

### QUALIFICATIONS

B.Sc. (Hons) Zoology, University of Canterbury, 1979  
PhD. Zoology, University of Canterbury, 1984.

### PROFESSIONAL AFFILIATIONS

New Zealand Freshwater Sciences Society  
American Fisheries Society



### ROLE AT CAWTHRON

John is a senior scientist in the Freshwater Group and is responsible for managing freshwater fisheries and ecohydraulics research and consulting programmes.

### SPECIAL INTERESTS & ACHIEVEMENTS

John has special expertise in recreational trout and salmon fisheries, instream habitat modelling with the IFIM and with process based models. He also has experience in native fish ecology and distribution modelling.

He and his research team have developed:

- a bioenergetics based whole-lifetime growth model for trout
- world leading process-based models integrating river hydraulics, invertebrate drift dispersion, and bioenergetics based trout growth and carrying capacity.

In 2001 John and co-authors John Stark and Karen Shearer won the Robert L. Kendall award for best paper in the Transactions of the American Fisheries Society for a paper on a whole-lifetime bioenergetics growth model for drift-feeding brown trout.

John has made a special effort to communicate fisheries and ecohydraulics science in popular press. He is a regular writer for Fish and Game New Zealand magazine and in 2005 he published a book, with co-author and acclaimed fishing photographer Les Hill, on trout fishing "The Artful Science of Trout Fishing"

[http://www.cup.canterbury.ac.nz/catalogue/artful\\_science.shtml](http://www.cup.canterbury.ac.nz/catalogue/artful_science.shtml)

### SELECTED PUBLICATIONS

- Hayes, J. W.; Hughes, N. F.; Kelly, L. H.. Process-based modeling of invertebrate drift transport, net energy intake and reach carrying capacity for drift-feeding salmonids. Ecological Modelling (in press)
- Young, R.G.; Hayes, J.W. 2004: Angling pressure and trout catchability: behavioural observations of brown trout in two New Zealand backcountry rivers. North American Journal of Fisheries Research 24 (4): 1203-1213.

- Hughes, N.F.; Hayes, J.W.; Shearer, K.A.; Young, R. G. 2003: Testing a model of drift-feeding using a 3-D videography of wild brown trout in a New Zealand river. Canadian Journal of Fisheries and Aquatic Sciences 60: 1462-1476
- Young, R.G.; Hayes, J.W. 2001: Assessing the accuracy of drift-dive estimates of brown trout (*Salmo trutta*) abundance in two New Zealand rivers. New Zealand Journal of Marine and Freshwater Research 35: 269-275.
- Hayes, J. W., Stark, J. D., Shearer, K. A. 2000: Development and test of a whole-lifetime foraging and bioenergetics model for drift-feeding brown trout. Transactions of the American Fisheries Society 129: 315-332.
- Hayes, J. W. 1995: Spatial and temporal variation in the relative density and size of juvenile brown trout in the Kakanui River, North Otago. New Zealand Journal of Marine and Freshwater Research 29: 393-407.
- Hayes, J. W.; Jowett, I. G. 1994: Microhabitat of large drift-feeding brown trout in three New Zealand rivers. North American Journal of Fisheries Management 14: 710-725.