

August 2006

## CURRICULUM VITAE

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### Higher Education:

1967 - 1971      Bachelor of Science in Zoology, University of Nebraska

1971 - 1973      Master of Science in Zoology, Colorado State University

1973 - 1977      Ph.D. in Zoology, University of Nebraska

**Areas of specialization:** Fisheries biology and aquatic ecology

### Awards and Honors:

Awarded best student paper at the 1976 American Fisheries Society National Meeting

Certified Fisheries Scientist - American Fisheries Society

Fellow - American Institute of Fishery Research Biologists

1988/89 Award of Excellence in the Category of Scholarly/Professional Articles - East Tennessee Chapter of the Society for Technical Communication

**Work Experience:** Research staff member since 1977 at Oak Ridge National Laboratory, involved in research and assessment of environmental effects of energy development.

- 2005-Present - U.S. Environmental Protection Agency – Nutrient Criteria Workshop (Office of Water) and acrolein reviews (Environmental Fate and Effects Division, Office of Pesticide Programs)
- 1991-Present - Review and analysis of environmental issues related to hydropower development (fish passage, water quality, and instream flow mitigation) for the U.S. Department of Energy Hydropower Program. Development of biological studies in support of advanced turbine designs for the Advanced Hydropower Turbine System Program. DOE representative to the U.S. Army Corps of Engineers Turbine Working Group.
- 1984-Present - Technical support to the Federal Energy Regulatory Commission's Office of Energy Projects for the analysis of impacts to aquatic resources of hydropower development, including the Comprehensive Water Resources Analysis of the Upper San Joaquin River Basin, California (1984-85), cumulative impacts of multiple hydropower developments in the Owens River basin, California (1985-86), environmental effects of nationwide hydroelectric development associated with the Electric Consumers Protection Act (1987-88), cumulative impacts assessment of hydropower developments in the Nooksack and Skagit river basins (1991-1997), Snake River Anadromous Fish Review (1998-2000), environmental effects of the Warm and Clearwater Creek and North Umpqua projects (1998-2003) and environmental assessments related to the Keowee-Toxaway, Catawba-Wateree, and Lake Dorothy Hydroelectric Projects (2006).
- 1996-1997 - Served on the Scientific Advisory Board for the 3rd International Conference on Reservoir Limnology and Water Quality, Ceske Budejovice, Czech Republic, August 11-15, 1997.
- 1992-1994 - Critical review of the effects of water velocity on the survival of juvenile salmon and steelhead in the Columbia River Basin for the Northwest Power Planning Council.
- 1987-1997 - Technical support to the U.S. Nuclear Regulatory Commission in the analysis of impacts to aquatic resources from license renewal of nuclear power plants.
  - Technical support to U.S. Department of Energy's Office of NEPA Oversight, including document review, development of regulatory guidance documents and facility audit protocols, and leadership of NEPA components of DOE Tiger Teams.

- 1982-1985 - Principal Investigator on a U.S. Department of Energy research project to validate biological assumptions of instream flow habitat models in southern Appalachian trout streams.
- 1981-1982 - Group Leader, Environmental Fate and Effects Studies of the H-Coal Synthetic Fuel Pilot Plant.
- 1979-1981 - Principal Investigator in charge of fish entrainment research utilizing the Power Plant Simulator.
- 1980-1981 - Consultant to the U.S. Agency for International Development to develop site selection methodologies to minimize environmental impacts of small-scale hydroelectric development in Peru.
- 1978-1981 - Design of and participation in field and laboratory studies of ichthyoplankton in the Clinch River, Tennessee.
- 1977-1979 - Preparation of environmental impact statements for proposed nuclear power plants and uranium mining and milling operations; analysis of Clean Water Act 316(a) and (b) demonstrations; written testimony and expert witness on behalf of the Environmental Protection Agency Region II and the Chesapeake Bay Foundation.
- 1976 - 1977 - Graduate Teaching Assistant in Ichthyology and Limnology courses, University of Nebraska.
- 1973 - 1977 - Designed and conducted a field study to assess the effects of two nuclear power plants on ichthyoplankton in the Missouri River, Nebraska.
  - Collection of water samples, plankton, and benthos from man-made reservoirs in Nebraska as well as the subsequent identification and enumeration of phytoplankton.
- 1971 - 1973 - Conducted a study to determine the changes in diversity and composition of the benthic macroinvertebrate communities of the Cache la Poudre River, Colorado, resulting from changes in elevation as well as inputs of domestic sewage and agricultural runoff.
- 1969 - 1971 - Participated in field sampling and water chemistry analyses for a eutrophication study of Great Plains reservoirs.

## SELECTED PUBLICATIONS

- Cada, G. F. 1973. The spatial and temporal distribution of the aquatic macroinvertebrate fauna of the Cache la Poudre River, Colorado. M.S. Thesis, Department of Zoology and Entomology, Colorado State University, Fort Collins, Colorado.
- Cada, G. F. 1977. The entrainment of larval fishes at two nuclear power plants on the Missouri River in Nebraska. Ph.D. Dissertation, School of Life Sciences, University of Nebraska, Lincoln, Nebraska.
- Cada, G. F. and G. L. Hergenrader. 1978. An assessment of sampling mortality in larval fishes. *Transactions of the American Fisheries Society* 107(2):269-274.
- Cada, G. F. and A. T. Szluha. 1979. A biological evaluation of devices used for reducing entrainment and impingement losses at thermal power plants. p. 181-214 IN *Proceedings of the International Symposium on the Environmental Effects of Hydraulic Engineering Works*. E. E. Driver and W. O. Wunderlich (eds.). Tennessee Valley Authority, Knoxville, Tennessee. 494 p.
- Cannon, J. B., G. F. Cada, K. K. Campbell, D. W. Lee, and A. T. Szluha. 1979. Fish protection at steam-electric power plants: Alternative screening devices. ORNL/TM-6472, Oak Ridge National Laboratory, Oak Ridge, Tennessee. 142 p.
- Suffern, J. S., K. D. Kumar, and G. F. Cada. 1979. Investigation of entrainment stresses using a power plant simulator (EPRI Project RP 1183-1). Task I Topical Report. Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- Adams, S. M., H. A. McLain, D. S. Vaughan, G. F. Cada, K. D. Kumar, and S. G. Hildebrand. 1979. Analysis of Prairie Island Nuclear Generating Station - intake-related studies. Final Report to the Minnesota Pollution Control Agency, Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- Adams, S. M., G. F. Cada, and P. Kanciruk. 1979. Review, evaluation, and analysis of Section 316(b) thermal demonstration and cooling system intake issues for the Muskingum River Power Plant. Report to the Environmental Protection Agency Region V. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 75 p.
- U. S. Nuclear Regulatory Commission. 1979. Draft Environmental Statement Related to the Construction of New England Power Units 1 and 2 (NEP 1 & 2). Docket Nos. STN 50-568 and STN 50-569. NUREG-0529 Washington, D.C.
- Cada, G. F., J. B. Cannon, and D. W. Lee. 1979. Alternative screening devices at Indian Point Units 2 and 3, Bowline Point, and Roseton generating stations. Joint Testimony presented before the United State Environmental Protection Agency, Region II, in the Matter of Adjudicatory Hearing Docket No. c/ii-WP-77-01. 29 p. + appendix.
- U. S. Nuclear Regulatory Commission. 1979. Final Environmental Statement Related to the Operation of Shooter Canyon Uranium Project, Plateau Resources, Ltd. Docket No.

40-8698. NUREG-0583. Washington, D.C.

- U. S. Agency for International Development (AID). 1980. Small hydroelectric development in Peru. AID Project Paper, September, 1980. 93 pp. + 2 annexes.
- Cada, G. F. and F. Zadroga. 1980. Environmental issues and site selection criteria for small hydro power in developing countries. Final Report to the National Rural Electric Cooperative Association, Washington, D.C.
- Cada, G. F., J. M. Loar, and K. D. Kumar. 1980. Diel patterns of ichthyoplankton length-density relationships in upper Watts Bar Reservoir, Tennessee. p. 79-90 IN Proceedings of the Fourth Annual Larval Fish Conference. L. A. Fuiman (ed.). National Power Plant Team. U.S. Fish and Wildlife Service, Ann Arbor, Michigan. FWS/OBS-80/43. 179 p.
- Cada, G. F. and G. L. Hergenrader. 1980. Natural mortality rates of freshwater drum larvae in the Missouri River. Transactions of the American Fisheries Society 109(5):479-483.
- Cada, G. F., J. S. Suffern, K. D. Kumar, and J. A. Solomon. 1981. Investigation of entrainment mortality among larval and juvenile fishes using a power plant simulator. p. 111-122 IN Issues Associated with Impact Assessment. Proceeding of the Fifth National Workshop on Entrainment and Impingement. L. D. Jensen (ed.). Ecological Analysts, Inc., Sparks, Maryland. 307 p.
- Cada, G. F. 1981. Section 5.3 Environmental Fate and Effects. p. 92-95 IN Life Sciences Synthetic Fuels Semiannual Progress Report for the period ending June 30, 1981. K.E. Cowser (ed.), ORNL/TM-7026. Oak Ridge National Laboratory, Oak Ridge, TN. 213 pp.
- Cada, G. F. and F. Zadroga. 1981. Environmental issues and site selection criteria for small hydropower projects in developing countries. ORNL/TM-7620. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 47 p.
- Cada, G. F., J. A. Solomon, and J. M. Loar. 1981. Effects of sublethal entrainment stresses on the vulnerability of juvenile bluegill sunfish to predation. ORNL/TM-7801. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 34 p.
- Cada, G. F. and J. M. Loar. 1981. Section 1.6.6 Ichthyoplankton. p. 213-244 IN Ecological studies of the biotic communities in the vicinity of the Oak Ridge Gaseous Diffusion Plant. J. M. Loar (ed.). ORNL/TM-6714. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 329 p.
- Loar, J. M. and G. F. Cada. 1981. Section 1.7 Synthesis. p. 245-250 IN Ecological studies of the biotic communities in the vicinity of the Oak Ridge Gaseous Diffusion Plant. J. M. Loar (ed.). ORNL/TM-6714. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 329 p.

- Loar, J. M., J. A. Solomon, and G. F. Cada. 1981. Technical background information for the ORNL Environmental and Safety Report. Volume 2. A description of the aquatic ecology of White Oak Creek watershed and the Clinch River below Melton Hill Dam. ORNL/TM-7509/V2. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 198 p.
- Cada, G. F., K. D. Kumar, J. A. Solomon, and S. G. Hildebrand. 1981. Analysis of environmental issues related to small-scale hydroelectric development. VI. Dissolved oxygen concentrations below operating dams. ORNL/TM-7887. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 90 p.
- Cada, G. F., J. B. Cannon, and D. W. Lee. 1982. Alternative screening devices at Indian Point Units 2 and 3, Bowline Point, and Roseton generating stations. Chapter IV IN Impingement Impact Analyses, Evaluations of Alternative Screening Devices, and Critiques of Utility Testimony Relating to Density-Dependent Growth, the Age-Composition of the Striped Bass Spawning Stock, and the LMS Real-Time Life Cycle Model. ORNL/NUREG/TM-385/V2. Oak Ridge National Laboratory, Oak Ridge, Tennessee.
- Cada, G. F., C. W. Gehrs, S. E. Herbes, C. P. Allen, J. L. Forte, P. J. Franco, W. K. Roy, A. J. Stewart, and K. L. Daniels. 1982. Section 5.4 Environmental Fate and Effects. p. 39 IN Life Sciences Synthetic Fuels Semiannual Progress Report for the Period Ending December 31, 1981. K. E. Cowser (ed.) ORNL/TM-8229. Oak Ridge National Laboratory, Oak Ridge, TN.
- Cada, G. F. and P. J. Mulholland [preparers (ORNL)]. 1982. Guidance manual for Department of Energy compliance with Corps of Engineers permits on dredging and filling activities. DOE/EP-0060. U.S. Department of Energy, Office of Environmental Compliance, Washington, D.C. 17 p.
- Hergenrader, G. L., L. G. Harrow, R. G. King, G. F. Cada, and A. B. Schlesinger. 1982. Larval fishes in the Missouri River and the effects of entrainment. Chapter 8 IN The middle Missouri River. A collection of papers on the biology with special reference to power station effects. L. W. Hesse, G. L. Hergenrader, H. S. Lewis, S. D. Reetz, and A. B. Schlesinger (eds.). The Missouri River Study Group. Norfolk, Nebraska. 301 p.
- Cada, G. F., J. A. Solomon, and K. D. Kumar. 1982. Investigation of entrainment stresses using a power plant simulator. ORNL/TM-7869. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 91 p.
- Cada, G. F. and F. Zadroga. 1982. Small-scale hydroelectric power for developing countries: Methodology of site selection based on environmental issues. Environmental Conservation 9(4):329-337.
- Cada, G. F. 1982. Environmental studies of materials from the H-Coal Liquefaction Process Development Unit. ORNL/TM-8466. Oak Ridge National Laboratory, Oak Ridge, Tennessee. 43 p.

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- Loar, J. M., M. J. Sale, G. F. Cada, P. Kanciruk, G. K. Eddlemon, J. L. Elmore, R. M. Cushman, J. A. Solomon, and D. K. Cox. 1983. Assessing stream flows for the protection of fishery resources: A field evaluation of existing methods in southern Appalachian trout streams. Interim Report to U.S. Department of Energy, Washington, D.C.
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- Reed, R. M., J. W. Webb, and G. F. Cada. 1984. Siting energy projects: The need to consider cumulative impacts. p. 320-328 IN *Proceedings of Facility Siting and Routing '84 - Energy and Environment*. Banff, Alberta. 716 p.
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- Cada, G. F. 1985. Water Chemistry. Section 3.3 IN *Application of Habitat Evaluation Models in Southern Appalachian Trout Streams*. J.M. Loar (ed.). ORNL/TM-9323. Oak Ridge National Laboratory, Oak Ridge, TN. 310 pp.
- Cada, G. F. 1985. Macroinvertebrate Sampling. Section 3.4 IN *Application of Habitat Evaluation Models in Southern Appalachian Trout Streams*. J.M. Loar (ed.). ORNL/TM-9323. Oak Ridge National Laboratory, Oak Ridge, TN. 310 pp.
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- Vaughan, D. S., G. F. Cada, L. M. Loar, A. J. Gatz, R. M. Cushman, P. Kanciruk, and J. A. Solomon. 1985. Data Analysis. Section 3.6 IN *Application of Habitat Evaluation Models in Southern Appalachian Trout Streams*. J.M. Loar (ed.). ORNL/TM-9323. Oak Ridge National Laboratory, Oak Ridge, TN. 310 pp.
- Cada, G. F., J. M. Loar, P. Kanciruk, D. S. Vaughan, J. L. Elmore, and A.J. Gatz. 1985. Fish

Population Studies. Section 4.3 IN Application of Habitat Evaluation Models in Southern Appalachian Trout Streams. J.M. Loar (ed.). ORNL/TM-9323. Oak Ridge National Laboratory, Oak Ridge, TN. 310 pp.

Sale, M. J., J. M. Loar, A. J. Gatz, and G. F. Cada. 1985. Habitat Versus Trout Relationships. Section 4.5 IN Application of Habitat Evaluation Models in Southern Appalachian Trout Streams. J.M. Loar (ed.). ORNL/TM-9323. Oak Ridge National Laboratory, Oak Ridge, TN. 310 pp.

Sale, M. J., J. M. Loar, and G. F. Cada. 1985. Conclusions and Recommendations. Section 5 IN Application of Habitat Evaluation Models in Southern Appalachian Trout Streams. J.M. Loar (ed.). ORNL/TM-9323. Oak Ridge National Laboratory, Oak Ridge, TN. 310 pp.

Coutant, C. C. and G. F. Cada. 1985. Analysis and development of a project evaluation process. DOE/BP-391. Bonneville Power Administration, Portland, Oregon. 149 p.

McLean, R. B., D. E. Evans, G. F. Cada, C. H. Petrich, and R. M. Reed. 1985. Determination of the effects of multiple small-scale hydroelectric projects on resources in a California river basin: A matrix approach. p. 1736-1745 IN Waterpower '85 - Proceedings of an International Conference on Hydropower. Las Vegas, NV.

Cada, G. F., and M. Kenna. 1985. Effectiveness of hydrotreatment in reducing the toxicity of a coal liquefaction product to juvenile channel catfish. Bulletin of Environmental Contamination and Toxicology 34(5):746-753.

Hildebrand, S. G., M. J. Sale, G. F. Cada, and J. M. Loar. 1985. National perspective on environmental constraints to hydroelectric development. p. 301-303 IN Perspectives on Nonpoint Source Pollution. Proceedings of a National Conference. EPA 440/5-85-001. U.S. Environmental Protection Agency. Washington, D.C.

Cada, G. F. and R. B. McLean. 1985. An approach for assessing the impacts on fisheries of basin-wide hydropower development. p. 367-372 IN Proceedings of the Symposium on Small Hydropower and Fisheries. F. W. Olson, R. G. White, and R. H. Hamre (eds.) American Fisheries Society, Bethesda, Maryland. 497 p.

Loar, J. M., M. J. Sale, and G. F. Cada. 1986. Instream flow needs to protect fishery resources. p. 2098-2105 IN Water Forum '86: Water Issues in Evolution. M. Karamouz and G. R. Baumli (eds.), American Society of Civil Engineers, New York, NY.

Cada, G. F. 1986. Characterization of fish and benthic invertebrates of Melton Branch, Oak Ridge Reservation. SWSA-7 Report, Oak Ridge National Laboratory, Oak Ridge, TN. 15 pp.

Gatz, A. J., Jr., J. M. Loar, and G. F. Cada. 1986. Effects of repeated electroshocking on instantaneous growth of trout. North American Journal of Fisheries Management 6(2):176-182.

Federal Energy Regulatory Commission. 1986. Owens River Basin: Seven hydroelectric

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- Cada, G. F., R. M. Reed, and J. W. Webb. 1987. Review of other federal agency regulations and guidance on NEPA implementation procedures. Report to Office of NEPA Project Assistance, U.S. Department of Energy, Washington, D.C. 87 pp.
- Cada, G. F., J. M. Loar, and D. K. Cox. 1987. Food and feeding preferences of rainbow and brown trout in southern Appalachian streams. *American Midland Naturalist* 117:374-385.
- Cada, G. F. 1987. Wild Trout III (book review). *Transactions of the American Fisheries Society* 116(1):129-130.
- Kondolf, G. M., G. F. Cada, and M. J. Sale. 1987. Assessing flushing-flow requirements for brown trout spawning gravels in steep streams. *Water Resources Bulletin* 23(5):927-935.
- Cada, G. F., J. M. Loar, and M. J. Sale. 1987. Evidence of food limitation of rainbow and brown trout in southern Appalachian softwater streams. *Transactions of the American Fisheries Society* 116(5):692-702.
- Hildebrand, S. G. and G. F. Cada. 1988. Case studies defining environmental issues for nonfederal hydroelectric development in the United States. Phase III Report to the International Hydroelectric Programme of the United Nations Educational Scientific and Cultural Organization (UNESCO).
- U. S. Department of Energy. 1988. NEPA Compliance Guide - guidance manual for DOE compliance with the National Environmental Policy Act and other federal environmental statutes. Office of NEPA Project Assistance, DOE, Washington, D.C.
- U. S. Department of Energy. 1988. Environmental Assessment of the Underground Coal Gasification Clean Fuels Proof-of Concept project. DOE/EA-0342. Washington, D.C.
- Federal Energy Regulatory Commission. 1988. PURPA benefits at new dams and diversions - final staff report evaluating environmental and economic effects. Docket No. EL87-9. Office of Hydropower Licensing, FERC, Washington, D.C.
- Federal Energy Regulatory Commission. 1988. Environmental Report related to regulations governing bidding programs (Docket No. RM88-5-000) and regulations governing independent power producers (Docket No. RM88-4-000). FERC, Washington, D.C. 42 pp. + appendices.
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- Cada, G. F. 1990. Assessing fish mortality rates. *Hydro Review* 9:52-60.
- Cada, G. F. and C. T. Hunsaker. 1990. Cumulative impacts of hydropower development:

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## SELECTED PRESENTATIONS

- Cada, G. F. An assessment of sampling mortality in larval fishes. Presented at the 106th Annual Meeting of the American Fisheries Society, Detroit, Michigan, September, 1976.
- Cada, G. F. and A. T. Szluha. 1979. A biological evaluation of devices used for reducing entrainment and impingement losses at thermal power plants. Presented at the International Symposium on the Environmental Effects of Hydraulic Engineering Works, Knoxville, Tennessee, September 13, 1978.
- Cada, G. F. Natural mortality rates among larval freshwater drum, Aplodinotus grunniens, in the Missouri River. 109th Annual Meeting of the American Fisheries Society, West Yellowstone, Montana, September, 1979.
- Cada, G. F., J. M. Loar, and K. D. Kumar. Diel patterns of ichthyoplankton length-density relationships in upper Watts Bar Reservoir, Tennessee. Fourth Annual Larval Fish Conference, Oxford, Mississippi, February 27, 1980.
- Cada, G. F., J. S. Suffern, K. D. Kumar, and J. A. Solomon. Investigation of entrainment mortality among larval and juvenile fishes using a power plant simulator. Fifth National Workshop on Entrainment and Impingement, San Francisco, California, May 6, 1980.
- Cada, G. F. (with J. M. Loar, M. J. Sale, and R. M. Cushman). Workshop on the Environmental Effects of Small Hydropower Development. Presented to U. S. Environmental Protection Agency, Region V, Chicago, Illinois, May 10-11, 1983.
- Cada, G. F. and M. Kenna. Effectiveness of product upgrading in reducing the toxicity of synthetic H-Coal oil to juvenile channel catfish. 113th Annual Meeting of the American Fisheries Society, Milwaukee, Wisconsin, August 19, 1983.
- Cada, G. F., M. J. Sale, R. M. Cushman, and J. M. Loar. Field test of a biological assumption of instream flow models. Waterpower '83, Knoxville, Tennessee, September 21, 1983.
- Cada, G. F., and R. B. McLean. An approach of assessing fisheries impacts of basin-wide hydropower development. Symposium on Small Hydropower and Fisheries, Denver, Colorado, May 2, 1985.
- Cada, G. F., J. M. Loar, D. K. Cox, and M. J. Sale. Evidence of food limitation in trout populations of southern Appalachian softwater streams. 115th Annual Meeting of the American Fisheries Society, Sun Valley, Idaho, September 10, 1985.
- Cada, G. F., J. M. Loar, and D. K. Cox. Feeding preferences of rainbow and brown trout in southern Appalachian softwater streams. 71st Annual Meeting of the Ecological Society of America, Syracuse, New York, August 12, 1986.

- Cada, G. F., and C. T. Hunsaker. Assessment of cumulative impacts for hydropower development. 1988 Annual Conference of the National Association of Environmental Professionals, Orlando, Florida, April 21, 1988.
- Cada, G. F. The value of reference sites for assessing disturbance and recovery of impacted headwater streams. 1988 Annual Conference of the National Association of Environmental Professionals, Orlando, Florida, April 21, 1988.
- Cada, G. F. and L. L. Sigal. NEPA compliance auditing. 1990 Annual Conference of the National Association of Environmental Professionals, San Antonio, Texas, June 21, 1990.
- Cada, G. F. Effects of hydroelectric turbine passage on fish early life stages. National Meetings of (1) the Ecological Society of America, Snowbird, Utah, July 30, 1990; (2) the American Fisheries Society, Pittsburgh, Pennsylvania, August 28, 1990; and (3) Waterpower '91, Denver, Colorado, July 26, 1991.
- Cada, G. F. DOE hydropower mitigation study: A review of mitigation methods. Presented at (1) Eleventh Annual Conference of the Northwest Hydroelectric Association, Bellevue, Washington, January 30, 1992; (2) EPA/TVA Workshop on NonPoint Source Pollution, Knoxville, Tennessee, February 20, 1992; and (3) BUREC/COE Acoustical Workshop, Sacramento, California, March 17, 1992.
- Cada, G.F. and J.E. Francfort. Environmental requirements at hydroelectric power projects. Presented at the Symposium on Alternate Fuels and the Environment, 1993 National Meeting of the American Chemical Society, Denver, Colorado, March 30, 1993.
- Cada, G.F. Use of rapid bioassessment approaches to examine benthic macroinvertebrate responses to hydropower flow diversions. Presented at the Special Session on Biotic Indicators of Ecosystem Health: Perspectives towards a National Framework for Indicators Development, 41st Annual Meeting of the North American Benthological Society, Alberta, Canada, May 28, 1993.
- Cada, G.F. and D.W. Jones. Benefits of fish passage and protection measures at hydroelectric projects. Waterpower '93, Nashville, Tennessee, August 11, 1993.
- Cada, G.F. Benefits of fish passage facilities at hydroelectric projects: A case study analysis. 13<sup>th</sup> Annual Conference of the Northwest Hydroelectric Association, Seattle, Washington, February 2, 1994.
- Cada, G.F. and J.E. Francfort. Costs and benefits of fish passage and protection measures. HydroVision '94 Conference, Phoenix, Arizona, August 19, 1994.
- Cada, G.F. An examination of the benefits of fish passage mitigation at sixteen hydroelectric projects. 124th Annual Meeting of the American Fisheries Society, Halifax, Nova Scotia, August 25, 1994.
- Cada, G.F. Fish passage mitigation of impacts from hydroelectric power projects in the United States. International Conference on Fish Migration and Fish Bypass-Channels,

Vienna, Austria, September 25, 1996.

- Cada, G.F., J.E. Francfort, B.N. Rinehart, M.J. Sale, and G.L. Sommers. Hydroelectric power generation: Mitigating the fish passage impacts. 17th Annual Meeting of the International Association for Impact Assessment, New Orleans, Louisiana, May 29, 1997.
- Cada, G.F. Shaken, not stirred: The recipe for a fish-friendly turbine. Waterpower '97, Atlanta, Georgia, August 6, 1997.
- Cada, G.F. Efforts to reduce the impacts of hydroelectric power production on reservoir fisheries in the United States. 3rd International Conference on Reservoir Limnology and Water Quality, Ceske Budejovice, Czech Republic, August 15, 1997.
- Cada, G.F. Guidance and test criteria for shear and turbulence. DOE Advanced Hydropower Turbine System Program Technical Committee Meeting, Waterways Experiment Station, Vicksburg, Mississippi, February 24, 1998.
- Cada, G.F. Exploring the role of shear stress and severe turbulence in downstream fish passage. Waterpower '99. Las Vegas, Nevada, July 9, 1999.
- Cada, G.F. U.S. Department of Energy=s Advanced Hydropower Turbine System Program. Turbine Passage Survival Workshop. Portland, Oregon, June 14, 2000.
- Cada, G.F. What=s going on in there? Efforts to describe the experiences of turbine-passed fish. Waterpower XII. Salt Lake City, Utah, July 11, 2001.
- Cada, G.F. and J. Busey. Using pressure-sensitive film to quantify water pressures, mechanical strike, and shear stresses experienced by fish. 132<sup>nd</sup> Annual Meeting of the American Fisheries Society/Fourth Bioengineering Symposium. Baltimore, Maryland, August 18-22, 2002.
- Cada, G.F. Laboratory studies to specify biological criteria for turbine design. 134<sup>th</sup> Annual Meeting of the American Fisheries Society, Madison, Wisconsin, August 22-26, 2004.
- Cada, G.F., M.J. Sale, T. Carlson, F. Sotiropoulos, and B. Smith. Characterizing turbulence and its biological effects at hydroelectric power plants. 5<sup>th</sup> International Symposium on Ecohydraulics, Madrid, Spain, September 12-17, 2004.
- Cada, G.F. Fish passage research by the U.S. Department of Energy. USFWS/USGS Workshop on Future Fish Passage Management and Research Needs, Hadley, Massachusetts, December 7-8, 2004.
- Cada, G.F. and E. Meyer. Characterizing natural streams. Hydrokinetic and Wave Energy Technologies Technical and Environmental Issues Workshop, Washington, DC, October 26-28, 2005.
- Cada, G.F. Environmental performance of advanced turbines. Workshop on Advanced Turbine Research and Deployment. Albany, New York, November 15, 2005.

Cada, G.F. Developing biocriteria to ensure safe fish passage. Symposium on Optimizing Dam Operations for Fish and for Power. HydroVision 2006 Conference, Portland, Oregon, July 31, 2006.

## OTHER PROFESSIONAL ACTIVITIES

Member, U.S. Department of Energy Advanced Hydropower Turbine Systems Program Technical Committee (1994-present)

Member, U.S. Army Corps of Engineers Turbine Working Group (1995-present)

Member, U.S. Office of Technology Assessment Advisory Panel on Technology to Protect Fish at Dams (1995)

Member, Entrainment Review Team, Office of Hydropower Licensing, Federal Energy Regulatory Commission (1995)

Member of the Advisory Board for the 3<sup>rd</sup> International Conference on Reservoir Limnology and Water Quality. Ceske Budejovice, Czech Republic, August 11-15, 1997.

Technical Papers Session Leader, Waterpower >99, Las Vegas, NV.

Technical Papers Session Leader, HydroVision 2000, Charlotte, NC.

Chairman, Fish Passage Symposium  $\Delta$ In Search of the Northwest Fish Passage: Resolving Mitigation Issues with Hardware, Technology, and Computer Models.@ HydroVision 2002, Portland, OR, July 29-August 2, 2002.

Technical Papers Session Leader, 2002 Annual Meeting of the American Fisheries Society, Baltimore, MD.

Editor, English translation of the Russian book  $\Delta$ Downstream Migration of Fish Through Dams of Hydroelectric Power Plants,@ by D.S. Pavlov, A.I. Lupandin, and V.V. Kostin. (2002).

Member, HydroVision 2006 Technical Committee.

Member, Scientific Peer Review Group, Independent Scientific Review Panel for the Northwest Power and Conservation Council, Portland, OR. (2006).