



## **Metal Toxicity to Fish, Aquatic Invertebrates and Birds**

### **Select publications**

- Morris, J.M.**, S.F. Brinkman, M.W. Carney, and J. Lipton. 2019. Copper toxicity in Bristol Bay headwaters: Part 1 – Acute mortality and ambient water quality criteria in low-hardness water. *Environmental Toxicology and Chemistry* 38(1):190–197.  
Available: <https://setac.onlinelibrary.wiley.com/doi/abs/10.1002/etc.4252>.
- Morris, J.M.**, S. Brinkman, R. Takeshita, A. McFadden, M. Carney, and J. Lipton. 2019. Copper toxicity in Bristol Bay headwaters: Part 2 – Olfactory inhibition in low-hardness water. *Environmental Toxicology and Chemistry* 38(1):198–209.  
Available: <https://setac.onlinelibrary.wiley.com/doi/abs/10.1002/etc.4295>.
- Welsh, P.G., **J. Lipton**, C.A. Mebane, and J.C.A. Marr. 2008. Influence of flow-through and renewal exposures on the toxicity of copper to rainbow trout. *Ecotoxicology and Environmental Safety* 69:199–208.
- Meyer, J.S., C.J. Boese, and **J.M. Morris**. 2007. Use of the biotic ligand model to predict pulse-exposure toxicity of copper to fathead minnows (*Pimephales promelas*). *Aquatic Toxicology* 84:268–278.
- Morris, J.M.** and J.S. Meyer. 2006. Extracellular and intracellular uptake of zinc in a photosynthetic biofilm matrix. *Bulletins of Environmental Contamination and Toxicology* 77:30–35.
- Morris, J.M.** and J.S. Meyer. 2007. Photosynthetically mediated Zn removal from the water column in biofilm in High Ore Creek, Montana. *Water, Air, and Soil Pollution* 179:391–395.
- Morris, J.M.**, A.M. Farag, D.A. Nimick, and J.S. Meyer. 2006. Light-mediated Zn uptake in photosynthetic biofilm. *Hydrobiologia* 571:361–371.
- Meyer, J.S., M.J. Suedkamp, **J.M. Morris**, and A.M. Farag. 2005. Leachability of protein and metals incorporated into aquatic invertebrates: Are species and metals-exposure history important? *Archives of Environmental Contamination and Toxicology* 50:79–87.
- Morris, J.M.**, D.A. Nimick, A.M. Farag, and J.S. Meyer. 2005. Does biofilm contribute to diel cycling of Zn in High Ore Creek, Montana? *Biogeochemistry* 76:233–259.
- Hansen, J.A., **J. Lipton**, P.G. Welsh, **D. Cacela**, and B. MacConnell. 2004. Reduced growth of rainbow trout fed a live invertebrate diet pre-exposed to metal contaminated sediments. *Environmental Toxicology and Chemistry* 23:1902–1911.
- Morris, J.M.**, S.A. Collyard, and J.S. Meyer. 2003. Effects of chronic copper exposure on the nutritional composition of *Hyaella azteca*. *Aquatic Toxicology* 63:197–206.
- Hansen, J.A., **J. Lipton**, P.G. Welsh, **J. Morris**, **D. Cacela**, and M.J. Suedkamp. 2002. Relationship between exposure duration, tissue residues, growth, and mortality in rainbow



trout (*Oncorhynchus mykiss*) juveniles sub-chronically exposed to copper. *Aquatic Toxicology* 58:175–188.

- Hansen, J.A., P.G. Welsh, and **J. Lipton**. 2002. Relative sensitivity of bull trout (*Salvelinus confluentus*) and rainbow trout (*Oncorhynchus mykiss*) to acute copper toxicity. *Environmental Toxicology and Chemistry* 21:633–639.
- Hansen, J.A., P.G. Welsh, **J. Lipton**, and **D. Cacela**. 2002. Effects of copper exposure on growth and survival of juvenile bull trout. *Transactions of the American Fisheries Society* 131:690–697.
- Hansen, J.A., P.G. Welsh, **J. Lipton**, and M. Suedkamp. 2002. The effects of long-term cadmium exposure on the growth and survival of juvenile bull trout (*Salvelinus confluentus*). *Aquatic Toxicology* 58:165–174.
- Hansen, J.A., **J. Lipton**, P.G. Welsh, **D. Cacela**, and A.D. Dailey. 2002. Relative sensitivity of bull trout (*Salvelinus confluentus*) and rainbow trout (*Oncorhynchus mykiss*) to acute exposures of cadmium and zinc. *Environmental Toxicology and Chemistry* 21:67–75.
- Welsh, P.G., G. Chapman, J.A. Hansen, and **J. Lipton**. 2001. Importance of ionic composition of reconstituted laboratory test water in interpreting metal toxicity test results. *Environmental Toxicology and Risk Assessment: Science Policy, and Standardization – Implications for Environmental Decisions: Tenth Volume, ASTM STP 1403*. B.M. Greenberg, R.N. Hall, M.H. Roberts, Jr., and R.W. Gensemer, eds. American Society for Testing and Materials, West Conshohocken, PA.
- Welsh, P.G., **J. Lipton**, and G.A. Chapman. 2000. Evaluation of water-effect ratio methodology for establishing site-specific water quality criteria. *Environmental Toxicology and Chemistry* 19:1616–1623.
- Welsh, P.G., **J. Lipton**, G.A. Chapman, and T. Podrabsky. 2000. Relative importance of calcium and magnesium in hardness-based modification of copper toxicity. *Environmental Toxicology and Chemistry* 19:1624–1631.
- Beltman, D.J., W. H. Clements, **J. Lipton**, and **D. Cacela**. 1999. Benthic invertebrate metals exposure, accumulation, and community-level impacts downstream of a hard-rock mine site. *Environmental Toxicology and Chemistry* 18:299–307.
- Hansen, J.A., J.C.A. Marr, **J. Lipton**, **D. Cacela** and H.L. Bergman. 1999. Differences in neurobehavioral responses of chinook salmon (*Oncorhynchus tshawytscha*) and rainbow trout (*Oncorhynchus mykiss*) exposed to copper and cobalt: Behavioral avoidance. *Environmental Toxicology and Chemistry* 18:1972–1978.
- Marr, J.C.A., **J. Lipton**, **D. Cacela**, J.A. Hansen, J.S. Meyer, and H.L. Bergman. 1999. Bioavailability and acute toxicity of copper to rainbow trout (*Oncorhynchus mykiss*) in the



presence of organic acids simulating natural dissolved organic carbon. *Canadian Journal of Fisheries and Aquatic Sciences* 56:1471–1483.

- Marr, J.C.A., J.A. Hansen, J.S. Meyer, **D. Cacela**, T. Podrabsky, **J. Lipton**, and H.L. Bergman. 1998. Toxicity of cobalt and copper to rainbow trout: Application of a mechanistic model for predicting survival. *Aquatic Toxicology* 43:225–238.
- LeJeune, K., H. Galbraith, **J. Lipton**, and L.A. Kapustka. 1996. Effects of metals and arsenic on riparian communities in southwest Montana. *Ecotoxicology* 5:297–312.
- Marr, J.C.A., **J. Lipton**, **D. Cacela**, J.A. Hansen, H.L. Bergman, J.S. Meyer, and C. Hogstrand. 1996. Relationship between copper exposure duration, tissue copper concentration, and rainbow trout growth. *Aquatic Toxicology* 36:17–30.
- Galbraith, H., K. LeJeune, and **J. Lipton**. 1995. Metal and arsenic impacts to soils, vegetation communities and wildlife habitat in southwest Montana uplands contaminated by smelter emissions: I. Field evaluation. *Environmental Toxicology and Chemistry* 14(11):1895–1903.
- Kapustka, L., **J. Lipton**, H. Galbraith, **D. Cacela**, and K. LeJeune. 1995. Metal and arsenic impacts to soils, vegetation communities and wildlife habitat in southwest Montana uplands contaminated by smelter emissions: II. Laboratory phytotoxicity studies. *Environmental Toxicology and Chemistry* 14(11):1905–1912.
- Marr, J., H.L. Bergman, **J. Lipton**, and C. Hogstrand. 1995. Differences in relative sensitivity of naive and metals-acclimated brown and rainbow trout exposed to metals representative of the Clark Fork River, Montana. *Canadian Journal of Fisheries and Aquatic Sciences* 52:2016–2030.
- Marr, J.C.A., H.L. Bergman, M. Parker, **J. Lipton**, **D. Cacela**, W. Erickson, and G.R. Phillips. 1995. Relative sensitivity of brown and rainbow trout to pulsed exposures of an acutely lethal mixture of metals typical of the Clark Fork River, Montana. *Canadian Journal of Fisheries and Aquatic Sciences* 52:2005–2015.
- Phillips, G. and **J. Lipton**. 1995. Injury to aquatic resources caused by metals in Montana's Clark Fork River basin: Historic perspective and overview. *Canadian Journal of Fisheries and Aquatic Sciences* 52:1990–1993.
- MacRae, R., J. Meyer, A. Maest, and **J. Lipton**. 1994. Linking geochemistry and fish toxicology at mining sites: Determination of an organic acid analogue for use in copper toxicity studies on salmonids. *EOS* 75(44):243.

### **Presentations**

- Morris, J.M., J. Lipton**, and S. Brinkman. 2014. Acute and Olfactory Copper Toxicity to Fish Using Laboratory and Site-Collected Water from Alaska. 35th Annual Meeting of the



Society of Environmental Toxicology and Chemistry (SETAC), Vancouver, BC, Canada.  
November 9–13. (Presenter)

**Morris, J.M., J. Lipton,** and S. Brinkman. 2014. Acute and Olfactory Copper Toxicity to Fish Using Laboratory and Site-Collected Water from Alaska. 27th Annual Meeting of the Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry (RMSETAC), Denver, CO. April 17–18.

Brinkman, S., J. Anderson, and **J.M. Morris.** 2013. Interaction of Temperature and Toxicity of Zinc and Copper to Cutthroat and Brook Trout. Southwest Alaska Salmon Science Workshop, Anchorage, AK. December 4–5.

**Morris, J.M., J. Lipton,** and S. Brinkman. 2013. Copper Toxicity to Rainbow Trout and Fathead Minnows in Low-Hardness Waters: Comparisons of BLM Predictions of Toxicity to Bioassay Results Using Laboratory Water and Site-Collected Water from Upper Talarik Creek in Bristol Bay. Southwest Alaska Salmon Science Workshop, Anchorage, AK. December 4–5. [http://www.southwestsalmon.org/wp-content/uploads/2014/01/Morris\\_Stratus\\_CuTox\\_RBT\\_FHM\\_LowHardnessH2O.pdf](http://www.southwestsalmon.org/wp-content/uploads/2014/01/Morris_Stratus_CuTox_RBT_FHM_LowHardnessH2O.pdf)  
(Presenter)

**Morris, J.M.,** A. Maest, A. Craven, and **J. Lipton.** 2012. Site-Specific Issues with Applying the BLM to Evaluate Cu Toxicity: Overestimation of Cu-DOC Complexation and Model Anomalies in Low Hardness Waters. 33rd Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Long Beach, CA. November 11–15. (Presenter)

**Morris, J.M.,** A. Maest, A. Craven, and **J. Lipton.** 2012. The Biotic Ligand Model: Unresolved Scientific Issues and Site- and Species-Specific Effects on Predicted Cu Toxicity. U.S. Environmental Protection Agency, Hard Rock Mining Conference: Advancing Solutions for a New Legacy, Denver, CO. April 3–5. (Presenter)

**Morris, J.M.,** P.H. Fallgren, and M.L. Sait. 2009. Source Treatment of Acid Rock Drainage at a Backfilled Coal Mine and a Historic Gold Mine. 19th Annual Meeting and West Coast Conference on Soils, Sediments, and Water for the Association for Environmental Health and Sciences (AEHS), San Diego, CA. March 9–12.

**Morris, J.M.,** P.H. Fallgren, M.L. Sait, and J. Mason. 2009. Acid Mine Drainage Prevention Using Biological Source Treatment: Coal and Hard Rock Experiments. American Society of Mining and Reclamation (ASMR), Billings, MT. May 30–June 5.

**Morris, J.M.** 2008. Biological Source Treatment of Acid Mine Drainage: Coal and Hard Rock Mine Waste. Wyoming Geological Association, Casper, WY. October 31.

**Morris, J.M.,** S. Jin, and P.H. Fallgren. 2008. Source Treatment of Waste Rock and Tailings from a Gold Mine in Arizona: Microcosm Experiments. EPA/National Ground Water



Association (NGWA) Remediation of Abandoned Mine Lands Conference, Denver, CO. October 2–3.

**Lipton, J., K. Ritter,** A. Maest, and C. Mebane. 2006. Evaluating Acute Cu Toxicity to Rainbow Trout: Cu-DOC Complexation and the BLM. Presented at SETAC Europe 16th Annual Meeting, The Hague, The Netherlands. May 7–11.

Meyer, J.S., C.J. Boese and **J.M. Morris**. 2006. Adapting the Biotic Ligand Model to Predict Toxicity of Time-Variable Cu Exposures to Fathead Minnows. 27th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Montreal, Québec, Canada. November 5–9.

**Morris, J.M.,** S. Jin, and J. Cooper. 2006. Biological Treatment of Acid Mine Drainage. U.S. Environmental Protection Agency, Hard Rock Mining Conference: Sustainable Modern Mining Applications, Tucson, AZ. November 14–16.

LeJeune, K., D. Atkins, and **J. Lipton**. 2005. Communicating Water Quality Risks Associated with Mining to a Skeptical Public. Platform presented at the Annual Meeting of the Society of Environmental Toxicology and Chemistry-Europe, Lille, France. May 23–26.

**Lipton, J.,** K. LeJeune, and A. Maest. 2005. Evaluating Baseline Water Quality at the Yanacocha Mine, Cajamarca, Peru. Poster presented at the Annual Meeting of the Society of Environmental Toxicology and Chemistry-Europe, Lille, France. May 23–26.

**Morris, J.M.,** A.M. Farag, and J.S. Meyer. 2005. pH and Zn Profiles in Photosynthetic Biofilm Using Ion-Selective Electrodes: An Explanation for Diel Metal Cycling? 26th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Baltimore, MD. November 13–17.

**Morris, J.M.,** B. Morris, A.M. Farag, D.A. Nimick, and J.S. Meyer. 2004. Photosynthetically Mediated Zn Uptake in Biofilm in High Ore Creek, Montana. 25th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Portland, OR. November 14–18.

Hansen, J.A., **J. Lipton,** and **D. Cacula**. 2003. Exposure of Rainbow Trout to Live Diets Contaminated with Metals: I. Growth Effects. Platform presented at the Annual Meeting of the Society of Environmental Toxicology and Chemistry, Austin, TX. November.

**Lipton, J.** and J.A. Hansen. 2003. Exposure of Rainbow Trout to Live Diets Contaminated with Metals: II. Metal Residues and Histology. Poster presented at the Annual Meeting of the Society of Environmental Toxicology and Chemistry, Austin, TX. November.

**Morris, J.M.,** B. Mueller, A.M. Farag, and J.S. Meyer. 2003. Profiling Photosynthetic Biofilm Using Miniaturized Ion-Selective Electrodes. 16th Annual Meeting of the Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry (RMSETAC), Denver, CO, April 16.



- Morris, J.M.**, D.A. Nimick, A.M. Farag, and J.S. Meyer. 2003. Biotic Influences on the Diel Cycling of Zn in High Ore Creek, Montana. 24th Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Austin, TX. November 9–13.
- Hansen, J.A., **J. Lipton**, P.G. Welsh, and **D. Cacula**. 2002. Exposure of Rainbow Trout to Live Invertebrate Diets Pre-Exposed to Metal-Contaminated Sediments. Poster presented at the 23rd Annual Meeting of the Society of Environmental Toxicology and Chemistry, Salt Lake City, UT. November 16–20.
- Lipton, J.**, J.A. Hansen, and **D. Cacula**. 2002. Assessing Risks of Metal Contaminated Sediments to Trout: Diet Toxicity Studies. Platform presented at the 12th Annual Meeting of SETAC-Europe, Vienna, Austria. May 12–16.
- Morris, J.M.**, A.M. Farag, D.A. Nimick, and J.S. Meyer. 2002. Biofilm and the Diel Cycling of Aqueous Metals in Mountain Streams. 15th Annual Meeting of the Rocky Mountain Chapter of the Society of Environmental Toxicology and Chemistry (RMSETAC), Fort Collins, CO. April 19.
- Morris, J.M.**, A.M. Farag, D.A. Nimick, and J.S. Meyer. 2002. Biofilm and the Diel Cycling of Aqueous Metals in Mountain Streams. 23rd Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Salt Lake City, UT. November 16–20.
- Hansen, J.A., P.G. Welsh, K. Neptun, and **J. Lipton**. 2001. Approaches to Evaluating Effects of Metal-Contaminated Sediments on Rainbow Trout. Platform presented at 11th Annual Meeting of SETAC-Europe, Madrid, Spain. May 6–10.
- Lipton, J.**, J.A. Hansen, T. Podrabsky, and K. LeJeune. 2001. Evaluation of Toxic Effects of Metals to Fish in the Coeur d'Alene River Basin, ID. Poster presented at the 22nd Annual Meeting of the Society of Environmental Toxicology and Chemistry, Baltimore, MD. November 11–15.
- Lipton, J.**, J.A. Hansen, P.G. Welsh, and **D. Cacula**. 2001. Relationship between Whole-Body Copper Residues and Growth Effects in Two Salmonids. Platform presented at the 22nd Annual Meeting of the Society of Environmental Toxicology and Chemistry, Baltimore, MD. November 11–15.
- Morris, J.M.**, S.A. Collyard, and J.S. Meyer. 2001. Does Exposure to Copper Alter Nutritional Content of *Hyaella azteca*? 22nd Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Baltimore, MD. November 11–15.
- Lipton, J.**, J.A. Hansen, and P.G. Welsh. 2000. Are Water Quality Criteria for Metals Protective of Pacific Northwest Salmonids? Platform presentation at the 21st Annual Meeting of the Society of Environmental Toxicology and Chemistry, Nashville, TN. November 12–16.
- Hansen, J.A., **J. Lipton**, and P.G. Welsh. 2000. Acute Responses of Bull Trout (*Salvelinus confluentus*) to Cadmium, Copper, and Zinc. Poster presented at the Third SETAC World Congress 10th Annual Meeting of SETAC-Europe, Brighton, UK. May 21–25.



- Hansen, J.A., **J. Lipton**, and P.G. Welsh. 2000. Effects of Cadmium and Copper on Bull Trout (*Salvelinus confluentus*) in Subchronic Exposures. Poster presented at the Third SETAC World Congress 10th Annual Meeting of SETAC-Europe, Brighton, UK. May 21–25.
- Hansen, J.A., **J. Lipton**, and P.G. Welsh. 2000. Subchronic Toxicity of Cadmium to Bull Trout. Platform presentation at the 21st Annual Meeting of the Society of Environmental Toxicology and Chemistry, Nashville, TN. November 12–16.
- Hansen, J.A., P.G. Welsh, and **J. Lipton**. 2000. Relationship between Copper Exposure, Growth, and Tissue Accumulation in Rainbow Trout and Bull Trout during Subchronic Exposures. Platform presentation at the 21st Annual Meeting of the Society of Environmental Toxicology and Chemistry, Nashville, TN. November 12–16.
- Lipton, J.**, J.A. Hansen, P.G. Welsh, and **D. Cacula**. 2000. Critical Body Residues for Metals: Evaluation of Relationship between Copper Accumulation and Effects in Rainbow and Bull Trout. Poster presented at the 21st Annual Meeting of the Society of Environmental Toxicology and Chemistry, Nashville, TN. November 12–16.
- Lipton, J.**, J.A. Hansen, P.G. Welsh, and **D. Cacula**. 2000. Relationship between Water Exposure, Tissue Residues, Growth, and Mortality of Rainbow Trout (*O. mykiss*) Exposed to Copper. Poster presented at the Third SETAC World Congress 10th Annual Meeting of SETAC-Europe, Brighton, UK. May 21–25.
- Welsh, P.G., J.A. Hansen, and **J. Lipton**. 2000. Acute Toxicity and Relative Sensitivity of Bull Trout and Rainbow Trout to Cadmium and Zinc. Poster presented at the 21st Annual Meeting of the Society of Environmental Toxicology and Chemistry, Nashville, TN. November 12–16.
- Welsh, P.G., **J. Lipton**, and J.A. Hansen. 2000. Determining Site-Specific Bioavailability and Toxicity of Metals to Aquatic Biota. Platform presentation at the 21st Annual Meeting of the Society of Environmental Toxicology and Chemistry, Nashville, TN. November 12–16.
- Welsh, P.G., G. Chapman, J.A. Hansen, and **J. Lipton**. 2000. Ionic Composition of Reconstituted Laboratory Water and Natural Surface Waters in the United States – Implications for Conducting and Interpreting Metal Toxicity Tests. Presented at ASTM Tenth Symposium
- Hansen, J.A., P.G. Welsh, **J. Lipton**, and T. Podrabsky. 1999. Acute Toxicity and Relative Sensitivity of Bull Trout (*Salvelinus confluentus*) to Copper. Presented at the Annual Meeting of the Society of Environmental Toxicology and Chemistry, Philadelphia, PA. November 14–18.
- Lipton, J.**, P.G. Welsh, and J.A. Hansen. 1999. Influence of Mediating Biological Factors in Assessing Copper Risks to Aquatic Biota. Presented at the 20th Annual Meeting of Society of Environmental Toxicology and Chemistry, Philadelphia, PA. November 14–18.
- Lipton, J.**, P. Welsh, J. Hansen, and S. Teh. 1999. Synergistic Toxicity of Copper and the Protozoan *Ichthyobodo sp.* to Rainbow Trout, *Oncorhynchus mykiss*. Presentation at the



9th Annual Meeting of Society of Environmental Toxicology and Chemistry-Europe, Leipzig, Germany, May 25–29. Prepared by Stratus Consulting Inc., Boulder, CO and the University of California, Davis.

**Lipton, J.**, P. Welsh, T. Podrabsky, and J. Hansen. 1999. Approaches to Evaluating Copper Risks to Aquatic Biota. Presentation at the 9th Annual Meeting of Society of Environmental Toxicology and Chemistry-Europe, Leipzig, Germany, May 25–29. Prepared by Stratus Consulting Inc., Boulder, CO.

**Lipton, J.**, P. Welsh, J. Hansen, T. Podrabsky, and R. Playle. 1999. Laboratory Studies Evaluating Biotic Ligand Models of Copper Toxicity to Rainbow Trout, *O. mykiss*: Gill Uptake Experiments. Presentation at the 9th Annual Meeting of Society of Environmental Toxicology and Chemistry-Europe, Leipzig, Germany, May 25–29. Prepared by Stratus Consulting Inc., Boulder, CO and Wilfrid Laurier University, Waterloo, Canada.

Welsh, P.G., **J. Lipton**, J.A. Hansen, and T. Podrabsky. 1999. Derivation of Gill Residue Threshold Values for the Biotic Ligand Model. Presented at the 20th Annual Meeting of Society of Environmental Toxicology and Chemistry, Philadelphia, PA. November 14–18.

Barron, M.G., R. Playle, P. Welsh, and **J. Lipton**. 1998. Calcium-Dependent Accumulation of Zinc on Rainbow Trout Gills. Presented at the Society of Toxicology, New Orleans, LA. March.

**Lipton, J.** and P.G. Welsh. 1998. Conducting Laboratory Studies to Evaluate the Site-Specific Toxicity of Cu. Society of Environmental Toxicology and Chemistry 19th Annual Meeting, Charlotte, NC. November 15–19.

**Lipton, J.**, P.G. Welsh, and R. Playle. 1998. Cu Uptake Kinetics and Critical Gill Cu Concentrations in Chinook Salmon Fry. Society of Environmental Toxicology and Chemistry 19th Annual Meeting, Charlotte, NC. November 15–19.

Welsh, P.G., **J. Lipton**, and G. Chapman. 1998. Untested Assumptions in Water Effect Ratio Testing. Society of Environmental Toxicology and Chemistry 19th Annual Meeting, Charlotte, NC. November 15–19.

Hudson, R., P. Welsh, T.L. Podrabsky, **J. Lipton**, **D. Cacula**, J. Marr, and C. Huang. 1997. Changes in DOC Concentration and Metal Bioavailability in Static Renewal Metal Toxicity Tests with Rainbow Trout – Implications for Interpreting Test Results. Society of Environmental Toxicology and Chemistry, San Francisco, CA.

**Lipton, J.**, **D. Cacula**, J.C.A. Marr, J.S. Meyer, and J. Hansen. 1997. Acute Toxicity of Organically Complexed Cu to Rainbow Trout. 24th Annual Aquatic Toxicity Workshop, Niagara Falls, Ontario.





- Welsh, P.G., **J. Lipton**, T. Podrabsky, and R. Playle. 1997. Uptake Kinetics and Critical Gill-Cu Concentrations in Chinook Salmon Fry. 24th Annual Aquatic Toxicity Workshop, Niagara Falls, Ontario.
- Welsh, P.G., **J. Lipton**, **D. Cacula**, T.L. Podrabsky, R. Hudson, J. Mastrine, C. Huang, and G. Chapman. 1997. Calcium Concentration v. Water Hardness: Modifiers of Metal Toxicity to Aquatic Organisms. Society of Environmental Toxicology and Chemistry, San Francisco, CA.
- Cacula, D.**, K. LeJeune, and **J. Lipton**. 1996. Use of Multivariate Statistical Analysis to Delineate the Extent of Metals Contamination in a Floodplain. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Washington, DC. November.
- Galbraith, H., K. LeJeune, T. Podrabsky, and **J. Lipton**. 1996. Mass Mortality of Snow Geese in Southwest Montana due to Mining-Related Contaminants. Poster presentation at Society of Environmental Toxicology and Chemistry, Annual Meeting, Washington, DC. November.
- LeJeune, K., **D. Cacula**, **D. Lane**, and **J. Lipton**. 1996. Ecological Impacts of Mine Waste Contaminated Alluvial Soils on Indigenous Riparian Communities. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Washington, DC. November.
- Beltman, D., **J. Lipton**, **D. Cacula**, and W. Clements. 1995. Effects of Metals on a Montane Aquatic System Evaluated Using an Integrated Assessment Approach. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Vancouver, British Columbia, Canada. November.
- Hansen, J., H.L. Bergman, J.S. Meyer, R. MacRae, J. Marr, **J. Lipton**, and **D. Cacula**. 1995. The Avoidance of Copper by Salmonids as Affected by Metals Concentration, Organic Content, and Acclimation. Annual Meeting of the Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada. November.
- Lipton, J.** 1995. Assessing Bioavailability, Lethality, and Sub-Lethal Growth Effects of Copper and Cobalt on Salmonids in a Rocky Mountain Stream. Invited Seminar: National Fisheries Contaminant Research Center, National Biological Service, Columbia, MO.
- Lipton, J.**, J. Marr, and E.E. Little. 1995. Sub-Lethal Effects of Metals on Fish: Use as Endpoints in Natural Resource Damage Assessment. American Standards for Testing and Materials, 5th Symposium on Environmental Toxicology and Risk Assessment, Denver, CO.
- Lipton, J.**, J. Marr, **D. Cacula**, J. Hansen, and H.L. Bergman. 1995. Modeling Growth Responses of Rainbow Trout Fry as a Function of Tissue Copper Concentration and Copper Exposure Duration. Annual Meeting of the Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada. November.



- Lipton, J.**, J. Marr, J.S. Meyer, J. Hansen, R. MacRae, A. Maest, and H.L. Bergman. 1995. Acute Lethality and Bioavailability of Copper in the Presence of Dissolved Organic Carbon. Society of Environmental Toxicology and Chemistry World Congress, Copenhagen, Denmark. June.
- MacRae, R., J.S. Meyer, J. Hansen, H.L. Bergman, A. Maest, J. Marr, D. Beltman, and **J. Lipton**. 1995. Determination of an Organic-Acid Analog of DOC for Use in Copper Toxicity Studies on Salmonids. Annual Meeting of the Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada. November.
- Maest, A., D. Beltman, and **J. Lipton**. 1995. Temporal Variability in Metal Concentrations in a Mine-Impacted Stream: Implications for Metal Bioavailability. Annual Meeting of the Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada. November.
- Marr, J., **J. Lipton**, **D. Cacela**, T. Podrabsky, J. Hansen, and H.L. Bergman. 1995. Acute Lethality of Cobalt, Copper, and Cobalt/Copper Mixtures to Rainbow Trout Fry. Annual Meeting of the Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada. November.
- Marr, J., **J. Lipton**, A. Maest, **D. Cacela**, J.S. Meyer, J. Hansen, R. MacRae, and H.L. Bergman. 1995. Acute Lethality and Bioavailability of Copper in the Presence of Dissolved Organic Carbon. Annual Meeting of the Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada. November.
- Meyer, J.S., D. Beltman, A. Maest, J. Marr, **J. Lipton**, C. Cors, **D. Cacela**, and R. MacRae. 1995. Use of Geochemical and Toxicity Modeling to Predict Lethality of Copper in a Metals-Impacted Stream. Annual Meeting of the Society of Environmental Toxicology and Chemistry World Congress, Vancouver, British Columbia, Canada. November.
- Cacela, D.** and **J. Lipton**. 1994. Phytotoxicity of Metal/Metalloid Contaminated Soils: Correlation Analysis to Determine Causality. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Denver, CO. November.
- Galbraith, H., **J. Lipton**, and K. LeJeune. 1994. Effects of Mine Wastes on Riparian Soils, Vegetation, Wildlife Habitat. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Denver, CO. November.
- Kapustka, L., **J. Lipton**, and K. LeJeune. 1994. Phytotoxicity of Metals and Arsenic-Contaminated Soils. Annual Meeting of the Society of Environmental Toxicology and Chemistry, Denver, CO. November.
- Marr, J.C.A., A.M. Farag, H.L. Bergman, and **J. Lipton**. 1994. The Effects of Metals Found in the Clark Fork River, Montana, on Rainbow (*Oncorhynchus mykiss*) and Brown Trout (*Salmo trutta*). American Society for Testing and Materials (ASTM), 4th Symposium on Environmental Toxicology and Risk Assessment, Montreal, Quebec, Canada.

