

## VITAE

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## EDUCATION

A.B. in Biology (1967), Dartmouth College, Hanover, N.H.  
M.A. in Zoology (1969), The University of Wisconsin, Madison.  
Ph.D. in Zoology with minor in Water Chemistry (1972), The University of Wisconsin, Madison.

## EMPLOYMENT

Assistant Scientist. Institute for Environmental Studies, The University of Wisconsin, Madison (1972 to 1973).  
Assistant Professor. Department of Biology, Case Western Reserve University (1973 to 1978).  
Associate Professor. Department of Biology, Case Western Reserve University (1978-1994).  
Research Scholar. International Institute for Applied Systems Analysis. Laxenburg, Austria. (1982 to 1983 Sabbatical Leave of Absence).  
Associate Professor. Department of Systems Engineering, Case Western Reserve University (1984 to 1995).  
Ecosystem Partnership Coordinator. Secretariat, Great Lakes Fishery Commission. Ann Arbor, Michigan. (1992-93 Leave of Absence).  
Professor. Department of Biology, Case Western Reserve University. (1994 to present).  
Professor. Department of Control, Systems, and Industrial Engineering, Case Western Reserve University (1995 to present).

## PROFESSIONAL EXPERIENCE

Participating Scientist. A Limnological Study of Skadar Lake, Yugoslavia (sponsored by the Smithsonian Foreign Currency Program, 1972 to 1973).  
Institutional Representative to the Founders Conference of the Institute of Ecology (1973 to 1984).  
Member of the NRC/TIE Joint Panel on Ecosystem Analysis (Advisory Committee to the National Commission on Water Quality, 1974 to 1975).  
Member of the Water Effects Committee on the Institute of Ecology (Advisory Committee to the National Commission on Water Quality, 1974 to 1976).  
Invited Participant. International Percid Symposium. Great Lakes Fishery Commission (1976).  
Co-coordinator of Synthesis. Stock Concept International Symposium. Great Lakes Fishery Commission (1980).  
Member of the Great Lakes Adaptive Environmental Assessment and Management Staff Team. Great Lakes Fishery Commission. 1981 to 1983.  
Member of Study Group on Strategic and Long-Term Research (Advisory group to the Science Advisory Board of the U.S. Environmental Protection Agency, 1984 to 1989).

Member of the Joint Royal Society of Canada/National Research Council Committee to Review the Great Lakes Water Quality Agreement (1984 to 1985).

Member of the Mesotrophic Indicators Working Group of the Ecosystem Indicators Committee. International Joint Commission (1986 to 1989).

Member of the Steering Committee of the Walleye Rehabilitation Workshop. Great Lakes Fishery Commission (1986 to 1989).

Invited Participant. Classification and Inventory of Great Lakes Aquatic Habitats. International Joint Commission and Great Lakes Fishery Commission (1987).

Co-Chairman. Task Group on Integrated Management of Sea Lamprey. Board of Technical Experts. Great Lakes Fishery Commission. (1988 to 1989).

Member of the Lake Ontario Pelagic Community Health Indicators Committee. Task group of the Binational Objectives Development Committee, US EPA and Environment Canada (1991 to present).

Co-Chairman. Task Group on Sustainability of Intensively Managed Populations in Lake Ecosystems. Board of Technical Experts. Great Lakes Fishery Commission. (1990 to 1993).

Member of the US/Canada Steering Committee for the Great Lakes State of the Lakes Ecosystem Conference (1992 to 1994)

Member. Habitat Advisory Board. Great Lakes Fishery Commission. (1994 to present). Appointed Co-Chair in 1997.

## **HONORS AND OFFICES**

Vice-President and President. CWRU Chapter of Sigma Xi, 1977 to 1979.

Recipient. John S. Diekhoff Award for Distinguished Teaching at the Graduate Level. School of Graduate Studies, Case Western Reserve University. 1979.

Associate Editor. Journal of Great Lakes Research. 1985-1991.

Recipient. Outstanding Student Organization Advisor. Student Leadership Award. Case Western Reserve University. 1987

Recipient. Best Fisheries Paper Award. Ohio Chapter of the American Fisheries Society. 1989 Annual Fish and Wildlife Conference.

Chairman. Task Force on Education in the Colleges. Case Western Reserve University. 1990 to 1991.

Chairman. Committee on Undergraduate Scholars Program. Case Western Reserve University. 1990 to 1991.

Chairman. Committee on Curriculum of the University Undergraduate Faculty. Case Western Reserve University. 1996-1997.

Co-Director. CWRU Center for the Environment. 1997 to present.

## **GRANTS AND CONTRACTS**

Role of Consumers in Aquatic Phosphorus Cycling. NSF Subcontract from Oak Ridge National Laboratory. 1974 to 1977, \$49,440

Aquatic Culture Facility. Donation from Mr. Kelvin Smith. 1975, \$26,500.

An Analysis of the Relationship between Hydrodynamics and the Distribution and Abundance of Planktonic Organisms. NSF. 1975 to 1977, \$345,800 (Co-Coordinator with Wilbert Lick).

Western Lake Erie Walleye Modelling Feasibility Study. Great Lakes Fishery Commission. 1975 to 1976, \$5,000.

Restoration of Trout Populations in Marginal Waters. Office of Water Resources Research, Department of Interior. 1976 to 1978, \$100,000 (with Mitsuo Teraguchi).

Enhancement of Quantitative Training of Biology Students. Institutional Equipment Program. NSF. 1976 to 1978, \$53,150.

Development of Management Strategies for the Western Lake Erie Walleye Population. Great Lakes Fishery Commission. 1978 to 1979, \$5,000.

Application and Testing of Principles of Stochastic Dynamic Programming in Relation to Quota Deliberations for Lake Erie Fish Populations. Great Lakes Fishery Commission. 1980 to 1981, \$5,000.

Development of Procedures to Support the Application of Quotas to Yellow Perch Harvest in Western and Central Lake Erie. Great Lakes Fishery Commission. 1981 to 1982. \$22,842.

Standardization of Reporting of Marking Rates of Sea Lamprey on Lake Trout. Great Lakes Fishery Commission. 1981, \$2,500.

Methodology of Setting Quotas in Fisheries. Ontario Ministry of Natural Resources. 1982, \$3,000.

Sabbatical Leave-of-Absence. International Institute for Applied Systems Analysis. 1982 to 1983, \$20,000.

Application of the Results of AEAM Workshops Sponsored by the GLFC to the Development of Theory and Practice in Multispecies Fishery Management. Great Lakes Fishery Commission. 1984 to 1986, 50,000.

Development of Computer Aids for Budgeting and Allocation of Sea Lamprey Control. Great Lakes Fishery Commission. 1987 to 1988, \$28,464.

Application of Fish Community Models to the Development of Multi-Species Fishery Management in Lake Erie. Ohio Sea Grant Program. 1987 to 1989, \$44,900.

Evaluation of Models for Integrated Management of Sea Lamprey. Great Lakes Fishery Commission. 1987 to 1989, \$43,426.

A Study of the Feasibility of Developing a Habitat Suitability Index for Sea Lamprey Habitat in Streams of the Great Lakes. Great Lakes Fishery Commission. 1989 to 1990, \$28,283.

Development of Global Change Research. State of Ohio, Regents Challenge Program. 1989 to 1990, \$23,000 (with Mihajlo Mesarovic).

Research Program on System Science Perspective on System Science. UNESCO. 1990 to 1991. \$70,000 (with Mihajlo Mesarovic).

A Study of Sustainability of Intensively Managed Populations in Lake Ecosystems. Great Lakes Fishery Commission. 1990 to 1993, \$81,442.

Ecosystem Partnership Coordination and Implementation of Integrated Management of Sea Lamprey. Great Lakes Fishery Commission. 1992 to 1994, \$139,364.

Climate Change Information and Great Lakes Management: Modeling, Worth of Flexibility, and Process Evaluation. NSF. 1993 to 1995, \$215,551 (With Benjamin Hobbs and William T. Bogart).

Modeling and Multiobjective Risk Decision Tools for Assessment and Management of Great Lakes. EPA. 1996 to 1999, \$259,273. (Subcontract from Johns Hopkins University).

## PUBLICATIONS

Koonce, J. F., M. Teraguchi, P. C. Baumann, and A. D. Hasler. 1973. Biological Investigations of Lake Wingra. Environmental Protection Agency, Report No. EPA-R3-73-044. 112 pp.

Allen, T. F. H. And J. F. Koonce. 1973. Multivariate approaches to algal stratagems and tactics in systems analysis of phytoplankton. *Ecology* 54: 1234-1246.

Huff, D. D., J. F. Koonce, W. R. Iverson, P. R. Weiler, E. H. Dettman, and R. F. Harris. 1973. Simulation of urban runoff, nutrient loading, and biotic response of a shallow eutrophic lake. In E. J. Middlebrooks, C. H. Falkenberg, and T. E. Moloney [eds.]. Modeling the Eutrophication Process. Utah State University, Logan. p. 33-56.

Kitchell, J. F., J. F. Koonce, R. F. O'Neill, H. H. Shugart, J. J. Magnuson, and R. S. Booth. 1975. Implementation of a predator-prey biomass model for fishes. *Trans. Amer. Fish. Soc.* 103: 786-798.

McCormack, A. J., O. L. Loucks, J. F. Koonce, J. F. Kitchell, and P. R. Weiler. 1975. An ecosystem model for the pelagic zone of a lake. In V. J. Yannacone [ed.]. *Proceedings of the American Bar Association, National Institute for Environmental Litigation*. Amer. Bar Assoc., Chicago. Vol. II: 339-382.

Park, R. A., R. V. O'Neill, H. H. Shugart, R. A. Goldstein, J. B. Mankin, and J. F. Koonce, et al., 1975. A general model for simulating lake ecosystems. *Simulation* 23: 35-56.

- Kitchell, J. F., J. F. Koonce, and P. S. Tennis. 1975. Phosphorus flux through fishes. *Verh. Internat. Verein. Limnol.* 19: 2478-2484.
- Shuter, B. F. And J. F. Koonce. 1977. A dynamic model of the Western Lake Erie Walleye population. *J. Fish. Res. Bd. Canada*, 34: 1972-1982.
- Koonce, J. F., T. B. Bagenal, R. F. Carline, K. E. F. Hokanson, and M. Nagiec. 1977. Factors influencing year-class strength of percids: A summary and a model of temperature effects. *J. Fish. Res. Bd. Canada*, 24: 1900-1909.
- Allen, T. F. H., S. M. Bartell, and J. F. Koonce. 1977. Multiple stable configurations in ordination of phytoplankton community change rates. *Ecology* 58: 1076-1084.
- Tennis, P. S., J. F. Koonce, M. Teraguchi. 1977. The effects of population density and food surface area on body weight of Acheta domesticus (Orthoptera: Gryllidae). *Can. J. Zool.*, 55: 2004-2010.
- Bartell, S. M., T. F. H. Allen, and J. F. Koonce. 1978. An assessment of principal component analysis for description of phytoplankton periodicity in Lake Wingra. *Phycologia* 17: 1-11.
- Brown, Edward J., Robin F. Harris, and Joseph F. Koonce. 1978. Kinetics of phosphate uptake by aquatic microorganisms: Deviations from a simple Michaelis-Menten equation. *Limnol. Oceanog.*, 23: 26-34.
- Tennis, P. S., J. F. Koonce, M. Teraguchi. 1979. Studies on food size as a selection pressure on body size. I. Effects of food size on fitness of two size strains of Achaeta domesticus (L.). *Evolution* 33: 95-103.
- Shuter, B. J., J. F. Koonce, and H. A. Regier. 1979. Modeling the Western Lake Erie Walleye Population: A Feasibility Study. Great Lakes Fishery Commission. Tech. Rept. 32. 40 p.
- Walters, C. J., R. A. Park, and J. F. Koonce. 1980. Dynamic models of lake ecosystems. In LeCren, E. D. And R. H. McConnel [eds.]. The Functioning of Freshwater Ecosystems. Cambridge Univ. Press, Cambridge. p. 455-479.
- Thorpe, J. E., J. F. Koonce with others. 1981. Assessing and managing man's impact on fish genetic resources. *Can. J. Fish. Aquat. Sci.* 38: 1899-1907.
- Spangler, G. R., A. H. Berst, and J. F. Koonce. 1981. Perspectives and policy recommendations on the relevance of the stock concept to fishery management. *Can. J. Fish. Aquat. Sci.* 38: 1908-1914.
- Koonce, J., L. Grieg, B. Henderson, D. Jester, K. Minns, and G. Spangler. 1982. A review of the adaptive management workshop addressing salmonid/lamprey management in the Great Lakes. Spec. Publ. 82-2. Great Lakes Fish. Comm. Ann Arbor, Michigan. 40 pp.
- Koonce, J. F., D. B. Jester, B. A. Henderson, R. W. Hatch, and M. L. Jones. 1983. Quota management of Lake Erie fisheries. Spec. Publ. 83-1. Great Lakes Fish. Comm. 39 pp.
- Koonce, J. F., A. I. Yashin, C. J. Walters, and M. Rusnak. 1984. Modeling of public health: Call for interdisciplinary actions. International Institute for Systems Analysis, Vienna. CP-84-1. 51 pp.
- Eshenroder, R. L. And J. F. Koonce. 1984. Recommendations for standardizing the reporting of Sea Lamprey marking data. Spec. Publ. 84-1. Great Lakes Fish. Comm. Ann Arbor, Michigan. 22 pp.
- Koonce, J. F. And B. J. Shuter. 1987. Influence of various sources of error and community interactions on quota management of fish stocks. *Can. J. Fish. Aquat. Sci.* 44: 61-67.
- Sudak, H. S., A. B. Ford, N. B. Rushforth, and J. F. Koonce. 1988. Depression and suicide in adolescents: An overview. In Stiffman, A. R. And R. A. Feldman. Advances in Adolescent Mental Health. JAI Press, Inc. Greenwich, Connecticut. 3: 3-12.
- Koonce, J. F. And Ana Locci-Hernandez. 1989. A decision support system for the integrated management of sea lamprey. Great Lakes Fish. Comm. Spec. Publ., 89-1. 73 pp.
- Koonce, J. F. 1990. Commentary on fish community health: Monitoring and assessment in large lakes. *J. Great Lakes Res.* 16(4):631-634.
- Koonce, J. F., R. L. Eshenroder, and G. C. Christie. 1993. An economic injury level approach for establishing the intensity of sea lamprey control in the Great Lakes. *N. Amer. J. Fish. Man.* 13(1) 1-14.
- Hobbs, B. F., P. T. Chao, and J. F. Koonce. 1993. Potential climate change and Great Lakes management: Models, flexibility, and process. In Mortsch, G. Koshida, and D. Tarves

- [eds.], Adapting to the Impacts of Climate Change and Variability. Proceedings of the Great Lakes-St Lawrence Basin Project Workshop, Quebec City, Quebec, February 1993. 64-69.
- Hobbs, B. F., P. T. Chao, and J. F. Koonce. 1993. Climate Change and Management of Water Levels in the Great Lakes. In Ballentine, T. M. and E. Z. Stakhiv [eds]. Proceedings of the First National Conference on Climate Change and Water Resources Management. U. S. Environmental Protection Agency and U. S. Army Corps of Engineers. IV-4 to IV-19.
- Jones, M. L., J. F. Koonce, and R. O'Gorman. 1993. Sustainability of hatchery-dependent salmonine fisheries in Lake Ontario: the conflict between predator demand and prey supply. *Trans. Amer. Fish. Soc.* 122: 1022-1028.
- Koonce, J. F. and B. F. Hobbs. 1994. Climate change and the health of the Great Lakes Ecosystem. In Ryan, C. M, F. H. Quinn, and M. J. Donahue [eds.]. Research Priorities for Assessing the Impacts of Climate Change in the Great Lakes Basin. National Oceanic and Atmospheric Administration. p. 36-53.
- Dochoda, M. R. and J. F. Koonce. 1994. A perspective on progress and challenges under a joint strategic plan for management of Great Lakes Fisheries. *Univ. Toledo Law Review* 25: 425-442.
- Koonce, J. F. 1994. The State of Aquatic Community Health of the Great Lakes. Working paper for the US/Canada State of the Lakes Ecosystem Conference. U.S. Environmental Protection Agency, Great Lakes National Program Office. Chicago, IL.
- Koonce, J. F., W-D. N. Busch, T. Chapla. 1996. Restoration of Lake Erie: Contribution of Water Quality and Natural Resource Management. *Can. J. Fish. Aquat. Sci.* 53 (Suppl 1): 105-112.
- Koonce, J. F., V. Cairns, A. Christie, D. Dodge, A. Hamilton, H. Lickers, B. McHattie, D. Roseboom, and C. Wooley. 1996. A commentary on the role of institutional arrangements in the protection and restoration of habitat in the Great Lakes. *Can. J. Fish. Aquat. Sci.* 53 (Suppl. 1): 458-465.
- Koonce, J. F., C. K. Minns, and H. A. Morrison. 1998. Aquatic Biodiversity Investment Areas in the Great Lakes Basin. SOLEC 1998 Background Report. U.S. EPA and Environment Canada. URL: <http://129.22.156.152/ABIA/Report.htm>
- Locci, A. B. and J. F. Koonce 1999. A theoretical analysis of food web constraints on walleye dynamics in Lake Erie. In, Munawar, M. T. Edsall, and M. F. Munawar. *State of the Lake Erie Ecosystem*. Backhuys Publ., Leiden, Netherlands., p. 397-416.
- Koonce, J. F., A. B. Locci, and R. L. Knight. 1999. Contributions of Fishery Management to Changes in Walleye and Yellow Perch Populations of Lake Erie. In Taylor, William W. and Ferreri, C. Paola [eds]. *Great Lakes Fisheries Policy and Management: A Binational Perspective*. Michigan State University Press. East Lansing, MI. p. 497-510.
- Koonce, J. F. 1999. Reflections on the challenges of the ecosystem approach: a remembrance of Jack Christie. *Aq. Ecosys. Health Man.* 2: 223-227.
- Bloczynski, J. A., W. T. Bogart, B. F. Hobbs, and J. F. Koonce. 2000. Irreversible Investment in Wetlands Preservation: Making Optimal Decisions Under Uncertainty. *Environmental Management*, 26: (2) 175-193.
- Anderson, R. M., B. F. Hobbs, J. F. Koonce, and A. B. Locci. 2001. Using decision analysis to choose phosphorus targets for Lake Erie. *Environ. Man.* 27(2): 235-252.