

## WAYNE A. WURTSBAUGH

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Utah State University, Logan, Utah 84322-5210**

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Web page: <http://www.cnr.usu.edu/htm/facstaff/memberID=860>



### EDUCATION

Ph.D. University of California at Davis, in Ecology (1983) Dissertation: Internal and external controls on plankton abundance in a large eutrophic lake.

M.S. Oregon State University, in Fisheries, with minor in Water Resources (1973). Thesis: Effects of temperature, ration level, and size on the growth of steelhead trout.

B.S. University of California at Davis, in Fisheries & Wildlife (1970). Thesis: Food and distribution of underyearling brook and rainbow trout in Castle Lake, California.

### PROFESSIONAL EXPERIENCE

PROFESSOR Emeritus (July 2016 - ), Watershed Sciences Department, Quinney College of Natural Resources, Utah State University, Logan, Utah.

PROFESSOR (July 1996 to June 2016), Watershed Sciences Department (Formerly Aquatic, Watershed & Earth Resources Department), Utah State University, Logan, Utah.

FULBRIGHT LECTURING/RESEARCH FELLOWSHIP (March-May 2011), Universidad de Cordoba, Argentina.

GASTPROFESSOR, (Sept 2005-Apr 2006), ETH University and Swiss Federal Institute for Environmental Science and Technology (EAWAG), Zurich, Switzerland.

ASSOCIATE PROFESSOR (July 1989-1996), Dept. of Fisheries and Wildlife, Utah State U. Logan, Utah.

ASSISTANT PROFESSOR (July 1983-1989), Department of Fisheries and Wildlife, Utah State University.

FULBRIGHT SENIOR RESEARCH SCHOLAR (Sep. 1997-Apr. 1998), Universidad de Valencia, Spain.

VISITING SCIENTIST (May-July 1991), Max-Planck-Institut fuer Limnologie, Ploen, Germany (sabbatical)

VISITING SCIENTIST (Oct. 1990-April 1991), Center for Limnology, Madison, Wisconsin. (sabbatical)

STAFF RESEARCH SCIENTIST (1980-1983), Div. of Environmental Studies, U. of California, Davis.

Duty station: Lake Titicaca, Peru.

POST-GRADUATE RESEARCHER AND RA (1975-1980), Dept. of Wildlife and Fisheries/Inst. of Ecology, University of California, Davis.

BIOLOGIST (1973 and 1975), Clear Lake Algal Research Unit, Lakeport, California.

FISHERY BIOLOGIST (1973-1974), U.S. Peace Corps, Puno, Peru.

WATER POLLUTION TRAINEE (1970-1973), Department of Fisheries and Wildlife, Oregon State University. Corvallis, OR.

SEASONAL AIDE (1968-1969, summers), California Fish and Game. Sacramento, CA.

GEOLOGICAL FIELD ASSISTANT (1967, summer), U.S. Geological Survey. Menlo Park, CA.

#### **CURRENT RESEARCH INTERESTS:**

- Saline lake limnology
- Landscape limnology
- Mercury and selenium in aquatic food webs
- Biogeochemical controls on aquatic productivity
- Algal-nutrient relationships; N vs P limitation
- Ontogeny of temperature selection and bioenergetics of fishes
- Stable isotopes and food webs
- Ecology of endemic and threatened fishes

#### **RESEARCH AND FUNDING**

**2015-2016. Wurtsbaugh, W.A. and D. Rosenberg.** Integrated Natural Resource Management for Urmia Lake Restoration: A Collaborative Program Between the Iranian Lake Urmia Restoration Program (ULRP) & Utah State University. Koshrow Semnani Foundation (1 year; \$23,000).

#### **2014-2015**

**Wurtsbaugh, W.A.** Farmington Bay Student Research Project-2014. Utah Division of Water Quality. (1 year; \$2,000)

#### **2012-2013**

**Wurtsbaugh, W.A.** Relations between mercury, nutrients and plankton along the Farmington Bay-Gilbert Bay salinity gradient in the Great Salt Lake. Utah Division of Forestry, Fire and State Lands. (1 year; \$51,278).

McCulley, E. and **Wurtsbaugh, WA.** Great Salt Lake Research: nutrients, metals, and plankton in Farmington Bay, Utah. Utah Division of Water Quality and ENVIRON. (1 year; \$45,156: \$19,222 to USU).

#### **2011-2012**

**Wurtsbaugh, W.A.** Factors affecting the spatial and temporal variability of *Nodularia* blooms in Farming Bay (Great Salt Lake). Central Davis County Sewage Improvement District. (1 year; \$14,974)

#### **2010-2011**

**Wurtsbaugh, W.** Great Salt Lake Student Research Projects-2010. Utah Division of Water Quality. Salt Lake City, Utah (\$1,067).

**Wurtsbaugh, W.** Undergraduate research student support: mercury fractions and transfer from the Great Salt Lake's Deep Brine Layer. Utah State Division of Forestry, Fire and Lands. (Year 1; \$1000)

#### **2009-2010**

**Wurtsbaugh, W., P. Leavitt and K. Moser.** Paleolimnological evaluation of eutrophication and metal deposition in bays of the Great Salt Lake using multi-proxy sediment records. Utah Division of Water Quality. Salt Lake City, Utah (Year 2 of 2; \$154,108).

**Wurtsbaugh, W.** Importance of the Great Salt Lake's deep brine layer for mercury transfer and nutrition of brine shrimp. Utah State Division of Forestry, Fire and Lands. (Year 2 of 2; \$46,675).

**2008-2009**

**Wurtsbaugh, W.**, M. Baker, and B. McGwynn. Landscape limnology of mountain watersheds: Nutrient retention and ecosystem stability in complex aquatic ecosystems. National Science Foundation (Year 4 of 4; \$1,297,193).

**Wurtsbaugh, W.**, P. Leavitt and K. Moser. Paleolimnological evaluation of eutrophication and metal deposition in bays of the Great Salt Lake using multi-proxy sediment records. Utah Division of Water Quality. Salt Lake City, Utah (Year 1 of 2; \$154,108).

**Wurtsbaugh, W.** Importance of the Great Salt Lake's deep brine layer for mercury transfer and nutrition of brine shrimp. Utah State Division of Forestry, Fire and Lands. (Year 1 of 2; \$46,675).

**Wurtsbaugh, W.** Monitoring of water quality in three bays of the Great Salt Lake. Utah Division of Water Quality, Salt Lake City. (1 year; \$74,853)

**2007-2008**

**Wurtsbaugh, W.** Preliminary analyses of mercury contamination in the benthic biostromes of the Great Salt Lake. Utah Division of Water Quality (1 year; \$44,762).

**Wurtsbaugh, W.**, M. Baker, and B. McGwynn. Landscape limnology of mountain watersheds: Nutrient retention and ecosystem stability in complex aquatic ecosystems. National Science Foundation (Year 3 of 4; \$1,297,193).

**2006-2007**

**Wurtsbaugh, W.** Relationships between eutrophication, cyanobacteria blooms and avian botulism mortalities in the Great Salt Lake, Utah. Utah Wetlands Foundation. (1 yr., \$10,000).

**Wurtsbaugh, W.** Relationships between eutrophication, cyanobacteria blooms and avian botulism mortalities in the Great Salt Lake, Utah. Tides Foundation. (1 yr., \$10,000).

**Wurtsbaugh, W.**, M. Baker, and B. McGwynn. Landscape limnology of mountain watersheds: Nutrient retention and ecosystem stability in complex aquatic ecosystems. National Science Foundation (Year 2 of 4, \$1,297,193).

**2005-2006**

**Wurtsbaugh, W.**, M. Baker, and B. McGwynn. Landscape limnology of mountain watersheds: Nutrient retention and ecosystem stability in complex aquatic ecosystems. National Science Foundation (4 yr., \$1,297,193).

**Wurtsbaugh, W.** Eutrophication analyses of a polluted embayment of the Great Salt Lake, Farmington Bay, Utah. Tides Foundation (1 yr., \$25,000).

**Wurtsbaugh, W.** and D. Naftz. Spatial analysis of trophic linkages between basins in the Great Salt Lake, Utah. Utah Division of Forestry, Fire and State Lands. (1 yr., \$75,000).

**Wurtsbaugh, W.** Analysis of selenium bioaccumulation in benthic food webs of the Great Salt Lake, Utah. Utah Division of Water Quality/North Davis Sewer Improvement District. (1 yr., \$29,674).

**2004-2005**

**Wurtsbaugh, W.**, M. Baker, R. Hall and J. Haefner. Influence of stream-lake interactions on nutrient transport and function of aquatic ecosystems: Modeling, <sup>15</sup>N experiments and watershed analyses. National Science Foundation (3 yr., 2002-2005; \$1,008,315).

**Wurtsbaugh, W.** Impacts of eutrophication on Farmington Bay, Great Salt Lake. Utah Division of Water Quality. (2005, \$84,142).

**Wurtsbaugh, W.** Analysis of Phytoplankton Nutrient Limitation in Farmington Bay and the Great Salt Lake. Central Davis Sewer Improvement District. (2005; \$5,342).

**2003-2004**

**Wurtsbaugh, W.**, M. Baker, R. Hall and J. Haefner. Influence of stream-lake interactions on nutrient transport and function of aquatic ecosystems: Modeling, <sup>15</sup>N experiments and watershed analyses. National Science Foundation (3 yr., 2002-2005; \$1,008,315).

**Wurtsbaugh, W.** and M. Gustafson. Stream-Lake Interactions: Landscape Impacts on Aquatic Biodiversity. ROA Supplement from NSF. (1 year; \$23,800).

**Wurtsbaugh, W.** and M. Baker. Research Experiences for Undergraduates (REU), as an addendum to our NSF grant on Stream-Lake interactions on nutrient transport. (2003; \$12,000)

**Wurtsbaugh, W.** Continued Studies on Water Pollution in Farmington Bay of the Great Salt Lake: Human and Environmental Impacts. CURI grant, Utah State University (2003-04; \$15,000).

**Wurtsbaugh, W.** Analysis of Phytoplankton Nutrient Limitation in Farmington Bay and the Great Salt Lake. Central Davis Sewer Improvement District. (2004; \$15,716).

**Wurtsbaugh, W.** Hydrogen Sulfide in Farmington Bay and the Great Salt Lake: A Potential Odor-Causing Agent. Central Davis Sewer Improvement District. (2004; \$7,694).

**2002-2003**

**Wurtsbaugh, W.**, M. Baker, R. Hall and J. Haefner. Influence of stream-lake interactions on nutrient transport and function of aquatic ecosystems: Modeling, <sup>15</sup>N experiments and watershed analyses. National Science Foundation (3 yr, 2002-2005; \$1,008,315).

**Wurtsbaugh, W.** and M. Baker. Research Experiences for Undergraduates (REU), as an addendum to our NSF grant on Stream-Lake interactions on nutrient transport. (2002; \$11,000).

**Wurtsbaugh, W.** Research on Water Pollution in Farmington Bay of the Great Salt Lake: Human and Environmental Impacts. CURI grant, Utah State University (2002-03; \$40,000).

**Wurtsbaugh, W.**, J. Cole, D. McKnight, Pat Brezonkik, S. MacIntyre and Ken Potter. Emerging Research Issues for Limnology, The Study of Inland Waters: An NSF / ASLO sponsored

workshop. National Science Foundation (2002; \$68,610; administered through University Corporation for Atmospheric Research, Joint Office for Science Support, Boulder, Colorado).

**2001-2002**

**Wurtsbaugh, W.**, M. Baker, R. Hall and J. Haefner. Influence of stream-lake interactions on nutrient transport and function of aquatic ecosystems: Modeling, <sup>15</sup>N experiments and watershed analyses. National Science Foundation (3 yr., 2002-2005; \$1,008,315).

**2000-2001**

**Wurtsbaugh, W.** and C. Luecke. Deep chlorophyll layers as export production zones in lake ecosystems: The importance of hydrodynamics and biological transport in the formation and maintenance of metalimnetic production. National Science Foundation (3 yr.; \$612,238).

**Wurtsbaugh, W.** Eutrophication of Farmington Bay in the Great Salt Lake. Unfunded.

**1999-2000**

**Wurtsbaugh, W.**, C. Luecke and M.R. Miracle Sole. Ecosystem-level analyses of production processes in lakes: the importance of the deep-chlorophyll layers. Commission for Cultural, Educational and Scientific Exchange between the U.S. and Spain. (2 yr.; \$13,791).

**Wurtsbaugh, W.** and C. Luecke. Deep chlorophyll layers as export production zones in lake ecosystems: The importance of hydrodynamics and biological transport in the formation and maintenance of metalimnetic production. National Science Foundation (3 yr.; \$612,238).

**1998-1999**

**Wurtsbaugh, W.**, C. Luecke and M.R. Miracle Sole. Ecosystem-level analyses of production processes in lakes: the importance of the deep-chlorophyll layers. Commission for Cultural, Educational and Scientific Exchange between the U.S. and Spain. (2 yr.; \$13,791).

**Wurtsbaugh, W.** and C. Luecke. Deep chlorophyll layers as export production zones in lake ecosystems: The importance of hydrodynamics and biological transport in the formation and maintenance of metalimnetic production. National Science Foundation (3 yr.; \$612,238).

**1997-1998**

**Wurtsbaugh, W.** and C. Luecke. Deep chlorophyll layers as export production zones in lake ecosystems: The importance of hydrodynamics and biological transport in the formation and maintenance of metalimnetic production. National Science Foundation (3 yr.; \$612,238).

**Wurtsbaugh, W.** and C. Luecke. Examination of abundance and spatial distribution of forage fish in Bear Lake, Utah/Idaho. Utah Division of Wildlife Resources (1 yr.; \$30,644).

**1996-1997**

**Wurtsbaugh, W.** Examination of taxonomy, abundance and spatial distribution of forage fish in Bear Lake Utah/Idaho. Utah Division of Wildlife Resources (12 months; \$36,378).

**Wurtsbaugh, W.** Production processes in lakes: effects of submerged inflows on algal growth patterns. Fulbright Fellowship to the Universidad de Valencia, Spain (7 months; \$25,000).

**1995-1996**

- Wurtsbaugh, W.** and C. Luecke. Examination of abundance and spatial distribution of forage fish in Bear Lake. Utah Division of Wildlife Resources. \$40,568 (12 months; continuing).
- Wurtsbaugh, W.** Spatial-temporal analysis of primary productivity in the mountain lake habitat of endangered sockeye salmon. Bonneville Power Administration. \$10,826 (6 months).
- Wurtsbaugh, W.** Lake Powell aquatic resources education program. U.S. National Park Service. \$15,532 (1 year).

#### 1994-1995

- Wurtsbaugh, W.** and C. Luecke. Examination of abundance and spatial distribution of forage fish in Bear Lake. Utah Division of Wildlife Resources. \$42,452 (12 months; continuing).
- Luecke, C. and **W. Wurtsbaugh.** Assessment of lake fertilization for the enhancement of sockeye salmon production in Redfish Lake. Bonneville Power Admin./Shoban Indian Tribe. \$114,335 (12 month).
- Wurtsbaugh, W.** Brine shrimp ecology in the Great Salt Lake, Utah. Utah Division of Wildlife Resources. \$15,460 (6 month).
- Wurtsbaugh, W.** Relationship between the fat index at time of stocking and survivability of rainbow trout. Utah Division of Wildlife Resources. \$18,652.

#### 1993-1994

- Wurtsbaugh, W.** Brine shrimp ecology in the Great Salt Lake, Utah. Utah Division of Wildlife Resources. \$56,153 (10 months; continuing).
- Wurtsbaugh, W.** and C. Luecke. Abundance and spatial distribution of forage fishes in Bear Lake. Utah Division of Wildlife Resources. \$80,475/year (continuing).
- Wurtsbaugh W.** and C. Luecke. Limnological analysis of Stanley Basin Lakes with respect to potential rehabilitation of sockeye salmon: Bonneville Power Admin./Shoban Indian Tribe; \$185,112/year (continuing).
- Wurtsbaugh, W.** Relationship between the fat index at time of stocking and survivability of rainbow trout. Utah Division of Wildlife Resources. \$30,541/year (5-year).
- Wurtsbaugh, W.** and C. Luecke. Examination of the factors controlling the abundance of Bear Lake sculpin and other endemic fishes in Bear Lake. Idaho Fish and Game. \$3,372 (6 months).
- Wurtsbaugh, W.** and D. Beauchamp. Temporal distribution, population, and trophic dynamics of lake trout and kokanee in Lake Tahoe. Nevada Dept. of Wildlife. \$100,237/year (4-year).

#### 1992-1993

- Wurtsbaugh, W.** and C. Luecke. Examination of the factors controlling the abundance of Bear Lake sculpin and other endemic fishes in Bear Lake. Idaho Fish and Game. \$27,000.
- Luecke, C. and **W. Wurtsbaugh.** Abundance and spatial distribution of forage fishes in Bear Lake. Utah Division of Wildlife Resources. \$82,688.
- Luecke, C. and **W. Wurtsbaugh.** Limnological analysis of Stanley Basin Lakes with respect to potential rehabilitation of sockeye salmon: Bonneville Power Admin./Shoban Indian Tribe; \$209,218/year (continuing).
- Wurtsbaugh, W.** Relationship between the fat index at time of stocking and survivability of rainbow trout. Utah Division of Wildlife Resources. \$34,907/year (5-year).
- Wurtsbaugh, W.** and D. Beauchamp. Temporal distribution, population, and trophic dynamics of lake trout and kokanee in Lake Tahoe. Nevada Dept. of Wildlife. \$100,237/year (4-year).

#### 1991-1992

- Wurtsbaugh, W.** and C. Luecke. Abundance and spatial distribution of forage fishes in Bear Lake. Utah Division of Wildlife Resources. \$80,700.
- Luecke, C. and **W. Wurtsbaugh.** Limnological analysis of Stanley Basin Lakes with respect to potential rehabilitation of sockeye salmon: Bonneville Power Admin./Shoban Indian Tribe; \$208,200/year (continuing).

**Wurtsbaugh, W.** Relationship between the fat index at time of stocking and survivability of rainbow trout. Utah Division of Wildlife Resources. \$27,800/year (5-year).

**Wurtsbaugh, W.** and D. Beauchamp. Temporal distribution, population, and trophic dynamics of lake trout and kokanee in Lake Tahoe. Nevada Dept. of Wildlife. \$102,000/year (4-year).

#### 1990-1991

Luecke, C. and **W. Wurtsbaugh**. Abundance and spatial distribution of forage fishes in Bear Lake. Utah Division of Wildlife Resources. \$60,392.

**Wurtsbaugh, W.A.** and D. Beauchamp. Temporal distribution, population, and trophic dynamics of lake trout and kokanee salmon in Lake Tahoe. Nevada Department of Wildlife. \$103,920/year.

**Wurtsbaugh, W.A.** Ontogenetic changes in the respiratory physiology of Bear Lake sculpin. Max Plank Institut für Limnology. \$5,000.

#### 1989-1990

**Wurtsbaugh, W.** Littoral structure and its effect on the fish community of Lake Tahoe. Tahoe Regional Planning Agency. \$59,411.

**Wurtsbaugh, W.,** T. Modde, C. Luecke and C. Courtney. Impacts of limnological parameters on survival of rainbow trout strains (year 5). Utah Division of Wildlife Resources. \$92,474.

#### 1988-1989

**Wurtsbaugh, W.** Littoral structure and its effect on the fish community in Lake Tahoe. Tahoe Regional Planning Agency. \$65,480.

**Wurtsbaugh, W.** and C. Hawkins. Trophic interactions between fish and invertebrates in Bear Lake, Utah-Idaho (year 3). Utah Division of Wildlife Resources. \$12,619.

**Wurtsbaugh, W.** and T. Modde. Impacts of limnological parameters on survival of rainbow trout strains (year 4). Utah Division of Wildlife Resources. \$98,364.

#### 1987-1988

**Wurtsbaugh, W.** and T. Modde. Impacts of limnological parameters on survival of rainbow trout strains: Predation losses, habitat needs and out-migration of juvenile rainbow trout. Utah Division of Wildlife Resources. \$98,364 (year 3 of 5).

**Wurtsbaugh, W.** and C. Hawkins. Trophic interactions between fish and invertebrates in Bear Lake, Utah-Idaho. Utah Division of Wildlife Resources. \$38,905 (year 2).

#### 1986-1987

**Wurtsbaugh, W.** and T. Modde. Impacts of limnological parameters on survival of rainbow trout strains: Predation losses and habitat requirements of juvenile trout. Utah Division of Wildlife Resources. \$98,952 (year 2 of 5).

**Wurtsbaugh, W.** and C. Hawkins. Trophic interactions between fish and invertebrates in Bear Lake, Utah. Utah Division of Wildlife Resources. \$72,101 (year 1 of 3).

Sorensen, D., P. Riley, **W. Wurtsbaugh**, and others. Great Salt Lake inter-island diking: Water quality considerations. Utah Division of Water Resources. \$170,563 (1.5-year period).

**Wurtsbaugh, W.** Edaphic factors controlling nitrogen fixation and growth of microbes in Utah's lakes. Unfunded.

#### 1985-1986

**Wurtsbaugh, W.** Impacts of limnological parameters on survival of rainbow trout strains. Utah Division of Wildlife Resources. \$95,681 (year 1 of 5).

**Wurtsbaugh, W.** Bioenergetics of diel feeding migrations in planktivorous fishes. V.P. for Research, USU. \$4,000 (year 2).

**Wurtsbaugh, W.** Limnology of the Great Salt Lake (unfunded).

**1984-1985**

**Wurtsbaugh, W.** and P. Richerson. Trophic coupling between algae, zooplankton and the pelagic fishes of Lake Titicaca, Peru-Bolivia. National Science Foundation. \$9,892.

**1984-1985**

Chapman, J., **W. Wurtsbaugh**, M. Wolfe and J. Kadlec. Fish and Wildlife Research in the tropics: A proposal for Department Involvement in Peru. International Programs, USU. \$10,171.

**Wurtsbaugh, W.** Bioenergetics of diel vertical migrations in planktivorous fishes. V.P. for Research, USU. \$10,830.

**1969-1983** (Other projects in which I have actively participated)

- The limnology of Lake Titicaca: Physical variation and biotic processes. NSF (1980-1983).
- Mosquito control in rice fields by fishes. Calif. Mosquito and Vector Control (1978-1979).
- Food-web structure in a large eutrophic lake, Clear Lake, California. NSF (1975-1976).
- Plankton dynamics and control of blue-green algae in Clear Lake, California. Lake Co., CA. (1973 & 1975).
- Ecology of native and exotic fishes in Lake Titicaca, Peru. Instituto del Mar del Peru/US Peace Corps (1973-1974).
- Effects of thermal pollution on the bioenergetics of salmonid production. EPA (1970-1972).
- Laboratory studies on competition between trout and non-game fish in streams. Calif. Fish and Game (1969-1970).
- Feeding and distribution of juvenile trout in a mountain lake. UC Davis & Calif. Fish and Game (1969).
- Effects of micronutrient additions on plankton and trout production in a mountain lake. NSF (1968).

**TEACHING EXPERIENCE**

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| - Fish Production: Lentic & Lotic Systems  | WATS 6900 (1-2 credit seminar, 2013, USU)              |
| - Saline Lake Ecosystems                   | WATS 6900 (1-2 credit seminar; 2011, USU)              |
| - Ecología Acuática                        | Universidad de Cordoba, Argentina (spring, 2011)       |
| - Limnology                                | WATS 4500 (3 credit; 1983-present, USU)                |
| - Limnologie                               | ETH Switzerland (2005)                                 |
| - Aquatic Ecology Practicum                | WATS 4510 (3 credits; 1983-present, USU)               |
| - Water Pollution                          | WATS 4530/6530 (3 credits.; 1989-96, 98-2009, USU)     |
| - Graduate Ecology                         | WATS 6960 (5 credits., team-taught; 1998, 2003-09 USU) |
| - Aquatic Biogeochemistry                  | AWER 6910 (1 credit; 2003 USU)                         |
| - Fish Ecology                             | FW 675 (3 credits; 1990, 1992, 1993, 1995 USU)         |
| - Production Biology in Fishery Environ.   | FW 655 (4 credits; 1984, 1986 USU)                     |
| - Introduction to Fisheries & Aquatic Res. | FW 255 (3 credits; 1985 USU)                           |
| - Limnology Laboratory                     | ES 151 (3 credits; 1969 U.C. Davis)                    |
| - Bioenergetics of poikilotherms, Seminar  | FW 691 (2 credits; 1986 USU)                           |
| - Resource Competition Seminar             | FW 691 (2 credits; 1984 USU)                           |
| - Trophic Ecology of Fishes Seminar        | FW 691 (2 credits; 1988 USU)                           |
| - Life History Strategies Seminar          | FW 691 (1 credits; 1994 USU)                           |

**ADVISING** (2013 only)

- Graduate Students - As committee member - 5
- Undergraduate advisor for Fisheries & Aquatic Sciences Majors, Watershed & Earth Science Dept.



## DEPARTMENTAL, COLLEGE & UNIVERSITY COMMITTEES & ACTIVITIES

- Member: USU Undergraduate Research Advisory Board
- Member: Undergraduate Academic Review Committee
- Member: Chemical Hygiene Committee
- Member: USU Honors Program Advisory Board
- Member: USU Honorary Degree & Commencement Speaker Committee
- Chair: Teacher of the Year Awards Committee for CNR
- Member: Academic Freedom and Tenure Committee
- Member: QCNR Undergraduate Scholarship Committee (2011-2014)
- Member: University Chemical Hygiene Committee (1995-present)
- Chair: Search Committee for WATS Aquatic Ecologist (2013, 2014)
- Member: Search Committee for WATS Department Head (2014)
- Chair: Tenure & Promotion Committee for P. Belmont, J. Jing, N. Mesner (2014)
- Member: Tenure & Promotion Committee for J. Gaeta, E. Gese, K. Kettenring, M. Larese-Casanova, K. Mock (2013-2015), Sara Null
- Chair: Post-tenure Review Committee for F. Busby, C. Hawkins, J. Tainter and D. Ramsey (2015)
- Member: College Undergraduate Research Committee (2011- present)

## AWARDS AND HONORS

- B.S. with Honors, University of California (1970)
- Graduate Student Mentor of the Year, Dept. of Fisheries & Wildlife, USU (1995)
- Advisor of the Year, College of Natural Resources, USU (2005)
- Honorary Recognition for Education & Human Resources Development, American Society of Limnology & Oceanography (2005)
- Registry of Distinguished Graduates, Dept. of Fisheries and Wildlife, Oregon State University (2006)
- Undergraduate Research Mentor of the Year, College of Natural Resources, Utah State Univ. (2007)
- Teacher of the Year, College of Natural Resources, Utah State University (2009)
- Sustaining Fellow, Association for the Advancement of Limnology and Oceanography (ASLO) (2016)
- Outstanding Service Award (Academic Sector). American Water Resources Association, Utah Chapter (2019)

## GRADUATE STUDENTS

- Darcy Neverman. MS 1989. The diel vertical migration and feeding of underyearling Bear Lake sculpin *Cottus extensus* (Pisces, Cottidae). Now Biologist, Missouri Department of Conservation.
- Edmundo G. Moreno. MS 1989. Seasonal variation in the species composition, abundance, and size frequency distribution of zooplankton in Bear Lake, Utah-Idaho. Now, Professor and Dept. Head, Instituto Tecnico del Altiplano, Puno, Peru.
- Ann D. Baker. MS 1989. Variation in trout abundance in relation to habitat quality in a recently disturbed stream: patterns at two spatial scales. Now, Fisheries Biologist, U.S. Fish and Wildlife Service.
- Roger A. Tabor. MS. 1990. The importance of cover for juvenile rainbow trout in lentic systems: Field observations and an experimental study of predation. Now, Fisheries Biologist, U.S. Fish and Wildlife Service.
- Enqiang He. MS 1992. Gastric evacuation rates in fish: An empirical model of the effects of temperature and prey size, and an analysis of digestion in piscivorous brown trout. Now, Utah Department of Environmental Quality.

- Howard Gross. MS 1995. Hydrology and nutrient chemical controls on production of endangered sockeye salmon in the Sawtooth Basin, Idaho. Now working with National Parks Conservation Association.
- Jim Ruzycki. MS 1995. Ontogenetic niche shifts of larval Bear Lake sculpin: the importance of predators and growth. Now Oregon Dept. Fisheries and Wildlife.
- Geoff Steinhart. MS 1997. Winter ecology of sockeye salmon *Onchorhynchus nerka* in the Sawtooth Basin Lakes. Now professor at Lake Superior State University.
- Alan Ward. MS. 2000. Taxonomic evaluation of a whitefish species flock in Bear Lake, Utah/Idaho. Now, Utah Division of Wildlife Resources.
- Alberto Pilati, MS 2000. Nutrient recycling by zooplankton in lakes with deep chlorophyll layers. Professor, University of Santa Rosa, Aregentina.
- Cornelia Sawatzky. MS 2000. The spatial and temporal dynamics of phytoplankton living in deep chlorophyll maxima: effects of herbivore grazing, herbivore recycling, nutrient limitation, and light as growth determinants. Now, Univ. of Idaho
- Kirsten Gallo. Ph.D. 2006. Effects of salmonid introduction on biodiversity of mountain lakes. Now, U.S. Forest Service, Corvallis, OR.
- Donald Ratcliff. M.S. 2006. Evaluating the effectiveness of grass bed treatments as habitat for juvenile bass in a drawdown reservoir. Now, U.S. Forest Service, Redding, CA.
- Amy Marcarelli. Ph.D. 2006. Nitrogen fixation in alpine watersheds measured at the watershed scale. Now, Associate Professor, Michigan Technical University.
- Ryan Lockwood. M.S. 2009. Nitrogen transport, transformation and cycling through a mountain lake, Bull Trout Lake, Idaho, USA.
- Jessica Garrett. M.S. 2010. Effects of lake and stream landscapes on water temperatures in the Sawtooth Mountains, ID. Now working with USGS, Iowa.
- David Epstein. M.S. 2011. Nitrogen transport through mountain lakes measured with <sup>15</sup>N. Now working for SWCA Environmental Consultants.
- Eric McCulley. M.S. 2015. Factors influencing distribution of toxic cyanobacteria in the Farmington Bay estuary of the Great Salt Lake. 2014. Concurrently working for Intermountain Aquatics consultant group.

#### **POST-DOCTORAL ASSOCIATES & VISITING SCIENTISTS SUPPORTED**

- Dr. Peter Vaux. 1984. Trophic coupling between algae, zooplankton and the pelagic fishes of Lake Titicaca, Peru-Bolivia. NSF. Now Research Associate Professor, University of Nevada.
- Dr. David Beauchamp. 1990-94. Ecology of fishes in Lake Tahoe, California Nevada. Tahoe Regional Planning Agency and Nevada Dept. Fish and Game. Now Associate Professor, University of Washington.
- Prof. Maciej Gliwicz. 1994-95. Ecology of the Great Salt Lake. Utah Division of Wildlife Resources. Head, Dept. of Hydrobiology, U. of Warsaw.
- Dr. Boqiang Qin, 1999. Hydrodynamics in lake ecosystems. Nanjing Institute of Geography & Limnology, CHINA.
- Dr. Koren Nydick. 2002-2004. Nitrogen cycling in stream-lake landscapes. NSF.
- Dr. Mark Gustafson. 2004. Landscape limnology and insect biodiversity. Texas Lutheran University.
- Dr. David Powelson 2009-10. Water pollution in the Great Salt Lake.
- Mr. Piotrek Maszczyk, 2015. Visiting Polish Ph.D. student (4 months).

## PROFESSIONAL SOCIETIES

- Society of Limnology and Oceanography (ASLO)
- American Fisheries Society (AFS)
- Ecological Society of America (ESA)
- International Society for Salt Lake Research (ISSLR)
- International Society of Theoretical and Applied Limnology (SIL)
- Iberian Limnological Society

## PROFESSIONAL ACTIVITIES

- Associate Editor, Transactions of the American Fisheries Society (1987-1989)
- Team member; NSF/EPA Initiative on Regional Assessment of Freshwater Ecosystems and Climate Change in North America (1995-1996)
- Chair, Education and Human Resources Committee, American Soc. Limnology & Oceanography (2002-2004)
- Special Session Organizer, Lentic-lotic linkages in freshwaters: Comparisons from Different Ecosystems. ASLO meeting (2002)
- Chair, NSF/ASLO Workshop, Emerging Research Questions for Limnology: The Study of Inland Waters
- Site Review Team, Center for Aquatic Biology and Aquaculture, University of California Davis (2002)
- Chairperson, International Congress of Limnology (1995; 2004)
- Special Session Organizer, The Hydrogeomorphic Landscape, SIL meeting (2004).
- Site Review Team, NSF Long-Term Ecological Research, University of Wisconsin (1998; 2005)
- Team member, Salton Sea Integrated Water Management Plan Evaluation Workshop (2004)
- National Representative of the U.S. Section of the International Society of Limnology (2004-2013)
- Topical Session Organizer, Landscape Limnology: Linking Streams, Lakes, and Wetlands at large spatial scales. ASLO meeting (2005)
- Am. Soc. Limnology & Oceanography's representative to NSF's Integrated Earth Surface Systems Sciences Summit meeting (2005)
- Am. Soc. Limnology & Oceanography's National Meeting Planning Team (Victoria, 2006)
- Associate Editor, Limnologica (2006-present)
- Am. Soc. Limnology & Oceanography Board member (2007-2010)
- Chairperson, Image Library Committee, Am. Soc. Limnology & Oceanography (2007-2012)
- Board Member, Int. Society for Salt Lake Research (2008-2012)
- Chair, 10<sup>th</sup> Conference of the Int. Society for Salt Lake Research, Salt Lake City, Utah (2008)
- Advisor, Mar Chiquita Research and Education, Cordoba, Argentina (2010)
- Team Member, Great Salt Lake Health Panel, Great Salt Lake Advisory Council (2011-12)
- Diversity Committee, Am. Soc. Limnology and Oceanography (2010-2013)
- Utah Water Quality and Health Advisory Panel (2015— )

## COMMUNITY SERVICE

- Member, Utah State Board of Water Pollution Control
  - Member, Governor's Acid Rain Technical Committee  
Chair, Aquatics Subgroup
  - Member, Bear Lake Preservation Project Task Force
  - Advisory Board, Friends of Great Salt Lake
  - Member, Great Salt Lake Technical Advisory Team
  - Board Member, Nordic United
  - Member, Beaver Mountain Ski Patrol
- *Reviewer for:*  
Journals (see below)

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American Midland Naturalist	Fisheries
American Naturalist	Freshwater Biology
American Zoologist	Frontiers in Ecology and the Environment
Aquatic Biosystems	Hydrobiologia
Aquatic Sciences	Hydrological Process
Archiv fur Hydrobiologie	Internat. Vereinigung Theoretische Angewandte
Biotropica	Lake and Reservoir Management
Biogeochemistry	Limnologie
BioScience	Limnetica
Bulletin Southern Calif. Academy of Sci.	Limnology and Oceanography
Canadian J. Fisheries and Aquatic Sci.	Limnology and Oceanography Methods
Chinese J. Oceanology & Limnology	Microbial Ecology
Comparative Biochemistry & Physiology	Oecologia
Copia	Proc. National Acad. Science
Ecology	Proc. Royal Society B
Ecology Letters	North American J. of Lake Management
Ecological Applications	North American J. of Aquaculture
Ecosphere	J. North American Benthological Society
Ecosystems	J. of Plankton Research
Environmental Management	Saline Systems
Environmental Research	Science of the Total Environment
Environmental Science and Technology	Transactions American Fisheries Society
Estuarine, Coastal & Shelf Science	Water Resources Research
	Wetlands

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*-Review for Organizations and Agencies*

- National Science Foundation (Ecosystems, Ecology, Hydrology programs)
- Environmental Protection Agency
- U.S. Man in the Biosphere Program
- U.S. Department of Agriculture, Ecosystem Science Program
- Univ. of Kalyani, West Bengal, Ph.D. outside reviewer
- Univ. of Agriculture Faisalabad, Ph.D. outside reviewer
- Univ. Of Western Australia, Ph.D. outside reviewer
- Univ. of Montana, Faculty promotion outside reviewer
- Univ. of Wisconsin, Faculty promotion outside reviewer

**OTHER EXPERIENCE, TRAINING and CERTIFICATIONS**

- Bilingual, English and Spanish
- BioSonics Hydroacoustic Short Course (1986)
- SCUBA certification (1977)
- California Junior College Teaching Certificate
- Sigma Xi member

**PUBLICATIONS, PRESENTATIONS and CITATIONS - See attached lists**

- 85 Peer Reviewed Publications (to June 2016)
- 150 Total Publications (to June 2016 2013)
- 227 Presentations (to June 2016)
- ISI Total citations, 1934; h-index, 26 (To June 2016)

- Goggle Scholar Total citations, 3370; h-index 33 (To June 2016)

## PERSONAL

- Born: Jan. 10, 1948, Denver, CO
- Wife: Linda J. L'Ai (Educator)
- Children: Two

## JOURNAL PUBLICATIONS (Links to pdfs: [http://works.bepress.com/wayne\\_wurtsbaugh/](http://works.bepress.com/wayne_wurtsbaugh/))

Underlined names are undergraduate, graduate, or post-doctoral students advised by W. Wurtsbaugh.

Wurtsbaugh, W., R. Brocksen and C. Goldman. 1975. Food and distribution of underyearling brook and rainbow trout in Castle Lake, California. *Trans. Am. Fish. Soc.* 104: 88-95.

Wurtsbaugh, W. and G. Davis. 1976. An apparatus to provide diel temperature regimes for aquatic animals. *Prog. Fish Cult.* 38: 198-199.

Wurtsbaugh, W. and G. Davis. 1977. Effects of temperature and ration level on the growth and food conversion efficiency of rainbow trout, *Salmo gairdneri*, Richardson. *J. Fish Biol.* 11: 87-98.

Wurtsbaugh, W. and G. Davis. 1977. Effects of fish size and ration level on the growth and food conversion efficiency of rainbow trout, *Salmo gairdneri*, Richardson. *J. Fish Biol.* 11: 99-104.

Wurtsbaugh, W. and C. Apperson. 1978. Effects of mosquito control insecticides on nitrogen fixation and growth of blue-green algae in natural plankton associations. *Bull. Environm. Contam. Toxicol.* 19:641-647.

Jacobs, S., A. Colwell and W. Wurtsbaugh. 1979. Laboratory and field studies on the importance of Mississippi silversides, *Menidia audens*, as biological control agents. *Calif. Mosquito and Vector Control Assoc.* 47: 38-41.

Vondracek, B., W. Wurtsbaugh and J. Cech. 1980. Mass marking of *Gambusia*. *Calif. Mosquito and Vector Control Assoc.* 48: 42-44.

Wurtsbaugh, W., J. Cech and J. Compton. 1980. Effects of fish size on prey size selection in *Gambusia affinis*. *Calif. Mosquito and Vector Control Assoc.* 48: 48-50.

Wurtsbaugh, W., H. Li, and J. Li. 1981. Fish versus zooplankton predation in lakes. *Nature* 292: 779-780.

Wurtsbaugh, W. and A. Horne. 1982. Effects of low copper concentrations on nitrogen fixation and growth of blue-green algae. *Can. J. Fish. Aquat. Sci.* 39: 1636-1641.

Wurtsbaugh, W. and A. Horne. 1983. Iron in eutrophic Clear Lake, California: its importance for algal nitrogen fixation and growth. *Can. J. Fish. Aquat. Sci.* 40: 1419-1429.

Wurtsbaugh, W. and J. Cech. 1983. Growth and activity in *Gambusia affinis* fry: Temperature and ration effects. *Trans. Am. Fish. Soc.* 112: 653-660.

Vincent, W., W. Wurtsbaugh, C. Vincent and P. Richerson. 1984. Seasonal dynamics of nutrient limitation in a tropical high-altitude lake (Lake Titicaca, Peru-Bolivia): Application of physiological bioassays. *Limnol. Oceanogr.* 29: 540-552.

- Wurtsbaugh, W., W. Vincent, R. Alfaro, C. Vincent and P. Richerson. 1985. Nutrient limitation of algal growth and nitrogen fixation in a tropical alpine lake, Lake Titicaca (Peru/Bolivia). *Freshwater Biol.* 15: 185-195.
- Wurtsbaugh, W. and H. Li. 1985. Diel migrations of a zooplanktivorous fish (*Menidia beryllina*) in relation to the distribution of its prey in a large eutrophic lake. *Limnol. Oceanogr.* 30: 565-576.
- Richerson, P., P. Neale, W. Wurtsbaugh, R. Alfaro and W. Vincent. 1986. Patterns of temporal variation in Lake Titicaca, a high altitude tropical lake. I. Background, physical and chemical processes, and primary production. *Hydrobiologia* 138: 205-220.
- Vincent, W., W. Wurtsbaugh, P. Neale, and P. Richerson. 1986. Polymixis and algal production in a tropical lake: Latitudinal effects on the seasonality of photosynthesis. *Freshwater Biol.* 16:781-803.
- Wurtsbaugh, W.A. 1988. Iron, molybdenum and phosphorus limitation of N<sub>2</sub> fixation maintains nitrogen deficiency of plankton in the Great Salt Lake drainage (Utah, USA). *Verh. Int. Ver. Limnol.* 23:121-130.
- Vondracek, B., W. Wurtsbaugh, and J. Cech. 1988. Growth and reproduction of the mosquitofish, *Gambusia affinis*, in relation to temperature and ration level: Consequences for life history. *Environ. Biol. of Fishes* 21:45-57.
- Vaux, P., W. Wurtsbaugh, H. Treviño, L. Marino, B. Bustamante, J. Torres, P. Richerson, and R. Alfaro. 1988. Ecology of the pelagic fishes in Lake Titicaca (Peru-Bolivia). *Biotropica* 20:220-229.
- Wurtsbaugh, W.A. and R. Alfaro. 1988. A mass mortality of fishes in Lake Titicaca (Peru-Bolivia) associated with the parasite *Ichthyophthirius multifiliis*. *Trans. Am. Fish. Soc.* 117:213-217.
- Wurtsbaugh, W.A. and D. Neverman. 1988. Post-feeding thermotaxis and daily vertical migration in a larval fish. *Nature* 333:846-848.
- Wurtsbaugh, W.A. and T.S. Berry. 1990. Cascading effects of decreased salinity on the plankton, chemistry and physics of the Great Salt Lake (Utah). *Can. J. Fish. Aquat. Sci.* 47:100-109.
- Tabor, R.A. and W.A. Wurtsbaugh. 1991. Predation risk and the importance of cover for juvenile rainbow trout in lentic systems. *Trans. Am. Fish. Soc.* 120:728-738.
- Wurtsbaugh, W.A. 1992. Food-web modification by an invertebrate predator in the Great Salt Lake (USA). *Oecologia* 89:168-175.
- Neverman, D. and W.A. Wurtsbaugh. 1992. Visual feeding of juvenile Bear Lake sculpin. *Trans. Am. Fish. Soc.* 121:395-398.
- Beauchamp, D.A., B.C. Allen, R.C. Richards, W.A. Wurtsbaugh, C.R. Goldman. 1992. Lake trout spawning in Lake Tahoe: Egg incubation in deepwater macrophyte beds. *N. Am. J. Fisheries Manag.* 12:442-449.
- Luecke, C. and W.A. Wurtsbaugh. 1993. Effects of moon and daylight on hydroacoustic estimates of pelagic fish abundance. *Trans. Am. Fish. Soc.* 122: 112-120.
- He, E. and W.A. Wurtsbaugh. 1993. Gastric evacuation rates in fish: An empirical model of the effects of temperature and prey size, and an analysis of digestion in piscivorous brown trout. *Trans. Am. Fish. Soc.* 122: 717-730.
- Beauchamp, D., Byron, E. and W.A. Wurtsbaugh. 1994. Summer habitat use of littoral zone fishes in Lake Tahoe and the effects of shore zone structures. *N. Am. J. Fisheries Management* 14:385-394.
- Neverman, D. and W.A. Wurtsbaugh. 1994. The thermoregulatory function of diel vertical migration for a juvenile fish, *Cottus extensus*. *Oecologia* 98:247-256.

- Budy, P., C. Luecke, W. Wurtsbaugh, H. Gross. 1994. Effects of nutrient enhancement on juvenile sockeye salmon growth. *Lake and Reservoir Management* 9:140-145.
- Budy, P., C. Luecke, W.A. Wurtsbaugh, H.P. Gross and C. Gubala. 1995. Limnology of the Sawtooth Valley Lakes with respect to potential growth of juvenile Snake River sockeye salmon. *Northwest Sci.* 69:133-150.
- Wurtsbaugh, W.A., D. Barnard and T. Pettengill. 1996. Fish yield in a mid-elevation Utah trout reservoir: effects of angling regulations. *Great Basin Nat.* 56: 12-21.
- Tabor, R., C. Luecke, and W.A. Wurtsbaugh. 1996. Effects of Daphnia availability on growth and food consumption of rainbow trout in two Utah reservoirs. *N. Am. J. Fish. Manage.* 16:591-599.
- Luecke, C., W.A. Wurtsbaugh, P. Budy, and H.P. Gross. 1996. Simulated growth and production of endangered Snake River sockeye salmon: assessing lake management strategies for nursery lakes. *Fisheries* 21(6): 18-25.
- Beauchamp, D., C. Luecke, W.A. Wurtsbaugh, H.G. Gross, P. Budy, S. Spaulding, R. Dillenger and C.P. Gubala. 1997. Hydroacoustic assessment of abundance and diel distribution of sockeye salmon and kokanee in the Sawtooth Valley lakes, Idaho. *N. Am. J. Fish. Manage.* 17:253-267.
- Gross, H.P. and W.A. Wurtsbaugh, P. Budy and C. Luecke. 1997. Fertilization of an oligotrophic lake with a deep chlorophyll maximum: predicting the effect on primary productivity. *Can. J. Fish. Aquatic Sci.* 54: 1177-1189. DOI: 10.1139/f97-011
- Grimm, N.B., A. Chacón, C.N. Dahm, S.W. Hostetler, O.T. Lind, P.L. Starkweather, and W.A. Wurtsbaugh. 1997. Sensitivity of aquatic ecosystems to climatic and anthropogenic changes: The Basin and Range, American Southwest, and México. *Hydrological Processes* 11:1023-1041.
- Wurtsbaugh, W.A., H.P. Gross, C. Luecke and P. Budy. 1997. Nutrient limitation of oligotrophic sockeye salmon lakes of Idaho (USA). *Verh. Int. Ver. Limnol.* 26:413-419.
- Johnson, S.L., A.P. Covich, T.A. Crowl, A. Estrada-Pinto, J. Bithorn and W. Wurtsbaugh. 1998. Do seasonality and disturbance influence reproduction in freshwater atyid shrimp in headwater streams, Puerto Rico? *Verh. Internat. Verein. Limnol.* 26:2076-2081.
- Gross, H.P., W.A. Wurtsbaugh, and C. Luecke. 1998. The role of anadromous sockeye salmon (*Oncorhynchus nerka*) in the nutrient loading and productivity of the Sawtooth Valley Lakes, Idaho. *Trans. Am. Fish. Soc.* 127:1-18.
- Budy, P., C. Luecke, and W.A. Wurtsbaugh. 1998. Adding nutrients to enhance growth and production of endangered sockeye salmon: Trophic transfer in an oligotrophic lake. *Trans. Am. Fish. Soc.* 127:19-34.
- Ruzycki, J., W.A. Wurtsbaugh, and Clyde Lay. 1998. Reproductive ecology and early life history of a lacustrine sculpin, *Cottus extensus* (Teleostei, Cottidae). *Environmental Biology of Fishes* 53:117-127.
- Steinhart, G.B. and W.A. Wurtsbaugh. 1999. Under-ice diel vertical migrations of *Oncorhynchus nerka* and their zooplankton prey. *Can. J. Fish. Aquat. Sci.* 56 (Supplement 1): 152-161.
- Ruzycki, J. and W.A. Wurtsbaugh. 1999. Ontogenetic habitat shifts of juvenile Bear Lake sculpin. *Trans. Am. Fish. Soc.* 128:1201-1212.
- Armengol, X., L. Boronat, A. Camacho and W.A. Wurtsbaugh. 2001. Grazing by a dominant rotifer *Conochilus unicornis* Rousset in a mountain lake: in situ measurements with synthetic microspheres. *Hydrobiologia* 446/447:107-114. doi:10.1023/A:1017591004514
- Wurtsbaugh, W.A., H.P. Gross, P. Budy and C. Luecke. 2001. Effects of epilimnetic versus metalimnetic fertilization on the phytoplankton and periphyton of a mountain lake with a deep chlorophyll maxima. *Can. J. Fish. Aquatic. Sci.* 58:2156-2166.
- Ruzycki, J.R., W.A. Wurtsbaugh and C. Luecke. 2001. Salmonine consumption and competition for endemic prey fishes in Bear Lake, Utah-Idaho. *Trans. Am. Fish. Soc.* 130:1175-1189.

- Wurtsbaugh, W.A. and Z. M. Gliwicz. 2001. Limnological control of brine shrimp population dynamics and cyst production in the Great Salt Lake, Utah. *Hydrobiologia*. 466: 119-132.
- Cole, P., C. Luecke, W.A. Wurtsbaugh and G. Burkart. 2002. *Daphnia rosea* growth and survival in epilimnetic and metalimnetic waters from two oligotrophic lakes; the effects of food sources and temperature. *Freshwater Biology* 7:2113-2122.
- Pilati, A. and W.A. Wurtsbaugh. 2003. Importance of zooplankton for the persistence of a deep chlorophyll layer: A limnocorral experiment. *Limnol. Oceanogr.* 48: 249-260.
- Camacho, A., W. A. Wurtsbaugh, M. R. Miracle, X. Armengol and E. Vicente. 2003. Nitrogen limitation of phytoplankton in a Spanish karst lake with a deep chlorophyll maximum: a nutrient enrichment bioassay approach. *J. Plankton Res.* 25: 397-404.
- Steinhart, G.B. and W.A. Wurtsbaugh. 2003. Winter ecology of kokanee: implications for salmon management. *Trans. Am. Fish. Soc.* 132:1076-1088.
- Pilati, A., W.A. Wurtsbaugh and N. R. Brindza. 2004. Evidence of coprophagy in freshwater zooplankton. *Freshwater Biology* 49: 913–918.
- Wurtsbaugh, W.A., M.A. Baker, H.P. Gross, and P.D. Brown. 2005. Lakes as nutrient “sources” for watersheds: A landscape analysis of the temporal flux of nitrogen through sub-alpine lakes and streams. *Verh. Int. Ver. Limnol.* 29(2): 645-649.
- Sawatzky, C.L., W.A. Wurtsbaugh, and C. Luecke. 2006. The spatial and temporal dynamics of phytoplankton living in deep chlorophyll maxima: effects of nutrients, grazing, and herbivore recycling as growth determinants. *J. Plankton Research* 28:65–86.
- Marcarelli, A.M. and W.A. Wurtsbaugh. 2006. Temperature and nutrient supply interact to control nitrogen fixation in oligotrophic streams: an experimental examination. *Limnol. Oceanogr.* 51: 2278-2289.
- Marcarelli, A.M., W.A. Wurtsbaugh and O. Griset. 2006. Salinity controls phytoplankton response to nutrient enrichment in the Great Salt Lake, Utah, USA. *Can. J. Fish. Aquat. Sci.* 63:2236-2248.
- Arp, C.D., M.N. Gooseff, M.A. Baker and W.A. Wurtsbaugh. 2006. Surface-water hydrodynamics and regimes of a small mountain stream-lake ecosystem. *J. Hydrology* 329:500-513. Wurtsbaugh, W.A. 2007. Nutrient cycling and transport by fish and terrestrial insect nutrient subsidies to lakes. *Limnol. Oceanogr.* 52: 2715-2718.
- Myers, W.K., A.M. Marcarelli, C.D. Arp, M.A. Baker and W.A. Wurtsbaugh. 2007. Disruptions of stream sediment size and stability by lakes affects periphyton biomass in mountain watersheds. *J. N. Am. Benthological Soc.* 26:390-400.
- Marcarelli, A.M. and W.A. Wurtsbaugh. 2007. Effects of upstream lakes and nutrient limitation on periphyton biomass and nitrogen fixation in oligotrophic, subalpine streams. *Freshwater Biol.* 52: 2211–2225.
- Marcarelli, A.M., M.A. Baker and W.A. Wurtsbaugh. 2008. Is in-stream nitrogen fixation an important nitrogen source for benthic communities and stream ecosystems? *J. N. Am. Benthological Soc.* 27:186–211. DOI: 10.1899/07-027.1
- Brown, P.D., W.A. Wurtsbaugh and K. Nydick. 2008. Lake and forest cover: determinants of downstream nutrient concentrations in small mountain watersheds. *Alpine, Arctic and Antarctic Res.* 40:462-469.
- Lewis, W.M., Jr. and W.A. Wurtsbaugh. 2008. Control of lacustrine phytoplankton by nutrients: Erosion of the phosphorus paradigm. *International Review of Hydrobiology* 93:446-465.
- Dean, W.E., Wurtsbaugh, W., and Lamarra, V. 2009. Climatic and limnologic setting of Bear Lake, Utah and Idaho, in Rosenbaum, J.G. and Kaufman, D.S., eds., *Paleoenvironments of Bear Lake, Utah and Idaho: Geological Society of America Special Paper*, 450.



- McCullough, Dale A., Bartholow, John M., Jager, Henriëtte I., Beschta, Robert L., Cheslak, Edward F., Deas, Michael L., Ebersole, Joseph L., Foott, J. Scott, Johnson, Sherri L., Marine, Keith R., Mesa, Matthew G., Petersen, James H., Souchon, Yves, Tiffan, Kenneth F. and Wurtsbaugh, Wayne A. 2009. Research in thermal biology: burning questions for coldwater stream fishes. *Reviews in Fisheries Science* 17(1): 90—115.
- Wurtsbaugh, W.A. 2009. Biostromes, brine flies, birds and the bioaccumulation of selenium in Great Salt Lake, Utah. Pp. 1-15 In: A. Oren, D. Naftz, P. Palacios & W.A. Wurtsbaugh (eds). *Saline Lakes Around the World: Unique Systems with Unique Values*. Natural Resources and Environmental Issues, volume XV. S.J. and Jessie Quinney Natural Resources Research Library, Logan, Utah, USA. URL: <http://www.cnr.usu.edu/quinney/files/uploads/NREI2009online.pdf> .
- Marcarelli, A.M. and W.A. Wurtsbaugh. 2009. Nitrogen fixation varies spatially and seasonally in linked stream-lake ecosystems. *Biogeochemistry*. 94:95–110.
- Ratcliff, D.R., W.A. Wurtsbaugh and J. Zustak. 2009. Evaluating the effectiveness of grass bed treatments as habitat for juvenile bass in a drawdown reservoir. *N. Am. J. Fisheries Management*. 29:1119-1129.
- Goodman, K., M.A. Baker and W.A. Wurtsbaugh. 2010. Mountain lakes increase organic matter decomposition rates in streams. *N. Am. Benthological Soc.* 29: 521-529
- Gliwicz, Z.M., W.A. Wurtsbaugh (*published as Wursbaugh*), and E. Szymansk. 2010. Absence of predation eliminates coexistence: Experience from the fish-zooplankton interface. *Hydrobiologia*. 653:103–117. DOI 10.1007/s10750-010-0347-z
- Gast, R.J., D.M. Moran, M.R. Dennett, W.A. Wurtsbaugh and L. Amaral-Zettler. 2011. Amoebae and pathogenic *Legionella pneumophila* in saline environments. *Journal of Water and Health* 9 (1): 37-52.
- Wurtsbaugh, W.A., J. Gardberg and C. Izdepski. 2011. Biostrome communities and mercury and selenium bioaccumulation in the Great Salt Lake (Utah, USA). *Science of the Total Environment* 409: 4425–4434.
- Goodman, K.J., M.A. Baker and W.A. Wurtsbaugh. 2011. Lakes as buffers of stream dissolved organic matter (DOM) variability: Temporal patterns of DOM characteristics in mountain stream-lake systems. *Journal of Geophysical Research – Biogeosciences*: 116, G00N02, doi:10.1029/2011JG001709.
- Lewis, W.M., Jr., W.A. Wurtsbaugh and H. Pearl. 2012. Rationale for control of anthropogenic nitrogen and phosphorus in inland waters. *Environmental Science and Technology* 45 (24): 10300-10305 DOI: 10.1021/es202401p.
- Epstein, D.M., W.A. Wurtsbaugh, and M.A. Baker. 2012. Nitrogen partitioning and transport through a subalpine lake measured with an isotope tracer. *Limnology and Oceanography* 57(5): 1503-1516.
- Armengol, X., W.A. Wurtsbaugh, A. Camacho, and M.R. Miracle. 2012. Pseudo-diel vertical migration in zooplankton: a whole-lake <sup>15</sup>N tracer experiment. *J. Plankton Res.* 34(11): 976-986.
- Epstein, D.M., K. Goodman, B. Neilson, D. Stevens and W.A. Wurtsbaugh. 2013. A modeling approach to assessing the effect of multiple lakes in sequence on nutrient transport in Bull Trout Lake, Idaho, USA. *Aquatic Sciences* 75 (2): 199-212.
- Jones, E.F. and W.A. Wurtsbaugh. 2014. The Great Salt Lake's monimolimnion and its importance for mercury bioaccumulation in brine shrimp (*Artemia franciscana*). *Limnol. Oceanography* 59 (1): 141-155.
- Wayne A. Wurtsbaugh 2014. The Great Salt Lake Ecosystem (Utah, USA): long term data and a structural equation approach: Comment. *Ecosphere* 5:art36. <http://dx.doi.org/10.1890/ES13-00335.1>
- Wurtsbaugh, W.A., N.A. Heredia, B.G. Laub, C.S. Meredith, H.E. Mohn, S.E. Null, D.A. Pluth, B.B. Roper, W.C. Saunders, D.K. Stevens, R.H. Walker, and K. Wheeler. 2014. Approaches for studying fish

- production: Do river and lake researchers have different perspectives? *Can. J. Fisheries and Aquatic Science*: 72(1): 149-160. DOI: [10.1139/cjfas-2014-0210](https://doi.org/10.1139/cjfas-2014-0210)
- Barnes, B.D. and W.A. Wurtsbaugh. 2015. The effects of salinity on plankton and benthic communities in the Great Salt Lake, Utah, USA: A microcosm experiment. *Can. J. Fish. Aquatic Sci.* 72(6): 807-817. DOI: [10.1139/cjfas-2014-0396](https://doi.org/10.1139/cjfas-2014-0396).
- Paerl, H., Scott, J.T., McCarthy, M., Newell, S., Gardner, W., Havens, K., Hoffman, D., Wilhelm, S. and Wurtsbaugh, W. 2016. It takes two to tango: When and where dual nutrient (N & P) reductions are needed to protect lakes and downstream ecosystems. *Environmental Science & Technology* 50(20): 10805–10813. DOI: [10.1021/acs.est.6b02575](https://doi.org/10.1021/acs.est.6b02575).
- Ogata, E.M., W.A. Wurtsbaugh, T.N. Smith and S. Durham. 2017. Bioassay analysis of nutrient and *Artemia* effects on trophic interactions in the Great Salt Lake, USA. *Can. J. Fish. Aquatic Sci.* 72(6): 807-817, DOI [10.1139/cjfas-2014-0396](https://doi.org/10.1139/cjfas-2014-0396)
- Maszczyk, P. and Wurtsbaugh, W.A. 2017. Brine shrimp grazing and fecal production increase sedimentation to the deep brine layer (monimolimnion) of Great Salt Lake, Utah. *Hydrobiologia* 802(1): 7-22. DOI [10.1007/s10750-017-3235-y](https://doi.org/10.1007/s10750-017-3235-y).
- Wurtsbaugh, W., C. Miller, S. Null, R. J. DeRose, P. Wilcock, M. Hahnenberger, F. Howe and J. Moore. 2017. Decline of the world's saline lakes. *Nature Geoscience* 10 (11): 816 – 821. doi:[10.1038/ngeo3052](https://doi.org/10.1038/ngeo3052).
- Wine, M.L., J.N. Moore, S. Null, R.J. DeRose and W.A. Wurtsbaugh. 2019. Climatization—a negligent explanation for the desiccation of Great Salt Lake: A comment on Meng (2019). *Climate* 2019, 7, 67; doi:[10.3390/cli7050067](https://doi.org/10.3390/cli7050067).
- Wurtsbaugh, W.A., Hans W. Paerl, W. Dodds. 2019. Nutrients, eutrophication and harmful algal blooms along the freshwater to marine continuum. *WIREs Water*; 6:e1373. <https://doi.org/10.1002/wat2.1373>
- Rosenberg, D.E., Wurtsbaugh, W.A., Null, S., Kettenring, K.M. Submitted 2019. Multi-Objective Analysis for Lake Restoration with Uncertain Objectives. *Proceedings National Academy of Sciences*.

## MANUSCRIPTS IN PREPARATION

- Wurtsbaugh, W.A. In Prep. Paleolimnological analysis of the history of metals contamination in the Great Salt Lake, Utah, USA. *Canadian Journal of Fisheries and Aquatic Sciences*.
- Wurtsbaugh, W.A., A.M. Marcarelli and Greg. L. Boyer. In Prep. Eutrophication in three bays of the Great Salt Lake (USA). *Harmful Algae*.
- Garrett, J. and W.A. Wurtsbaugh. In Prep. Stream and lake controls of water temperatures in alpine watersheds. *Limnol. Oceanogr.*
- Wurtsbaugh, W.A. and C. Luecke. In Prep. Importance of the deep-chlorophyll layer of a mountain lake for zooplankton nutrition: a whole-lake <sup>15</sup>N experiment. *Limnol. Oceanogr.*

## BOOK CHAPTERS, SYMPOSIA & EDITED BOOKS

- Wurtsbaugh, W.A., W. F. Vincent, C.L. Vincent, H.J. Carney, P.J. Richerson, X. Lazzaro, R.A. Tapia. 1991. Nutrientes y su limitacion del crecimiento del fitoplancton. pp. 161-175, in C. Dejoux and A. Ittis (eds.), *El Lago Titicaca: Sintesis del conocimiento limnologico actual*. ORSTOM, Hisbol, La Paz, Bolivia.
- Richerson, P.J., P.J. Neale, R. Alfaro Tapia, X. Lazzaro, W. Vincent, W. Wurtsbaugh. 1991. Produccion planctonica primaria y biomasa algal. pp. 211-229, in C. Dejoux and A. Ittis (eds.), *El Lago Titicaca: Sintesis del conocimiento limnologico actual*. ORSTOM, Hisbol, La Paz, Bolivia.

- Wurtsbaugh, W.A., W.F. Vincent, C.L. Vincent, H.J. Carney, P.J. Richerson, R. Alfaro Tapia. 1992. Nutrients and nutrient limitation of phytoplankton. pp. 147-160, in C. Dejoux and A. Iltis (eds.), Lake Titicaca: A synthesis of limnological knowledge. Kluwer Academic, Dordrecht.
- Richerson, P.J., P.J. Neale, R. Alfaro Tapia, H.J. Carney, X. Lazzaro, W. Vincent and W. Wurtsbaugh. 1992. Patterns of planktonic primary production and algal biomass. pp. 196-222, in C. Dejoux and A. Iltis (eds.), Lake Titicaca: A synthesis of limnological knowledge. Kluwer Academic, Dordrecht.
- Dean, W., W.A. Wurtsbaugh, V. Lamarra, and R. Forester. 2009. Climatic and limnologic setting of Bear Lake, Utah and Idaho, pp. 1-14 In, J.G. Rosenbaum (ed.), Paleoenvironments of Bear Lake, Utah and Idaho, and its catchment. Special Paper 450, Geological Society of America Special Publication.
- Oren, A., D. Naftz, P. Palacios and W.A. Wurtsbaugh (eds.). 2009. Saline lakes around the World: Unique systems with unique values. Natural Resources and Environmental Issues, volume XV. S.J. and Jessie Quinney Natural Resources Research Library, Logan, Utah, USA. 269 p. URL: <http://www.cnr.usu.edu/quinney/files/uploads/NREI2009online.pdf>.
- Baker, M.A., C.D. Arp, K.J. Goodman, A.M. Marcarelli, and W.A. Wurtsbaugh. 2016. Stream-lake interaction: Understanding a coupled hydro-ecological system. In, J. Jones (ed.) Stream ecosystems in a changing environment. <http://dx.doi.org/10.1016/B978-0-12-405890-3.00007-5>.
- Johnson, W.P., W. Wurtsbaugh, G.E. Belovsky, B.K. Baxter, F. Black, C. Angeroth, P. Jewell, S. Yang. In Press (2019). Geochemistry of Great Salt Lake. Encyclopedia of Water: Science, Technology, and Society.
- Null, S.E. & Wurtsbaugh W.A. (In Press, 2020). Water Development, Consumptive Water Uses, and Great Salt Lake. In Baxter, B.K and Butler, J.K., Eds. Great Salt Lake Biology: A Terminal Lake in a Time of Change. Springer, Netherlands.

## THESES AND DISSERTATIONS

- Wurtsbaugh, W.A. 1973. The effects of temperature, ration and size on the growth of juvenile steelhead trout, *Salmo gairdneri* M.S. thesis. Oregon State University, Corvallis, Oregon. 69 p.
- Wurtsbaugh, W.A. 1983. Internal and external controls on plankton abundance in a large eutrophic lake. Ph.D. Dissertation, University of California, Davis, California.

## OTHER PUBLICATIONS

- Wurtsbaugh, W.A. 1974. Biología y pesquería del pejerrey (*Basilichthys bonariensis*) en el Lago Titicaca [Biology and fishery of pejerrey (*B. bonariensis*) in Lake Titicaca]. Informe Técnico, Instituto del Mar del Peru, Callo. 34 p.
- Cech, J., M. Massingill and W. Wurtsbaugh. 1980. Food and oxygen requirements of the mosquitofish, *Gambusia affinis*. Proc. Am. Fish. Soc., Redding, California, pp. 1-5.
- Hanek, G., R. Alfaro, E. Bustamante, J. Torres, H. Treviño, and W. Wurtsbaugh. 1982. La pesquería en el Lago Titicaca (Peru), Presente y futuro. Documento de Campo FI:DP/PER/76/002. FAO, Rome. 59 pp.
- Wurtsbaugh, W., W. Vincent, R. Alfaro, and C. Vincent. 1984. Nitrogen limitation in a tropical alpine lake, Lake Titicaca: Chemistry, physiological assays and nutrient addition bioassays. Verh. Int. Ver. Limnol. 22: 1252 (extended abstract)
- Neverman-Devroy, D., W. Wurtsbaugh and S. Ohlhorst. 1985. The vertical distribution and feeding chronology of larval Bear Lake sculpin (*Cottus extensus*) in Bear Lake, Utah-Idaho. Proc. Bonneville Ch. Am. Fish. Soc. 1985: 75-84.
- Wurtsbaugh, W. 1986. Limiting factors for algal growth and nitrogen fixation in the Great Salt Lake drainage, Utah. Proc. Bonneville Chap. Am. Fish. Soc. 1986: 121-132.
- Marine, K., W. Wurtsbaugh, N. Pace and K. Christopherson. 1986. Effects of stocking stress on short-term survival, long-term survival and growth of rainbow trout in a productive Utah reservoir. Proc. Bonneville Ch. Am. Fish. Soc. 1986: 133-143.

- Wurtsbaugh, W. 1986. Book review of: C.S. Reynolds, The ecology of freshwater phytoplankton. Trans. Am. Fish. Soc. 115: 501-502.
- Wurtsbaugh, W.A. 1987. Predation by adult trout is a significant source of mortality for fingerling rainbow trout stocked in East Canyon Reservoir, Utah. Proc. Bonneville Ch. Am. Fish. Soc. 1987: 14-17.
- Wurtsbaugh, W. and R. Tabor. 1988. Microhabitat selection and diel movements of juvenile rainbow trout (*Salmo gairdneri*) introduced into mid-elevation reservoirs in Utah. Proc. Western Division of the Am. Fish. Soc. 1987.
- Sorensen, D.L., J.P. Riley, W. A. Wurtsbaugh and 11 others. 1988. Great Salt Lake inter-island diking: water quality considerations. Utah Water Research Laboratory, Utah State University, Logan, UT. 261 pp.
- Tabor, R.A. and W.A. Wurtsbaugh. 1989. The importance of cover for juvenile and rainbow trout in reservoirs: field observations and an experimental study on predation. Proceedings Bonneville Chap. Am. Fish. Soc. 1989: 49-53.
- Wurtsbaugh, W. and C. Hawkins. 1990. Trophic interactions between fish and invertebrates in Bear Lake, Utah/Idaho. Ecology Center Special Publication, Utah State University, Logan, UT. 167 p.
- Wurtsbaugh, W.A. 1991. Cascading effects of the invertebrate predator *Trichocorixa verticalis* on the ecology of the Great Salt Lake (Utah, USA). Verh. Internat. Verein. Limnol. 34: 431 (extended abstract).
- Wurtsbaugh, W. and 6 others. 1992. A trophic gradient analysis of Lake Powell during spring runoff 1992. Report to the Glen Canyon National Recreation Area. 217 p.
- Wurtsbaugh, W.A. and H.W. Li. 1993. Zooplankton refuges from predation: Effects of light intensity on feeding by the fish *Menidia beryllina*. Verh. Internat. Verein. Limnol 25: 373 (extended abstract).
- Wurtsbaugh, W.A. and D. Beauchamp. 1993. Disparate abundances of fish in the littoral, profundal, and pelagic zones of Lake Tahoe: Does advection of food support abnormally high populations at the shore? Ecological Society of America 74: 495 (abstract)
- Luecke, C. and W.A. Wurtsbaugh. 1993a. Limnological analysis of Sawtooth Valley Lakes, Idaho, with respect to potential rehabilitation of sockeye salmon. pp. 34-78 in, *In* Spaulding, S. [ed.] Snake River Sockeye Salmon (*Oncorhynchus nerka*) habitat/limnologic research, U.S. Department of Energy, Portland, OR. Project number 91-71. Contract number DE-B179-91BP22548. DOE/BP-22548-1.
- Budy, P.B., C. Luecke, W.A. Wurtsbaugh, and H. Gross. 1993. p. 3-28. *In* Spaulding, S. [ed.] Snake River Sockeye Salmon (*Oncorhynchus nerka*) habitat/limnologic research, U.S. Department of Energy, Portland, OR. Project number 91-71. Contract number DE-B179-91BP22548.
- Wurtsbaugh, W.A. (ed.). 1994. A trophic gradient analysis of Lake Powell (1994). Report of student field trip. To the Glen Canyon National Recreational Area. 206 p.
- Wurtsbaugh, W.A., C. Luecke, P. Budy, H.P. Gross and G. Steinhart. 1994. Limnological analyses and field experiments to assess management strategies for endangered sockeye salmon in Sawtooth Valley lakes. pp. 2-136 *in* D. Teuscher et al. Snake River sockeye salmon habitat and limnological research. U.S. Department of Energy, Portland, OR. DOE/BP-22548-2.
- Gross, HP, W.A. Wurtsbaugh, P. Budy and C. Luecke (1994). Comparison of epilimnetic and metalimnetic fertilizations on the phytoplankton and zooplankton of Pettit Lake, Idaho. pp. 78-99 *In* D. Teuscher et al. (eds.). Snake River sockeye salmon habitat and Limnological research. Prepared for the U.S. Bonneville Administration, Contract Number DE-B179-91BP22548.
- Wurtsbaugh, W.A. and G. Steinhart (eds.) 1995. The trophic gradient in Lake Powell - 1995. Report of Utah State University undergraduate students in Fisheries and Wildlife. To Lake Powell National Recreation Area. 66 p. + figures.
- Gliwicz, Z.M., W.A. Wurtsbaugh and A. Ward. 1995. Brine shrimp ecology in the Great Salt Lake, Utah. June 1994 - May 1995 Performance report to the Utah Division of Wildlife Resources, Salt Lake City, Utah. 83 p.
- Wurtsbaugh, W.A. 1995. Brine shrimp ecology in the Great Salt Lake. Report to the Utah Division of Wildlife Resources. 35 p. Salt Lake City, UT.
- Ruzycki, J.R. and W.A. Wurtsbaugh. 1995. Examination of the factors controlling the abundance of Bear Lake forage fishes: piscivore population and consumption estimates. Final Report to the Idaho Dept. of Fish and Game. Boise, ID. 47p.

- Wurtsbaugh, W. and C. Luecke. 1995. Examination of the abundance and spatial distribution of forage fishes in Bear Lake (Utah/Idaho). 1994 Progress Report to the Utah Division of Wildlife Resources. Project F-47-R, Study 5. Salt Lake City, UT. 67 p.
- Wurtsbaugh, W.A. and K.L. Gallo (eds.). 1996. Comparison of the aquatic ecology of side-canyons and the main channel of Lake Powell: FW 560 1996 student reports. A Report to the Glen Canyon National Recreation Area. 133p.
- Luecke, C., W.A. Wurtsbaugh, P. Budy, G. Steinhart, M. Slater. 1996. Limnology of Sawtooth lakes - 1995: Effects of winter limnology and lake fertilization on potential production of Snake River sockeye salmon. pp. 37-152 in D. Teuscher and D. Taki (eds.), Snake River sockeye salmon habitat and limnological research. U.S. Department of Energy, Portland, OR. DOE/BP-22548-4.
- Wurtsbaugh, W. and C. Luecke. 1996. Examination of the abundance and spatial distribution of forage fishes in Bear Lake (Utah/Idaho). 1995 Progress Report to the Utah Division of Wildlife Resources. Project F-47-R, Study 5. Salt Lake City, UT. 65 p.
- K.L. Gallo and Wurtsbaugh, W.A.(eds.). Comparison of the aquatic ecology of Moqui and Hansen Canyons and the main channel of Lake Powell: FW 560 1997 student reports. A Report to the Glen Canyon National Recreation Area.
- Wurtsbaugh, W.A., Miracle, M.R., Camacho, A., Armengol, J., Sendra, M.L., Sanchis, D., Boronat, L. and E. Vicente. 2000. Nitrogen transport from a deep-chlorophyll layer via biotic and physical processes: a whole-lake <sup>15</sup>N experiment. *Verh. Internat. Verein. Limnol.* 27: 2949.
- Marcarelli, A.M., M.D. Mills and W.A. Wurtsbaugh. 2001. The Great Salt Lake Doesn't Stink...But Farmington Bay Does! Friends of Great Salt Lake Newsletter. Vol. 7 May & Summer Issues.
- Wurtsbaugh, W.A., A. Marcarelli, D. Gross, J. Moore, C. Christison, S. Kircher and S. Bates. 2002. Comparative analysis of pollution in Farmington Bay and the Great Salt Lake, Utah. Aquatic Ecology Laboratory Class Project 2001. College of Natural Resources, Utah State University. 21 p.
- Marcarelli, A. and W. Wurtsbaugh et al. 2003. Is Farmington Bay healthy? Friends of Great Salt Lake 9(2): 6-7.
- Marcarelli, A. et al. 2003. Continuing Studies of Water Quality in Farmington Bay and the Great Salt Lake, Utah. Utah State University. College of Natural Resources, Utah State University. 91 p.
- Wurtsbaugh, W., J. Cole, D. McKnight, P. Brezonik, S. MacIntyre, and K. Potter. 2003. Emerging Research Questions for Limnology: The Study of Inland Waters. Report of the NSF Geosciences Workshop held December, 2002. Boulder, Colorado. Am. Soc. Limnol. Oceanography. 45 p.
- Drenner, R., L.K. Smith and W. Wurtsbaugh. 2003. A new ASLO education website. *Limnology and Oceanography Bulletin* 12 (3):67.
- Wurtsbaugh, W.A., P. Brezonik, J. Cole, S. MacIntyre, D. McKnight and K. Potter. 2003. NSF's Geosciences Directorate promotes freshwater research. *Limnology and Oceanography Bulletin* 12 (4):
- Wurtsbaugh, W.A. and A. M. Marcarelli. 2003. Phytoplankton and zooplankton in Farmington Bay and the Great Salt Lake, Utah. Report to the Central Davis Sewer Improvement District, Kaysville, Utah. 57 p.
- Wurtsbaugh, W.A. and A. M. Marcarelli. 2004. Analysis of phytoplankton nutrient limitation in Farmington Bay and the Great Salt Lake. Report to the Central Davis Sewer Improvement District, Kaysville, Utah. 57 p.
- Wurtsbaugh, W.A. and A. M. Marcarelli. 2004. Hydrogen sulfide in Farmington Bay and the Great Salt Lake: A potential odor-causing agent. Report to the Central Davis Sewer Improvement District, Kaysville, Utah. 30 p.
- Marcarelli, A., W. Wurtsbaugh, J. Horrocks, R. Jensen, K. Markland, J. Parker, J. Robinson, E. Van Dyke. 2005. Ecological analyses of nutrients, plankton and benthic communities in Farmington Bay and the Great Salt Lake, Utah (2004). Report to the Utah Division of Water Quality. Dept. of Aquatic, Watershed & Earth Resources, Utah State Univ. 71 p.
- Allen, Cody. 2006. Resurrection Ecology of *Artemia franciscana* (Brine Shrimp) and Selenium Sensitivity of respective age classes in the Great Salt Lake, Utah, USA. Aquatic Ecology Practicum (AWER

- 4510) Class Report to Utah Division of Water Quality. Watershed Sciences Department. College of Natural Resources. Utah State University. Logan, UT 84322-5210.
- Wurtsbaugh, W.A. and A. M. Marcarelli. 2006. Eutrophication in Farmington Bay, Great Salt Lake, Utah 2005 Annual Report. Report to the Central Davis Sewer Improvement District, Kaysville, UT. 91 p. [http://digitalcommons.usu.edu/wats\\_facpub/560/](http://digitalcommons.usu.edu/wats_facpub/560/)
- Wurtsbaugh, W.A. 2007. A preliminary analysis of selenium in the benthic habitat of the Great Salt Lake, Utah. Report to the Utah Division of Water Quality and CH2MHill. 46 p.
- Wurtsbaugh, W.A. and R. Lockwood (eds.). 2007. Students. Marshall Baillie, Chad Low, Travis Dees, Kurt Jensen, Jacob Stoller, Robert Reilly. Comparison of Limnological Characteristics in Cutler Reservoir (Utah) near the Inflows of the Logan River and the Logan Wastewater Treatment Plant. Aquatic Ecology Practicum (WATS 4510) Class Report to Utah Division of Water Quality. Watershed Sciences Department. College of Natural Resources. Utah State University. Logan, UT 84322-5210
- Wurtsbaugh, W.A., M.A. Baker, and H.P. Gross. 2007. Lake landscapes buffer nutrient flux and algal production in mountain watersheds. Extended Abstract, In Proceedings International Society of Limnology. 1 p.
- Abbott, B.W., W. A. Wurtsbaugh\* and D. Epstein (eds.) 2008. Students- Ben Abbott, Nicolas Braithwaite, Justin Elsner, Paul Mason, Jared Randal, David Epstein. Comparative Limnological Analysis of Cutler Reservoir and Dingle Marsh with Respect to Eutrophication. Aquatic Ecology Practicum (WATS 4510) Class Report to Utah Division of Water Quality. Watershed Sciences Department. College of Natural Resources. Utah State University. Logan, UT 84322-5210
- Wurtsbaugh, W., D. Naftz and S. Bradt. 2008. Spatial analyses of trophic linkages between basins in the Great Salt Lake. Final Report to the Division of Forestry, Fire & State Lands, Salt Lake City. 66 p.
- Mears, J., W. Wurtsbaugh (eds.) 2009. J.D. Abbott, Deb Collins, Colin Cook, Dan Lamarra, Ryan Leonard, Ben Marret, Justin Stout and Gil Rowley. Limnological Analyses of Cutler Reservoir and Dingle Marsh with Respect to Eutrophication. Aquatic Ecology Practicum (WATS 4510) Class Report to Utah Division of Water Quality. Watershed Sciences Department. College of Natural Resources. Utah State University. Logan, UT 84322-5210
- Wurtsbaugh, W.A., J. Gardberg and C. Izdepski. 2010. Biostrome communities and mercury and selenium bioaccumulation in the Great Salt Lake (Utah, USA). Report to the Utah Division of Water Quality. Salt Lake City, UT. 34 p.
- Gardberg, J., J. Whitehead, D. Naftz, J. Van Leeuwen, C. Cline, S. Spence, W.A. Wurtsbaugh. 2011. Ecosystem Assessment of Mercury in the Great Salt Lake, Utah 2008. Report the U.S. Environmental Protection Agency. Utah Division of Water Quality. 211 p.
- Wurtsbaugh, W.A. 2011. Relationships between eutrophication, cyanobacteria blooms and avian botulism mortalities in the Great Salt Lake. Final Report to the Utah Wetlands Foundation & the Tides Foundation. Salt Lake City, UT. 22p.
- Wurtsbaugh, W.A. and D. Epstein (editors). 2011. Impact of the Farmington Bay Eutrophication Plume on the Plankton Ecology of Gilbert Bay, Great Salt Lake. Aquatic Ecology Practicum Class Report (Students: J. Crawford, E. Fleming, J. Wight, M. Wilcox & A. Montrone), College of Natural Resources, Utah State University. 41 pg.  
[http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1548&context=wats\\_facpub](http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1548&context=wats_facpub)
- Wurtsbaugh, W.A., A.M. Marcarelli and Greg. L. Boyer. 2012. Eutrophication and metal concentrations in three bays of the Great Salt Lake (USA). 2009 Final report to the Utah Division of Water Quality, Salt Lake City, Utah. 70 p. [http://digitalcommons.usu.edu/wats\\_facpub/550/](http://digitalcommons.usu.edu/wats_facpub/550/)  
[http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1548&context=wats\\_facpub](http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1548&context=wats_facpub)
- Wurtsbaugh, W.A. 2012. Paleolimnological Analysis of the History of Metals Contamination in the Great Salt Lake, Utah, USA. Final report to the Utah Division of Water Quality, Salt Lake City, Utah. 44 p. <http://www.deq.utah.gov/locations/G/greatsaltlake/strategy/paleolimnological.htm>
- Wurtsbaugh, W.A. and E.F. Jones. 2012. The Great Salt Lake's deep brine layer and its importance for mercury bioaccumulation in brine shrimp (*Artemia franciscana*). Final Report to the Utah Division of Forestry Fire and State Lands, Salt Lake City, Utah. 35 p.
- Null, S., W. Wurtsbaugh and C. Miller. 2013. Can the causeway in the Great Salt Lake be used to manage salinity? Friends of Great Salt Lake Newsletter Vol. 19 No. 1 & 2: 14-15.

- <http://www.fogsl.org/images/stories/2013/2MayNewsletterreduced.pdf>
- Wurtsbaugh, W.A., N. Heredia, P. Palacios, J. Baker, C. Broderius, K. Fisher. 2013. A river continuum analysis of an anthropogenically-impacted system: the Little Bear River, Utah. *Natural Resources and Environmental Issues* 18(1):1-82. [http://digitalcommons.usu.edu/wats\\_facpub/570](http://digitalcommons.usu.edu/wats_facpub/570).
- Wurtsbaugh, W.A., B. Marden and P. Micklin. 2014. Lake Urmia crisis and roadmap for ecological restoration of Lake Urmia: United Nations Development Program, Iranian Department of Environment and Kalantari Commission. Watershed Sciences Faculty Publications. Paper 596. [http://digitalcommons.usu.edu/wats\\_facpub/596](http://digitalcommons.usu.edu/wats_facpub/596)
- Wurtsbaugh, W.A. 2014. Management of the Great Salt Lake ecosystem: Water, economic values and competing interests. Saving Lake Urmia Conference, 17-18 February 2014, Urmia, Iran. 28 pp. [http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1627&context=wats\\_facpub](http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1627&context=wats_facpub)
- Wurtsbaugh, W. 2014. The Great Salt Lake's two deep brine layers. *Friends of Great Salt Lake Newsletter* Vol. 20 No. 1 & 2: 6-7. [http://digitalcommons.usu.edu/wats\\_facpub/558/](http://digitalcommons.usu.edu/wats_facpub/558/)
- Wurtsbaugh, Wayne A. Jackson Lake Limnology. 2014. Watershed Sciences Faculty Publications. Paper 559. 7 pp. Digital Commons. [http://digitalcommons.usu.edu/wats\\_facpub/559](http://digitalcommons.usu.edu/wats_facpub/559)
- McCulley, E., W. Wurtsbaugh and B. Barnes. 2015. Factors affecting the spatial and temporal variability of cyanobacteria, metals, and biota in the Great Salt Lake, Utah. Report to the Utah Division of Water Quality, and the Utah Division of Forestry, Fire and State Lands. 99 p. [http://digitalcommons.usu.edu/wats\\_facpub/565/](http://digitalcommons.usu.edu/wats_facpub/565/)
- Wurtsbaugh, W., Richards, C., Hodson, J., Rasmussen, C. and Winter, C. 2015. Biotic and chemical changes along the salinity gradient in Farmington Bay, Great Salt Lake, Utah. Utah State University Watershed Sciences Aquatic Practicum Class Report to the Utah Division of Water Quality. 55 p. [http://digitalcommons.usu.edu/wats\\_facpub/879/](http://digitalcommons.usu.edu/wats_facpub/879/).
- Wurtsbaugh, W., C. Miller, S. Null, P. Wilcock, M. Hahnenberger and F. Howe. 2016. Impacts of Water Development on Great Salt Lake and the Wasatch Front. White paper issued from the Quinney College of Natural Resources (Utah). [http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1891&context=wats\\_facpub](http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1891&context=wats_facpub)
- Wurtsbaugh, W.A. 2018. Effects of eutrophication on birds in three bays of Great Salt Lake: A comparative analysis with Utah DWR Waterbird Survey Data. Final Report to the Utah Division of Forestry, Fire and State Lands. Salt Lake City. 24 p. [https://digitalcommons.usu.edu/wats\\_facpub/1012/](https://digitalcommons.usu.edu/wats_facpub/1012/)

## PRESENTATIONS (\* Indicates first or sole authorship)

1. \*TROPIC INTERACTIONS BETWEEN ALGAE, ZOOPLANKTON AND FISH IN CLEAR LAKE, CALIFORNIA. Clear Lake Assoc. of Biologists. Lower Lake, California (1976).
2. \*IRON LIMITATION OF NITROGEN FIXATION AND GROWTH IN PHYTOPLANKTON POPULATIONS OF A EUTROPHIC LAKE. Am. Soc. Limnol. Oceanogr. San Francisco, California. (1977).
3. \*EFFECTS OF COPPER ON N<sub>2</sub>-FIXATION, PHOTOSYNTHESIS, AND GROWTH OF NATURAL POPULATIONS OF *APHANIZOMENON*. Am. Soc. Limnol. Oceanogr. Victoria, British Columbia (1978).
4. LABORATORY AND FIELD STUDIES ON THE IMPORTANCE OF MISSISSIPPI SILVERSIDES, *MENIDIA AUDENS*, AS BIOLOGICAL CONTROL AGENTS. Calif. Mosquito and Vector Control Assoc. San Jose, California (1979).
5. \*DIEL MIGRATIONS OF THE ZOOPLANKTIVOROUS FISH, *MENIDIA AUDENS*, IN RELATION TO THE DISTRIBUTION OF ITS PREY. Am. Soc. Limnol. Oceanogr. Stony Brook, New York (1979).
6. FOOD AND OXYGEN REQUIREMENTS OF THE MOSQUITOFISH, *GAMBUSIA AFFINIS*. Cal-Neva Chapter, Am. Fish. Soc. Redding, California (1980).

7. \*AFFECTS OF FISH SIZE ON PREY SIZE SELECTION IN *GAMBUSIA AFFINIS*. Calif. Mosquito and Vector Control Assoc. San Jose, California (1980).
8. MASS MARKING OF *GAMBUSIA*. Calif. Mosquito and Vector Control Assoc. San Jose, California (1980).
9. \*CONTROL DE LA PRODUCTIVIDAD PRIMARIA EN EL LAGO TITICACA, PERU-BOLIVIA. Canadian Inter. Devel. Agency. Puno, Peru (1981).
10. SEASONALITY OF PHYTOPLANKTON PRODUCTION IN LAKE TITICACA, A HIGH ALTITUDE TROPICAL LAKE. International Association of Limnology. Lyon, France (1983).
11. \*NITROGEN LIMITATION IN A TROPICAL ALPINE LAKE: LAKE TITICACA, PERU. International Association of Limnology. Lyon France (1983).
12. \*SPATIAL-TEMPORAL VARIATION IN NITROGEN FIXATION IN LAKE TITICACA, A TROPICAL HIGH-ALTITUDE LAKE. Am. Soc. Limnol. Oceanogr. Vancouver, British Columbia (1984).
13. \*DIEL MIGRATIONS OF ZOOPLANKTIVOROUS FISH AS A PREDATOR AVOIDANCE MECHANISM. Bonneville Chapter, Am. Fish. Soc. Logan, Utah (1984).
14. THE VERTICAL DISTRIBUTION AND FEEDING CHRONOLOGY OF LARVAL BEAR LAKE SCULPIN (*COTTUS EXTENSUS*) IN BEAR LAKE, UTAH-IDAHO. Bonneville Chapter, Am. Fish. Soc. Logan, Utah (1985).
15. \*LIGHT INTENSITY, FISH FEEDING AND REFUGIA FOR ZOOPLANKTON: STUDIES ON *MENIDIA BERYLLINA* IN CLEAR LAKE, CALIFORNIA. Am. Soc. Limnol. Oceanogr./Ecological Soc. Am. Minneapolis, Minnesota (1985).
16. \*ANNUAL CYCLES IN CONDITION INDICES, PREY AVAILABILITY AND MORTALITY FOR THE SILVERSIDE, *MENIDIA BERYLLINA*: FIELD AND LABORATORY STUDIES. 115th Annual Meeting, Am. Fish. Soc. Sun Valley, Idaho (1985).
17. \*THE LITTORAL-PELAGIC GRADIENT IN ZOOPLANKTON COMMUNITY STRUCTURE IN A LARGE, PRODUCTIVE LAKE. Am. Soc. Limnol. Oceanogr. Kingston, Rhode Island (1986).
18. THE DIEL VERTICAL MIGRATION AND FEEDING CHRONOLOGY OF LARVAL BEAR LAKE SCULPIN (*COTTUS EXTENSUS*) IN AN OLIGOTROPHIC LAKE. Am. Soc. Limnol. Oceanogr. Kingston, Rhode Island (1986).
19. \*LIMITING FACTORS FOR ALGAL GROWTH AND NITROGEN FIXATION IN LAKES OF THE GREAT SALT LAKE DRAINAGE, UTAH. Bonneville Chapter, Am. Fish. Soc. Logan, Utah (1986).
20. EFFECTS OF STOCKING STRESS ON SHORT TERM SURVIVAL, LONG TERM SURVIVAL, AND GROWTH OF RAINBOW TROUT IN A PRODUCTIVE UTAH RESERVOIR. Bonneville Chapter, Am. Fish. Soc. Logan, Utah (1986).
21. \*THE IMPORTANCE OF FISH PREDATION AS A MORTALITY FACTOR FOR FINGERLING RAINBOW TROUT STOCKED IN EAST CANYON RESERVOIR. Bonneville Chapter, Am. Fish. Soc. Provo, Utah (1987).
22. \*MICROHABITAT SELECTION AND DIEL MOVEMENTS OF JUVENILE RAINBOW TROUT (*SALMO GAIRDNERI*) INTRODUCED INTO MID-ELEVATION RESERVOIRS IN UTAH. Western Division, Am. Fish. Soc. Salt Lake City, Utah (1987).
23. \*THE GREAT SALT LAKE, UTAH: TEMPORAL AND SPATIAL VARIATION IN LIMNOLOGICAL CHARACTERISTICS. Am. Soc. Limnol. Oceanogr. Madison, Wisconsin (1987).
24. \*IRON, MOLYBDENUM, AND PHOSPHORUS LIMITATION OF N<sub>2</sub> FIXATION MAINTAINS NITROGEN DEFICIENCY IN LENTIC SYSTEMS OF THE GREAT SALT LAKE DRAINAGE (UTAH, USA). International Association of Limnology. Hamilton, New Zealand (1987).



25. THE DIEL VERTICAL MIGRATION OF JUVENILE BEAR LAKE SCULPIN (*COTTUS EXTENSUS*) AS A THERMOREGULATORY STRATEGY. Bonneville Chapter, Am. Fish. Soc. Provo, Utah (1988).
26. \*THE ADAPTIVE SIGNIFICANCE OF DIEL VERTICAL MIGRATION AND POST-FEEDING THERMOTAXIS IN ICTHYOPLANKTON. Am. Soc. Limnol. Oceanogr., Boulder, Colorado (1988).
27. HORIZONTAL AND VERTICAL GRADIENTS IN ZOOPLANKTON COMMUNITY STRUCTURE IN A LARGE OLIGOTROPHIC LAKE (BEAR LAKE, UTAH-IDAHO). Am. Soc. Limnol. Oceanogr., San Francisco, California (1988).
28. \*POST-FEEDING THERMOTAXIS: A NEW HYPOTHESIS FOR THE ADAPTIVE SIGNIFICANCE OF DIEL VERTICAL MIGRATION IN AQUATIC ECTOTHERMS. Ecological Society of America, Davis, California (1988).
29. \*EL DESARROLLO Y MANEJO DE LA PESCA (Development and management of fisheries). First workshop of the management of lakes and reservoirs in Central America. Lago de Yojoa, Honduras (1989; Invited).
30. \*INVERTEBRATE PREY ABUNDANCE AND THE DIETS OF FISHES IN BEAR LAKE (UTAH-IDAHO). Bonneville Chapter, Am. Fish. Soc., Wendover, NV (1989).
31. SEASONAL AND SIZE-RELATED SHIFTS IN THE DIET OF BEAR LAKE CUTTHROAT TROUT *ONCORHYNCHUS CLARKI*. Bonneville Chapter, Am. Fish. Soc., Wendover, NV (1989).
32. INVERTEBRATE PREY ABUNDANCE AND THE DIETS OF FISHES IN BEAR LAKE (UTAH-IDAHO). Bonneville Chapter, Am. Fish. Soc., Wendover, NV (1989).
33. THE IMPORTANCE OF COVER FOR JUVENILE RAINBOW TROUT IN RESERVOIRS: FIELD OBSERVATIONS AND AN EXPERIMENTAL STUDY ON PREDATION. Bonneville Chapter, Am. Fish. Soc., Wendover, NV (1989).
34. \*CASCADING EFFECTS OF THE INVERTEBRATE PREDATOR *TRICHOCORIXA VERTICALIS* ON THE PLANKTON, CHEMISTRY AND PHYSICS OF THE GREAT SALT LAKE (USA). Am. Soc. Limnol. Oceanogr., Fairbanks, Alaska (1989).
35. \*ONTOGENETIC SHIFTS IN THE LITTORAL-PELAGIC MOVEMENTS OF JUVENILE RAINBOW TROUT AND THE IMPORTANCE OF ZOOPLANKTON GRADIENTS. Am. Fish. Soc., Anchorage, Alaska (1989).
36. THE SUMMER SPATIAL PATTERN OF FISH BIOMASS IN LAKE TAHOE. Cal/Neva Chapter Am. Fish. Soc., Sacramento, Ca. (1989)
37. THE IMPORTANCE OF COVER FOR JUVENILE RAINBOW TROUT IN LENTIC SYSTEMS: FIELD OBSERVATIONS AND EXPERIMENTAL STUDIES ON PREDATION. Am. Fish. Soc., Anchorage, Alaska (1989).
38. \*CASCADING EFFECTS OF THE INVERTEBRATE PREDATOR *TRICHOCORIXA VERTICALIS* ON THE ECOLOGY OF THE GREAT SALT LAKE (UTAH, USA). Int. Assoc. Theor. and Applied Limnol., Munich, Germany (1989).
39. DISTRIBUTION OF LITTORAL ZONE FISHES IN LAKE TAHOE. Cal/Neva Chapter Am. Fish. Soc., Sacramento, Ca. (1989)
40. SEASONAL PATTERNS IN THE DIET, CONDITION, AND GROWTH OF STOCKED RAINBOW TROUT IN TWO UTAH MID-ELEVATION RESERVOIRS. Bonneville Chapter, Am. Fish. Soc., Wendover, NV (1990).
41. \*EFFECTS OF A PREDATOR ON PLANKTON DYNAMICS IN THE GREAT SALT LAKE: A TOP-DOWN VIEW. Bonneville Chapter, Am. Fish. Soc., Wendover, NV (1990).

42. \*TOP-DOWN CONTROL OF ECOSYSTEM DYNAMICS IN THE GREAT SALT LAKE, UT. Kellogg Biological Station, Michigan State Univ. (1990; Invited).
43. \*FOOD RESOURCES AND DIET PARTITIONING OF A FISH ASSEMBLAGE IN BEAR LAKE, UTAH-IDAHO. Ecological Society of America, Snowbird, UT (1990).
44. \*LIMNOLOGY OF THE GREAT SALT LAKE: NUTRIENT LIMITATION AND A TROPHIC CASCADE CAUSED BY INVERTEBRATE PREDATION. Zoology Colloquium. Univ. of Wisconsin, Madison, WI (1990; Invited).
45. \*TROPHIC INTERACTIONS IN A LARGE LAKE: ABUNDANCE AND SIZE STRUCTURE OF ZOOPLANKTON, BENTHOS, NEUSTON AND NEKTON PREY OF FISH. Am. Soc. Limnol. Oceanogr. Williamsburg, VA. (1990).
46. \*ONTOGENETIC SHIFTS IN HABITAT SELECTION IN BEAR LAKE SCULPIN. Center for Limnology, U. of Wisconsin, Madison, WI (1990; Invited).
47. TEMPORAL SHIFTS IN THE SPATIAL DISTRIBUTION OF PELAGIC FORAGE FISH IN BEAR LAKE. Bonneville Ch., American Fisheries Society. Wendover, NV. (1991).
48. LIMNOLOGICAL CHARACTERISTICS AND THEIR IMPACT ON THE SUCCESS OF STOCKED RAINBOW TROUT IN UTAH RESERVOIRS. Bonneville Chapter, American Fisheries Society, Wendover, NV. (1991).
49. DEVELOPMENT OF MONITORING TECHNIQUES FOR ASSESSING POPULATION TRENDS OF BEAR LAKE SCULPIN. Bonneville Chapter, American Fisheries Society, Wendover, NV. (1991).
50. \*ONTOGENETIC SHIFTS OF RAINBOW TROUT: HABITAT USE AND SUSCEPTIBILITY TO PREDATION IN UTAH'S RESERVOIRS. Center for Limnology, U. of Wisconsin, Madison, WI (1991; invited).
51. \*THE FOOD WEB AND FUNCTIONAL ECOLOGY OF FISHES IN BEAR LAKE, UTAH/IDAHO. Natural Resources Research Institute, Univ. of Minnesota, Duluth, MN (1991; invited).
52. \*DISTRIBUTION AND DIEL VERTICAL MIGRATION OF FISHES IN AN OLIGOTROPHIC LAKE: A PHYSIOLOGICAL APPROACH. Max Planck Institut fur Limnologie. Plon, Germany (1991; invited).
53. \*FOOD-WEB MODIFICATION IN THE GREAT SALT LAKE CAUSED BY THE INVERTEBRATE PREDATOR *TRICHOCORIXA VERTICALIS*. Freie Universitat, Berlin, Germany (1991; invited).
54. \*A TROPHIC CASCADE IN THE GREAT SALT LAKE, UTAH, CAUSED BY AN INVERTEBRATE PREDATOR. Max Planck Institut fur Limnologie, Ploen, Germany. (1991).
55. \*FOOD WEB AND PHYSIOLOGICAL ECOLOGY OF FISHES IN AN OLIGOTROPHIC LAKE. Institut fur Meereskunde, Kiel, Germany. (1991; invited)
56. \*ZOOPLANKTON DISTRIBUTION AND ONTOGENETIC SHIFTS IN DIEL INSHORE-OFFSHORE FEEDING MIGRATIONS OF RAINBOW TROUT. Bonneville/Colorado-Wyoming Chapter, American Fisheries Society, Grand Junction, CO. (1992)
57. EARLY LIFE-HISTORY STRATEGIES OF BEAR LAKE SCULPIN. Bonneville/Colorado-Wyoming Chapter, American Fisheries Society, Grand Junction, CO. (1992)
58. DIVERGENT LIFE-HISTORY STRATEGIES OF YOY BEAR LAKE SCULPIN: INSHORE VS OFFSHORE HABITAT SELECTION AND FEEDING CYCLES. Am. Soc. Limnology and Oceanogr., Santa Fe, NM. (1992)
59. \*ZOOPLANKTON FRONTS AND DIEL FEEDING MIGRATIONS OF FISH IN LAKES. Am. Soc. Limnology and Oceanogr., Santa Fe, NM (1992)

60. \*ZOOPLANKTON REFUGES FROM PREDATION: EFFECTS OF LIGHT INTENSITY ON FEEDING BY THE FISH *MENIDIA BERYLLINA*. International Society of Applied and Theoretical Limnology, Barcelona, Spain (1992)
61. \*ONTOGENETIC SHIFTS IN THE TEMPERATURE/DEPTH SELECTION OF BEAR LAKE SCULPIN: THE RESPIRATION-DIGESTIVE CAPACITY MODEL. American Fisheries Society, Rapid City, SD (1992)
62. \*THE BEAR LAKE ECOSYSTEM: TROPHIC INTERACTIONS AND PHYSIOLOGICAL ECOLOGY OF FISHES. Biology Department, Idaho State University, Pocatello, ID, (1992; invited)
63. \*A TROPHIC GRADIENT ANALYSIS OF THE CHEMISTRY, PLANKTON, AND FISH ABUNDANCE IN LAKE POWELL, UTAH. Bonneville Chapter, American Fisheries Society, St. George, UT. (1993)
64. SPATIO-TEMPORAL DISTRIBUTION OF BEAR LAKE SCULPIN: LIFE-HISTORY CHARACTERISTICS AND IMPLICATIONS FOR A MONITORING PROGRAM. Bonneville Chapter, American Fisheries Society, St. George, UT. (1993)
65. \*PISCIVOROUS LOSSES OF STOCKED JUVENILE RAINBOW TROUT IN MID-ELEVATION RESERVOIRS. American Fisheries Society, Portland, OR (1993)
66. \*RESTORATION OF SOCKEYE SALMON NURSERY LAKES BY FERTILIZATION. Am. Society of Limnology and Oceanography. Edmonton, Canada. (1993)
67. ASSESSING GROWTH POTENTIAL OF ENDANGERED SOCKEYE SALMON IN SAWTOOTH VALLEY LAKES: EMPIRICAL AND SIMULATION MODELS. Ecological Society of America. Madison, WI. (1993)
68. EFFECTS OF NUTRIENT ENHANCEMENT ON JUVENILE SOCKEYE SALMON GROWTH. North American Lake Management Society. Seattle, WA. (1993)
69. NICHE ONTOGENY OF UNDERYEARLING BEAR LAKE SCULPIN (*COTTUS EXTENSUS*). Ecological Society of America. Madison, WI. (1993)
70. UNDER-ICE DIEL VERTICAL MIGRATION OF ZOOPLANKTON: THE IMPORTANCE OF TEMPERATURE AND PREDATION. Ecological Society of America. Knoxville, TN (1994)
71. A COMPARISON OF FAT LEVELS AND CONDITION INDICES AS PREDICTORS OF TROUT SURVIVAL. Bonneville Chapter, American Fisheries Soc. Wendover, NV. (1994)
72. \*EFFECTS OF SURFACE AND DEEP LAKE FERTILIZATION ON THE EPILIMNETIC AND METALIMNETIC PHYTOPLANKTON AND PERIPHYTON COMMUNITIES. Ecological Society of America. Knoxville, TN. (1994)
73. THE IMPLICATIONS OF LAKE FERTILIZATION SHADING EFFECTS ON A DEEP CHLOROPHYLL LAYER MAINTAINED BY PLUNGING INFLOWS. Ecological Society of America Knoxville, TN. (1994)
74. \*ARE DEEP-CHLOROPHYLL MAXIMA IN MOUNTAIN LAKES MAINTAINED BY DEPTH-SPECIFIC NUTRIENT LOADING OF INTERFLOWS? American Society of Limnology and Oceanography. Reno, Nevada. (1995)
75. \*BIOGEOCHEMICAL CYCLING IN SOCKEYE SALMON NURSERY LAKES: IS MARINE-DERIVED N AND P FROM RETURNING SALMON IMPORTANT? International Congress for the Society of theoretical and applied limnology. Sao Paulo, Brazil. (1995)
76. \*SILT EFFECTS ON FRESHWATER DECAPODS IN A TROPICAL MOUNTAIN STREAM: DISTURBANCE-MEDIATED CASCADING EFFECTS. International Congress for the Society of theoretical and applied limnology. Sao Paulo, Brazil. (1995)

77. ASSESSING LAKE FERTILIZATION PLANS TO ENHANCE GROWTH OF JUVENILE ENDANGERED SOCKEYE SALMON. Ecological Society of America. Snowbird, Utah. (1995)
78. DIVERSITY OF A SIMPLE ECOSYSTEM: THE GREAT SALT LAKE, UTAH. Ecological Society of America. Snowbird, Utah. (1995)
79. SIMULATING GROWTH AND SURVIVAL OF JUVENILE ENDANGERED SOCKEYE SALMON IN IDAHO LAKES UNDER DIFFERENT RECOVERY STRATEGIES. Ecological Society of America. Snowbird, Utah. (1995)
80. THE ROLE OF ANADROMOUS SOCKEYE SALMON (*ONCORHYNCHUS NERKA*) IN THE NUTRIENT LOADING AND PRODUCTIVITY OF REDFISH LAKE. Ecological Society of America. Snowbird, Utah. (1995).
81. \*PLUNGING INFLOWS AND METALIMNETIC NUTRIENT LOADING SUPPORT THE DEEP-CHLOROPHYLL MAXIMA IN MOUNTAIN LAKES. Ecological Society of America. Snowbird, Utah. (1995)
82. \*NUTRITIONAL CONTROLS ON BRINE SHRIMP REPRODUCTION IN THE GREAT SALT LAKE. Ecological Society of America. Providence, RI. (1996). Ecological Society of America. Providence, RI. (1996).
83. \*SEASONAL OFFSHORE MOVEMENTS OF ADULT AND SUB-ADULT BEAR LAKE SCULPIN. Ecological Society of America. Providence, RI. (1996).
84. \*THE GREAT SALT LAKE: BRINE SHRIMP'S ECONOMIC AND ECOLOGICAL NICHE. Wasatch Front Forum, Salt Lake City, UT (1997). Invited.
85. \*NUTRIENT AND HYDRODYNAMIC CONTROL OF PRODUCTIVITY IN THE DEEP-CHLOROPHYLL LAYERS OF MOUNTAIN LAKES. Am. Society of Limnology and Oceanography. Santa Fe, NM. (1997).
86. \*LIFE AFTER USU: A GUIDE TO THE FUTURE. Utah State University Natural Resources Week Symposium. Logan, UT (1997). Invited.
88. \*ECOLOGIA DEL ARTEMIA EN EL GRAN LAGO SALADO, USA. Universidad de Valencia. Valencia, Spain. (1998). Invited.
87. \*SUCCESSFUL APPROACHES FOR RESEARCH IN FOREIGN COUNTRIES. Fulbright Commission. Leon, Spain (1998). Invited.
88. \*BIOTIC AND ABIOTIC NUTRIENT TRANSPORT PROCESSES IN LAKES. Fulbright Commission. Leon, Spain (1998).
89. \*ECOLOGIA DEL PLANKTON EN EL GRAN LAGO SALADO, USA. Universidad de Barcelona. Barcelona, Spain (1998). Invited.
90. \*DEEP-CHLOROPHYLL LAYERS IN MOUNTAIN LAKES. Universidad de Girona, Girona, Spain (1998). Invited.
91. \*THE IMPORTANCE OF INFLOW HYDRODYNAMICS ON THE DEEP-CHLOROPHYLL LAYERS IN MOUNTAIN LAKES. Istituto Italiano di Idrobiologia. Pallanza, Italy (1998). Invited.
92. \*NITROGEN TRANSPORT FROM A DEEP-CHLOROPHYLL LAYER VIA BIOTIC AND PHYSICAL PROCESSES: A WHOLE-LAKE N-15 EXPERIMENT. Internat. Soc. Applied and Theoretical Limnology. Dublin, Ireland. (1998)
93. THE EFFECTS OF DIEL MIGRATION CHANGES ON ZOOPLANKTON GRAZING RATES. Am. Soc. Limnol. Oceanogr. Santa Fe (1999).
94. \*NITROGEN FLUX BETWEEN STRATA AND THROUGH THE FOOD WEB MEASURED WITH A WHOLE-LAKE N-15 EXPERIMENT. Am. Soc. Limnol. Oceanogr. Santa Fe (1999).

95. ALKALINE PHOSPHATASE ACTIVITY AS A MEASURE OF SPATIAL-TEMPORAL LIMITATION IN A HIGH MOUNTAIN LAKE WITH A DEEP CHLOROPHYLL LAYER. Am. Soc. Limnol. Oceanogr. Santa Fe (1999).
96. \*POPULATION DYNAMICS AND ENVIRONMENTAL FACTORS CONTROLLING BRINE SHRIMP CYST PRODUCTION IN THE GREAT SALT LAKE, UTAH. 7<sup>th</sup> International Conference on Salt Lakes. Death Valley, California (1999).
97. \*IMPORTANCE OF THE DEEP-CHLOROPHYLL LAYER IN A MOUNTAIN LAKE FOR ZOOPLANKTON NUTRITION: A WHOLE-LAKE <sup>15</sup>N EXPERIMENT. Ecol. Soc. Of Am. Spokane, WA. (1999)
98. VERTICAL TRANSPORT IN THE METALIMNION - RESULTS FOR A WHOLE LAKE TRACER STUDY. Ocean Sciences Meetings. Santa Fe (2000)
99. GRAZING BY THE COLONIAL ROTIFER *Conochilus unicornis*, FIELD ESTIMATIONS USING SYNTHETIC MICROSPHERES. IX International Rotifer Symposium, Khon Kaen, Thailand. (2000)
100. EXAMINATION OF CONSUMER EFFECTS OF FISH ON LAKE FOOD WEBS AND THE APPLICABILITY OF SLEDGEHAMMER EXPERIMENTS. Bonneville American Fisheries Society Meetings. Salt Lake City. (2000)
101. \*PRODUCTION IN LAKES--ITS' NOT WHERE YOU THINK IT IS: THE IMPORTANCE OF DEEP CHLOROPHYLL LAYERS IN OLIGOTROPHIC SYSTEMS. Bonneville American Fisheries Society Meetings. Salt Lake City. (2000)
102. PRODUCTIVITY AND NUTRIENT LIMITATION OF ALPINE LAKES IN THE SAWTOOTH MOUNTAINS OF IDAHO: A LANDSCAPE APPROACH. Bonneville American Fisheries Society Meetings. Salt Lake City. (2000)
103. \*THE USE OF STABLE ISOTOPES OF N AND C TO STUDY THE MOVEMENT OF NUTRIENTS IN AQUATIC FOOD WEBS. X Congress of the Asociación Española de Limnología. Valencia, Spain. (2000)
104. POBLACIONES ALGALES DE LA LAGUNA CÁRTICA DE EL TEJO (CUENCA): EVOLUCIÓN ANUAL Y DISTRIBUCIÓN ESPACIAL. (Algal populations of karstic Lake Tejo (Cuenca): Annual cycles and spatial distribution). X Congress of the Asociación Española de Limnología. Valencia, Spain. (2000)
105. FISH-MEDIATED NUTRIENT TRANSFER IN LAKES: IS IT IMPORTANT FOR PHYTOPLANKTON? Ecological Society of America 85<sup>th</sup> Annual Meeting, Snowbird, Utah (2000).
106. EFFECTS OF NUTRIENT LIMITATION, LIGHT LIMITATION, AND INVERTEBRATE GRAZERS ON PHYTOPLANKTON LIVING IN DEEP CHLOROPHYLL LAYERS. Ecological Society of America 85<sup>th</sup> Annual Meeting, Snowbird, Utah (2000). C. Sawatzky and W.A. Wurtsbaugh
107. \*EFFECTS OF ZOOPLANKTON ON THE DEVELOPMENT OF A DEEP CHLOROPHYLL LAYER AND NUTRIENT TRANSPORT: A <sup>15</sup>N LIMNOCORRAL EXPERIMENT. Ecological Society of America 85<sup>th</sup> Annual Meeting, Snowbird, Utah (2000). A. Pilati and W.A. Wurtsbaugh
108. NUTRIENT EXPORT FROM TWO HIGH MOUNTAIN LAKES TO OUTFLOW STREAMS: THE IMPORTANCE OF INFLOW HYDRODYNAMICS AND IN-LAKE PROCESSES. Ecological Society of America 85<sup>th</sup> Annual Meeting, Snowbird, Utah (2000). G. Burkart, W.A. Wurtsbaugh, W. Fleenor, and C. Luecke.
109. DEEP CHLOROPHYLL LAYERS IN OLIGOTROPHIC LAKES: THEIR FORMATION AND IMPORTANCE FOR PLANKTONIC FOOD WEBS. Chinese Institute of Geography and Limnology. Nanjing, China. (2000) Invited. W.A. Wurtsbaugh.

110. FIELD ESTIMATIONS OF GRAZING IN THE COLONIAL ROTIFER, CONOCHILUS UNICORNIS, USING SYNTHETIC MICROSPHERES. IX International Rotifer Symposium, Khon Kaen, Thailand. (2000). X. Armengol, L. Boronat, A. Camacho, W. Wurtsbaugh and M.R. Miracle.
111. DIEL VERTICAL MIGRATION OF ZOOPLANKTON AS A TRANSPORT MECHANISM FOR NITROGEN. I Plankton Symposium, Espinho, Portugal. (2001). X. Armengol, W. Wurtsbaugh, A. Camacho and M.R. Miracle. PORTUGAL.
112. \*LIMNOLOGY, BRINE SHRIMP, AND THE BIGGEST "FISHERY" IN UTAH: BIOLOGICAL AND SOCIAL CONTROLS ON CYST PRODUCTION IN THE GREAT SALT LAKE. Bonneville Chapter of the Am. Fisheries Soc., St. George, UT. (2001). W.A. Wurtsbaugh.
113. HIGH TOXICITY OF BROMIDE TO COPEPODS AND DAPHNIA. American Soc. Limnol. Oceanogr. Albuquerque, NM. (2001). E. de la Hoz and W.A. Wurtsbaugh.
114. LANDSCAPE EFFECTS OF LAKES ON SUBSTRATE COMPOSITION AND PERIPHYTON IN STREAMS OF THE SAWTOOTH MOUNTAINS, IDAHO. American Soc. Limnol. Oceanogr. Albuquerque, NM. (2001). A.M. Marcarelli and W.A. Wurtsbaugh
115. \*NITROGEN RETENTION AND CYCLING IN MOUNTAIN LAKES WITH DEEP CHLOROPHYLL LAYERS MEASURED WITH WHOLE-LAKE <sup>15</sup>N ADDITIONS. American Soc. Limnol. Oceanogr. Albuquerque, NM. (2001)
116. \*CAUSES AND CONSEQUENCES OF EUTROPHICATION IN FARMINGTON BAY OF THE GREAT SALT LAKE. Friends of Great Salt Lake Forum. Salt Lake City, UT. (2002). W.A. Wurtsbaugh and D. Gross.
117. \*STREAM-LAKE INTERACTIONS IN SUB-ALPINE ECOSYSTEMS: LINKING PHYSICAL, CHEMICAL AND BIOLOGICAL RESPONSES AT WATERSHED SCALES. Cornell University, Ithaca, and Cornell Biological Field Station, Shackleton Point, New York. (2002). W.A. Wurtsbaugh.
118. \*STREAM-LAKE INTERACTIONS IN SUB-ALPINE ECOSYSTEMS: PHYSICAL, CHEMICAL AND BIOLOGICAL RESPONSES IN WATERSHEDS. Colorado State University, Dept. of Biology. (2002). W.A. Wurtsbaugh.
119. \*TOPO-MORPHOMETRIC ANALYSIS OF LAKE-STREAM INTERACTIONS IN ALPINE WATERSHEDS. American Soc. Limnol. Oceanogr. Victoria, British Columbia (2002). W.A. Wurtsbaugh and M. Baker.
120. A COMPARATIVE STUDY OF NITROGEN-FIXATION RATES IN OLIGOTROPHIC LAKES AND STREAMS OF THE SAWTOOTH MOUNTAINS, IDAHO. American Soc. Limnol. Oceanogr. Salt Lake City, UT (2003). A.M. Marcarelli and W.A. Wurtsbaugh.
121. EFFECT OF STREAM-LAKE INTERACTIONS ON CATCHMENT BIOGEOCHEMISTRY. American Soc. Limnol. Oceanogr. Salt Lake City, UT (2003). M. Baker and W.A. Wurtsbaugh.
122. ANTHROPOGENIC EUTROPHICATION OF AN URBAN EMBAYMENT OF THE GREAT SALT LAKE, UTAH. American Soc. Limnol. Oceanogr. Salt Lake City, UT (2003). D. Gross and W.A. Wurtsbaugh.
123. \*EMERGING RESEARCH ISSUES FOR LIMNOLOGY: THE STUDY OF INLAND WATERS. American Soc. Limnol. Oceanogr. Salt Lake City, UT (2003). Invited. W.A. Wurtsbaugh, D. McKnight, J. Cole, P. Brezonik, S. MacIntyre, and K. Potter.
124. TEMPERATURE IMPACTS OF STREAM-LAKE INTERACTIONS IN WATERSHEDS. American Soc. Limnol. Oceanogr. Salt Lake City, UT (2003). J. Decker and W.A. Wurtsbaugh.

125. NITROGEN SOURCES FOR EPIPHYTIC ALGAE IN AN OLIGOTROPHIC LAKE: THE IMPORTANCE OF MACROPHYTE-DERIVED NUTRIENTS. American Soc. Limnol. Oceanogr. Salt Lake City, UT (2003). Moore, J. and W.A. Wurtsbaugh.
126. NUTRIENT UPTAKE IN SUB-ALPINE STREAMS ABOVE AND BELOW A LAKE. American Soc. Limnol. Oceanogr. Salt Lake City, UT (2003). Baker, M., R.O. Hall, Jr., C. Arp, and W.A. Wurtsbaugh.
127. \*THE GREAT SALT LAKE ECOSYSTEM (JUST A FLUSH AWAY): BRINE SHRIMP, ALGAE, NUTRIENTS AND YOU. College of Natural Resources, Utah State University, Logan, UT. (Invited 2003). W.A. Wurtsbaugh.
128. ZOOPLANKTON GRAZING IN A OLIGOTROPHIC MOUNTAIN LAKE: FIELD ESTIMATIONS USING SYNTHETIC MICROSPHERES (2003). Third International Plankton Symposium. Figueira da Foz, Portugal. X. Armengol, L. Boronat and W.A. Wurtsbaugh.
129. STORAGE OF NITROGEN-15 NITRATE DURING SNOWMELT IN TWO MOUNTAIN STREAMS SEPARATED BY A LAKE. R.O. Hall, Jr., M.A. Baker, W.A. Wurtsbaugh, B. Koch, and C.D. Arp.
130. MACRONUTRIENT LIMITATION OF NITROGEN FIXATION AND PERIPHYTON BIOMASS ALONG SUB-ALPINE WATERSHEDS. North American Benthological Association. Athens, GA (2003). Marcarelli, A.M. and W.A. Wurtsbaugh.
131. DISSOLVED N DYNAMICS IN A COUPLED STREAM-LAKE ECOSYSTEM DURING SNOWMELT QUANTIFIED USING <sup>15</sup>N NITRATE. North American Benthological Association. Athens, GA (2003). M.A. Baker, R.O. Hall, W.A. Wurtsbaugh, M.M. Bozeman, and C.D. Arp.
132. \*STREAM-LAKE INTERACTIONS IN SAWTOOTH MOUNTAIN ECOSYSTEMS: LINKING BIOLOGY, CHEMISTRY, AND PHYSICS AT WATERSHED SCALES. Biology Department, Texas Christian University, Ft. Worth, TX. Invited (2004). W.A. Wurtsbaugh.
133. \*EUTROPHICATION IN FARMINGTON BAY: AN URBAN EMBAYMENT OF THE GREAT SALT LAKE. Runoff Conference, Utah State University, Logan, UT (2004). Wurtsbaugh, W.A and A.M. Marcarelli.
134. THE EFFECT OF ATMOSPHERIC NITROGEN ON THE CHEMISTRY AND ECOLOGY OF ROCKY MOUNTAIN LAKES. North American Society of Lake Management. Denver, Colorado (2004). K. Nydick, J. Baron, W.A. Wurtsbaugh.
135. NITRATE UPTAKE BY SEDIMENT UNDER LOW NUTRIENT CONDITIONS IN MOUNTAIN LAKES. North American Benthological Society. Vancouver, British Columbia (2004). K. Nydick and W. Wurtsbaugh.
136. NITROGEN TRANSPORT THROUGH LINKED STREAM-LAKE SYSTEMS MEASURED WITH <sup>15</sup>N TRACER. Am. Soc. Limnology and Oceanography. Savannah, Georgia (2004). W. Wurtsbaugh, K. Nydick, M. Baker, R. Hall.
137. HOW TO BUILD A DATABASE FOR LAKE-STREAM ECOSYSTEM STUDIES. N. Am. Benthological Soc., Vancouver, British Columbia (2004). L.R. Rozzell, J.W. Haefner, K. R. Nydick, M. A. Baker, W. A. Wurtsbaugh.
138. NITROGEN-FIXATION IN UNDISTURBED, OLIGOTROPHIC STREAMS: A CHAMBER STUDY. N. Am. Benthological Soc., Vancouver, British Columbia (2004). A. Marcarelli, M. Bozeman, W.A. Wurtsbaugh, and M. Baker.
139. LAKES AS NUTRIENT "SOURCES" FOR WATERSHEDS: A LANDSCAPE ANALYSIS OF TEMPORAL FLUX OF NITROGEN THROUGH ALPINE LAKES AND STREAMS. International Soc. of Theoretical and Applied Limnology, Lahti, Finland (2004). W. Wurtsbaugh, M. Baker, H. Gross and P. Brown.

140. LANDSCAPE LIMNOLOGY: LINKING PHYSICAL, CHEMICAL, AND BIOLOGICAL PROCESSES IN STREAMS AND LAKES. Swiss Federal Institute for Environmental Science and Technology (EAWAG), Zurich, Switzerland (invited, 2004)
141. HYDROGEOMORPHIC LANDSCAPES AND ECOSYSTEM PROCESSES IN THE SAWTOOTH MOUNTAINS. U.S. Geological Survey, Salt Lake City, UT. (invited, 2004).
142. LACUSTRINE CONTROL OF NUTRIENT FLUX THROUGH MOUNTAIN WATERSHEDS: PHYSICAL AND BIOLOGICAL MECHANISMS. Am. Soc. Limnology and Oceanography. Salt Lake City, Utah (2005). W. Wurtsbaugh, K. Nydick, C. Arp, M. Baker, J. Haefner, R. Hall.
143. EPIPELON AS A SINK FOR WATER-COLUMN NITRATE? <sup>15</sup>N STUDIES IN A MOUNTAIN LAKE. Am. Soc. Limnology and Oceanography. Salt Lake City, Utah (2005). K. Nydick & W. Wurtsbaugh.
144. THE IMPORTANCE OF AQUATIC NITROGEN FIXATION IN HIGH ALTITUDE SUBALPINE WATERSHEDS OF CENTRAL IDAHO. Am. Soc. Limnology and Oceanography. Salt Lake City, Utah (2005). A. Marcarelli, W. Wurtsbaugh, B. Koch and M. Baker.
145. NUTRIENT LIMITATION AND NITROGEN FIXATION OF PHYTOPLANKTON AND STROMATOLITES IN THE GREAT SALT LAKE (UTAH, USA) UNDER VARYING SALINITIES. Am. Soc. Limnology and Oceanography. Salt Lake City, Utah (2005). J. Parker, J. Robinson, W. Wurtsbaugh and A. Marcarelli.
146. PERVASIVE TEMPERATURE EFFECTS THROUGH SUB-ALPINE STREAM-LAKE-STREAM SYSTEMS. Am. Soc. Limnology and Oceanography. Salt Lake City, Utah (2005). J. Garrett, A. Marcarelli and W. Wurtsbaugh.
147. EFFECTS OF LAKES AND LANDCOVER CHARACTERISTICS ON STREAMWATER NUTRIENT LEVELS IN SMALL MOUNTAIN WATERSHEDS. Am. Soc. Limnology and Oceanography. Salt Lake City, Utah (2005). P. Brown, W. Wurtsbaugh and K. Nydick.
148. LANDSCAPE LIMNOLOGY IN ALPINE CATCHMENTS: LINKING PHYSICAL, CHEMICAL AND BIOLOGICAL PROCESSES. University of Minnesota, Minneapolis (invited, 2005). W.A. Wurtsbaugh.
149. HYDROGEOMORPHIC LANDSCAPES AND ECOSYSTEM PROCESSES IN ALPINE CATCHMENTS OF THE SAWTOOTH MOUNTAINS, IDAHO. University of Minnesota, Duluth (invited, 2005). W.A. Wurtsbaugh.
150. TEMPERATURE AND NUTRIENTS INTERACT TO CONTROL NITROGEN FIXATION IN SUBALPINE STREAMS: AN EXPERIMENTAL EXAMINATION. For N. Am. Benthological. Assoc. New Orleans (2005). A.M. Marcarelli and W.A. Wurtsbaugh.
151. LAKE DISRUPTIONS ON SEDIMENT MOBILITY AND EFFECTS ON BENTHIC CHLOROPHYLL. Myers, A.K., A.M. Marcarelli, C.D. Arp, W.A. Wurtsbaugh and M.A. Baker. For N. Am. Benthological. Assoc. New Orleans (2005).
152. PATTERNS OF NUTRIENT CONCENTRATIONS AND LIMITATION ALONG MOUNTAIN WATERSHEDS: SPATIAL AND TEMPORAL CONTROL BY LAKES AND STREAMS. For Ecological Society of Am. Victoria, B.C. (2005) K.R. Nydick, W.A. Wurtsbaugh, P.D. Brown, M.A. Baker, and C. Arp.
153. LANDSCAPE PATTERNS OF STREAMS & LAKES IN MONTANE WATERSHEDS DETERMINE WATER TEMPERATURES & NUTRIENT TRANSPORT: WATERSHED ANALYSES AND <sup>15</sup>N TRACER EXPERIMENTS. For Am. Soc. Limnol. Oceanogr. Spain (2005) W.A. Wurtsbaugh, S.D. Garrett, J.D., G. Burkart, W.E. Fleenor, K.R. Nydick, R.O. Hall, M.A. Baker.
154. SALINITY CONTROLS PLANKTON RESPONSE TO NUTRIENT ENRICHMENT IN FARMINGTON BAY, GREAT SALT LAKE, UTAH. Salt Lake City. Geological Society of America. (2005) A.M. Marcarelli and W.A. Wurtsbaugh.



155. LANDSCAPE LIMNOLOGY STUDIED WITH <sup>15</sup>N TRACER: LINKING LAKES AND STREAMS IN ALPINE WATERSHEDS (Or, what does topography tell us about temperatures, plankton, and fish?). EAWAG Institute, Kastaniambaum, Switzerland. (2005) Invited.
156. LANDSCAPE LIMNOLOGY: LINKING THE PHYSICS, CHEMISTRY AND BIOLOGY OF LAKES AND STREAMS IN ALPINE WATERSHEDS. (2005) Montana State University. Bozeman. Invited.
157. LIMNOLOGICAL ANALYSES OF LINKED STREAM-LAKE ECOSYSTEMS IN ALPINE CATCHMENTS: OR, WHAT DOES TOPOGRAPHY TELL US ABOUT TEMPERATURES, PLANKTON AND BENTHIC INVERTEBRATES? EAWAG Institute, Dübendorf, Switzerland (2005). Invited.
158. ASSESSING THE EFFECTIVENESS OF PLANTED GRASS BEDS IN SHASTA LAKE, CALIFORNIA: METHODS TO EVALUATE THE POSSIBLE BENEFITS FOR JUVENILE BASS. Western Division, Am. Fish. Soc. Salt Lake City, Utah (2004) D.R. Ratcliff. and W.A. Wurtsbaugh
159. DO PLANTED GRASS BEDS ALONG A RESERVOIR MARGIN STIMULATE THE FOOD WEB AND ABUNDANCE OF JUVENILE BASS? Bonneville Chapter, Am. Fish. Soc. Bear Lake, Utah (2005) D.R. Ratcliff, W.A. Wurtsbaugh, and J. Zustak
160. DOES GRASS BED PLANTING STIMULATE THE FOOD WEB AND JUVENILE BASS ABUNDANCE IN A DRAWDOWN RESERVOIR? Am. Fish. Soc. Annual Meeting. Anchorage, Alaska (2005) D.R. Ratcliff, W.A. Wurtsbaugh, and J. Zustak - Honorable Mention, Student Poster
161. SEVERE EUTROPHICATION AND FOOD WEB DYNAMICS OF AN URBAN EMBAYMENT OF THE GREAT SALT LAKE, UTAH, USA. Int. Soc. Salt Lake Research. Perth, Australia (2005). W.A. Wurtsbaugh and A. Marcarelli.
162. UNDERSTANDING LIMITING NUTRIENTS FOR ALGAL PRODUCTION: EXPERIENCES FROM LOWLAND HYPERSALINE LAKES TO OLIGOTROPHIC ALPINE SYSTEMS IN AMERICA AND EUROPE. Botanisches Institute, University of Innsbrook, Austria. (2006) Invited.
163. LANDSCAPE LIMNOLOGY: LINKING PHYSICAL, CHEMICAL AND BIOLOGICAL PROCESSES IN STREAMS AND LAKES (OR, WHAT DOES TOPOGRAPHY TELL US ABOUT TEMPERATURES, PLANKTON AND FISH?) Ecology Dept. University of Innsbrook, Austria. (2006) Invited.
164. LANDSCAPE LIMNOLOGY: UNDERSTANDING LINKED STREAM-LAKE ECOSYSTEMS. Konstanz University, Konstanz, Germany. (2006). Invited.
165. SEVERE EUTROPHICATION AND FOOD WEB DYNAMICS OF AN URBAN EMBAYMENT OF THE GREAT SALT LAKE, UTAH, USA. EAWAG Institute, Kastaniambaum, Switzerland. (2006) Invited.
166. THE GREAT SALT LAKE, USA: BIODIVERSITY IN A THREATENED HYPERSALINE ECOSYSTEM. ETH University, Zurich, Switzerland. (2006). Invited.
167. LANDSCAPE LIMNOLOGY: UNDERSTANDING LINKED STREAM-LAKE ECOSYSTEMS IN SUB-ALPINE CATCHMENTS. University of Salzburg. (2006). Invited.
168. LANDSCAPE LIMNOLOGY OF STREAMS AND LAKES IN THE SWISS ALPS. Am. Soc. Limnology and Oceanography. Victoria, Canada (2006). W. Wurtsbaugh and D. Tonolla.
169. CONVOLUTED UPBRINGING—TWISTED CAREER. Research Advances in Fisheries, Wildlife, and Ecology Symposium. Oregon State University (2006). Invited.
170. CONCEPTUAL MODEL FOR SELENIUM CYCLING IN THE GREAT SALT LAKE. Am. Geophysical Union. San Francisco (2006). W. Johnson, M.R. Conover, W.A. Wurtsbaugh, J. Adams, D.L. Naftz. City, UT

171. EUTROPHICATION ISSUES IN FARMINGTON BAY AND THE GREAT SALT LAKE, UTAH. Utah Department of Environmental Quality. (2007). W.A. Wurtsbaugh. Invited.
172. ANALYSIS OF SELENIUM BIOACCUMULATION IN BENTHIC FOOD WEBS OF THE GREAT SALT LAKE, UTAH. Utah Division of Water Resources and the Great Salt Lake Science Panel. (2007) W.A. Wurtsbaugh. Invited.
173. EUTROPHICATION IN FARMINGTON BAY: A POLLUTED EMBAYMENT OF THE GREAT SALT LAKE. Great Salt Lake Alliance. (2007). W.A. Wurtsbaugh. Invited.
174. BENTHIC FOOD WEB ANALYSES OF MERCURY BIOACCUMULATION IN THE GREAT SALT LAKE: PROPOSED STUDIES. Great Salt Lake Mercury Team. (2007) W.A. Wurtsbaugh. Invited.
175. EUTROPHICATION IN FARMINGTON BAY AND ITS POTENTIAL IMPACTS ON WILDLIFE. Utah Wetlands Foundation., Salt Lake City, Utah. (2007). W.A. Wurtsbaugh. Invited.
176. LAKE LANDSCAPES BUFFER NUTRIENT FLUX AND ALGAL PRODUCTION IN MOUNTAIN WATERSHEDS. (2007) W.A. Wurtsbaugh, M.A. Baker, and H.W. Gross. Verhandlungen IVL 30 Part 3: p. 360. Abstract (2008).
177. NUTRIENT SUBSIDIES FROM EMBAYMENTS INFLUENCE BRINE SHRIMP GROWTH RATES IN THE GREAT SALT LAKE. (2007) W.A. Wurtsbaugh, D.L. Naftz, and S.R. Bradt.
178. A PRELIMINARY ANALYSIS OF "LAKE STENCH" IN THE GREAT SALT LAKE (2007). Utah State University Runoff Conference. K. Bell and W. Wurtsbaugh.
179. NUTRIENT LOADING, LINKAGES AMONG BAYS, AND EUTROPHICATION IN THE GREAT SALT LAKE (2008). Utah Department of Natural Resources Great Salt Lake Technical Team meeting, Salt Lake City. W.A. Wurtsbaugh, D.L. Naftz, and S.R. Bradt.
180. LOADING AND BIOGEOCHEMICAL CYCLING OF ANTHROPOGENIC CONTAMINANTS IN GREAT SALT LAKE, UTAH (2008) D.L. Naftz, C. Fuller, W.P. Johnson, W. Wurtsbaugh, K. Beisner, X. Diaz and M. Burkardt. European Geosciences Union.
181. EUTROPHICATION AND CONNECTIVITY AMONG BAYS OF THE GREAT SALT LAKE: WHAT HAPPENS IN FARMINGTON BAY DOESN'T STAY IN FARMINGTON BAY. Utah State University's 4th Annual Interdisciplinary Water Conference: Water Science and Water Management in a Water-Short West (2008). Logan, Utah. W.A. Wurtsbaugh, D.L. Naftz, and S.R. Bradt.
182. NUTRIENT LIMITATION OF PHYTOPLANKTON BY NITROGEN AND PHOSPHORUS: EROSION OF THE PHOSPHORUS PARADIGM. (2009). Am. Soc. Limnol. Oceanography, Nice, France. W.A. Wurtsbaugh and W. Lewis III.
183. FRESHWATER RESPONSES TO NITROGEN AND PHOSPHORUS POLLUTION AND A CASE STUDY OF CUTLER AND DINGLE MARSH WETLANDS. (2009) Water Initiative Seminar Series, Utah State University, Logan, Utah. W.A. Wurtsbaugh.
184. TEMPORAL AND SPATIAL VARIATION OF NUTRIENT AVAILABILITY IN MOUNTAIN LAKES. Utah State University Runoff Conference (2009). C. Dixon and W.A. Wurtsbaugh.
185. NITROGEN FLOW PATHWAYS THROUGH AN ALPINE LAKE. (2009). Utah State University Runoff Conference (2009). D.M. Epstein and W.A. Wurtsbaugh.
186. MERCURY POOLS OF THE GREAT SALT LAKE. (2009). Utah State University Runoff Conference (2009). C.W. Izdepski and W.A. Wurtsbaugh.
187. THE INFLUENCE OF WATERSHED COMPLEXITY ON DOWNSTREAM BIOTIC PRODUCTIVITY IN SMALL MOUNTAIN WATERSHEDS. (2009). Utah State University Runoff Conference (2009). M.J. Kang and W.A. Wurtsbaugh.

188. STROMATOLITE COMMUNITY ANALYSES AND HEAVY METAL BIOACCUMULATION IN THE GREAT SALT LAKE, UTAH. (2009). Ecological Soc. America. Albuquerque, NM. W.A. Wurtsbaugh and C. Izdepski.
189. LIMNOLOGY OF THE GREAT SALT LAKE: ONE CRAZY PLACE. (2010). Venture Academy, Ogden, UT. W. Wurtsbaugh. (invited)
190. SEVERE EUTROPHICATION IN FARMINGTON BAY, A POLLUTED BAY IN THE GREAT SALT LAKE. Friends of Great Salt Lake Forum. Salt Lake City (2010). W. Wurtsbaugh, A. Marcarelli and G. Boyer.
191. STROMATOLITE BIOTROME COMMUNITIES IN THE GREAT SALT LAKE: THEIR IMPORTANCE FOR SELENIUM AND MERCURY BIOACCUMULATION IN THE FOOD WEB. Am. Soc. Limnol. Oceanography. Santa Fe (2010). W.A. Wurtsbaugh.
192. DO ARTEMIA BIOACCUMULATE METHYLMERCURY FROM THE MONIMOLIMNION OF THE GREAT SALT LAKE (UTAH)? Santa Fe (2010). E. Fleming and W.A. Wurtsbaugh.
193. LANDSCAPE LIMNOLOGY: INFLUENCE OF UPSTREAM LAKES ON DOWNSTREAM PRODUCTIVITY OF A WATERSHED. Am. Soc. Limnol. Oceanography. Santa Fe (2010). M. Kang, W. Wurtsbaugh and M. Baker.
194. THE GREAT SALT LAKE'S DEEP BRINE LAYER AND ITS IMPORTANCE FOR MERCURY BIOACCUMULATION IN BRINE SHRIMP. Wayne Wurtsbaugh and Erin Jones. Forestry, Fire and State Lands Great Salt Lake Technical Team (July 2010).
195. MONITORING WATER QUALITY OF GREAT SALT LAKE USING LANSAT 5 THEMATIC MAPPER (TM). Kang, M.J., C. Neale and W.A. Wurtsbaugh. Runoff Conference, Utah State University, Logan, UT. (2011).
196. BRINE SHRIMP BIOACCUMULATION OF MERCURY FROM THE DEEP BRINE LAYER OF THE GREAT SALT LAKE. E. Fleming and W.A. Wurtsbaugh. Runoff Conference, Utah State University, Logan, UT. (2011).
197. NUTRIENT LIMITATION IN MAR CHIQUITA (CORDOBA, ARGENTINA). A. Pilati, W.A. Wurtsbaugh, M. Castellino, E.D. Curto, and E.H. Bucher. Internat. Soc. For Salt Lake Research. Miramar, Argentina, (2011).
198. MERCURY AND SELENIUM BIOACCUMULATION IN THE STROMATOLITE COMMUNITY IN THE GREAT SALT LAKE, UTAH. W.A. Wurtsbaugh and C.W. Izdepski. Internat. Soc. For Salt Lake Research. Miramar, Argentina, (May, 2011; invited).
199. PALEOLIMNOLOGICAL ANALYSIS OF EUTROPHICATION AND ARTEMIA CRYPTOBIOLOGY IN THE GREAT SALT LAKE (USA). W.A. Wurtsbaugh, P.R. Leavitt and K.A. Moser. Internat. Soc. For Salt Lake Research. Miramar, Argentina, (May, 2011; invited).
200. ECOLOGIA Y CONTAMINACION DEL GRAN LAGO SALADO, (EEUU). W.A. Wurtsbaugh. Universidad de la Pampa, Santa Rosa, Argentina (March, 2011; invited)
201. LAGOS EN CUENCAS HIDROGRFICAS DE MONTANA: TRANSPORTE DE NUTRIENTES, LA HIDROLOGIA Y LOS SALMONES. W.A. Wurtsbaugh. Universidad de Comahue, Bariloche, Argentina, (April 2011; invited).
202. LIMNOLOGIA Y ECOLOGIA DE LOS SALMONES ROJAS EN LAS MONTNAS DE SAWTOOTH, IDAHO, USA. W.A. Wurtsbaugh. Universidad Nacional de Salta, Argentina, (June, 2011, invited).
203. ECOLOGIA Y LA CONTAMINACION DEL GRAN LAGO SALADO (EEUU). W.A. Wurtsbaugh. Instituto de PROIMI, Tucuman, Argentina, (June, 2011; invited).

204. EL GRAN LAGO SALADO DE LOS ESTADOS UNIDOS: CONTAMINACION Y UN ANALISIS PALEOLIMNOLOGICO DE LOS CAMBIOS. W.A. Wurtsbaugh. Facultad de Geologia, Universidad de Cordoba, Argentina. (June, 2011; invited).
205. MERCURY IN THE PELAGIC AND BENTHIC FOOD WEBS OF THE GREAT SALT LAKE. W.A. Wurtsbaugh and E. Fleming. Great Salt Lake Technical Team, Salt Lake City. (June 2011; invited).
206. BIOTROME COMMUNITIES AND MERCURY AND SELENIUM BIOACCUMULATION IN THE GREAT SALT LAKE (UTAH, USA). Wayne A. Wurtsbaugh, Jodi Gardberg and Caleb Izdepski. Great Salt Lake Technical Team, Salt Lake City. (July 2011; invited).
207. NITROGEN AND PHOSPHORUS LIMITATION OF ALGAL GROWTH IN WESTERN LAKES. W.A. Wurtsbaugh and W.M. Lewis, Jr. EPA Region 8 Collaborative Workshop: Nutrients and Water Quality. Salt Lake City (Feb. 2011).
208. FISH DIVERSITY IN THE GREAT SALT LAKE. Hannah Moore and Wayne A. Wurtsbaugh. 2012 Great Salt Lake Issues Forum. Salt Lake City (June 2012).
209. MERCURY IN THE BRINE FLY FOOD WEB OF THE GREAT SALT LAKE. Great Salt Lake Issues Forum. Salt Lake City (June 2012; invited).
210. THE HISTORY OF METALS CONTAMINATION IN THE GREAT SALT LAKE, UTAH, REVEALED THROUGH A PALEOLIMNOLOGICAL ANALYSIS. Great Salt Lake Issues Forum. Salt Lake City (June 2012; invited).
209. NITROGEN CONTROL OF ALGAL PRODUCTION IN LINKED FRESHWATER-SALINE ECOSYSTEMS: IS IT WORTH IT? Wayne Wurtsbaugh, Hans. W. Paerl & William M. Lewis, Jr. Assoc. for Soc. Limnology and Oceanography, Otsu, Japan (July 2012; invited Tutorial Talk).
210. INFLUENCE OF DIKING AND CLIMATE ON SALINITIES IN GILBERT AND GUNNISON BAYS OF THE GREAT SALT LAKE. Sarah Null, W. Wurtsbaugh and C. Miller. Great Salt Lake Technical Team meeting, Salt Lake City (Jan 2013; invited).
211. HARMFUL ALGAL BLOOMS IN THE GREAT SALT LAKE (UTAH): SALINITY, NUTRIENT AND TOP-DOWN CONTROLS. Wayne Wurtsbaugh, Amy Marcarelli and Gregory Boyer. Association for the Sciences of Limnology and Oceanography (ASLO). New Orleans (Feb 2013).
212. COMPARATIVE ANALYSIS OF EUTROPHICATION IN THREE BAYS OF THE GREAT SALT LAKE. Wayne A. Wurtsbaugh and Amy Marcarelli. Runoff Conference, Utah State University, Logan, UT (April 2013).
213. CONTAMINACION POR METALES Y LA EUTROFICACION EN EL GRAN LAGO SALADO DE LOS ESTADOS UNIDOS. International Conference on Alto Andean Lakes. Trujillo, Peru. (Sept. 2013; invited).
214. APPROACHES FOR STUDYING FISH PRODUCTION: DO RIVER AND LAKE RESEARCHERS HAVE DIFFERENT PERSPECTIVES? B.G. Laub, K. Wheeler, C. Meredith, S. Null, B. Roper, R. Walker, W. Wurtsbaugh, N. Heredia, H. Mohn, D. Pluth, C. Saunders, and D. Stevens. Joint Aquatic Sciences Meeting, Portland, OR. (May 2014).
215. SALINITY-INDUCED CHANGES IN PLANKTONIC AND BENTHIC COMMUNITIES OF THE GREAT SALT LAKE: A MESOCOSM EXPERIMENT. B.D. Barnes and W.A. Wurtsbaugh. Joint Aquatic Sciences Meeting, Portland, OR. (May 2014).
216. A TOXIC AND DYNAMIC DEEP BRINE LAYER (MONIMOLIMNION) IN THE GREAT SALT LAKE. W.A. Wurtsbaugh. Joint Aquatic Sciences Meeting, Portland, OR. (May 2014).
217. SALINE LAKE PROBLEMS: MERCURY AND EUTROPHICATION IN UTAH'S GREAT SALT LAKE. E.F. Jones and W.A. Wurtsbaugh. Joint Aquatic Sciences Meeting, Portland, OR. (May 2014).

218. INLAND SEAS: OUR SALT LAKES ARE IMPORTANT AND IN TROUBLE. W.A. Wurtsbaugh. Joint Aquatic Sciences Meeting, Portland, OR. (May 2014).
219. MANAGEMENT OF THE GREAT SALT LAKE ECOSYSTEM: WATER, ECONOMIC VALUES AND COMPETING INTERESTS. Saving Lake Urmia Conference. Urmia, Iran, (February 2014; invited).
220. IRAN'S DYING LAKE URMIA: LESSONS FOR THE GREAT SALT LAKE. Great Salt Lake Issues Forum, Salt Lake City (May 2014; invited)
221. INVESTIGATING THE EFFECT OF SALINITY CHANGE ON THE PLANKTONIC AND BENTHIC COMMUNITIES OF THE GREAT SALT LAKE, UTAH: A MESOCOSM EXPERIMENT. Great Salt Lake Issues Forum, Salt Lake City (May 2014; poster)
222. GREAT SALT LAKE: STRANGER IN UTAH'S BACKYARD. Utah State University Science Unwrapped series, Logan, UT (Jan 2015; invited).
223. DO PHOSPHORUS AND NITROGEN ACT SYNERGISTICALLY TO EXACERBATE ALGAL GROWTH AND EUTROPHICATION? Utah State University Spring Runoff Conference, Logan, UT (March 2015).
224. HOW NOT TO DO SCIENCE - REVIEW OF FISH PRODUCTION STUDIES BY LAKE AND RIVER RESEARCHERS. Quinney College of Natural Resources, Logan, UT (April 2015; invited).
225. THE EFFECTS OF SALINITY ON PLANKTON AND BENTHIC COMMUNITIES IN THE GREAT SALT LAKE. W.A. Wurtsbaugh and Brian Barnes. Great Salt Lake Technical Team, Salt Lake City, UT (Dec. 2015; invited)
226. IMPACTS OF WATER DEVELOPMENT ON GREAT SALT LAKE AND THE WASATCH FRONT—ETHICAL QUESTIONS. W. Wurtsbaugh, S. Null, P. Wilcock, F. Howe, M. Hahnenberger and C. Miller. 27th Annual Environmental Ethics Symposium, Utah Valley University (March 2, 2016; invited).
227. BRINE SHRIMP GRAZING AND FECAL PRODUCTION INCREASE SEDIMENT EXPORT TO THE DEEP BRINE LAYER (MONIMOLIMION) OF THE GREAT SALT LAKE, UTAH. W.A. Wurtsbaugh and Piotr Maszczyk. Association for the Sciences of Limnology and Oceanography (ASLO). Santa Fe (June 2016).
228. IS CLIMATE CHANGE OR WATER DEVELOPMENT RESPONSIBLE FOR THE DESICCATION OF IRAN'S LAKE URMIA AND THE U.S.'S GREAT SALT LAKE? U.S.—Iran cooperation in addressing many dimensions of climate change. U.S. National Academy of Sciences, Trieste, Italy (24 December 2017, Invited).
228. DESICCATION OF GREAT SALT LAKE: IS IT UTAH'S ARAL SEA? Dept. of Civil and Environmental Engineering, Utah State Univ. (26 January 2018, Invited).
229. LESSONS FROM THE DESICCATION OF THE WORLD'S SALINE LAKES: IS IT TOO LATE FOR GREAT SALT LAKE? Friends of Great Salt Lake Forum. (10 May 2018, Invited).
230. GREAT SALT LAKE'S PEOPLE PROBLEM. Alta Club, Salt Lake City, Utah (19 June 2018, Invited).
231. CAN THE DESICCATION OF GREAT SALT LAKE BE STOPPED? W. Wurtsbaugh, C. Miller, S. Null, R.J. DeRose, P. Wilcock. Salt Lake Watershed Symposium, Salt Lake City, November 2018.
232. LIMNOLOGY OF GREAT SALT LAKE: A SYSTEM IN PERIL. Weber State University. January 18, 2019.
233. GREAT SALT LAKE: AN INTEGRATOR OF CLIMATE CHANGE AND WATER DEVELOPMENT. American Water Resources Association, Salt Lake City, May 13, 2019.

234. DAY 'N' NIGHTZ: THE EFFECTS OF HYPOXIA ON PELAGIC ZOOPLANKTON POPULATION ESTIMATES AND MIGRATION PATTERNS. S.K. Goldfarb, W. Wurtsbaugh and 42 other authors. GLEON 21 All Hands Meeting, Deerhurst Resort, Ontario, Canada, November 2019.
235. THE GREAT SALT LAKE WATERSHED: MULTIPLE USES AND MULTIPLE CONFLICTS. Utah Division of Wildlife Resources, Salt Lake City. (12 November, 2019; Invited).
236. IMPACTS OF EUTROPHICATION ON BENTHIC INVERTEBRATES & FISH PREY OF BIRDS IN FARMINGTON AND BEAR RIVER BAYS OF GREAT SALT LAKE. Division of Forestry, Fire and State Lands (13 Aug 2019; Invited). With Trip Armstrong.
237. THE GREAT SALT LAKE: STRANGER IN YOUR BACKYARD. Stokes Nature Center Canyon Conversations (22 Feb 2020; Invited)

## **PUBLIC OUTREACH & MEDIA APPERENCES (not listed prior to 2015)**

1. [Salt Lake Tribune newspaper interview](#) on mercury in the Great Salt Lake, February 2012.
2. [Salt Lake Tribune interview on Great Salt Lake desiccation](#), February, 2015.
3. Salt Lake Tribune interview on lake levels and pollution. May, 2015.
4. KVNU radio interview on the Great Salt Lake. 13 Jan 2015, 30 minutes.
5. Utah Public Radio interview on the Great Salt Lake. 15 Jan 2015, 15 minutes
6. Science Unwrapped public lecture, Utah State University. 16 Jan 2015
7. Le Grand Lac de Sale (The Great Salt Lake) Secrete Life of Lakes Series, NOVA Media, ARTE France (released 2015). Featured in four segments.
8. [Great Salt Lake's Iranian 'twin' is drying up](#). KSL Television, Salt Lake City. July 12, 2015.
9. [Is drought to blame for drop in Utah's Great Salt Lake? Not likely](#). Ogden Standard Examiner, October 01, 2015.
10. [Déjà vu: is Lake Urmia's demise a warning for Great Salt Lake?](#) Ogden Standard Examiner, October 8, 2015.
11. [Researchers: Don't blame the Great Salt Lake for bad smell](#). Associated Press. 18 Oct. 2015.
12. [Researchers Warn About Impacts of Shrinking Great Salt Lake](#). KUER Public Radio Station, Salt Lake City, Utah. February 24, 2016.
13. [Researchers: Don't blame drought for low Great Salt Lake](#). Salt Lake Tribune, February 24, 2016.
14. [Will the Great Salt Lake be reduced to dust?](#) Deseret News and KSL.COM, February 24, 2016.
15. [Study evaluates humans' impact in dropping Great Salt Lake](#) Ogden Standard Examiner, February 24, 2016.
16. [Dry Lake City: USU Ecologists say Great Salt Lake is Shrinking](#). Utah State Today. February 25, 2016.
17. [Utah researchers cite upstream diversions for decline in Great Salt Lake levels](#). Feb. 25, 2016. Mountain West News
18. [Utah: Great Salt Lake has shrunk 48% since 1847 and scientists fear it will disappear](#). International Business Times, February 29, 2016
19. [The Great Salt Lake. Better Off Without Us](#). UPR radio, February 29, 2016.
20. [Utah: Great Salt Lake has shrunk 48% since 1847 and scientists fear it will disappear](#). Yahoo News. February 29, 2016.
21. [Utah's Great Salt Lake is shrinking](#). Global Environmental Society. March 1, 2016.
22. [Shrinking Great Salt Lake](#). Lake Scientist. March 1, 2016.
23. [Thanks to Humans, the Great Salt Lake Is Drying Up: Diverting more water could pose serious health and economic threats to Utah](#). The Atlantic, Citylab. March 2, 2016.
24. [Thanks to humans the Great Salt Lake is drying up](#). MSN News. March 3, 2016.
25. ["Use it more wisely": USU professors warn of Great Salt Lake's lowering water levels](#). Herald Journal, Logan, UT. March 2, 2016.
26. [Researchers: Utah's Great Salt Lake is drying up](#). Huston Chronicle. March 4, 2016.

27. [Great Salt Lake, Utah's Defining Feature, Is Shrinking, Study](#). Counsel & Heal News, March 5, 2016.
28. [Great Salt Lake: Utah's Defining Feature Is Shrinking, Study Says](#). HNGN, March 5, 2016.
29. [The Great Vanishing Act of Utah's Great Salt Lake](#). Newser, March 8, 2016
30. [Human intervention has caused Utah's Great Salt Lake to shrink](#). Digital Journal, March 8, 2016.
31. [Utah's Great Salt Lake Is Shrinking, And Scientists Say We're To Blame](#). Huffington Post, March 9, 2016.
32. [Bolivia's Second-Largest Lake Dries Up: Is Utah's Great Salt Lake Next?](#) EcoWatch, March 10, 2016.
33. [Scientists are worried this US lake could disappear entirely](#). CanMua News, March 9, 2016.
34. [Utah's Great Salt Lake Rapidly Vanishing](#). MADMIKESAMERICA, March 13, 2016
35. [Utah's Great Salt Lake is shrinking, experts say](#). Accuweather, March 23, 2016.
36. [Taming Toxic Algae Blooms](#). Janet Pelly, ACS Central Science, 2016.
37. [Scientists warn that saline lakes in dire situation worldwide: Researchers study Great Salt Lake in Utah](#). ScienceDaily, October 23, 2016.
38. [Scientists Warn That Saline Lakes In Dire Situation Worldwide](#). WaterOnline. October 23, 2016.
39. [Utah's Great Salt Lake is shrinking](#). Fox News Science, December 5, 2016.
40. [Environmental Politics: Something Strange](#). Robert Lawrence, Catalyst Magazine, Aug. 1, 2016.
41. Causeway breach helping water-starved northern half of Great Salt Lake: Long term lake outlook depends on weather and conservation. Box Elder News Journal. December, 2016
42. [Utah's Great Salt Lake has lost half its water, thanks to thirsty humans](#). Sarah Derouin. Science Magazine. November 2017.
43. [Great Salt Lake, Utah \(image\)](#). EurekAlert. AAAS.
44. [Utah's Great Salt Lake Has Lost Half Its Water](#). S. Radhakrishnan, International Business Times. November 6, 2017.
45. [Great Salt Lake shrinking may be due to humans' thirst, not climate change](#). Axios. Erin Ross. November 6, 2017.
46. [First climate change, now thirsty humans blamed for Utah's Great Salt Lake drying up](#). Gov't Slaves, November 4, 2017.
47. [Seeking the source of the vanishing Great Salt Lake](#). Joanna Klein. New York Times, November 28, 2017.
48. [Scientists say the Great Salt Lake is disappearing, but could Utah residents save it?](#) Salt Lake Tribune, December 16, 2017.
49. [Earth Day: USU professor studies the disappearing Great Salt Lake](#), K. Fasching. April 22, 2018
50. [What To Make Of A Diminishing Lake?](#) J. DeVilbiss. Utah State Magazine. Jan. 4, 2019
51. [Decreasing water levels threaten the Great Salt Lake's future](#). G. Wilcox. Cover story, Salt Lake City Weekly. May 8, 2019
52. [What to make of a diminishing lake?](#) Cover story, Utah State Magazin. John Devilbiss, Jan. 4, 2019.
53. [Revisiting The Disappearing Great Salt Lake](#). Utah State Public Radio interview (54 min.). Sep 23, 2019.

**PUBLISHED & DISPLAYED PHOTOS** (see <http://aslo.net/photopost/>) for other water-related photos)

1. [Stromatolites in Shark Bay](#), Australia. 2007. *In*, Ciencias Naturales 9, F. Arbeláez. Editorial Santillana, Colombia.
2. [Secchi disk measurement in frozen lake](#). 2007. *In*, Exploring the World Ocean, S. Chamberlin and T. Dickey. McGraw-Hill, New York
3. [Langmuir streaks on Quake Lake, Montana](#). 2007. *In*, Introduction to the Biology of Marine Life, 9th edition. J. Sumich and J. Morrissey. Jones & Bartlett Publishers.
4. [The outflow of Yellow Belly Creek from Yellow Belly Lake](#), Sawtooth Mountain. (2007). Cover photograph for Freshwater Biology, V. 52.

5. [Cape Leeuwin, Australia](#). In, Australian Natural History (<http://nicholnl.wcp.muohio.edu/DingosBreakfastClub/Australia>)
6. [Langmuir streaks on Quake Lake, Montana](#). 2007. In, The Cottage Bible, G. Mackie, Boston Mills Press.
7. [Langmuir streaks on Quake Lake, Montana](#). 2008. In, P.R. Pinet, Invitation to Oceanography, 5th ed. Ascend Learning Company.
8. [Riparian Fencing in Idaho](#) & [Large Woody Debris in Oregon Stream](#). 2008. In, Mitchell, M.K., W.B. Strapp and Dana Katz. Field Manual for Water Quality Monitoring. Kendall/Hunt Publishing. Dubuque.
9. [Kokanee salmon and large woody debris](#). 2009. In, Expanded Diet for a Small Lake. New York State Federation of Lake Association and the New York Dept. of Environ. Conservation.
10. [Purple-sulfur bacteria in Great Salt Lake](#). 2009. In, *Gymnasie*-BIOS, V. 2, Gyldendal Publisher.
11. [Clarke-Bumpus plankton net](#). 2010. In, The Science of Oceanography, Nova Science Publishers, Inc. Hauppauge NY.
12. [Foam on Gunnison Bay, Great Salt Lake](#). 2009. M display, Living Planet Aquarium, Salt Lake City, Utah.
13. [Box core for paleolimnological analyses](#) of Great Salt Lake (Utah). 2010. In, The Science of Oceanography, Nova Science Publishers, Inc. Hauppauge NY.
14. [Rhodamine tracer in Sawtooth mountain stream](#). 2011. In, Consortium of Universities for the Advancement of Hydrologic Science, booklet.
15. [Langmuir streaks on Quake Lake, Montana](#). 2012. In, P.R. Pinet. 'Essential invitation to oceanography. Ascend Learning Material, Jones and Bartlett Learning, Burlington, MA.
16. [Kayaking near Oravi](#), Finland and [Obama Bay, Japan](#). 2013. Cover images in the Bulletin of the Association for the Advancement of Limnology and Oceanography 22 (2).
17. [Kemmerer bottle in ice hole](#). 2014. In, J. Walther, Earth's Natural Resources. Jones & Bartlett Learning, Burlington, MA.
18. [Playa wetland, Mar Chiquita, Argentina](#). 2014. In, D.B. Scott, P.J. Mudie and J. Frail-Gauthier. In press. Coastal Wetlands of the World. Cambridge University Press.
19. [Phragmites on wetland pond of Great Salt Lake](#). 2014 (November). Wildfowl Magazine. Palm Coast, FL.
20. [Great Salt Lake Railroad Causeway](#). 2014. In, White et al. Lakeline Magazine Fall: 25-29.
21. [Harvesting a brine shrimp cyst slick](#). 2014. In, White et al. Lakeline Magazine Fall: 25-29.
22. [Cutler Reservoir Wetlands and Wellsville Mountains, Utah](#). 2015. Entry display, Logan Regional Hospital, Logan, Utah.
23. [Train on Great Salt Lake causeway](#). 2015 (January). Salt Lake Tribune, Salt Lake City, Utah
24. [Great Salt Lake causeway](#). 2015 (January). Salt Lake Tribune, Salt Lake City, Utah.
25. [Shark Bay stromatolites](#) (Australia). In press. History and overview of cyanobacteria. In, European Cooperation in Science and Technology (COST).
26. [Adult brine flies, Ephydra cinerea, Great Salt Lake](#). 2014. Thorp, J.H. and Covich, A.P. (eds.), Thorp and Covich's Freshwater Invertebrates, 4th Edition. Elsevier.
27. [Cyanobacteria bloom in Farmington Bay, Great Salt Lake](#). 2015. Rosen, B.H. and A. St. Amand Field and laboratory guide to freshwater cyanobacteria harmful algal blooms for Native American and Alaska Native communities. USGS Open-File Report 2015-1164, 44 p. <http://dx.doi.org/10.3133/ofr20151164>.
28. [Cutler Reservoir sunset](#). Nov., 2015. Huntsman School of Business Annual Report, Utah State University.
29. [Train on Great Salt Lake causeway](#). 2016 (November). Salt Lake Tribune, Salt Lake City, Utah
30. [Box corer](#). 2017. Application of Paleoenvironmental Techniques in Estuarine Studies. Weckström, K., Saunders, K., Gell, P., Skilbeck, G. (editors). Springer. ISBN 978-94-024-0990-1
31. [Breach in Union Pacific railroad causeway, Great Salt Lake](#). 2016. Box Elder News Journal.
32. [Sediment core from oligotrophic mountain lake \(Sawtooth Mountains, Idaho\)](#). 2017. Ecology of Freshwaters: Earth's Bloodstream (5th edition) by B.R. Moss, John Wiley & Sons Ltd.



33. [Sediment corer, Van Dorn Bottle and Eckman Dredge](#). 2017. Wildco, Inc. Facebook site.
34. [Great Salt Lake sunset](#), 2017. Hydrobiologia, v. 788 Front Cover.
35. [Great Salt Lake Railroad Causeway](#). Salt Lake Tribune, 4 June, 2017
36. [Great Salt Lake sunset](#). 2017. Lambourn Prize Art Contest, Salt Lake City, Utah.
37. [Rainbow Sunset from Buffalo Point](#). 2018. FRIENDS of Great Salt Lake Newsletter. Summer.
38. [Green River Petroglyph](#). 2018. Green River Comprehensive Management Plan and Esri story map.
39. *Near and Far* photo exhibition. 2019. Caffe Ibis, Logan, Utah. 21 photos. 9 Feb – 14 March. With Linda L’Ai.

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Upper Green River Lake, Wyoming