

MARK S. BEVELHIMER
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Education:

B.A., Biology - Wabash College (Crawfordsville, IN), 1979

M.S., Zoology - The Ohio State University (Columbus), 1983

Thesis title: *Assessing the significance of physiological differences among three esocids with a bioenergetics model.*

Ph.D., Ecology - The University of Tennessee (Knoxville), 1990

Dissertation title: *Habitat selection by kokanee salmon and smallmouth bass in thermally heterogeneous environments: The importance of growth maximization to diel habitat shifts.*

Employment History:

2006-present: Research Staff Member/Group Leader, Environmental Sciences Division, ORNL.

1997-2006 Research Staff Member, Environmental Sciences Division, ORNL.

1993-1996: Research Associate, Environmental Sciences Division, ORNL.

1990-1993: Scientist II, Automated Sciences Group, Inc. (on assignment at ORNL).

1987-1989: Oak Ridge Associated Universities Graduate Fellow, University of Tennessee/ORNL.

1984-1987: Graduate Teaching/Research Assistant, The University of Tennessee and ORNL.

1982-1984: Work Unit Leader, Division of Wildlife, Ohio Dept. of Natural Resources, Xenia, Ohio.

Qualifications:

I have twenty years experience in aquatic ecology/fisheries biology ranging from basic research to fisheries management to environmental assessment. My work has been a combination of field observation, laboratory experimentation, and computer modeling with a heavy emphasis on quantitative and mathematical analyses. Field experience includes the use of a variety of fish sampling gear to assess fish growth, contaminant accumulation, food habits, movement, and population dynamics. Laboratory investigations include evaluations of physiological and behavioral responses of fish to changes in environmental factors such as temperature and instream cover. Modeling experience includes examining various aspects of fish movement, growth, food consumption, and contaminant uptake. I have extensive experience with the development and use of (1) bioenergetic models to investigate fish growth and movement, (2) individual-based models to evaluate population-level effects, and (3) hydrological models to assess stream flow and temperature interactions. I have contributed to a variety of impact assessments and monitoring plans for relicensing hydropower facilities, contaminated groundwater remediation, and chemical agent neutralization. I have co-written environmental impact assessments and monitoring plans for 20 hydropower facilities and 4 federal installations.

Recent Project Management:

Detection of Rare Species on Military Installations (\$870K – SERDP)

Strobe Lights as Fish Deterrent at Power Plant Intakes (\$250K – EPRI)

Instream Flow Mitigation Assessment (\$150K – DOE Hydropower Program)

Fluctuating Temperature Effects on Fish (\$180K – EPRI)

Cumulative Effects of Multiple Stressors (\$70K – DOE Hydropower Program)

Malad River Trout Population Modeling - (\$120,000 – Idaho Power Company)

White Sturgeon Bioenergetics Model Development - (\$100,000 – Idaho Power Company)

Investigations in Impingement/Entrapment Impacts at Power Plant Intakes (\$150,000 – EPRI)

Water Quality Modeling of TVA Tailwaters - (\$47,000 – TVA)

Selected Publications and Reports:

- Bevelhimer, M.S.**, and J.E. Breck. (accepted). Centrarchid Energetics in: Centrarchid Fishes: Diversity, Biology and Conservation (Editors: S.J. Cooke and D.P. Philipp). Blackwell Scientific Press.
- Bevelhimer, M.S.** (in review). Effectiveness of Instream Flow Mitigation: A Review of Biological Monitoring to Assess Flow Alteration. *Reviews in Fisheries Science*.
- Bevelhimer, M.S.**, and H. I. Jager. 2006. Mitigation effectiveness of instream flow requirements at hydropower dams. Technical report ORNL/TM 2006/89.
- Coutant, C. C., and M. S. **Bevelhimer**. 2005 (in press). Light tags for observing behavior of surface-oriented migrating salmonids. Proceedings of the Fourth Fisheries Bioengineering Symposium. American Fisheries Society Symposium, Bethesda, Maryland.
- Bevelhimer, M.S.**, and C. C. Coutant. 2005. Assessment of dissolved oxygen mitigation at hydropower dams using an integrated hydrodynamic/water quality/fish growth model. Technical report ORNL/TM 2005/188.
- Bevelhimer, M. S.**, and C. C. Coutant. 2003. Impacts of intake flow rate on fish populations and communities. EPRI Tech. Rpt. 1005178. EPRI, Palo Alto, CA.
- Bevelhimer, M.S.** 2002. A bioenergetics model for white sturgeon *Acipenser transmontanus*: Assessing differences in growth and reproduction among Snake River reaches. *J. Applied Ichthyol.* 18:550-556.
- Bevelhimer, M.S.**, H.I. Jager, W. Van Winkle. 2001. Malad River trout model: simulations of the effects of minimum flow, entrainment, and passage. Technical report ORNL/TM-2001/144.
- Bevelhimer, M.S.**, and W.A. Bennett. 2000. Assessing cumulative thermal stress in fish during chronic intermittent exposure to high temperatures. *Environmental Science and Policy* 3:211-216.
- Adams, S.M., M.S. **Bevelhimer**, M.S. Greeley, D.A. Levine, and S.J. Teh. 1999. Ecological risk assessment in a large reservoir: 6. Bioindicators of fish population health. *Environmental Toxicology and Chemistry* 18:628-640.
- Bevelhimer, M.S.**, J.J. Beauchamp, B.E. Sample, and G.R. Southworth. 1997. Estimation of Whole-Fish Contaminant Concentrations from Fish Fillet Data. Risk Assessment Program, Oak Ridge National Laboratory. ES/ER/TM-202.
- Jakus, P.M., M. Downing, M.S. **Bevelhimer**, and J.M. Fly. 1997. Do Sportfish Consumption Advisories Affect Reservoir Anglers' Site Choice? *Agricultural and Resource Economics Review* 26:196-204.
- Bevelhimer, M.S.**, V. Alavian, B. Miller, and G. Hauser. 1997. Modeling Thermal Effects of Operational and Structural Modifications at a Hydropower Facility on a Premier Trout Stream in Southwestern Montana. *WaterPower '97: Proceedings of the International Conference on Hydropower 1997*(1):40-49.
- Jager, H.I., H.E. Cardwell, M.J. Sale, M.S. **Bevelhimer**, C.C. Coutant, and W. Van Winkle. 1997. "Modelling the linkages between flow management and salmon recruitment in rivers." *Ecological Modelling* 103:171-191.
- Bevelhimer, M.S.**, and S.M. Adams. 1996. Assessing Contaminant Distribution and Effects in a Reservoir Fishery. Pages 119-132 in L.E. Miranda and D.R. DeVries, editors. *Multidimensional Approaches to Reservoir Fisheries Management. American Fisheries Society Symposium* 16:119-132.
- Bevelhimer, M. S.** 1996. Relative Importance of Temperature, Food, and Physical Structure to Habitat Choice by Smallmouth Bass in the Field and Laboratory. *Transactions of the American Fisheries Society* 125:274-283.
- Bevelhimer, M.S.** 1995. Recent Advances in Contaminant Assessment Offer Proactive Alternatives for Managing Contaminated Fisheries. *Fisheries* 20(12):6-10.
- Bevelhimer, M. S.** and S. M. Adams. 1993. A Bioenergetics Analysis of Diel Vertical Migration by Kokanee Salmon. *Canadian Journal of Fisheries and Aquatic Sciences* 50:2236-2249.
- Bevelhimer, M. S.**, R. A. Stein, and R. F. Carline. 1985. Assessing Significance of Physiological Differences among Three Esocids with a Bioenergetics Model. *Canadian Journal of Fisheries and Aquatic Sciences* 42:57-69.

Honors and Awards:

ORNL Mentor Award, 2006

Best Student Paper, Annual Meeting of the American Fisheries Society, Anchorage, AK, 1989.

Oak Ridge Associated Universities Graduate Fellowship, 1987-1989.

Univ. of Tenn. Science Alliance Stipend Enhancement Award (1986, 1987, and 1989).

Professional Activities:

Univ. of Tennessee - Adjunct Assistant Professor (Dept. of Forestry, Wildlife, & Fisheries)

Courses taught: Computer Applications in Fisheries Science, 1991

Fisheries Limnology, 1997

Graduate Students mentored:

Brooks A. Fost (Univ of Tenn, MS 2006) – research advisor/committee member

Cheyenna Reber (Univ. W. Florida, MS 2006) – committee member

Will Fields (N. Carolina St Univ, PhD candidate) – committee member

American Fisheries Society, member since 1980.

Publication Awards Committee, Chair, 1999-2000.

Membership Committee, 1997-1999.

Publication Oversight Committee, 1995-1997.

Nominating Committee, Southern Division representative, elected position, 1995.

Southern Division Environmental Concerns Committee, Chairman, 1994-95.

Editorial Board - North American Journal of Fisheries Management, 1993-94.

President, Tennessee Chapter, 1993-94.

Program Co-chairman for Southern Division 1993 Mid-year Meeting.

Ecological Society of America, member