](https://doi.org/10.1002/rra.2823).

Irvine, Robyn L., Joseph L. Thorley, and Louise Porto. 2017. "When Do Mountain Whitefish (*Prosopium Williamsoni*) Spawn? A Comparison of Estimates Based on Gonadosomatic Indices and Spawner and Egg Counts." *The Open Fish Science Journal* 10 (1): 12–22. doi:[10.2174/1874401X01710010012](https://doi.org/10.2174/1874401X01710010012).

Stefanni, Sergio, and Joseph L. Thorley. 2003. "Mitochondrial DNA Phylogeography Reveals the Existence of an Evolutionarily Significant Unit of the Sand Goby *Pomatoschistus Minutus* in the Adriatic (Eastern Mediterranean)." *Molecular Phylogenetics and Evolution* 28 (3): 601–9. doi:[10.1016/S1055-7903\(03\)00054-X](https://doi.org/10.1016/S1055-7903(03)00054-X).

Thorley, J. L., A. F. Youngson, and R. Laughton. 2007. "Seasonal Variation in Rod Recapture Rates Indicates Differential Exploitation of Atlantic Salmon, *Salmo Salar*, Stock Components." *Fisheries Management and Ecology* 14 (3): 191–98. <http://onlinelibrary.wiley.com/doi/10.1111/j.1365-2400.2007.00540.x/full>.

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Thorley, Joseph L., and Greg F. Andrusak. 2017. "The Fishing and Natural Mortality of Large, Piscivorous Bull Trout and Rainbow Trout in Kootenay Lake, British Columbia (2008–2013)." *PeerJ* 5 (January): e2874. doi:[10.7717/peerj.2874](https://doi.org/10.7717/peerj.2874).

Thorne, Alastair, Alisdair I. MacDonald, and Joseph L. Thorley. 2016. "The Abundance of Large, Piscivorous Ferox Trout (*Salmo Trutta*) in Loch Rannoch, Scotland." *PeerJ* 4 (November): e2646. doi:[10.7717/peerj.2646](https://doi.org/10.7717/peerj.2646).

Youngson, A F, I A Malcolm, J L Thorley, P J Bacon, and C Soulsby. 2004. "Long-Residence Groundwater Effects on Incubating Salmonid Eggs: Low Hyporheic Oxygen Impairs Embryo Development." *Canadian Journal of Fisheries and Aquatic Sciences* 61 (12): 2278–87. doi:[10.1139/f04-217](https://doi.org/10.1139/f04-217).

Youngson, A. F., S. B. Pierny, J. L. Thorley, I. A. Malcolm, and C. Soulsby. 2011. "Spatial Association of Nest Construction by Brown Trout *Salmo Trutta*." *Journal of Fish Biology* 78 (3): 713–25. doi:[10.1111/j.1095-8649.2010.02883.x](https://doi.org/10.1111/j.1095-8649.2010.02883.x).