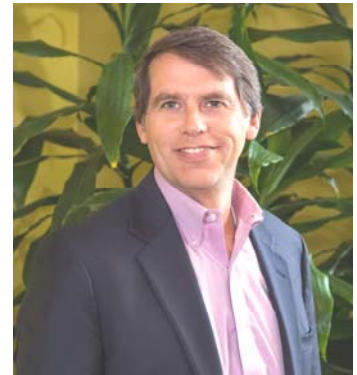


## DAVID M. LODGE

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<http://environmentalchange.nd.edu/>

**PERSONAL:** U.S. Citizen; Born 1 April 1957; married, three children.

**EDUCATION:** D. Phil., 1982, University of Oxford (Rhodes Scholarship);  
B.S.; 1979, The University of the South, Sewanee, Tennessee (*Summa cum Laude*,  
with Honors in Biology).



**POSITIONS:** Ludmilla F., Stephen J., and Robert T. Galla Professor of Biological Sciences, University of Notre Dame (2011-); Director, Notre Dame Environmental Change Initiative (2010-); Director, Center for Aquatic Conservation (2006-2012); Interim Director, GLOBES NSF IGERT (2008/09); Professor, Department of Biological Sciences, University of Notre Dame (1998-present); Steering Committee member, ND Advanced Diagnostics & Therapeutic Initiative; Sabbatical Fellow, National Center for Ecological Analysis and Synthesis, Santa Barbara, CA (8/04-6/05); Fellow, U Notre Dame Reilly Center of Science, Technology, and Values (2003-); Fellow, U Notre Dame Kroc Institute for International Peace Studies (1999-2002); Senior Research Officer, Kenya Medical Research Institute, Nairobi, Kenya (Jan-May 1999); Associate Professor, Department of Biological Sciences, University of Notre Dame (1992-1998); Visiting Scientist, Institute of Marine Sciences, University of North Carolina at Chapel Hill (September 1992-July 1993); Assistant Professor, Department of Biological Sciences, University of Notre Dame (1985-1992); Research Associate and Assistant Scientist, Center for Limnology, University of Wisconsin-Madison (1984-85); Lecturer, Department of Zoology, University of Wisconsin-Madison (1983-84).

### ADMINISTRATIVE AND LEADERSHIP EXPERIENCE:

**Director, Notre Dame Environmental Change Initiative (ND-ECI), 2010-** Founding director of ND-ECI (<http://environmentalchange.nd.edu/>), which began with a \$10 million investment from the University of Notre Dame in the spirit of “science serving society.” ND-ECI provides intellectual capital and infrastructure for interdisciplinary teams spearheading innovative research to solve complex environmental problems. In particular, ND-ECI tackles the interrelated problems of invasive species, land use, and climate change, focusing on their synergistic impacts on water resources. The goal of ND-ECI is to provide solutions that minimize the trade-offs between human welfare and environmental health where trade-offs are unavoidable, and to discover win-win solutions where they are possible. Growth has been rapid in infrastructure (including a new experimental field site, a new geospatial analysis laboratory), professional staff, faculty in multiple colleges, external funding, and interdisciplinary research.

**Director, Notre Dame Center for Aquatic Conservation (CAC), 2006-2012.** Founding director of CAC, the mission of which was to promote the application of scientific knowledge to better management of earth’s freshwater resources and freshwater ecosystems. Through competitive graduate fellowship awards in multiple disciplines, CAC built partnerships to enhance the capacity of ecosystems to support the diversity of life and increase human welfare in future generations. CAC has been subsumed into ND-ECI (see above).

**Director (Interim), Global Linkages of Biology, Environment, and Society (GLOBES), 2008-2009.** GLOBES (<http://globes.nd.edu/>) began as a NSF-funded Integrative Graduate Education and Research Training grant. GLOBES brings together the complementary skills of biologists, engineers, environmental and social scientists, public policy experts, lawyers, and religious and community leaders. Collectively they seek innovative and interdisciplinary solutions to a wide range of interrelated problems in environmental and human health.

**Chairperson, Invasive Species Advisory Committee (ISAC), 2000-2001 (member through 2004).** ISAC was established by 1999 Executive Order 13112 to advise the National Invasive Species Council (<http://www.invasivespecies.gov/>). Responsibilities included working with the Science Advisor of the Secretary of the Interior and staff on the strategy to write the National Management Plan; planning agendas for meetings; presiding over meetings of whole committee and subcommittees. The 30 members of ISAC included leading scientists, lobbyists for affected industries, leaders of environmental NGOs, and representatives of state and tribal governments.

**Chairperson, Provost's Task Force on Notre Dame Environmental Education and Research, 2000-2001.** Membership on the task force consisted of 10 faculty representing 4 Notre Dame colleges. During a 10 month effort, the committee evaluated existing Notre Dame environmentally-related undergraduate programs, graduate programs, and research efforts at Notre Dame, and produced a report recommending major changes and improvements, many of which were incorporated into GLOBES, CAC, and ND-ECI.

**Director, College of Science Honors Program, 1988-2000.** Duties for this program for 320 undergraduate students included administration, student recruitment, arranging course offerings, student advising, teaching a Senior Seminar 1/wk each fall (see courses below), social events, giving 1-3 evening seminars per year on various topics (e.g., global changes, mammalian cloning, human population growth). During my tenure, the program grew 50%, and an undergraduate research endowment was started.

**HONORS:** Ecological Society of America, President-Elect (2015/16, President 2016/17, Past-President 2017/18); Jefferson Science Fellow, US Department of State, 8/2014-8/2015; Keynote address, Climate Change Adaptation: Aquatic Invasives and Coastal Restoration Symposium, National University of Singapore, 2/2014; Plenary address, joint meeting of the International Congress on Biological Invasions and the Chinese Society of Plant Protection, 10/2013; Keynote address, Pacific NorthWest Economic Region (PNWER) Annual Symposium, Anchorage, Alaska, 7/2013; International Association of Great Lakes Research 2013 Conference Appreciation Award; Our research on eDNA cited was one of top 15 global conservation issues in the 2013 annual horizon-scanning report from *Trends in Ecology and Evolution* (Sutherland *et al.* 2013. *TREE* 28:16-22); Notre Dame Media Legend Award, 2011; Fellow, American Association of the Advancement of Science, 2010; Wayne Carmichael annual lecture in Environmental Sciences, Wright State University, 5/11; Plenary speaker on ecological disasters, annual meeting of the Ecological Society of America, 8/10; Keynote, International Association of Astacologists, 7/10; Keynote, annual meeting of the Canadian Aquatic Invasive Species Network, 5/10; Keynote, Symposium on Role of Littoral Processes in Lake Ecology, German Center for Research Excellence, U. Konstanz, 1/10; Keynote, 21<sup>st</sup> annual USDA Interagency Research Forum on Invasive Species, 1/10; Plenary speaker, International Conference on Aquatic Invasive Species, 4/09; Keynote, European Union meeting on Managing Alien Species for Sustainable Development, Florence, Italy, 11/08; Keynote, International Workshop and Training Course on Invasive Species, Wuhan, China, 10/08; Keynote, Ohio State University-Ohio Department of Natural Resources Symposium, 2/08; Keynote, USDA PREISM program workshop, Washington, D.C., 10-07; Keynote, Michigan State University symposium on the economics of invasive species, 10-07; ISI Highly Cited researcher in Ecology/Environment 2007; Keynote, Florida Pest Plant Council, 5/07; Keynote, Michigan State University Dept of Fisheries and Wildlife Graduate Student Research Symposium, 2/07; Plenary speaker, Ecological Society of America meeting on Trade and Invasive Species, Mexico, 1/06; Zayed International Prize for the Environment (shared with all authors from the Millennium Assessment), 2005; Keynote Speaker, EPA-sponsored Economic Impacts of Aquatic Invasive Species Workshop, Washington, D.C., 7/05; Plenary speaker, American Institute of Biological Sciences annual meeting, 3/04; Visiting Fellowship, Victoria (Australia) Department of Sustainable Environment, 10-11/2003; Rilett Lecture (endowed lectureship of Illinois State University), 4/03; Keynote at Invasive Species 2002 meeting (Davis, CA), 6/2002; Keynote speaker at Baylor University Scholar's Day, 2/2002; Plenary speaker at 3<sup>rd</sup> annual Illinois Renewable Natural Resources Conference, 3/2001; Ecological Society of America Aldo Leopold Leadership Fellow (1999); Fulbright Senior Research Award (Kenya), 1998-1999; Research on invading fish was 1 of 162 U.S. "Science Breakthroughs" for 1998 cited in a report to Congress by the Science Coalition; Keynote speaker at Workshop on Population Ecology of Nordic Crayfish Species, Älvkarleby, Sweden, 4/1993; Co-author on one of 10 most cited papers in ecology published between 1987-1989; Distinguished Scholar Lecturer, College of Science, University of Notre Dame, Spring 1992; Guyer Post Doctoral Fellowship, University of Wisconsin-Madison, 1983-84; Rhodes Scholarship (Georgia, 1979), Oxford, England, 1979-1982; Oak Ridge National Laboratory Graduate Fellowship, 1979; Phi Beta Kappa, 1978.

**INTERNATIONAL, NATIONAL, AND STATE SERVICE:** Ecological Society of America, President-Elect (2015/16, President 2016/17, Past-President 2017/18); Jefferson Science Fellow, US Department of State, 8/2014-8/2015; Member, Science Advisory Board, International Joint Commission, 2/2014-2/2016; Member, NOAA Scientific Advisory Board, 2013-2016; Presenter, Illinois Gov. Quinn's meeting on Great Lakes Ports and Regional Growth, 11/2013; Member, Blue Ribbon Panel to review US Fish & Wildlife Service Aquatic Invasive Species Strategic Plan, 2013; International Association of Great Lakes Research, Program Committee (one of four members), 2013 meeting (600+ submissions); Participant, US General Accountability Office review of EPA's Great Lakes Restoration Initiative, 2013; Member, workshop for writing a research plan for EPA on ballast water discharge, 9/12; National Science Foundation DEB panelist, 2012; Expert Scientist, Great Lakes Fisheries Commission

Binational Risk Assessment for Asian Carp, 11/11; USACE eDNA workshop, 11/11; Earth stewardship committee, Ecological Society of America, 2011; Participant, workshop to create Lake Michigan forecasting community, 12/10; Review panel and site visit for NOAA Great Lakes Environmental Research Laboratory, 2010; EPA Scientific Advisory Board committee on Ballast Water Treatment Technologies, 2010-2011; NSERC review panel and site visit for strategic network competition, 7/10; National Resources Defense Council workshop on risk assessment of the Chicago canal, 5/10; NSF-Funded research in Zambia, 2010; Member, Board of Advisors, Greenleaf Advisors (consulting firm connecting enterprises for a sustainable world), 2009-2013; Chair, Advisory Committee to select G. Evelyn Hutchinson Chair, Cary Institute of Ecosystem Studies, 2008; National Science Foundation Nanotechnology Center panel, 1/08; Speaker, Weed Awareness Week symposium, Washington, D.C., 2/08; Indiana Invasive Species Task Force (membership appointed by state legislature), 2007-08; The Nature Conservancy meeting on invasive species policy, Washington, D.C., 1/07; Member, External Review Panel for Invasive Species Research for US Forest Service, 10/06; Member, Committee to Revise the Integrated Science and Education Plan for the National Ecological Observatory (NEON), 2006; Member, The Nature Conservancy's Freshwater Strategy Team, 2005-06; Advisor to Chicago's Mayor Daley on invasive species policy (2006), which resulted in city ordinance banning sale of list of harmful species; Member, Chicago Dept. of the Environment Committee on Invasive Species (2007-); Member, Rhodes Scholar Selection Committee, Chicago, 11/05, 11/06, 11/07; Member, Great Lakes Regional Collaboration Strategy Team (established by Pres. Bush EO, see <http://www.epa.gov/glnpo/collaboration/>), worked on AIS Strategy Team (<http://www.aisstrategyteam.org/>), 2005; Advisor, *National Geographic*, for 2005 article on invasive species; Member, Ecological Society of America Public Affairs Committee, 2005-; Member, Ecological Society of America Rapid Response Team, 2004-; Member, Risk Analysis Working Group, Joint Prevention Committee of national Invasive Species Advisory Committee/Aquatic Nuisance Species Task Force, 2004-; Member, NSF delegation of ecologists to China, 5/04-6/04; Panelist, Illinois-Indiana Sea Grant College Program Assessment Team, 5/04; Participant, workshop to advise The Nature Conservancy on its new Great Lakes Invasive Species Initiative; Participant, Ford Foundation-funded project based at Rice University/Baylor Center for Medical Ethics and Health Policy, "Altering Nature: How Religious Traditions Assess the New Biotechnologies;" Member, Scenarios Working Group of the Millennium Ecosystem Assessment, 2002-2004; Member, NASA Earth Science Vision 2010-2025: Ecosystems, Biosphere & Human-Biosphere Interactions Work Group, 2002; Chairperson, Committee to write Position Paper on Invasive species for Ecological Society of America, 2002-2004; Member, national Invasive Species Advisory Committee, 2002-2003; Chairperson, national Invasive Species Advisory Committee, 1999-2001; Professional Ethics Committee member, ASLO, 1998-2006; Member, ISSG (Invasive Species Specialist Group) of the IUCN (World Conservation Union), 1999-; National Science Foundation, Ecology Program Panelist, 10/91, 4/95, 4/01, 4/02, 4/03; Judge for Regional Final Round of the Siemens-Westinghouse Science & Technology Competition, 1999, 2000; Rhodes Scholarship District V (Great Lakes) Selection Committee, 1997-2002; Kentucky Rhodes Scholar Selection Committee 1994; Illinois Rhodes Scholar Selection Committee, 1991, 1996, 1997; Indiana Rhodes Scholar Selection Committee, 1985, 1986, 1987; Wisconsin Rhodes Scholar Selection Committee, 1983, 1984; "Opponent" for Ph.D. defense, Institute of Limnology, University of Uppsala, Sweden, 4/1993.

#### **LEGISLATIVE, JUDICIAL, AND EXECUTIVE AGENCY TESTIMONY AND BRIEFINGS:**

- Congressional briefing (organized by the Great Lakes caucus) on eDNA, US Capitol, 18 September 2013.
- Great Lakes Summit meetings, White House, 27, 29 January 2012.
- Briefing on eDNA for Assistant Director and staff, US Fish & Wildlife Service, 18 Feb 2011.
- Expert testimony (*pro bono publico*), Federal District Court, Chicago, State of Michigan et al. (plaintiffs) vs. US Army Corps of Engineers et al. (defendants); 9/7/10.
- U.S. Senate Environment and Public Works Committee, Subcommittee on Water and Wildlife, Asian Carp hearing scheduled for 2/25/10, hearing was canceled at the last minute.
- U.S. House Committee on Transportation and Infrastructure, Subcommittee on Water Resources and Environment, hearing on Asian Carp and the Great Lakes, 9 Feb 2010, <http://transportation.house.gov/hearings/hearingDetail.aspx?NewsID=1092>
- Public meeting of the federal Asian Carp Regional Coordinating Committee, Chicago, 12 Feb 2010;
- Bipartisan House staff briefing on Asian carp and Great Lakes, the Capitol building, 9 Feb 2010;
- Briefing for Deputy Administrator of EPA and other federal agency representatives on the Asian Carp on the Asian carp threat to the Great Lakes, Jan 2010;
- U.S. Supreme Court declaration, as part of Appendix to U.S. Memorandum in Opposition [to complaints brought by State of Michigan regarding Asian carp threat to Great Lakes], submitted Dec 2009,

- <http://www.supremecourtus.gov/SpecMastRpt/RecentFilingsinOriginalNos.1,2&3.html>
- Federal Interagency Ocean Policy Task Force hearing, 10/09;
  - House-Senate briefing on H.R.669 and possible companion bill, the Capitol building, 5 May 2009.
  - U.S. House Committee on Natural Resources, Subcommittee on Insular Affairs, Oceans, and Wildlife, legislative hearing on H.R.669 the Nonnative Wildlife Invasion Prevention Act, 23 April 2009, [http://resourcescommittee.house.gov/index.php?option=com\\_jcalpro&Itemid=27&extmode=view&extid=246](http://resourcescommittee.house.gov/index.php?option=com_jcalpro&Itemid=27&extmode=view&extid=246)
  - Indiana House of Representatives Natural Resources Study Committee hearing on invasive species, Aug 2008.
  - U.S. House Committee on Natural Resources, Subcommittee on Fisheries, Wildlife and Oceans, oversight hearing on aquatic nuisance species and the activities of the Aquatic Nuisance Species Task Force, 27 Sept 2007, [http://resourcescommittee.house.gov/index.php?option=com\\_jcalpro&Itemid=54&extmode=view&extid=102](http://resourcescommittee.house.gov/index.php?option=com_jcalpro&Itemid=54&extmode=view&extid=102)
  - U.S House Committee on Transportation and Infrastructure, Subcommittee on Water Resources and Environment, hearing on The Impact of Aquatic Invasive Species in the Great Lakes, March 2007, <http://transportation.house.gov/hearings/hearingdetail.aspx?NewsID=75>
  - U.S. House Committee on Science, Subcommittee on Environment, Technology & Standards, hearing on Research Priorities for Aquatic Invasive Species, June 2002, <http://gop.science.house.gov/hearings/ets02/jun20/lodge.htm>

**OTHER OUTREACH PRESENTATIONS (selected):** Hosted 2-day program for Institutes of Journalism and Natural Resources (25 journalists) at Environmental Change Initiative, 3/2015; Lunchtime presentation to Big 10+ News & Marketing Conference at ND, 6/2014; Welcomed to ND the meeting of the Great Lakes Panel of the national Aquatic Nuisance Species Task Force, 4/2014; Panelist after Rita Colwell presentation at ND, 3/2014; Beijing Royal School, Beijing, China 11/2013; Research Salon, ND Washington Offices, 1/2013; Public Forum on Rusty Crayfish, Boulder Junction, WI, 5/12; Speaker Christian Educators Association, South Bend, Indiana 10/11; Expert Scientist for Asian Carp Institute, Institutes for Journalism & Natural Resources fellowship program, 9/11; Board of Directors, Alliance for the Great Lakes, 11/10; College of Science Advisory Council meeting, 9/10; Institutes of Journalism and Natural Resources 8/10; Rotary Club of Elkhart, IN 6/10; Public symposium on Asian Carp Invasion, Shedd Aquarium, 4/10; Rotary Club of South Bend, IN 2/10; Audio-Powerpoint presentation for Sea Grant program on Great Lakes used “live” for a workshop for 400 teachers and subsequently available on-line for curriculum use by anyone, 1/09; Plenary speaker, Great Lakes Commission Annual Meeting, Quebec City, 10/08; TNC Great Lakes regional fund-raiser, Mackinac Island, 6/08; Indiana-Michigan St. Joseph River Basin Symposium, 6/07; Guest expert, field trip for 15 national journalists organized by the Institutes for Journalism and Natural Resources, 5/07; The Nature Conservancy workshop on management of invasive species, 3/07; Ecological Society of America’s press briefing (National Press Club) on Position Paper on invasive species, 3/06; The Nature Conservancy’s Great Lakes States Director’s meeting, 12/05; Santa Barbara County Science Fair, 11/04; International Joint Commission Symposium on Invasive Species, Ann Arbor, 9/03; Hesburgh Lecture on “Global Environmental Changes,” LaCrosse, WI, 2/03; UND Faculty Tea panel on “Globalization and the Environment,” 12/01; Hesburgh Lecture on “Global Environmental Changes,” UND Club of Eastern North Carolina (at NC State), 4/2001; Hesburgh Lecture on “Science and Religion: Friends, Foes, Complementary, or Just Different,” UND Club of Delaware, 2/2001; Global Environmental Changes, South Bend Audubon Society 1/01; Adult Sunday School teacher on Science and Christianity, 2000; Science and Christian Faith, presentation for InterVarsity Christian Fellowship (St. Mary’s College), 3/1998; UND Global Issues Workshop (for high school students from across the USA), 7/98, 7/00; Perley School presentations, 1997, 1998; Mishawaka school presentation, 1998; Adult Sunday School teacher on Evolution and Christian Faith, 1995; St. Joseph Elementary School presentations, 1994-6; Science Club, Lafayette School, South Bend, IN, 2/1992; Environmental Conference, South Bend, Indiana area high schools, 4/1991, 4/92; Earth Day Fair, South Bend, Indiana, 4/1991; Forever Learning Institute, South Bend, Indiana, 4/1989, 12/1990, 11/92, 10/98.

**EDITORIAL BOARDS:** Guest Editor, *Proceedings of the National Academy of Sciences*, 2008; Editorial Board member, *Biological Invasions*, 2005-2007; Guest Editor for 2003 double special issue of *Worldviews: Environment, Culture, and Religion* (7:1-2) (10 contributed papers from ND conference on “Ecology, Theology, and Judeo-Christian Environmental Ethics); Associate Editor, *Ecological Applications*, 1998-2001; Associate Editor, *Journal of*

*the North American Benthological Society*, 1990-92; Executive Committee member, *American Midland Naturalist*, 1989-2008; Frequent reviewer of tenure and promotion dossiers for various universities; Regularly review articles for *Science*, *Nature*, *PNAS*, *BioScience*, *Ecology* and many other journals, National Science Foundation (Ecology and Ecosystem Program proposals), NOAA Sea Grant (national and WI, OH, IL/IN, MI); review book proposals or manuscripts for various presses.

**SYMPOSIA AND MEETINGS ORGANIZED:** Co-Program Chair for 2013 annual meeting of International Association for Great Lakes Research; Session (co-organizer B. Cudmore, Canadian DFO) for International Conference on Aquatic Invasive Species on "Risk assessment for aquatic invasive species," 4/09; Symposium (co-organizer S. Popper, Rand Corp.) for AAAS Annual Meeting on "Global Trade and the Homogocene: Lessons from the Great Lakes for the World", 2/09; Symposium (co-organizers L. Chadderton, M. Fedora, N. Schmal) for Annual Midwest Fish & Wildlife meeting, "Invasive species spread by recreational boaters: Impacts and prevention strategies", 10/08; Host and Steering Committee member for international expert workshop entitled "Preventing Biological Invasions: Best Practices in Pre-Import Risk Screening for Species of Live Animals in International Trade," to provide requested advice to the Convention on Biological Diversity, 4/08; Organized (with co-organizers Mark Lewis, Jay Shogren) symposium at 2007 ESA meeting, "Ecological and economic theory in analyzing risk in biological invasions;" Co-chair, Organizing Committee for the Notre Dame Environmental Education and Research conference, 11/06; Member, Steering Committee for international workshop on Faith, Ethics, and Environment, U Notre Dame, 11/04; Organized (got funding and chaired Steering Committee of) three-day international conference (200 participants) on "Ecology, Theology, and Judeo-Christian Environmental Ethics," U Notre Dame, 2/02 ([www.nd.edu/~ecoltheo/](http://www.nd.edu/~ecoltheo/)); Organized special session, "Nonindigenous species in the Great Lakes: changing perspectives on science and management for the next century," IAGLR 2000; Organized symposium, "Aquatic Invasions," ASLO, 2/97; Organized symposium, "Crayfish Invasions and Conservation," International Association of Astacologists, 8/96; Organized symposium, "Structure and Management of Littoral Zones", North American Benthological Society, 5/1989; Organized symposium, "Role of Crayfish in Aquatic Ecosystems," U.S. Fish and Wildlife Conference, Milwaukee, 12/1987.

**INVITED SEMINARS, SYMPOSIA, AND WORKSHOPS:** US Water Partnership Great Lakes to Great Lakes Meeting, Kigoma, Tanzania; Double-length presentation to open symposium on eDNA, American Fisheries Society meeting, 8/2014; Ecosystem regime shifts and management symposium, American Fisheries Society meeting, 8/2014; Tutorial speaker on eDNA, Joint Aquatic Sciences meeting, 5/2014; NOAA headquarters seminar, D.C., 4/2014; Conservation Ecology seminar, U Michigan's SNRE, 3/2014; Great lakes of the world symposium, AAAS, 2:2014; Public talk, University of Adelaide, 10/2013; University of Adelaide, workshop seminar on marine biosecurity, 10/2013; Tutorial speaker, ASLO, 2/2013; Institute of Marine Sciences, UNC-Chapel Hill, 10/12; Invited speaker, ND-DCU Environmental Sensing Symposium, Dublin, Ireland, 8/12; Panelist, "Eye on Earth Summit", Abu Dhabi, 12/11; Program on the Global Environment, University of Chicago, 5/11; Wayne Carmichael lecture in Environmental Sciences, Wayne State University, 5/11; AAAS symposium on invasions, 2/11; Ecological Society of America "Meet the Press" session, 8/10; Nicholas School of the Environment, Duke University, 3/10; National Academies Symposium on Twenty-first Century Ecosystems: Systemic Risk and the Public Good, 2/09; Society of Conservation Biologists symposium, 6/08; National Academies' Institute of Medicine workshop on pathogen movement and International Health Regulations, 2/08; U Minnesota IGERT symposium, 3/08; Midwest Fish & Wildlife Meeting, 12/07; Great Lakes Panel of the Aquatic Nuisance Species Task Force, 11/07; Workshop to provide guidance on invasive species to the Convention on Biological Diversity, Arizona State Univ, 10-07; National University of Singapore, Dept of Biological Sciences, 6/07; Mote Marine Laboratory, 4/07; Law and Environment series speaker, University of Notre Dame Law School, 2/07; The Nature Conservancy Freshwater Initiative meeting, Boulder (invited presentation), 1/07; Speaker, Environmental Forum, Stanford University, 12/06; The Nature Conservancy Science and Conservation meeting, Tucson (2 invited presentations), 11/06; University of the South (Sewanee), 9/06; Society of Conservation Biology symposium 6/06; ESA/INTECOL symposium speaker, Montreal, 8/05; Georgia Tech School of Biology, 2/05; Georgia Tech School of Public Policy, 2/05; UC Santa Barbara EEMB seminar speaker, 1/05; Plenary speaker, Beijing International Symposium on Biological Invasions, 6/04; Speaker, workshop on Biocomplexity, Institute of Hydrobiology, Wuhan, China; Speaker, Biocomplexity Workshop, Beijing, China, 5/04; Participant, Millennium Assessment Combined Working Groups meeting, Montreal, 4/04; Plenary speaker, American Institute of Biological Sciences annual meeting, 3/04; Department of Sustainable Environment, Victoria, Australia, two seminars (one policy-oriented), 11/03; University of Melbourne, Australia, 11/03; Marine Laboratory, CSIRO, Hobart, Australia, 10/03; International Joint Commission symposium on invasive species, Ann Arbor, 9/03; Millennium Ecosystem Assessment workshop on Global Scenarios, Rome, 8/03; Invited symposium speaker, EPA Environmental Research Seminar, Chicago, 6/03;

Invited speaker, Univ of Wyoming Bioinvasions Workshop, 6/03; Invited speaker, Society of Conservation Biology symposium on Values and Ecosystem Management of the Great Lakes, Duluth, 6/03; NSF Workshop on China-US ecological cooperation, Arizona State Univ, 4/03; Invited speaker, symposium on invasive species, Illinois State University, 4/03; Millennium Ecosystem Assessment workshop on Global Scenarios, Costa Rica, 3/03; Great Lakes Panel of the Aquatic Nuisance Species Task Force, Ann Arbor, 12/02; Mayor Daley's "Great Lakes—Great Ideas" Great Lakes Mayors' Initiative, 11/2002, (conference of 50 Great Lakes city mayors on Great Lakes environmental issues; I was one of 3 non-mayor speakers); Millennium Ecosystem Assessment workshop on Global Scenarios, Bangkok, 10/02; ESA Symposium on Methods for assessing risks due to invasive species: theoretical ecology as a starting point, 8/02; NOAA Pacific Northwest Science Center, NIMFS, Seattle, 5/02; Maryland Sea Grant Symposium on Invasive Species in the Chesapeake Bay, Baltimore, 4/02; Millennium Ecosystem Assessment on Biodiversity Scenarios, Trinidad, 4/02; NOAA Great Lakes Environmental Research Laboratory, Ann Arbor, MI, 3/02; Dept. of Fisheries and Wildlife, Colorado State University, 3/02; Nicholas School of the Environment, Duke University, 1/02; ESA symposium on Progress in Invasion Biology, 8/2001; AAAS symposium on "Stopping the invasions . . .," 2/2001; Departments of Botany and Zoology, U Washington, 2/2000; NCEAS Workshop on a national center for ecological forecasting, 10/00; ESA symposium on the Population Biology of Invasive Species, 8/2000; NSF Collaboratory on Research on Nonindigenous Species, 1999-2000; Department of Biological Sciences, U New Orleans, 11/99; Department of Biology, Loyola University Chicago, 10/98; McGill University, 10/99; Invasives Strategy Workshop, Stanford University, 4/98; Great Lakes Fisheries Commission, Biodiversity Task Workshop, Windsor, Ontario, 9/97; Dept. of Biology, Western Michigan University, 4/97; Dept. of Ecology, Evolution and Environmental Biology, University of Illinois, 4/97; Dpt. of Biology, Bowling Green State University, 11/96; Illinois Natural History Survey, 4/97; IJC-Johnson Foundation Workshop on Biodiversity and Sustainability in the Great Lakes, 6/96; Symposium on "Role of macrophytes in structuring the biological community and dynamics in lakes," Danish National Environmental Research Institute, Silkeborg, Denmark, 6/96; NCEAS Workshop on Global Change and Biodiversity, 6/96; Dpt. of Zoology, Ohio State University, 4/96; NSF Research Training Grant Ecological Applications Symposium, Michigan State University, Kellogg Biological Station, 3/96; Australian CRC symposium on "Spatial and Temporal Scaling of Ecological Processes in Freshwater Systems," Monash University, 12/95; American Society of Zoologists Symposium on State of Experimental Ecology, 1/95; departments of Zoology & Wildlife and Fisheries (joint seminar), Auburn University, 10/93; Department of Biology, University of the South, 10/93; Discussion leader & panelist, UND O'Malley Conference on Excellence in Teaching, 9/93; Department of Biology, University of North Carolina at Chapel Hill, 9/93; Institute of Limnology, University of Uppsala, Sweden 4/1993; Plenary speaker at Workshop on Population Ecology of Nordic Crayfish Species, Älvkarleby, Sweden, 4/1993; Institute of Ecosystem Studies, Millbrook, New York, 4/1993; Department of Zoology, North Carolina State University, 3/1993; Institute of Marine Sciences, University of North Carolina at Chapel Hill, 9/1992 & 3/1993; Distinguished Scholar Lecture, College of Science, University of Notre Dame, 3/1992; Department of Biology, Erindale College, University of Toronto, 3/1992; Department of Zoology, Arizona State University, 2/1992; Program in Ecology and Evolutionary Biology, Michigan State University, 1/1992; NSF-sponsored workshop on Global Change, Friday Harbor, WA, 9/1991; Institute of Marine Sciences, University of North Carolina at Chapel Hill, 8/1989; Center for Great Lake Studies, University of Wisconsin-Milwaukee, 3/1989; Midwest Aquatic Plant Management Society, South Bend, Indiana, 3/1989; Midwest Conference on Population Biology, Madison, Wisconsin, 11/1988; Department of Zoology, University of Iowa, 10/1987; Department of Biological Sciences, Purdue University, 4/1987; Department of Biology, University of Dayton, 2/1986; Symposium on the Ecology of Freshwater Molluscs, The American Malacological Union, 7/1985.

## **MEDIA COVERAGE OF RESEARCH (selected recent examples out of hundreds)**

### **Film and television**

Stornoway Productions series on *Infestations*, Lodge used to frame underwater invasions episode, aired iChannel and Oasis Channel in Canada, 7/2014. <http://www.stornowayproductions.com/productions/infestation/>

CBS Sunday Morning, featured in "The Threat of Invasive Species" 11 August 2013. [http://www.cbsnews.com/8301-3445\\_162-20127579/the-threat-of-invasive-species/](http://www.cbsnews.com/8301-3445_162-20127579/the-threat-of-invasive-species/)

PBS TV (QUEST San Francisco), research featured in "Asian Carp: Threat to Great Lakes" 3 November 2011. <http://science.kqed.org/quest/video/asian-carp-threat-to-great-lakes/>

CBS Sunday Morning, featured in "The Threat of Invasive Species" 31 October 2011. [http://www.cbsnews.com/8301-3445\\_162-20127579/the-threat-of-invasivespecies/?tag=contentMain;contentBody](http://www.cbsnews.com/8301-3445_162-20127579/the-threat-of-invasivespecies/?tag=contentMain;contentBody)

ABC Nightline, 5 Dec 2010, Beware: Asian Carp Invasion: <http://abcnews.go.com/Nightline/video/beware-asian>

carp-invasion12329740

National Geographic Television. *Hooked: Invasive species-Asian Carp*. Expected Air Date, Winter 2010. ABC Nightline, 6 Dec 2010, *Beware: Asian Carp Invasion*

<http://us1.list-manage.com/track/click?u=46d441e0ea9fcf634f5c46895&id=b20b2cc83f&e=92e2798020>

NSF's Science 360's news site interview with Lodge, <http://news.science360.gov/archives/20090818.aspx>

BBC World One-Nature Inc video, "The Aliens have Landed," <http://www.natureinc.org/aliens.htm> (features interviews with Lodge and other participants at the Convention on Biological Diversity April 2008 workshop at Notre Dame (aired multiple times on BBC).

American Museum of Natural History documentary (8 min) on invasive species, produced 11/07 (available at [http://www.amnh.org/sciencebulletins/?sid=b.f.invasive\\_species.20071101&src=b](http://www.amnh.org/sciencebulletins/?sid=b.f.invasive_species.20071101&src=b)) and shown at 40 museums and science centers in the U.S.

NBC Nightly News, 5 Dec 2009, <http://www.msnbc.msn.com/id/3032619/#34289322>

MSNBC, 1 Dec 2009, <http://www.cnbc.com/id/15840232?video=1347397892&play=1>

MSNBC, 1 Dec 2009, <http://www.cnbc.com/id/15840232?video=1347237592&play=1>

Three 2007 2.5 minute interviews on Great Lakes environmental issues for local CBS affiliate

## Radio

NPR's Science Friday, segment on invasive species, 10/17/2014.

KQED San Francisco public radio 1 hour live show *Forum* (4.1 million weekly audience) on "Invasive Species on the Rise," 8/22/2014, <http://www.kqed.org/a/forum/R201408201000>

NPR's The Environment Report, quoted in "Chefs try to get Americans to eat Asian carp" 27 September 2011.

Wisconsin Public Radio, At Issue with Ben Merens, 29 June 2010,

[http://www.wpr.org/webcasting/audioarchives\\_display.cfm?Code=bme](http://www.wpr.org/webcasting/audioarchives_display.cfm?Code=bme)

Canadian Broadcasting Corporation, As It Happens, interview (in part II of the show), 10 Jan 2010,

<http://www.cbc.ca/asithappens/>

Canadian Broadcasting Corporation, The Current, live interview, 25 Nov 2009,

<http://www.cbc.ca/thecurrent/2009/200911/20091125.html>

NPR's All Things Considered, 20 Nov 2009, <http://www.npr.org/templates/story/story.php?storyId=120624300>

WTRC (1340 AM, Elkhart, IN), live interview by Gary Sieber, 12/03

WI Public Radio, single guest of 30-min talk show, 2003

## Newspapers

*New York Times Magazine*, "Reverse Engineering," 8 February 2015, <http://nyti.ms/1zf53KL>

*Wall Street Journal*, quoted in "Keeping carp out of Great Lakes could cost \$18 billion," p A4, 1/7/2014.

<http://online.wsj.com/news/articles/SB10001424052702304887104579304940070977548>

*Milwaukee Journal Sentinel*, three part series, August 2012.

Sunday, Aug. 19, [To protect the Great Lakes, the government kills a river;](#)

Wednesday, Aug. 22, [The blind hunt for a reviled fish goes high-tech;](#)

Sunday, Aug. 26, [As the use of DNA to find rare species spreads, so does controversy.](#)

*Wall Street Journal*, quoted in "Great Lakes invaders face salty rebuff", 12 May, page A4, 2012.

<http://online.wsj.com/article/SB10001424052702303877604577384032329178586.html>

*Toledo Blade*, research featured in "Obama on hot seat if jolt won't thwart carp's charge into lakes" 20 September 2011. <http://www.toledoblade.com/TomHenry/2011/09/20/Obama-on-hot-seat-if-jolt-won-t-thwart-carp-s-charge-into-lakes-2.html>

*Detroit Free Press*, research featured in "Chicago canal's electric fish barrier does work, tests show." 13 September 2011.

*Milwaukee Journal Sentinel*, research featured in "Carp barrier in canal to get stronger." 9 September 2011.

<http://www.jsonline.com/news/wisconsin/129567748.html>

*New York Times*, research featured in "Report: DNA Method Helpful in Seeking Asian Carp." 9 September 2011.

[http://www.nytimes.com/aponline/2011/09/09/business/AP-US-GreatLakes-AsianCarp.html?\\_r=4&src=busIn](http://www.nytimes.com/aponline/2011/09/09/business/AP-US-GreatLakes-AsianCarp.html?_r=4&src=busIn)

*Milwaukee Journal Sentinel*, quoted in "The Lake Left Me. It's Gone." 31 August 2011.

<http://environmentalchange.nd.edu/news/25797-the-lake-left-me-it-sgone/>

*Northwest Indiana Times*, research featured in "Feds award nearly \$1 million in grants for Great Lakes projects," 15 August 2011. [http://www.nwitimes.com/news/local/lake/gary/article\\_c2292efe-60f35a5a-89ec](http://www.nwitimes.com/news/local/lake/gary/article_c2292efe-60f35a5a-89ec)

d6b6bee7531f.html

*Detroit Free Press*, quoted in "Snakeheads can move on land, eat other fish – and could be another threat to Great Lakes," 10 August 2011

*New York Times*, "Notre Dame Professor Leads Effort to Keep Asian Carp Out of Great Lakes," 31 March 2011.  
[http://www.nytimes.com/2011/04/01/us/01cnclodge.html?\\_r=4&ref=chicgonewscooperative](http://www.nytimes.com/2011/04/01/us/01cnclodge.html?_r=4&ref=chicgonewscooperative)

Associated Press, research featured in "Scientists defend Asian carp research methods," 16 Feb 2011

Associated Press, quoted in "Feds' plan passes on surest solution to Asian carp advance," 11 Feb 2010, run by many newspapers including *Washington Post*, *Los Angeles Times*.

*Christian Science Monitor*, quoted in "Mounting urgency as Asian carp threaten the Great Lakes," 10 Feb 2010.

*New York Times*, quoted in "Carp DNA is found in Lake Michigan," 20 January 2010,

<http://www.nytimes.com/2010/01/20/science/20carp.html>

*New York Times*, quoted in "Be Careful What you Fish For," 13 Dec 2009,

<http://www.nytimes.com/2009/12/13/weekinreview/13davey.html>

*Milwaukee Journal Sentinel* quoted in "Watch for Great Lakes invaders moving inland, groups told"

<http://www.jsonline.com/news/wisconsin/41509942.html>

*New York Times*, quoted in "A movable feast: Asian pythons thrive in Florida," 7/24/07,

[http://www.nytimes.com/2007/07/24/science/24pyth.html?\\_r=1&scp=1&sq=Burmese%20pythons&st=cse](http://www.nytimes.com/2007/07/24/science/24pyth.html?_r=1&scp=1&sq=Burmese%20pythons&st=cse)

Quoted in a number of regional and national papers in light of the opening of the Notre Dame-sponsored Shedd Aquarium exhibit on Great Lakes invasive species, 1/06 (e.g.,

<http://news.google.com/news?hl=en&ned=us&ie=UTF-8&ncl=http://www.chicagotribune.com/news/local/chi--060105shedd,1,304493.story%3Fcoll%3Dchi-news-hed>);

*China Daily*, 5/04 ([http://www.chinadaily.com.cn/english/doc/2004-05/29/content\\_334747.htm](http://www.chinadaily.com.cn/english/doc/2004-05/29/content_334747.htm),  
[http://www.chinadaily.com.cn/english/doc/2004-05/29/content\\_334764.htm](http://www.chinadaily.com.cn/english/doc/2004-05/29/content_334764.htm)  
[http://www.chinadaily.com.cn/english/doc/2004-05/29/content\\_334765.htm](http://www.chinadaily.com.cn/english/doc/2004-05/29/content_334765.htm));

Stories following up participation in Union of Concerned Scientists press conference on invasive species at

National Press Club, 12/03 ([http://www.ucsusa.org/news/press\\_release.cfm?newsID=373](http://www.ucsusa.org/news/press_release.cfm?newsID=373));

Quoted multiple times in *The Columbus Dispatch*, 10/26-10/29-03, 4-part series on "Exotic Invaders"

(<http://www.dispatch.com/reports-story.php?story=dispatch/2003/10/26/swarminghome.html>).

Quoted in *Times (London) Higher Education Supplement* 9/26/03.

Quoted in *Times (London) Higher Education Supplement* 9/26/03.

Quoted in *Times (London) Higher Education Supplement* 9/26/03.

Authored a 2003 *New York Times* Op-Ed piece (see Other Publications).

### Magazines, newsletters, books, other

*Time*, quoted in cover story by Bryan Walsh on "Space Invaders," 28 July 2014.

*Oearth* magazine, Cry Us a River, Spring 2013, 32-39.

*Bloomberg Businessweek*, The Carp Must Die, 20 February 2012, pp 76-80.

The Nature Conservancy, research featured in newsletter article "Prestigious Journal Validates Asian Carp Research," 11 Feb 2011

*The New Yorker*, quoted in Fish Out Of Water:

[http://www.newyorker.com/reporting/2010/10/25/101025fa\\_fact\\_fraziercurrentPage=2](http://www.newyorker.com/reporting/2010/10/25/101025fa_fact_fraziercurrentPage=2). (October 25, 2010)

*The New Yorker*, Fish Out of Water, pages 66-73 in 25 Oct 2010 issue.

*Escape from the Ivory Tower: a Guide to Making Your Science Matter*, 2010 book by Nancy Baron  
(discussed/quoted on pages 94-95, 97-98).

*Time*, print version, Lake Invaders, pages 30-37 in 23 Aug 2010 issue.

*Time*, quoted in Asian Carp in the Great Lakes? <http://www.time.com/time/health/article/0,8599,1962108,00.html>

*Science*. 2010. News of the week. Biologists Rush to Protect Great Lakes From Onslaught of Carp. Vol. 327: 932. 19 Feb 2010.

*The Economist*, research in Dec 2009 article on Asian carp;

[http://www.economist.com/world/unitedstates/displaystory.cfm?story\\_id=15179536](http://www.economist.com/world/unitedstates/displaystory.cfm?story_id=15179536)

Congressional Research Service (7-5700, R41082; [www.crs.gov](http://www.crs.gov)).

*BioScience*, quoted in 2009 policy essay on ballast water rules (*BioScience* 59:830).

*Wired*, coverage of 2009 AAAS symposium, <http://www.wired.com/wiredscience/2009/02/homogecene/>

*New Scientist*, 8/2/07. Research described, hot-linked on the web site for National Geographic's "Strange Days on Planet Earth" TV series, <http://www.pbs.org/strangedays/episodes/invaders/experts/relatedstories.html>

*National Geographic*, quoted in feature article on "Attack of the alien invaders" March 2005

*The Scientist*, quoted in Cooperation urged on invasives ([www.biomedcentral.com/news/20040322/03](http://www.biomedcentral.com/news/20040322/03));



*BioScience*, Quoted in 2004 "Invasive Species: the Search for Solutions" (54:615-621).  
*Notre Dame Magazine*, research was topic of illustrated feature article in Winter 2003/04,  
<http://www.nd.edu/~ndmag/w0304/ness.html>  
*EMBO reports* 4:547-550, quoted in 2003 "Aliens on the shores."  
*Science* (301:157-158), quoted in 2003 news story on "Can well-timed jolts keep out unwanted exotic fish?"  
*The Congressional Quarterly Researcher* (11(34):785-816) quoted me several times, 2001.  
*A View from the Field* (4(2): 6, 1998) (Miller High Life outdoor newsletter) featured research on rusty crayfish.  
*BioScience* (48:788-792, 1998), Features section, covered research on exotic species in the Great Lakes by  
graduate student Cindy Kolar and Lodge.  
*Science* (277:316-317, 1997), Research News section, featured an article about the crayfish hybridization research  
being conducted by graduate student Bill Perry, faculty colleague Jeff Feder, and Lodge.  
*Audubon* (March-April 1997, pp. 20, 23), Reports Section, featured an article on the ecological impacts of invading  
crayfish.

## TEACHING EXPERIENCE

### **Graduate Courses**

Advanced Aquatic Ecology (1986, 1990)  
Behavioral Ecology (1986)  
Ecological Methods (1991)  
Community Ecology (1993, 96, 2000,02,03,07,09,10,12,13)  
Watershed-Lake Links GRT Field Mini-course (1997)  
Biology and Policy of Invasive Species (2004, 2005)  
Aquatic Conservation (2006-10, 12, 14)  
GLOBES: Env., Human Well-being, & Governance (2006)

### **Undergraduate Courses**

Limnology (1983, 1984)  
Summer Course at UND field station (1986-91, 93-4, 96-02)  
Aquatic Botany  
Plant-Animal Interactions  
Comparative Limnology  
Invertebrate Biology (1986)  
General Ecology (1987-1992, 1994-95, 97)  
General Biology (1994-97, 99-03)  
Aquatic Conservation: Global freshwaters, science & policy (2006-10, 12, 14)  
Undergraduate Research (3-7 students per year)

### **Graduate Seminars, Training Short Courses**

Classic Papers in Ecology (1987)  
Lentic-Lotic Links (1991)  
Plant-Animal Interactions (1994)  
Biogeography (1997)  
Ecology & Religion (2001)  
Invasive Species Policy (2008)  
GLOBES: Media Training (2008, 10, 13)  
GLOBES: Policy Training (2008-10,12)

### **Undergraduate Seminars**

Honors Prog. Senior Colloq. (1991, 1993-1999)

**Graduate Advising.** Louise Weber (M.S. 1988), Mark Olsen (M.S. 1989), Mark Kershner (M.S. 1992), Anna Hill (Ph.D. 1994), Steve Blumenshine (Ph.D. 1997), Yvonne Vadeboncoeur (Ph.D. 1998), William Perry (Ph.D. 1998), Romi Burks (Ph.D. 2000), Adrienne Froelich (Sponberg) (Ph.D. 2001), Cindy Kolar (Ph.D. 2002), John Drake (Ph.D. 2004), Sadie Rosenthal (M.S. 2004), Reuben Keller (Ph.D. 2006), James Larson (Ph.D. 2006), Tim Kreps (Ph.D. 2009), John Rothlisberger (Ph.D. 2009), Brett Peters (M.S. 2010), Jody (Murray) Peters (Ph.D. 2010), Andrew Deines (Ph.D. 2013), Matthew Barnes (Ph.D. 2013), Ashley Baldrige (Ph.D. 2013), Cameron Turner (Ph.D. expected 2015), and Lindsey Sargent (Ph.D. expected 2015).

**Postdoctoral and Research Assistant Professor Advising.** Gregory Cronin (1994-1997); Thomas Schlacher (1995); William Perry (1998-2000); Brian Leung (2001-2004); Marguerite Xenopoulos (2001-2004); Jon Bossenbroek (2003-2005); Alex Potapov (2004-2007); Kevin Drury (2004-7); Matthias Herborg (2006-2007), Reuben Keller (2007-2009); Carsten Nowak (2007-2008); Darren Yeo (2007-9); Christopher Jerde (2008-2010; RAP 2010-2014); Andrew Mahon (2008-2010; RAP 2010-2014); Jennifer Howeth (2011-2012); Marion Wittmann (2011-14), Erin Grey (2012-2014), Brett Olds (2013-2014), Eric Larson (2014-; joint with Shedd Aquarium).

## ACADEMIC PUBLICATIONS

### BOOKS AND EDITED COLLECTIONS

1. **Lodge, D.M.** (ed) 2003. Guest editor for a double special issue containing 10 contributed papers from 2002 conference I organized. *Worldviews: Environment, Culture, Religion* 7:1-4.
2. **Lodge, D.M.** and C. Hamlin (eds). 2006. *Religion and the New Ecology: Environmental Responsibility in a World in Flux*. University of Notre Dame Press. 325+ pp.
3. Keller, R.P., **D.M. Lodge**, M. Lewis, and J.F. Shogren (eds). 2009. Bioeconomics of invasive species: integrating ecology, economics, policy and management. Oxford University Press.
4. Simons, S.A. and M. DePoorter (eds) 2009. Best practices in Pre-Import Risk Screening for Species of Live Animals in International Trade: Proceedings of an Expert Workshop on Preventing Biological Invasions, University of Notre Dame, Indiana, USA, 9-11 April 2008. Global Invasive Species Programme, Nairobi, Kenya. 32pp. (Lodge and others contributed to this volume.)

### JOURNAL ARTICLES AND BOOK CHAPTERS

1. Johnston, J.W., D.S. Shriner, G.I. Klarer, and **D.M. Lodge**. 1982. Effect of pH on senescence, growth, and yield of bush bean. *Environmental and Experimental Botany* 22:329-337.
2. McLean, R.B., P.T. Singley, **D.M. Lodge**, and R.A. Wallace. 1982. Synchronous spawning of threadfin shad. *Copeia* 4:952-955.
3. **Lodge, D.M.** 1982. Factors Effecting the Distribution of Gastropod Species in a Eutrophic Pond. D.Phil. Thesis, University of Oxford. 239+pp.
4. **Lodge, D.M.**, A.L. Beckel, and J.J. Magnuson. 1985. Lake bottom tyrant. *Natural History* 94:32-37.
5. **Lodge, D.M.** 1985. Freshwater macrophyte-gastropod associations: observations and experiments on macrophyte choice by gastropods. *Freshwater Biology* 15:695-708.
6. **Lodge, D.M.** and P. Kelly. 1985. Habitat disturbance and the stability of freshwater gastropod populations. *Oecologia* 68:111-117.
7. **Lodge, D.M.** 1986. Selective grazing on periphyton: a determinant of freshwater gastropod microdistributions. *Freshwater Biology* 16:831-841.
8. **Lodge, D.M.**, T.K. Kratz and G.M. Capelli. 1986. Long term dynamics of three crayfish species in Trout Lake, Wisconsin. *Canadian Journal of Fisheries and Aquatic Sciences* 43:993-998.
9. Carpenter, S.R. and **D.M. Lodge**. 1986. Effects of submersed macrophytes on ecosystem processes. *Aquatic Botany* 26:341-370.
10. **Lodge, D.M.**, K.M. Brown, S.P. Klosiewski, R.A. Stein, A.P. Covich, B.K. Leathers, and C. Bronmark. 1987. Distribution of freshwater snails: spatial scale and the relative importance of physicochemical and biotic factors. *American Malacological Bulletin* 5:73-84.
11. **Lodge, D.M.**, and J.G. Lorman. 1987. Reductions in submersed macrophyte biomass and species richness by the crayfish *Orconectes rusticus*. *Canadian Journal of Fisheries and Aquatic Sciences* 44:591-597.
12. Carpenter, S.R., J.F. Kitchell, J.R. Hodgson, P.A. Cochran, J.J. Elser, M.M. Elser, **D.M. Lodge**, D. Kretchmer, Xi He, and C.N. von Ende. 1987. Regulation of lake ecosystem primary productivity by food web structure in whole-lake experiments. *Ecology* 68:1863-1876.
13. **Lodge, D.M.**, J.W. Barko, D. Strayer, J.M. Melack, G.G. Mittelbach, R.W. Howarth, B. Menge, and J.E. Titus. 1988. Spatial heterogeneity and habitat interactions in lake communities. pp. 181-208 In: S.R. Carpenter (ed.), *Complex Interactions in Lake Communities*. Springer-Verlag.
14. Cochran, P.A., **D.M. Lodge**, J.R. Hodgson, and P.G. Knapik. 1988. Diets of syntopic redbelly dace (*Phoxinus eos*) and finescale dace (*P. neogaeus*): a reflection of trophic morphology. *Environmental Biology of Fishes* 22:235-240.
15. **Lodge, D.M.**, D.P. Krabbenhoft, and R.G. Striegl. 1989. A positive relationship between groundwater velocity and submersed macrophyte biomass in Sparkling Lake, Wisconsin. *Limnology and Oceanography* 34:235-239.
16. He, X. and **D.M. Lodge**. 1990. Using minnow traps to estimate population size of fishes: the importance of spatial distribution and relative species abundance. *Hydrobiologia* 190:9-14.
17. Weber, L.M. and **D.M. Lodge**. 1990. Periphyton food and crayfish predators: relative roles in determining snail distributions. *Oecologia* 82:33-39.
18. Stahl, T. and **D.M. Lodge**. 1990. Effect of experimentally induced shell damage on mortality, reproduction, and growth in *Helisoma trivolvis* (Say, 1816). *The Nautilus* 104:92-95.
19. Kershner, M.W. and **D.M. Lodge**. 1990. Effect of substrate architecture on aquatic gastropod-

- substrate associations. *Journal North American Benthological Society* 9:319-326.
20. **Lodge, D.M.** 1991. Herbivory on freshwater macrophytes. *Aquatic Botany* 41:195-224.
  21. Olsen, T.M., **D.M. Lodge**, G.M. Capelli, and R.J. Houlihan. 1991. Mechanisms of impact of three crayfish congeners (*Orconectes* spp.) on littoral benthos. *Canadian Journal of Fisheries and Aquatic Sciences* 48:1853-1861.
  22. **Lodge, D.M.** 1993. Species invasions and deletions: community effects and responses to climate and habitat change. Pages 367-387 In: P.M. Kareiva, J.G. Kingsolver, and R.B. Huey, editors. *Biotic Interactions and Global Change*. Sinauer.
  23. **Lodge, D.M.** 1993. Biological invasions: lessons for ecology. *Trends in Ecology and Evolution* 8:133-137.
  24. He, X., J.F. Kitchell, J.R. Hodgson, R. Wright, P.A. Soranno, **D.M. Lodge**, P.A. Cochran, D. Benkowski, and N. Bouwes. 1993. Roles of fish predation: piscivory and planktivory. Pages 85-102 In: S.R. Carpenter and J.F. Kitchell, editors. *The Trophic Cascade in Lakes*. Cambridge University Press.
  25. Brown, K.M. and **D.M. Lodge**. 1993. Gastropod abundance in vegetated habitats: the importance of specifying null models. *Limnology and Oceanography* 38:217-225.
  26. Hill, A.M., D.M. Sinars, and **D.M. Lodge**. 1993. Invasion of an occupied niche by the crayfish *Orconectes rusticus*: potential importance of growth and mortality. *Oecologia* 94:303-306.
  27. **Lodge, D.M.** 1993. Prediction and biological invasions: response to Daehler and Strong. *Trends in Ecology and Evolution* 8:380-1.
  28. DiDonato, G.T. and **D.M. Lodge**. 1993. Species replacements among *Orconectes* crayfishes in northern Wisconsin lakes: the role of predation by fish. *Canadian Journal of Fisheries and Aquatic Sciences* 50:1484-1488.
  29. **Lodge, D.M.**, M.W. Kershner, J.E. Aloj, and A.P. Covich. 1994. Effects of an omnivorous crayfish (*Orconectes rusticus*) on a freshwater littoral food web. *Ecology* 75:1265-1281
  30. Willman, E.J., A.M. Hill, and **D.M. Lodge**. 1994. Response of three crayfish congeners (*Orconectes* spp.) to odors of fish carrion and live predatory fish. *American Midland Naturalist* 132:44-51.
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  32. **Lodge, D.M.** and A.H. Hill. 1994. Factors governing species composition, population size, and productivity of cool-water crayfishes. *Nordic Journal of Freshwater Research* 69:111-136.
  33. Kershner, M.W. and **D.M. Lodge**. 1995. Effects of littoral habitat and fish predation on the distribution of an exotic crayfish, *Orconectes rusticus*. *Journal of the North American Benthological Society* 14:414-422.
  34. Hill, A.M. and **D.M. Lodge**. 1995. Multi-trophic-level impact of sublethal interactions between bass and omnivorous crayfish. *Journal of the North American Benthological Society* 14:306-314.
  35. Power, M.E. and 24 co-authors (including **D.M. Lodge**). 1995. The role of experiments in ecology. *Science (Letter)* 270:561.
  36. Lauridsen, T.L. and **D.M. Lodge**. 1996. Avoidance by *Daphnia magna* of fish and macrophytes: chemical cues and predator-mediated use of macrophyte habitat. *Limnology and Oceanography* 41:794-798.
  37. Horvath, T.G., G.A. Lamberti, **D.M. Lodge**, and W.L. Perry. 1996. Zebra mussel dispersal in lake-stream systems: source-sink dynamics? *Journal of the North American Benthological Society* 15:564-575.
  38. Blumenshine, S.C., Y. Vadeboncoeur, **D.M. Lodge**, K.L. Cottingham, and S.E. Knight. 1997. Benthic-pelagic links: responses of benthos to water-column nutrient enrichment. *Journal of the North American Benthological Society* 16:466-479.
  39. Perry, W.L., **D.M. Lodge**, and G.A. Lamberti. 1997. Impact of crayfish predation on exotic zebra mussels and native invertebrates in a lake-outlet stream. *Canadian Journal of Fisheries and Aquatic Sciences* 54:120-125.
  40. Lauridsen, T.L., E. Jeppesen, Ma. Sondergaard, and **D.M. Lodge**. 1998. Horizontal migration of zooplankton: predator-mediated use of macrophyte habitat. Pages 233-239 In: E. Jeppesen, Ma. Sondergaard, Mo. Sondergaard, and K. Christoffersen (eds.) *The Structuring Role of Submerged Macrophytes in Lakes*. Springer-Verlag, New York.
  41. **Lodge, D.M.**, G. Cronin, E. Van Donk, and A.J. Froelich. 1998. Impact of herbivory on plant standing crop: comparisons among biomes, between vascular and non-vascular plants, and among freshwater herbivore

- taxa. Pages 149-174 In: E. Jeppesen, Ma. Sondergaard, Mo. Sondergaard, and K. Christoffersen (eds.) *The Structuring Role of Submerged Macrophytes in Lakes*. Springer-Verlag, New York.
42. **Lodge, D.M.**, R.A. Stein, K.M. Brown, A.P. Covich, C. Bronmark, J.E. Garvey, and S.P. Klosiewski. 1998. Predicting impact of freshwater exotic species on native biodiversity: challenges in spatial scaling. *Australian Journal of Ecology* 23:53-67.
  43. **Lodge, D.M.**, S.C. Blumenshine, and Y. Vadeboncoeur. 1998. Insights and application of large-scale, long-term ecological observations and experiments. Pages 202-235 in W.J. Resetarits and J. Bernardo, eds. *Experimental Ecology: Issues and Perspectives*. Oxford University Press.
  44. Fullerton, A.F., G.A. Lamberti, **D.M. Lodge**, and M.B. Berg. 1998. Prey preferences of Eurasian ruffe and yellow perch: comparisons of laboratory results with composition of Great Lakes benthos. *Journal of Great Lakes Research* 24:319-328.
  45. Cronin, G. K.D. Wissing, and **D.M. Lodge**. 1998. Comparative feeding selectivity of herbivorous insects on water lilies: aquatic vs. semi-terrestrial insects and submersed vs. floating leaves. *Freshwater Biology* 39:243-257.
  46. Vadeboncoeur, Y. and **D.M. Lodge**. 1998. Dissolved inorganic carbon sources for epipelagic algal production: sensitivity of primary production estimates to spatial and temporal distribution of <sup>14</sup>C. *Limnology and Oceanography* 43:1222-1226.
  47. Luttenton, M.R., M. Horgan, and **D.M. Lodge**. 1998. Effects of three *Orconectes* crayfishes on epilithic microalgae: a laboratory experiment. *Crustaceana* 71:845-855.
  48. Hill, A.M. and **D.M. Lodge**. 1999. Replacement of resident crayfishes by an exotic crayfish: the roles of competition and predation. *Ecological Applications* 9:678-690.
  49. Cronin, G., T. Schlacher, **D.M. Lodge**, and E.L. Siska. 1999. Intraspecific variation in feeding preference and performance of *Galerucella nymphaea* (Chrysomelidae: Coleoptera) on aquatic macrophytes. *Journal of North American Benthological Society* 18:391-405.
  50. Lauridsen, T.L., E. Jeppesen, S.F. Mitchell, **D.M. Lodge**, and R.L. Burks. 1999. Diel variation in horizontal distribution of *Daphnia* and *Ceriodaphnia* in oligotrophic and mesotrophic lakes with contrasting fish densities. *Hydrobiologia* 408/409:241-250.
  51. Vadeboncoeur, Y. and **D.M. Lodge**. 2000. Periphyton production on wood and sediment: substratum-specific response to laboratory and whole-lake nutrient manipulations. *Journal of North American Benthological Society* 19:68-81.
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27. Basuray, S., Senapati, S., Aijjian, A., **Mahon, A.R.**, Chang, H-C. 2009. Shear and AC Field Enhanced Carbon Nanotube Impedance Assay for Rapid, Sensitive and Mismatch-Discriminating DNA Hybridization. ACS Nano. 3(7): 1823-1830.
28. Bampfyld, C.J., **J.A. Peters**, and A.M. Bobeldyk. 2009. A literature analysis of freshwater invasive species research: are empiricists, theoreticians and economists working together? Biological Invasions.
29. Darling J.A. and **A.R. Mahon**. 2011. From molecules to management: adopting DNA-based methods for monitoring biological invasions in aquatic environments. Environmental Research. doi:10.1016/j.envres.2011.02.001
30. **Sargent, LW**, Golladay, SW, Covich, AP and SP Opsahl (2011) Physicochemical habitat association of a native and a non-native crayfish in the lower Flint river, Georgia: implications for invasion success. Biological Invasions 13 (2):499-511
31. **Morse, JW, AK Baldrige, and LW Sargent**. 2013. Invasive crayfish *Orconectes rusticus* (Decapoda, Cambaridae) is a more effective predator of substrate nesting fish eggs than native crayfish (*O. virilis*). Crustaceana 86:387-402.
32. **Spear, M, A Baldrige, and EK Grey**. Current and future projected distribution of red-eared slider turtles, *Trachemys scripta elegans*, in the Great Lakes Basin. (submitted 4/2014)
33. **McAlarnen, L**, K Smith, JS Brownstein, and **C Jerde**. 2014. Internet and free press are associated with reduced lags in global outbreak reporting. PLOS Current Outbreaks doi:10.1371/currents.outbreaks.cecddec16fa17091eea4c725dba9e16
34. **Turner, CR**, DJ Miller, KJ Coyne, and J Corush. 2014. Improved methods for capture, extraction, and quantitative assay of environmental DNA from Asian bigheaded carp (*Hypophthalmichthys* spp.). PLoS ONE 9(12): e114329. doi: 10.1371/journal.pone.0114329
35. **Turner, DR, KL Uy**, RK Everhart. 2015. Fish environmental DNA is more concentrated in aquatic sediments than surface waters. Biological Conservation 183:93-102.

#### **EXTERNAL RESEARCH SUPPORT (major grants in bold) Past Grants**

- National Science Foundation. \$94,000 for May 1985-October 1988.** Principal Investigator. "Selective predation, herbivory, and habitat structure: multiple predators and their impact on freshwater snail assemblages." Additional awards went to collaborators Roy Stein (Ohio State Univ.), Alan Covich (Oklahoma State Univ.), and Ken Brown (Louisiana State Univ.).
- Indiana Academy of Science. \$500 for May 1986-May 1987. Research Advisor for M.S. student Louise Weber. "Periphyton, substrates and the distribution of grazing snails."
- Indiana Department of Natural Resources. \$3,000 for April 1987-April 1988. Principal Investigator, with M.S. student Mark Olsen. "Distribution of threatened freshwater snail species in St. Joseph and Marshall Counties, Indiana."
- National Science Foundation. \$7,000 for May-October 1988. Research Experiences for Undergraduates supplement.
- Indiana Department of Natural Resources. \$3,000 for January-December 1989. Principal Investigator, with M.S. student Mark Kershner. "Survey of crustacean and molluscan macroinvertebrates and fish in the Elkhart River and tributaries (Elkhart County)."
- National Science Foundation. \$150,000 for July 1989-June 1992.** Principal Investigator. "Predation, herbivory, and disturbance: structuring forces in the littoral zone community of north temperate lakes." Additional awards went to collaborators Roy Stein (Ohio State Univ.) and Ken Brown (Louisiana State Univ.).
- National Science Foundation. \$4,000 for May 1990-April 1991. Principal Investigator. Research Experiences for Undergraduates supplement.
- National Science Foundation. \$25,000 for May 1990-April 1991. Principal Investigator. Research Opportunity Award Supplement, coauthored with Dr. Mark Luttenton, Grand Valley State University.
- Sigma Xi Grant-in-Aid of Research. \$500 for July 1990-June 1991. Research Advisor for M.S. student Mark Kershner. "Impact of landscape heterogeneity on the invasion of northern Wisconsin lakes by the crayfish,

*Orconectes rusticus*."

National Science Foundation. \$5,000 for May 1991-April 1992. Principal Investigator. Research Experiences for Undergraduates Supplement.

National Science Foundation. \$16,000 for June 1991-May 1992. Principal Investigator. Research Opportunity Award Supplement, coauthored with Dr. Mark Luttenton, Grand Valley State University.

**National Science Foundation. \$350,297 for June 1991-May 1996.** Principal Investigator. "Whole-lake manipulations of food webs and nutrients: benthic community responses and benthic-pelagic coupling."

Sigma Xi Grant-in-Aid of Research. ca. \$500 for 1992. Research Advisor for Ph.D. student Anna Hill.

**Environmental Protection Agency. \$298,548 for September 1992-September 1994.** Co-Principal Investigator with Dr. Gary Lamberti (UND). "Invasion, impact, and interactions of zebra mussel and rusty crayfish in the St. Joseph River Basin, Indiana-Michigan, and in Streams of Northern Wisconsin-Michigan."

National Science Foundation. \$5,000 for Summer 1994. Principal Investigator. Research Experience for Undergraduates Supplement.

**Environmental Protection Agency. \$120,000 for September 1994-September 1995.** Co-Principal Investigator with Dr. Gary Lamberti (UND). "Invasion, impact, and interactions of zebra mussels and rusty crayfish in the St. Joseph River Basin, Indiana-Michigan, and in Streams of Northern Wisconsin-Michigan."

National Science Foundation. \$3,000 for Summer 1995. Principal Investigator. Research Experience for Undergraduates Supplement.

Indiana Water Resources Research Institute. \$15,000 for July 1994-June 1995. Principal Investigator for Fellowship supporting Ph.D. student William Perry.

NOAA Sea Grant. \$12,000 for April-July 1996. co-PI, in collaboration with Gary Lamberti. Limiting factors and ecological effects of zebra mussels in a southern Lake Michigan drainage.

National Science Foundation. \$5,000 for May 1996-April 1997. P.I. Research Experience for Undergraduates Supplement.

**National Science Foundation. \$190,000 for October 1994-September 1998.** Herbivory on freshwater macrophytes: quantifying plant damage and mechanisms of plant resistance. Total award, including component to collaborator Mark Hay (UNC-Chapel Hill, \$160,000), was \$350,000.

**NOAA Sea Grant. ca. \$174,000 for August 1995-July 1998.** Co-P.I. with Gary A. Lamberti. Potential impacts of invading ruffe (*Gymnocephalus cernuus*) on benthic and pelagic ecosystems of the Great Lakes. Total award, including several state Sea Grant offices and six midwestern institutions, was \$367,000.

National Science Foundation. \$13,186 for July 1995-June 1998. P.I., in collaboration with two of my graduate students, S. Blumenshine and Y. Vadeboncoeur. Doctoral Dissertation Improvement Grant: Carbon and nitrogen pathways in lake ecosystems: the influence of nutrients and food webs on benthic-pelagic links. Total award including component to collaborator Jim Kitchell (UW-Madison, \$4,814) was \$18,000.

National Science Foundation. \$5,000 for May 1997-April 1998. P.I. Research Experience for Undergraduates Supplement.

National Science Foundation. \$4,570 for 1 August 1997-31 July 1998. US-Kenya Planning Visit: Impact of an exotic crayfish on native Kenyan freshwater communities.

**National Science Foundation. \$563,000 for September 1994-August 1999.** One of nine UND Co-P.I.s, with Gary A. Lamberti P.I. Graduate Research & Training Grant: Environmental Stress in Ecosystems: Responses and Mitigation.

Fulbright Senior Research Scholar Program. \$37,000 for Jan-May 1999. African Regional Research Program. Ecological impact of a nonindigenous crayfish on native Kenyan freshwater communities.

Institute for Wetland and Waterfowl Research. \$28,000 for 30 January 1998-30 January 2000. P.I.: with grad student Adrienne Froelich. Waterfowl-vegetation dynamics on the Atlantic Flyway wintering grounds.

**NOAA Sea Grant (IL-IN). \$248,854 (\$121,354 to Notre Dame) for 1 September 1997-31 August 2000.** Lead P.I.; co-PIs Daniel Schneider & Rip Sparks (U. Illinois) and Ellen Marsden (U Vermont). Degradation and restoration of Lake Michigan: past and future of nonindigenous species.

**NOAA Sea Grant (IL-IN). \$75,400 for 1 May 1998 to 29 February 2001.** Lead P.I.; co-P.I. Jeff Feder, with postdoc Bill Perry. Dispersal of exotic species in the Great Lakes: crayfish as a model system for benthic species.

NOAA Sea Grant (IL-IN). \$38,000 for Jan-Dec 2000. Lead P.I. with grad student A. Froelich. Knauss Policy Fellowship.



- Institute for Wetland and Waterfowl Research (Ducks Unlimited). \$14,000 for 1 March 2001-28 February 2002. P.I.: with grad student Adrienne Froelich. Waterfowl-vegetation dynamics on the Atlantic Flyway wintering grounds.
- National Science Foundation. \$100,000 for July 2000-August 2002.** P.I., with six senior investigators. Biocomplexity Incubation Activity: Risk Assessment of Nonindigenous Species: Multidisciplinary Integration of Concepts and Application to the Laurentian Great Lakes.
- Lilly Foundation. \$83,500 for Sept 2000-Sept 2002. P.I.; co-coordinator Chris Hamlin, UND History Dpt. For a National Conference: "Ecology, Theology, and Judeo-Christian Environmental Ethics."
- Great Lakes Fisheries Commission. \$75,000 for July 2000-June 2003. P.I. with co-investigator Greg Dwyer (U Chicago). Toward the development of ballast effluent standards: using Population Viability Analysis in risk assessment.
- National Science Foundation. \$6,000 for May 2002-August 2002, P.I., REU Supplement to Biocomplexity Incubation project.
- NOAA Illinois-Indiana Sea Grant. \$130,000 for March 2002-February 2004.** P.I. Quantifying pathways of nonindigenous aquatic species.
- National Science Foundation. \$12,000 for 2003, P.I., REU Supplement to IRCEB project.
- NSF Doctoral Dissertation Improvement Grant. \$13,000 for 6/2003-5/2004. P.I., with graduate student John Drake. Assessing invasion risk in the Great Lakes from diapausing organisms: estimating propagule pressure with molecular tools.
- DOE GAANN. \$627,900 for 2001-2004.** One of 10 ND co-PIs, with Joan Brennecke, PI. Risk Assessments of Novel Chemicals in the Environment.
- Great Lakes Protection Fund project led by William Weeks, Sommer Barnard Ackerson, Attorneys, "Risk Management and Risk Financing as Tools for Preventing Biological Pollution." 2003-2004.
- National Science Foundation. \$220,948 for March 2002-Feb 2005. Co-P.I. with Steve Silliman P.I. REU Site on Water Resources in Developing Countries.
- NOAA National Sea Grant. Unfunded Co-investigator for 2003-2005. One of 12 Co-investigators, with P.I. Doug Jensen, Minnesota Sea Grant. A National ANS Outreach Campaign for the Aquarium Industry and Hobbyist Consumers: A collaborative effort involving the Pet Industry Joint Advisory Council, the US Fish and Wildlife Service and the Great Lakes Sea Grant Network.
- EPA STAR program on Exploratory Research to Anticipate Future Environmental Issues, Biopollution. \$450,000 for April 2001-July 2005.** P.I., with co-investigator Greg Dwyer. Predicting the identity, spread, and impact of future nonindigenous species in the Great Lakes.
- EPA STAR program on Exploratory Research to Anticipate Future Environmental Issues. \$925,000 for January 2002-June 2006.** Co-investigator with P.I. Scott Bridgham, and co-investigators Gary Lamberti and Patricia Maurice. Interactive effects of climate change, wetlands, and dissolved organic matter on UV damage to aquatic foodwebs.
- NOAA National Sea Grant. \$340,000 for 1 June 2003-31 May 2006.** P.I., with the following Co-PIs or senior collaborators: Brian Leung (U Notre Dame), Jason Shogren (U. Wyoming), and David Finoff (U. Central Florida). Evaluating the ecological and economic value of the 100<sup>th</sup> Meridian Initiative.
- US Fish & Wildlife Service. \$40,000 for 2003-2005. P.I. Evaluating the ecological and economic value of the 100<sup>th</sup> Meridian Initiative.
- NSF National Center for Ecological Analysis and Synthesis, August 2004-June 2005. Sabbatical Fellowship.
- NOAA. \$750,000 for April 2002-March 2005.** Co-P.I. with Gary Lamberti, PI, and four other ND Co-Investigators. Environmental risk assessments for the Great Lakes: determining the environmental impact of room temperature ionic liquids prior to widespread industrial use.
- National Science Foundation. \$10,000 for 2004/05. P.I., Research Experience for Teachers Supplement.
- National Science Foundation.** P.I. with G.A. Lamberti. \$6,500 for REU Supplement for 2005 to IRCEB project.
- USDA (Ottawa National Forest). \$128,000 for Sept 2001-2007. P.I. Monitoring and control of rusty crayfish.
- National Sea Grant, \$300,000 for June 2005-May 2008.** P.I. with J. Shogren (U Wyoming) and D. Finnoff (U Wyoming). Economic impact of ballast-mediated invasive species in the Great Lakes.
- Department of Energy. \$155,000 for July 2006-June 2008. Co-PI with Jeff Feder and Jessica Hellmann (P.I). Genomic studies of terrestrial and aquatic invertebrates.
- National Science Foundation, Integrated Research Challenges in Environmental Biology. \$2,989,645 for September 2002-August 2009.** P.I., with the following Co-PIs or senior collaborators: Gary Lamberti (UND), Mark Lewis (U. Alberta), Hugh MacIsaac (U. Windsor), Jason Shogren (U. Wyoming), and David Finoff (U. Central Florida). Ecological forecasting and risk analysis of nonindigenous species: strategic optimization using a bioeconomic approach.

- National Fish and Wildlife Foundation. \$39,000 for 1 May 2008-31 October 2009. Co-P.I. with L Chadderton (TNC), P.I. Designing and testing an invasive species early detection site selection protocol.
- National Science Foundation. \$20,000 for August 2008-July 2009. Supplement to IRCEB: Ecological risk assessment of Nile tilapia in Zambia.
- Shawnee Resource Conservation and Development Area, Inc., \$26,814 for 1 July 2010 – 30 September 2010. Survey of Public Boat Launches Along the Ohio River (Shawnee).
- US Geological Survey. \$50,000 for September 2009-September 2010. P.I. on collaborative project with Dr. Reuben Keller (U. Chicago), U.S. risk assessment framework for invasive freshwater animals.
- The Nature Conservancy (source: National Fish & Wildlife Foundation). \$79,000 for June 2009-October 2010. co-P.I. under Lindsay Chadderton (TNC). Early detection and surveillance of aquatic nuisance species.
- The Nature Conservancy (source: Oberweiler Foundation). \$45,400 for June 2009-October 2010. Early detection and surveillance of aquatic nuisance species.
- Shawnee Resource Conservation and Development Area, Inc. \$26,814 for June 2010-September 2010. P.I., with co-P.I. Lindsay Chadderton (TNC). Survey of Public Boat Launches Along the Ohio River (Shawnee).
- National Science Foundation, \$3,387,561 for Sept 2005-Aug 2010 (with no-cost extension to Aug 2011).** Co-P.I. with J Feder (P.I.), N. Besansky, A. Fuentes, and G.A. Lamberti. IGERT: Global linkages of biology, environment, and society (GLOBES).
- Great Lakes Protection Fund. \$1,090,000 for July 2006-June 2009 (no-cost extension October 2011).** P.I. with Jeff Feder (UND), Chia Chang (UND), John Andersen (The Nature Conservancy), and John Drake (U Georgia). Risk assessment and management of Great Lakes invasive species.
- Great Lakes Protection Fund. \$805,000 for October 2007-December 2011).** P.I. with Jeff Feder (UND), Chia Chang (UND), and Lindsay Chadderton (The Nature Conservancy). Developing and Applying a Portable Real-time Genetic Probe for Detecting Aquatic Invasive Species in Ships' Ballast.
- Army Corps of Engineers, \$696,953 for 2008. July. 2008-December 31, 2010.** P.I. with C Jerde, A Mahon, and L. Chadderton (TNC). Aquatic Invasive Species Risk Assessment for the Chicago Sanitary and Ship Canal (CSSC).
- Illinois-Indiana Sea Grant. \$10,000 for June 2010-May 2011. P.I. with graduate student C. Turner. Evaluating environmental DNA detection alongside standard fish sampling in Great Lakes coastal wetland monitoring.
- Indiana Department of Natural Resources. \$30,657 for Sept 2010-Feb 2011. co-P.I. with A. Mahon, P.I. C.Jerde. Environmental DNA surveillance of the Wabash-Maumee River region for bighead and silver carp.
- Illinois Department of Natural Resources. \$44,871 for Sept 2010-Aug 2011. co-P.I. with A. Mahon, P.I. C.Jerde. Environmental DNA surveillance for Asian carp in Chicago area bait shops.
- National Science Foundation. \$15,000 for September 2010-August 2011. P.I., Ecological and Evolutionary impacts of Nile tilapia (*Oreochromis niloticus*) on the Kafue River, Zambia.
- Invasive Animals Cooperative, \$30,111 for 1 August 2011 – 31 April 2012. Development of a surveillance method for feral tilapia using Environmental DNA.
- EPA, \$276,150 for 1 August 2011-31 July 2013. Co-PI with C. Jerde. Invasive Species of bait trade.
- Great Lakes Fishery Trust, \$249,999 for 1 August 2011-31 Dec 2013. Estimating Asian carp abundance using environmental DNA.
- University of Notre Dame Strategic Research Initiative. \$10,000,000 from U Notre Dame for Sept 2010-August 2014.** P.I. (40 other ND faculty participating). Notre Dame Environmental Change Initiative.
- US Fish & Wildlife Service (via EPA GLRI). \$997,364 for September 2010-August 2014.** P.I., with co-P.I.s Reuben Keller (U. Chicago), Lindsay Chadderton (TNC), Preventing invasions from trade in live aquatic organisms.
- US Fish & Wildlife Service (via EPA GLRI). \$999,372 for September 2010-August 2014.** P.I., with co-P.I.s Christopher Jerde (ND), Andrew Mahon (ND), Lindsay Chadderton (TNC), Environmental DNA surveillance—applied early detection.

**Current Grants (major grants in bold)**

- NOAA CSCOR. \$2,474,560 for Sept 2009-Aug 2015.** P.I., with Co-investigators Lindsay Chadderton (The Nature Conservancy), R. Jensen (UND), E. Rutherford (U. Michigan), D. Finnoff (U Wyoming), and R. Cooke (Resources for the Future). Forecasting spread and bioeconomic impacts of aquatic invasive species from multiple pathways to improve management and policy in the Great Lakes.
- NOAA CSCOR (via EPA GLRI). \$2,232,490 for Sept 2010-Aug 2015.** P.I., with Co-investigators Lindsay

Chadderton (The Nature Conservancy), E. Rutherford and D. Beletsky (U. Michigan), John Drake (U Georgia), and J. Bossenbroek (U Toledo). Forecasting spread and bioeconomic impacts of aquatic invasive species from multiple pathways to improve management and policy in the Great Lakes. (*This is the second half of an original NOAA CSCOR proposal that has been funded from two sources.*)

**Department of Defense (SERDP) \$1,362,920 for 2012-2016.** Principal Investigator. Development of an Environmental Metagenetics Approach for Monitoring Aquatic Biodiversity.

**EPA GLRI, \$600,000 for 9/30/2012-9/30 2015.** Co-PI with S Egan, PI, and co-PIs J Feder, M Pfrender, C Jerde, S Ruggiero, and C Tanner. eDNA Longevity and Relationship to Abundance of Diverse Taxa.

**USDA BRAC, \$500,000 for 2013-2015.** Co-PI with S Egan, PI, and co-PIs J Feder, J Tank, C Tanner, S Ruggiero, S Howard, and E Rosi-Marshall. Monitoring the dispersal of genetically engineered organisms and their byproducts using Laser Transmission Spectroscopy.

**NSF Coastal SEES, \$2,000,000 for 2014-2019.** P.I. with co-PIs N Chawla, T Wickramaratne, E. Grey, J Corbett, M Pfrender, A Leister, and T Warziniack. Changes in ship-borne invasions in coupled natural-human systems: infrastructure, global trade, climate and policy.

## THESES & DISSERTATIONS DIRECTED

### Completed

- Weber, Louise. 1988. Interactions of grazing snails and periphyton in northern Wisconsin lakes. M.S. thesis, U. Notre Dame.
- Olsen, T. Mark. 1989. Impact of the introduced crayfish, *Orconectes rusticus*, in northern Wisconsin lakes: field and laboratory studies. M.S. thesis, U. Notre Dame.
- Kershner, Mark W. 1992. The impact of landscape pattern on the invasion of northern Wisconsin lakes by the crayfish, *Orconectes rusticus*. M.S. thesis, U. Notre Dame.
- Hill, Anna M. 1994. Competition and predation as mechanisms of replacement of congeneric crayfishes by the exotic crayfish *Orconectes rusticus* (Girard). Ph.D. thesis, U. Notre Dame.
- Blumenshine, Steven. 1997. Responses of benthic macroinvertebrates to whole-lake manipulations of fish and nutrient loading rates. Ph.D. thesis, U Notre Dame.
- Vadeboncoeur, Yvonne. 1998. Whole-lake fertilization effects on the abundance, distribution, and production of benthic and pelagic algae in north temperate lakes. Ph.D. thesis, U Notre Dame.
- Perry, William. 1998. Ecological and genetic impact of a nonindigenous freshwater crayfish. Ph.D. thesis, U Notre Dame.
- Burks, Romi. 2000. *Daphnia* in littoral zones: costs and benefits of diel horizontal migration (DHM). Ph.D. thesis, U Notre Dame.
- Froelich, Adrienne. 2001. Selectivity and impact of vertebrate herbivory on freshwater macrophytes. Ph.D. thesis, U Notre Dame.
- Kolar, Cindy. 2002. Freshwater nonindigenous species: risk analyses for the Laurentian Great Lakes. Ph.D. thesis, U Notre Dame.
- Rosenthal, Sadie. 2004. Experimental control of invasive crayfish and lake restoration. M.S. thesis.
- Drake, John. 2004. Risk analysis for biological invasions of the Laurentian Great Lakes and inland aquatic ecosystems. Ph.D. thesis.
- Keller, Reuben. 2006. Ecological and bioeconomic risk assessment for invasive species. Ph.D. thesis.
- Larson, James. 2006. Interactions between dissolved organic matter sources and effects in stream ecosystems. Ph.D. thesis.
- Kreps, Timothy. 2009. Scaling up: long-term, large-scale impacts of the invasion of lakes by the invasive rusty crayfish (*Orconectes rusticus*). Ph.D. thesis.
- Rothlisberger, John. 2009. Human-mediated dispersal of aquatic nonindigenous species: impacts and interventions. Ph.D.thesis.
- Peters, BW. 2010. Evaluating strategies for controlling invasive crayfish using human and fish predation. M.S. thesis.
- Peters, JM. 2010. Influence of habitat, predation, and spatial and temporal scales on species diversity and distributions: Interactions involving crayfishes in the Laurentian Greta Lakes and inland lakes. Ph.D.thesis.
- Deines, AM. 2013. Environmental change and tradeoffs in freshwater ecosystem services: Nile tilapia (*Oreochromis niloticus*) introduction to the Kafue River, Zambia. Ph.D. thesis.
- Barnes, MA. 2013. Prediction, detection, and management of aquatic invasive species. PhD thesis.
- Baldridge, AK. 2013. Invasive rusty crayfish (*Orconectes rusticus*): community impacts and potential for recovery. PhD thesis.

**MAJOR AWARDS AND EXTERNAL FELLOWSHIPS WON BY LODGE'S GRADUATE STUDENTS**

- Turner, C.T. 2014. Best Student Paper Emphasizing Methodology, Society of Freshwater Science.
- Baldrige, A. 2011. Bayer Predoctoral Research Fellowship, Notre Dame, \$12,000.
- Turner, C. 2010-2011. Illinois-Indiana Sea Grant. Graduate Student research award. \$10,000.
- Deines, A. 2010-2011. National Science Foundation Doctoral Dissertation Enhancement Project.
- Rothlisberger, J. 2009. US Presidential Management Fellowship.
- Drake, J. Notre Dame Department of Biological Sciences 2004 Research Achievement Award.
- Drake, J. 2004. Notre Dame Silicon Graphics Incorporated Award (best science publication in computational and visualization)
- Murray, J. 2004. NSF Graduate Fellowship.
- Keller, R. 2003. Best Oral Presentation, second place, Society of Conservation Biology international meeting.
- Kolar, C. 2003. Frost Award for Excellence in Graduate Research, awarded by the Aquatic Section of the Ecological Society of America.
- Drake, J. 2003. NSF Doctoral Dissertation Improvement Grant.
- Kolar, C. 2002. Shaheen Award, University of Notre Dame Graduate School award for the Most Outstanding Research in the College of Science.
- Rosenthal, S. 2002. National Science Foundation Graduate Fellowship, Honorable Mention.
- Drake, J. 2001-2004. EPA STAR Graduate Fellowship. \$102,000.
- Kolar, C. 2001. American Fisheries Society's J. Frances Allen award for the female graduate student with the greatest promise in fisheries science.
- Drake, J. 2001-2003. Illinois-Indiana Sea Grant Fellowship. \$6,000.
- Froelich, A. 2000-01. Sea Grant Knauss Policy Fellowship; \$38,000 1 yr fellowship working on natural resource legislation for U.S. Senator Ronald Wyden (D-OR).
- Kolar, C. 2000. International Association of Great Lakes Research, Best Paper competition, Honorable Mention.
- Drake, J. 2000. National Science Foundation Graduate Fellowship, Honorable Mention.
- Burks, R. 1999. American Scandanavian Foundation Travel Grant.
- Burks, R. 1998-1999. Fulbright Graduate Fellowship (Denmark).
- Froelich, A. 1998-2001. Donnelly Fellowship, Institute for Wetland and Waterfowl Research (\$48,000 over 3 yr).
- Burks, R. 1997. University of Notre Dame Graduate Student Union Teaching Award (one of two annual awards).
- Perry, W. 1994-95. Indiana Water Resources Research Institute Fellowship (\$15,000, 1 yr).
- Vadeboncoeur, Y. 1994. Best poster. Annual meeting of the American Society of Limnology and Oceanography.
- Weber, L. 1988. Best oral presentation (Frigid Units Award). Annual meeting of the North American Benthological Society.