

Josh Korman

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Professional Experience

1993 - Present **Systems Ecologist, Ecometric Research Inc.**

- statistical analysis of environmental and fisheries data;
- development of computer simulation models for resource management;
- experimental design for environmental monitoring;
- fisheries stock assessment (analysis and field work); and
- development of decision support system software;

1993 - 1994 **Research Associate, Dr. Randall M. Peterman, School of Resource and Environmental Management, Simon Fraser University.**

- performed numerous statistical analyses using fisheries/environmental data;
- applied decision theory and bayesian approaches to fisheries problems;
- developed and refined computer simulation models;
- summarized research in primary publications and oral presentations; and
- assisted graduate students in their research.

1990 - 1993 **Systems Ecologist, ESSA Environmental and Social Systems Analysts Ltd.**

- developed quantitative tools and methods for fisheries management and habitat assessment;
- designed and implemented data analyses to resolve complex management problems and evaluate environmental monitoring programs;
- facilitated workshops and technical meetings concerning modelling, environmental impact assessment, monitoring design, and multi-user natural resource conflicts; and
- managed projects, prepared project budgets, and supervised project team members.

1989 **Aquatic Ecologist, Limnotek Research and Development Inc., Vancouver, BC**
As a contract employee of Limnotek, I was a principal investigator on the Kootenay Lake Fertilization Feasibility Study prepared for the BC Ministry of Environment.

1984 **Field Technician, Department of Biology, McGill University, Bryants Cove, Newfoundland.**
Through an NSERC Undergraduate Fellowship, I joined a multi-year project investigating the effects of meteorological conditions and water mass changes on the survival of egg and larval stages of Atlantic Capelin.

Education

- **M.Sc. Biological Oceanography**, Department of Oceanography, University of British Columbia, Vancouver, B.C., 1987 - 1989.
Thesis supervisor: Dr. T.R. Parsons. Studies focused on phytoplankton ecology, eutrophying effects of aquaculture, and statistical and simulation modelling of nutrient dispersion and harmful phytoplankton blooms.
- **B.Sc. Biology (honours)**, Department of Biology, McGill University, Montreal, Quebec, 1981 - 1984.
Thesis supervisor: Dr. V.H. Smith. Areas of specialization included fisheries biology, phytoplankton ecology and biostatistics.

Awards

- NSERC Postgraduate Scholarship, 1987 - 1989
- NSERC Undergraduate Fellowship, 1984
- Faculty Scholar, McGill University, 1982 - 1983

References

Dr. Carl Walters, University of British Columbia - (604) 822-6320
Dr. Randall Peterman, Simon Fraser University - (604) 291-4683
Dr. Gilles Lacroix, Department of Fisheries and Oceans - (506) 529 -8854

Primary Publications and Invited Oral Presentations

Korman, J., Ahrens, R.N.M., Higgins, P.S., and Walters, C.J. 2002. Effects of observer efficiency, arrival timing, and survey life on estimates of escapement for steelhead trout (*Oncorhynchus mykiss*) derived from repeat mark-recapture experiments. *Can. J. Fish. Aquat. Sci.* 59: 1116-1131.

Korman, J. and P.S. Higgins. 1997. Utility of escapement time series data for monitoring the response of salmon populations to habitat alteration. *Can. J. Fish. Aquat. Sci.* 54:2058-2097.

Korman, J., R.M. Peterman and C.J. Walters. 1995. Empirical and theoretical analyses of time-series bias in stock-recruitment relationships of Sockeye salmon (*Oncorhynchus nerka*). *Can. J. Fish. Aquat. Sci.* 52:2174-2189.

Korman, J., D.R. Marmorek, G. Lacroix, P.G. Amiro, J.A. Ritter, W.D. Watt, R.E. Cutting, and D.C.E. Robinson. 1994. Development and evaluation of a biological model to assess regional scale effects of acidification on Atlantic salmon. *Can. J. Fish. Aquat. Sci.* 51: 662-680.

Walters, C.J. and J. Korman. 2001. Analysis of stock and recruitment data for deriving spawning threshold levels: models, fitting, precision, diagnostics, pitfalls. *In* Prévost, E. and G. Chaput [*Editors*]. Stock, recruitment and reference points: Assessment and management of Atlantic salmon. INRA Paris 2001.

Walters, C.J. and J. Korman. 1999. Linking recruitment to trophic factors: revisiting the Beverton-Holt recruitment model from a life history and multispecies perspective. *Rev. Fish. Biol. Fisheries.* Vol 9: 1-16.

Walters, C., J. Korman, L. E. Stevens, and B. Gold. 2000. Ecosystem modeling for evaluation of adaptive management policies in the Grand Canyon. *Conservation Ecology* 4(2): 1.

- Walters, C.J. and J. Korman.** 1999. Cross-scale modeling of riparian ecosystem responses to hydrologic management. *Ecosystems* 2:411-421.
- Lacroix, G.L. and J. Korman.** 1996. Timing of episodic acidification in Atlantic salmon rivers influences evaluation of mitigative measures and recovery forecasts. *Can. J. Fish. Aquat. Sci.* 53: 589-599.
- Marmorek, D.R. and J. Korman.** 1993. The use of zooplankton in a biomonitoring program to detect lake acidification and recovery. *Water, Air, and Soil* 69: 223-241.
- Marmorek, D.R., Macqueen, R.M., Wedeles, C.H.R., Korman, J., P.J. Blancher and D.K. McNicol.** 1996. Improving pH and alkalinity estimates for regional scale acidification effects: Incorporation of dissolved organic carbon. *Can. J. Fish. Aquat. Sci.* 53: 1602-1608.
- Adkison, M.D., Peterman, R.M., Lapointe, M.F., D.M. Gillis and J. Korman.** 1996. Alternative models of climatic effects on sockeye salmon (*Oncorhynchus nerka*) productivity in Bristol Bay, Alaska, and the Fraser River, British Columbia. *Fish. Oceanogr.* 5:137-152.
- Korman, J. and P.S. Higgins.** 1996. Can escapement be used to assess the responses of salmon populations to instream flow regulation? Paper presented at the Sustainable Fisheries Conference, Victoria, B.C. April 26-29, 1996.
- Korman, J. and P.G. Amiro.** 1996. MSY with a twist: Evaluation of target egg depositions for Atlantic salmon using a decision theoretic framework which considers conservation, yield and habitat. Presented at the Atlantic Salmon Spawning Target Workshop, Pont-Scorff, Brittany, France (June 24-28, 1996).
- Naganuma, T., J. Korman, and H. Seki.** 1991. CO₂ fixation rates of chemosynthetic bacteria isolated from the North Fiji Basin. Presented at the Annual Meeting of the Oceanographical Society of Japan (October 2-6).
- Lacroix, G.L., J. Korman and D.R. Marmorek.** 1995. Critical loads for recovery of salmon in acidified rivers of Atlantic Canada. Presented at Acid Reign '95, Gotenborg, Sweden, (June 26-30).

Selected Reports

- Korman, J. 2002.** Simulating the response of aquatic and riparian productivity to reservoir operations: Description of the Vegetation and Littoral Components of BC Hydro's Integrated Response Model (IRM). Report prepared by Ecometric Research Inc. for B.C. Hydro, Burnaby, B.C.
- Ahrens, R., and J. Korman. 2002.** What happened to the West Arm bubot stock in Kootenay Lake? Use of an age-structured population model to determine the possible causes for recruitment failure. Report prepared by Ecometric Research Inc. for B.C. Ministry of Air, Land, and Water Protection, Nelson, B.C.
- Korman, J. 2001.** Reconnaissance (1:20,000) Fish and Fish Habitat Inventory: User's Guide to the Fish and Fish Habitat Assessment Tool (FHAT20). Report prepared by Ecometric Research Inc. for B.C. Fisheries, Information Branch, Victoria, B.C.
- Korman, J. and C.J. Walters. 2001.** Nechako River white sturgeon recovery planning: Summary of stock assessment and Oct 2-3, Workshop. Report prepared by Ecometric Research Inc. for B.C. Fisheries, Victoria, B.C.
- Korman, J. 2001.** Report of the BC Herring stock assessment review workshop, June 12-14, 2001. Report prepared by Ecometric Research Inc. Dept. of Fisheries and Oceans, Nanaimo, B.C.

Decker, A.S., J.M. Bratty, S.C. Riley, and J. Korman. 1999. Estimating standing stock of juvenile coho salmon (*Oncorhynchus kisutch*) and cutthroat trout (*O. clarki*) in a small stream: a comparison of sampling designs. Canadian Technical Report of Fisheries and Aquatic Sciences. No. 2282.

Lacroix, G., J. Korman, and D.D. Heath. 1998. Genetic introgression of the domestic Atlantic salmon genome into wild populations: A simulation of requirements for conservation. Canadian Stock Assessment Secretariat Research Document 98/158.

Korman, J., B. Bravender, and C.D. Levings. 1997. Utilization of the Campbell River estuary by juvenile Chinook salmon (*Oncorhynchus tshawytscha*) in 1994. Canadian Technical Report of Fisheries and Aquatic Sciences. No. 2169.

Korman, J. and S.C. Riley. 1995. Assessing the effects of flow releases on fish production in the Cheakamus River: Experimental design and monitoring options. Report prepared for B.C. Hydro (June 28, 1995). 26 pages + figures.

Korman, J. 1995. A Monte Carlo-Power Analysis to evaluate the utility of using escapement data to detect the response of salmonid populations to instream flow changes in the Cheakamus River. Report prepared for B.C. Hydro (August 21, 1995). 18 pages + figures.

Korman, J. 1995. Selection of control rivers for the Cheakamus River monitoring program: A comparative analysis based on time series of salmon and steelhead abundance indices. Report prepared for B.C. Hydro (October 4, 1995). 10 pages + tables and figures.

Riley, S.C. and J. Korman. 1995. Juvenile salmonid monitoring in the Cheakamus River: Results of a pilot study and recommendations for monitoring design. Report prepared for B.C. Hydro (June 28, 1995). 15 pages + figures and tables.

Korman, J., C.J. Perrin and T. Lekstrum. 1994. A selection of standard methods for quantifying sportfish habitat capability and suitability in streams and lakes of British Columbia. Prepared by Limnotek Research and Development Inc. for B.C. Ministry of Environment, Lands, and Parks, Fisheries Branch. 26 pp.

Korman, J., Webb, T., Walters, C.J., Digisi, J., and J. Sawada and L. Huato. 1993. Small Lakes Integrated Management Model, SLIMM Version 1.0, User's Guide. Prepared by ESSA Ltd. for B.C. Ministry of Environment, Lands, and Parks, Fisheries Branch. 26 pp.

Lekstrum, T., Perrin, C.J., J. Korman and C.J. Walters. 1993. The role of the Duncan Dam in determining phosphorous loading and availability in Kootenay Lake. Prepared by Limnotek R & D Ltd. and ESSA Ltd. for B.C. Hydro. 50 pp.

Korman, J. and E. Parkinson. 1993. Application of the Large Lakes Kokanee Model to Kootenay Lake, Okanagan Lake, and the Williston Reservoir. Prepared by ESSA Ltd for B.C. Ministry of Environment, Lands, and Parks, Fisheries Branch. 21 pp.

Korman, J., T.M. Webb and E. Parkinson. 1993. Large Lakes Kokanee Model, version 2.0, user's guide. Prepared by ESSA Ltd for B.C. Ministry of Environment, Lands, and Parks, Fisheries Branch. 70 pp.

Korman, J., W.A. Kurz, and D.R. Marmorek. 1992. Fish/forestry interaction model: workshop summary and model design. Prepared by ESSA Ltd., Vancouver, B.C. for Ministry of Forests, Research Branch, Vancouver, B.C., 79 pp.

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Marmorek, D.R., J. Korman, R. Macqueen. 1992. Validation of the ESSA/DFO regional acidification model: data analysis report. Prepared by ESSA Ltd., Vancouver, B.C. for Department of Fisheries and Oceans, Great Lakes Fisheries Research Branch, Burlington, Ontario, 70 pp.

Webb, T.M., C.J. Daniel, J. Korman, and J.D. Meisner. 1992. Development of a fish habitat sensitivity indexing scheme for application in the Fraser River Basin. Prepared by ESSA Ltd., Vancouver, B.C. for The Department of Fisheries and Oceans, Vancouver, B.C. 43 pp. and appendices.

Korman, J., M. Kuc, and C.H.R. Wedeles. 1991. A user's guide to the waterfowl acidification response modelling system (WARMS). Prepared for Canadian Wildlife Service, 13 pp.

Korman, J., D.R. Marmorek, and C.H.R. Wedeles. 1991. Analysis of the effects of dissolved organic carbon and lake size bias on waterfowl acidification response projections. Prepared for Canadian Wildlife Service, 47 pp.

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Korman, J., C.J. Perrin, and R.C. Wiegand. 1990. The feasibility of fertilization of Kootenay Lake, North Arm. Limnotek Research and Development Inc. Prepared for B.C. Ministry of Environment, 108 pp.

Korman, J., C.H.R. Wedeles, and N.C. Sonntag. 1990. Part II: Environmental system description for the Coatzacoalcos-Minatitlan region. Prepared for H.A. Simons Ltd., Consulting Engineers, 59 pp.

Korman, J. 1989. Enriching effects of salmon farms in British Columbia coastal waters and the influence of flushing and seasonality. Department of Oceanography, The University of British Columbia, Vancouver, BC. MSc Thesis. 94 pp.

Korman, J. and F.J.R. Taylor. 1989. A preliminary analysis of the effects of climate on water column stability and Chaetoceros convolutus abundance in Sechelt Inlet. 45 pp.

Reprints, reports, and software available on request.