

JEREMY M. B. HUME

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Fisheries Biologist

KNOWLEDGE AND ABILITIES

I have 33 years of experience in conceiving, managing, conducting and reporting research programs into many aspects of fisheries biology. During this time I have managed a number of research programs, co-ordinating with other researchers both within and outside of DFO. My main areas of interest are salmonid ecology and population dynamics but these programs have involved a number of disciplines such as limnology, nutrient enrichment, and competitive interactions between and within species.

EXPERIENCE

1987-to present **Research Biologist**

Lakes Research Program
Fisheries and Oceans, Canada
Cultus Lake Salmon Research Laboratory

I am currently conducting research on the community ecology of juvenile sockeye and investigating the productive capacity of sockeye rearing lakes. My main research tools are hydroacoustics and midwater trawls. Studies include: determinations of the carrying capacity of sockeye nursery lakes to form the basis of enhancement and management plans; estimation of the distribution, abundance, mortality, and growth of juvenile sockeye salmon and competitor and predator species; determining the effects of large changes in fry density due to cyclic dominance of sockeye stocks on the production of sockeye fry; and determining seasonal variation in horizontal and vertical distribution in sockeye fry and how it affects their diet and growth.

1979-1987 **Research Biologist**

Research and Development Section
Fisheries Branch
B. C. Ministry of Environment

I conducted a number of projects involving research into management related freshwater fishery problems. I started the development of new rainbow trout broodstocks for use in the provincial stocking program. These stocks included an all female stock and one for stocking in coarse fish lakes. I also supervised a pilot small lake fertilization study for trout enhancement. Other programs included a feasibility study of fry stocking as a steelhead enhancement technique.

1977-1979 **Research Biologist**

Fisheries and Oceans, Canada
Pacific Biological Station
Nanaimo, B. C.

I investigated the population biology of sockeye salmon fry in Babine Lake to determine if increased spawning channel production affected the growth and survival of fry and consequently the production of smolts.

- 1974-1976 **Research and Teaching Assistant**
While in graduate school I did fisheries and limnological field work and conducted the laboratory part of a limnology course for Dr. Northcote. I also taught an introductory biology lab during this period.
- 1971-1973 **Biology and Science Teacher**
Botswana Agricultural College
Gaberone, Botswana
Under the auspices of Canadian University Services Overseas (CUSO), I taught biology and general science to agricultural students.
- 1966-1971 **Lifeguard, Swimming Instructor and Pool Supervisor**
North Vancouver Recreation Centre
North Vancouver, B. C.

EDUCATION

- 1974-1979 **MASTER OF SCIENCE** - in Aquatic Ecology
Institute of Animal Resource Ecology
University of British Columbia
Research supervisor: Dr. T. G. Northcote
Course work: I participated in courses on fisheries management, limnology, theoretical ecology, and water resource management.
Thesis research: I investigated the genetic basis of competitive interactions between Dolly Varden char and cutthroat trout and their selective feeding on lake fauna.
- 1966-1971 **Bachelor of Science** - Honours Zoology
University of British Columbia
Graduated first class with distinction, placed on Dean of Science's honour list.
Course work: Theoretical and applied ecology with emphasis on aquatic systems, as well as invertebrate taxonomy and comparative physiology.
Thesis research: The role of energy in an intertidal predator-prey system.

PRIMARY PUBLICATIONS

- Enzenhofer, H. J. and J. M. Hume. 1989. Simple closing midwater trawl for small boats. North Am. Jour. Fish. Mgmt. 9:373-377.
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- Hume, J.M.B. and T.G. Northcote. 1985. Initial changes in use of space and food by experimentally segregated populations of Dolly Varden (*Salvelinus malma*) and cutthroat trout (*Salmo clarki*). Can. J. Fish. Aquat. Sci. 42:101-109.
- Hume, J.M.B., and K. Tsumura. 1992. Field evaluation of two rainbow trout strains introduced into three British Columbia lakes. N. Am. J. Fish. Man. 12: 465-473.

- Hume, J.M.B., K. S. Shortreed, and K. F. Morton. 1996. Juvenile sockeye rearing capacity of three lakes in the Fraser River system. *Can. J. Fish. Aquat. Sci.* 53:719-733.
- Levy, D. A., R. L. Johnson and J. M. Hume. 1991. Shifts in fish vertical distribution in response to an internal seiche in a stratified lake. *Limnology & Oceanography* Vol. 36(1):187-192.
- McDonald, J. and J.M.B. Hume. 1984. Babine Lake sockeye salmon (*Oncorhynchus nerka*) enhancement program: testing some major assumptions. *Can. J. Fish. Aquat. Sci.* 41:70-92.
- Northcote, T.G., C.J. Walters and J.M.B. Hume. 1977. Initial impacts of experimental fish introductions on the macrozooplankton of small oligotrophic lakes. *Verh. Internat. Verein. Limnol.* 20:2003-2012.
- Shortreed, K.S., J.M.B. Hume, and J.G. Stockner. 2000. Using photosynthetic rates to estimate the juvenile sockeye salmon rearing capacity of British Columbia lakes. *In* Sustainable Fisheries Management: Pacific Salmon. *Edited by* E.E. Knudsen, C.R. Steward, D.D. MacDonald, J.E. Williams, and D.W. Reiser. CRC Press LLC, Boca Raton, New York. pp. 505-521.
- Tsumura, K. and J.M.B. Hume. 1986. Two variations of a salmonid smolt trap for small rivers. *N. Am. J. Fish. Man.* 6:272-276.
- Vagle, S., J. Hume, F. McLaughlin, E. MacIsaac, and K. Shortreed. 2010. A methane bubble curtain in meromictic Sakinaw Lake, British Columbia. *Limnol. Oceanogr.*, 55(3) 1313–1326

OTHER PUBLICATIONS

- Bradford, M.J., Amos, J., Tovey, C.P., Hume, J.M.B., Grant, S. and Mossop, B. 2007. Abundance and migratory behaviour of northern pikeminnow (*Ptychocheilus oregonensis*) in Cultus Lake, British Columbia and implications for predator control. *Can. Tech. Rep. Fish. Aquat. Sci.* 2723: vii + 47 p.
- Bradford, M.J., Hume, J.M.B., Withler, R.E., Lofthouse, D., Barnetson, S. Grant, S., Folkes, M., Schubert, N., Huang, A-M. 2010. Status of Cultus Lake sockeye salmon. DFO Can. Sci. Advis. Sec. Res. Doc. 2010/nnn. vi + xx p. In Press.
- Cass, A. J., D. Blackbourne, and J.M.B. Hume. 1995. Forecasts of Fraser River sockeye and pink salmon for return year 1995 and preliminary sockeye forecasts for 1996. PSARC Working Paper. S94-20.
- Cox-Rogers, S, J.M.B. Hume, and K.S. Shortreed. 2004. Stock status and lake based production relationships for wild Skeena sockeye salmon. Canadian Science Advisory Secretariat Research Document 2004/010. 56 p.
- Enzenhofer, H. J., and J. M. B. Hume. 1992. A deep water towed body for upfacing echo sounding from a small boat . *Can. Tech. Rept. Fish. Aquat. Sci.* 1880. 14p.
- Enzenhofer, H. J., C. W. Mueller, and J. M. Hume. 1991. Trawl catch statistics from Quesnel Lake: 1986-1990 . *Can. Data Rept. Fish. Aquat. Sci.* 863. 27p.
- Henderson, M. A., R. E. Diewert, J. Hume, K. Shortreed, D. Levy, and K. Morton. 1991. The carrying capacity of Pitt Lake for juvenile sockeye salmon (*Oncorhynchus nerka*). *Can. Tech. Rep. Fish. Aquat. Sci.* 1797. 161p.
- Hume, J.M.B. 1986. Salisbury Lake fertilization - Habitat Conservation Fund, Technical Progress Report (1985-1986). B.C. Min. Env., Fish. Res. Sec., Fish. Project Rpts. #5. 15p.

- Hume J.M.B., A. Cass and K. S. Shortreed. 1996. The Utility of Hydroacoustic Estimates of Juvenile Sockeye in stock Assessment with forecasts for the 1997 Quesnel Lake Return. PSARC Working Paper S96-14.
- Hume, J.M.B., L. Lemke and K. Tsumura. 1986. A preliminary comparison between Pennask and Premier rainbow trout stocks in lakes with different productivities. B.C. Min. Env., Fisheries Res. Sec., Fisheries Project Repts. #2. 10p.
- Hume, J.M.B., and S.G. MacLellan. 2000. An assessment of the juvenile sockeye salmon (*Oncorhynchus nerka*) populations of Babine Lake. Can. Tech. Rep. Fish. Aquat. Sci. 2327:37 p.
- Hume, J.M.B. and MacLellan, S.G. 2008. Pelagic fish surveys of 23 sockeye rearing lakes in the Skeena River system and in northern British Columbia coastal watersheds from 1997 to 2005. Can. Tech. Rep. Fish. Aquat. Sci. 2812: vi + 99 p.
- Hume, J.M.B., K.F. Morton, D. Lofthouse, D. MacKinlay, K. S. Shortreed, J. Grout, and E. Volk. 2003. Evaluation Of Restoration Efforts On The 1996 Upper Adams River sockeye salmon run. Can. Tech. Rep. Fish. Aquat. Sci. 2466: 57 pp.
- Hume, J.M.B. and E.A. Parkinson. 1984. The effects of various stocking strategies on the survival and growth of headwater stocked steelhead fry. Proc. 64th Confer. West. Assoc. Fish Wildl. Agencies. 64:274-287.
- Hume, J.M.B., K. Tsumura and K. Ashley. 1986. A preliminary comparison between Premier and Duncan rainbow trout stocks in a lake containing redbside shiners. B.C. Min. Env., Fisheries Res. Sec., Fisheries Project Repts. #1. 5p.
- Hume, J.M.B., I.V. Williams, and K.F. Morton. 1994. Factors affecting the production of juvenile sockeye salmon (*Oncorhynchus nerka*) in Shuswap and Quesnel Lakes, British Columbia. Can. Tech. Rep. Fish. Aquat. Sci. 1990: 23 p.
- MacLellan, S.G., and J.M.B. Hume. 2002. Results of juvenile sockeye (*Oncorhynchus nerka*) trawl surveys in Stuart, Trembleur, and Takla lakes from 1996 to 1998. Can. Data Rep. Fish. Aquat. Sci. 1096: iii + 41p.
- MacLellan, S.G. and Hume, J.M.B. 2010. An evaluation of methods used by the freshwater ecosystems section for pelagic fish surveys of sockeye rearing lakes in British Columbia. Can. Tech. Rep. Fish. Aquat. Sci. 2886: v + 67 p.
- MacLellan, S.G., C.W. Mueller, H.J. Enzenhofer, and J.M.B. Hume. 1995. Trawl catch statistics in Shuswap Lake: 1987-1993. Can. Data Rept. Fish. Aquat. Sci. 950: 204 p.
- Mossop, B., Bradford, M.J., and Hume, J. 2004. Review of northern pikeminnow (*Ptychocheilus oregonensis*) control programs in western North America with special reference to sockeye salmon (*Oncorhynchus nerka*) production in Cultus Lake, British Columbia. Report prepared for the Cultus Sockeye Recovery Team. Vancouver. 58 p.
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- Shortreed, K.S., Hume, J.M.B., and Malange, K. 2007. Preliminary categorization of the productivity of 37 coastal and Skeena River system lakes in British Columbia. Can. Tech. Rep. Fish. Aquat. Sci. 2718: 91 p.
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- Tsumura K., Jeremy M.B. Hume and Chan, B. 1987. Effects of size at release in rainbow trout (*Salmo gairdneri*) stocked in a winterkill lake. Fish. Manage. Rept. No. 88. 16p.
- Welch, D. W., K. Shortreed, J. Stockner, J. Hume, K. Morton, and I. Williams. 1993. Recommended target escapement levels for the Quesnel Lake sockeye stock. PSARC, Working paper S93-2. 47p