

## Lake Champlain Basin Program Technical Reports

1. *A Research and Monitoring Agenda for Lake Champlain*. Proceedings of a Workshop, December 17-19, 1991, Burlington, VT. Lake Champlain Research Consortium. May, 1992.
2. *Design and Initial Implementation of a Comprehensive Agricultural Monitoring and Evaluation Network for the Lake Champlain Basin*. NY-VT Strategic Core Group. February, 1993.
3. (A) *GIS Management Plan for the Lake Champlain Basin Program*. Vermont Center for Geographic Information, Inc., and Associates in Rural Development. March, 1993.  
  
(B) *Handbook of GIS Standards and Procedures for the Lake Champlain Basin Program*. Vermont Center for Geographic Information, Inc. March, 1993.  
  
(C) *GIS Data Inventory for the Lake Champlain Basin Program*. Vermont Center for Geographic Information, Inc. March, 1993.
4. (A) *Lake Champlain Economic Database Project. Executive Summary*. Holmes & Associates. March 1993.  
  
(B) *Socio-Economic Profile, Database, and Description of the Tourism Economy for the Lake Champlain Basin*. Holmes & Associates. March 1993  
  
(B) *Socio-Economic Profile, Database, and Description of the Tourism Economy for the Lake Champlain Basin. Appendices*. Holmes & Associates. March 1993  
  
(C) *Potential Applications of Economic Instruments for Environmental Protection in the Lake Champlain Basin*. Anthony Artuso. March 1993.  
  
(D) *Conceptual Framework for Evaluation of Pollution Control Strategies and Water Quality Standards for Lake Champlain*. Anthony Artuso. March 1993.
5. *Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 1*. Alan McIntosh, Editor, UVM School of Natural Resources. February 1994.  
  
(A) *Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 1. Executive Summary*. Alan McIntosh, Editor, UVM School of Natural Resources. February 1994.
6. (A) *Lake Champlain Nonpoint Source Pollution Assessment*. Lenore Budd, Associates in Rural Development Inc. and Donald Meals, UVM School of Natural Resources. February 1994.  
  
(B) *Lake Champlain Nonpoint Source Pollution Assessment. Appendices A-J*. Lenore Budd, Associates in Rural Development Inc. and Donald Meals, UVM School of Natural Resources. February 1994.

7. *Internal Phosphorus Loading Studies of St. Albans Bay. Executive Summary.* VT Dept of Environmental Conservation. March 1994.
  - (A) *Dynamic Mass Balance Model of Internal Phosphorus Loading in St. Albans Bay, Lake Champlain.* Eric Smeltzer, Neil Kamman, Karen Hyde and John C. Drake. March 1994.
  - (B) *History of Phosphorus Loading to St. Albans Bay, 1850 - 1990.* Karen Hyde, Neil Kamman and Eric Smeltzer. March 1994.
  - (C) *Assessment of Sediment Phosphorus Distribution and Long-Term Recycling in St. Albans Bay, Lake Champlain.* Scott Martin, Youngstown State University. March 1994.
8. *Lake Champlain Wetlands Acquisition Study.* Jon Binhammer, VT Nature Conservancy. June 1994.
9. *A Study of the Feasibility of Restoring Lake Sturgeon to Lake Champlain.* Deborah A. Moreau and Donna L. Parrish, VT Cooperative Fish & Wildlife Research Unit, University of Vermont. June 1994.
10. *Population Biology and Management of Lake Champlain Walleye.* Kathleen L. Newbrough, Donna L. Parrish, and Matthew G. Mitro, Fish & Wildlife Research Unit, University of Vermont. June 1994.
11. (A) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin. Executive Summary.* Yellow Wood Associates, Inc. January 1995.
  - (B) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin.* Yellow Wood Associates, Inc. January 1995.
  - (C) *Report on Institutional Arrangements for Watershed Management of the Lake Champlain Basin. Appendices.* Yellow Wood Associates, Inc. January 1995.
12. (A) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program. Executive Summary.* Holmes & Associates and Anthony Artuso. March 1995
  - (B) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program.* Holmes & Associates and Anthony Artuso. March 1995
13. *Patterns of Harvest and Consumption of Lake Champlain Fish and Angler Awareness of Health Advisories.* Nancy A. Connelly and Barbara A. Knuth. September 1995.
14. (A) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program. Executive Summary - Part 2.* Holmes & Associates and Anthony Artuso. November 1995
  - (B) *Preliminary Economic Analysis of the Draft Plan for the Lake Champlain Basin Program - Part 2.* Holmes & Associates and Anthony Artuso. November 1995
15. *Zebra Mussels and Their Impact on Historic Shipwrecks.* Lake Champlain Maritime Museum. January 1996.
16. *Background Technical Information for Opportunities for Action: An Evolving Plan for the Future of the Lake Champlain Basin.* Lake Champlain Basin Program. June 1996
17. (A) *Executive Summary. Economic Analysis of the Draft Final Plan for the Lake Champlain Management Conference.* Holmes & Associates and Anthony Artuso. July 1996

(B) *Economic Analysis of the Draft Final Plan for the Lake Champlain Basin Management Conference*. Holmes & Associates and Anthony Artuso. July 1996

18. *Catalog of Digital Spatial Data for the Lake Champlain Basin*. Vermont Center for Geographic Information, Inc. September 1996.
19. *Hydrodynamic and Water Quality Modeling of Lake Champlain*. Applied Science Associates, Inc. July 1996.
20. *Understanding Phosphorus Cycling, Transport and Storage in Stream Ecosystems as a Basis for Phosphorus Management*. Dr. James P. Hoffmann, Dr. E. Alan Cassell, Dr. John C. Drake, Dr. Suzanne Levine, Mr. Donald W. Meals, Jr., Dr. Deane Wang. December 1996.
21. *Bioenergetics Modeling for Lake Trout and other Top Predators in Lake Champlain*. Dr. George W. LaBar and Dr. Donna L. Parrish. December 1996
22. *Characterization of On-Farm Phosphorus Budgets and Management in the Lake Champlain Basin*. Robert D. Allshouse, Everett D. Thomas, Charles J. Sniffen, Kristina Grimes, Carl Majewski - Miner Agricultural Research Institute. April 1997
23. (A) *Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 11. Executive Summary*. Alan McIntosh, Mary Watzin and Erik Brown, UVM School of Natural Resources. October 1997  
  
(B) *Lake Champlain Sediment Toxics Assessment Program. An Assessment of Sediment - Associated Contaminants in Lake Champlain - Phase 11*. Alan McIntosh, Mary Watzin and Erik Brown, UVM School of Natural Resources. October 1997
24. *Development of Land Cover/Land Use Geographic Information System Data Layer for the Lake Champlain Basin and Vermont Northern Forest Lands Project Areas*. Dr. Thomas Millette. October 1997
25. *Urban Nonpoint Pollution Source Assessment of the Greater Burlington Area*. Urban Stormwater Characterization Project. James Pease, VT Dept. of Environmental Conservation. December 1997
26. *Long-Term Water Quality and Biological Monitoring project for Lake Champlain*. Cumulative Report for Project Years 1992- 1996. VT Dept of Environmental Conservation and NYS Dept of Environmental Conservation. March 1998.
27. *Cumberland Bay PCB Study*. Clifford W Callinan, NY State Dept. of Environmental Conservation; Lyn McIlroy, Ph.D., SUNY Plattsburgh; and Robert D. Fuller, Ph.D., SUNY Plattsburgh. October 1998.
28. *Lake Champlain Underwater Cultural Resources Survey. Volume 1: Lake Survey Background and 1996 Results*. Scott A. McLaughlin and Anne W. Lessman, under the direction of Arthur B. Cohn, Lake Champlain Maritime Museum. December 1998.
29. *Evaluation of Soil Factors Controlling Phosphorus Concentration in Runoff from Agricultural Soils in the Lake Champlain Basin*. Frederick R. Magdoff, William E. Jokela, and Robert P. Durieux, UVM Department of Plant and Soil Sciences. June 1997.
30. *Lower Trophic Level Interactions in the Pelagic Foodweb of Lake Champlain*. Dr. Suzanne N. Levine, Dr. Mark Borchardt, Dr. Moshe Braner, Angela Shambaugh, and Susan Spencer of UVM School of Natural Resources and Marshfield Medical Research Foundation. July 1997.

31. Estimation of Lake Champlain Basinwide Nonpoint Source Phosphorus Export, William Hegman, Associates in Rural Development, Inc., Deane Wang and Catherine Borer, UVM Water Resources & Lake Study Center, September 1999.
32. *The Freshwater Mussels of the Lower Missisquoi Rivers: Current Status and the Potential for a Refugium from Zebra Mussel Impacts*. Paul Marangelo, VT Agency of Natural Resources, Dept of Environmental Conservation. August 1999.
33. *Ecological Effects of Sediment-Associated Contaminants in Inner Burlington Harbor, Lake Champlain*. Tetra Tech, Inc. September 1999.
34. (A) *Benthic Phosphorus Cycling in Lake Champlain: Results of an Integrated Field Sampling/Water Quality Modeling Study. Part A: Water Quality Modeling*. Jeffrey C. Cornwell and Michael Owens, University of Maryland Center for Environmental Sciences Horn Point Laboratory for HydroQual, Inc. June 1999.  
  
(B) *Benthic Phosphorus Cycling in Lake Champlain: Results of an Integrated Field Sampling/Water Quality Modeling Study. Part B: Field Studie*. Jeffrey C. Cornwell and Michael Owens, University of Maryland Center for Environmental Sciences, Horn Point Laboratory for HydroQual, Inc. June 1999.
35. *Determination and Quantification of Factors Controlling Pollutant Delivery from Agricultural Land to Streams in the Lake Champlain Basin*. J.W. Hughes, W.E. Jokela, D. Wang, C. Borer, UVM. September 1999.
36. *Cost-Effective Phosphorus Removal from Secondary Wastewater Effluent through Mineral Adsorption*. Larry D. Goehring, Sr., Tammo S. Steenhuis, Andrea S. Brooks, Melissa N. Rosenwald, Jennifer Chen, Cornell University and Victor J. Putnam, Essex County Planning Department. December 1999.
37. (A) *Sea Lamprey Control Alternatives in the Lake Champlain Tributaries: Poultney, Hubbardton and Pike Rivers and Morpion Stream*. Leigh R. Walrath, Environmental Analyst and Katherine M. Swiney, Environmental Analyst, New England Interstate Water Pollution Control Commission. August 2001.  
  
(B) *Assessment of Sea Lamprey Habitat and the Sea Lamprey Population of the Pike River and Morpion Stream, Quebec, Canada*. Micah Dean and Adam Zerrenner, Lake Champlain Fish and Wildlife Resources Office, United States Fish and Wildlife Service. September 2001
38. (A) *Thermal Variability in the South Lake of Lake Champlain from 1997-1999*. Tom Manley, Marine Research Corporation, September 2001.
39. *Evaluation of Potential Blue-Green Algal Toxins in Lake Champlain (Summer 2000)*. Rosen, B., USDA-NRCS Wasteshed Science Institute; A. Shambaugh, L. Ferber, F. Smith and M. Watzin, UVM School of Natural Resources; and C. Eliopoulos and P. Stangel, VT Department of Environmental Conservation. November 2001.
40. *Monitoring and Evaluation of Cyanobacteria in Burlington Bay, Lake Champlain (Summer 2001)*. Watzin, M., A. Shambaugh, and E. Brines; UVM School of Natural Resources. November 2002.
41. *Monitoring and Evaluation of Cyanobacteria in Burlington Bay, Lake Champlain (Summer 2002)*. Watzin, M., A. Shambaugh, and E. Brines; UVM, Rubenstein School of Natural Resources, December 2003.
42. *The Feeding of Supplemental Phosphorus on Dairy Farms in the Lake Champlain Basin: An*

*Education/Demonstration Project.* Cotanch, K., C. Ballard, W. Emerich, C. Sniffen, and E. Thomas, W.H. Miner Institute. April 2003.

43. *Stage-Based Population Viability Model for Sea Lamprey (Petromyzon marinus).* Howe, Eric A., E. Marsden and T. M. Donovan, UVM School of Natural Resources and R.H. Lamberson, Humboldt University Department of Mathematics. March 2004.
44. *Exploratory Study of Dismantling Sea Lamprey Nests to Reduce Egg and Larval Production in Two Lake Champlain Basin Tributaries.* Laroche, W., Stonefish Environmental; C.D. Martin, U.S. Fish and Wildlife Service; H.P. Wimmer, Middlebury College. August 2004.
45. *Hydrologic Modeling and Conceptual Siting Analysis for the Evaluation of a Barrier to Control the Sea Lamprey Population of the Pike River and Morpion Stream, Quebec, Canada.* Young, B., U.S. Fish and Wildlife Service; C.J. Orvis, U.S. Fish and Wildlife Service. September, 2004.
46. *Ecosystem Indicators and an Environmental Score Card for the Lake Champlain Basin Program.* Watzin, M.C., R.L. Smyth, E.A. Cassell, W.C. Hession, R.E. Manning, and D. Wang, Rubenstein School of Environment and Natural Resources, University of Vermont. May 2005.
47. *Developing and Assessing Policy Options for Reducing Phosphorus Loading in Lake Champlain.* Winsten, J.R., Henry A. Wallace Center for Agricultural and Environmental Policy at Winrock Environmental. April 2004.
48. *Tributary Contributions to the Parasitic and Spawning Adult Population of Sea Lamprey (Petromyzon marinus) in Lake Champlain Using Elemental Signatures.* Howe, E.A., C.P. Hand, J.E. Marsden, S.A. Ludsin, and B.J. Fryer, Rubenstein School of Environment and Natural Resources, University of Vermont; Great Lakes Institute for Environmental Research, University of Windsor; National Oceanic and Atmospheric Administration, Great Lakes Environmental Research Laboratory. March 2006.
49. *Distribution and Factors Affecting Survival of Sea Lamprey Eggs In and Out of Nests.* Smith S., J.E. Marsden, Rubenstein School of Environment and Natural Resources, University of Vermont. April 2006.
50. *Demonstration of Methods to Reduce Indicator Bacteria Levels in Agricultural Runoff in Vermont.* Prepared by Donald W. Meals, Ice.Nine Environmental Consulting and David C. Braun, Stone Environmental, Inc. March 2005
51. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain Summer 2003.* Mary C. Watzin, Angela D. Shambaugh, Emily K. Brines, Todd Clason, and Meghan Kreider, Rubenstein Ecosystem Science Laboratory, Rubenstein School of Environment and Natural Resources University of Vermont with support from: Gregory L. Boyer, Department of Chemistry, State University of New York, College of Environmental Science and Forestry. December 2004.
52. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain Summer 2004.* Mary C. Watzin, Emily Brines Miller, Meghan Kreider, Sam Couture, Todd Clason, and Michael Levine, Rubenstein Ecosystem Science Laboratory, Rubenstein School of Environment and Natural Resources University of Vermont with support from: Gregory L. Boyer, Department of Chemistry, State University of New York, College of Environmental Science and Forestry. June 2005.
53. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain Summer 2005.* Mary C. Watzin, Susan Fuller, Meghan Kreider, Sam Couture, and Michael Levine, Rubenstein Ecosystem Science Laboratory, Rubenstein School of Environment and Natural Resources University of Vermont with support from: Gregory L. Boyer, Department of Chemistry, State University of New York, College of Environmental Science and Forestry. June 2006.

54. *Updating the Lake Champlain Basin Land Use Data to Improve Prediction of Phosphorus Loading*. Austin Troy, Deane Wang, David Capen, Rubenstein School of Environment and Natural Resources University of Vermont with Project Staff: Jarlath O'Neil-Dunne and Sean MacFaden, Spatial Analysis Lab, Rubenstein School of Environment and Natural Resources University of Vermont. May 2007
55. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain Summer 2006*. Mary C. Watzin, Susan Fuller, Meghan Rogalus, Michael Levine, Sam Couture, Kate Crawford, and Cynthia May Rubenstein Ecosystem Science Laboratory Rubenstein School of Environment and Natural Resources University of Vermont. July 2007
56. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain Summer 2007*. Mary C. Watzin, Susan Fuller, Cynthia May, Leman Bronson, Meghan Rogalus, Matthew Linder, and Rubenstein Ecosystem Science Laboratory Rubenstein School of Environment and Natural Resources University of Vermont. July 2008
57. *Lake Champlain Phosphorus Concentrations and Loading Rates, 1990-2008*. Eric Smeltzer, Vermont Department of Environmental Conservation; Fred Dunlap, New York State Department of Environmental Conservation; Marc Simoneau, Ministère du Développement durable, de l'Environnement et des Parcs. December 2009.
58. *Reducing Phosphorus Runoff from Small Livestock Farms into Missisquoi Bay*. James K. Bushey, Jeffrey E. Carter, Jonathan R. Chamberlin, and Sally A. Flis, Ph.D. Summer 2009.
59. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain, Summer 2008*. Mary C. Watzin, Susan Fuller, Leman Bronson, Rebecca Gorney, and Lesley Shuster, Rubenstein Ecosystem Science Laboratory, Rubenstein School of Environment and Natural Resources, University of Vermont. August 2009.
60. *An Environmental Accounting System to Track Nonpoint Source Phosphorus Pollution in the Lake Champlain Basin, Second Year Report*. Lula Ghebremichael and Mary Watzin, UVM Rubenstein School of Environment and Natural Resources. May 2010.
61. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain, Summer 2009*. Mary C. Watzin, Susan Fuller, Leman Bronson, Rebecca Gorney, and Lesley Shuster, Rubenstein Ecosystem Science Laboratory, Rubenstein School of Environment and Natural Resources, University of Vermont. June 2011.
62. *New York Agricultural Best Management Tracking*. Andrew Snell, Champlain Watershed Improvement Coalition of New York; Bob Brower, New York State Department of Agriculture and Markets. July 2011.
63. *Modeling Efforts and Identification of Critical Source Areas of Phosphorus in the Vermont Sector of the Missisquoi Bay Basin*. Eric Howe, William Howland, and Stephanie Strouse, Lake Champlain Basin Program. December 2011.
64. *Riparian Habitat Restoration Monitoring: Monitoring Tree Health and Bird Use of Riparian Restoration Projects in Vermont*. Leah Szafranski, The Intervale Center and the U.S. Fish and Wildlife Service. January 2012.
65. *Development of a Phosphorus Mass Balance Model for Missisquoi Bay*. Ann Arbor, Limnotech. March 2012.
66. *A Synoptic Assessment of Mercury and Re-evaluation of PCB's in Lake Champlain Fishes*. Ian Johnson, Biodiversity Research Institute. August 2012.

67. *Adaptive Management of Double-crested Cormorants on Four Brothers Islands*. David E. Capen, Ph.D., Wildlife Consultant and Professor Emeritus, University of Vermont; Dirk Bryant, The Nature Conservancy, Adirondack Chapter. July 2012.
68. *Little Chazy River Nutrient Runoff Study*. Michael Simpson; Darcy Rugar, Office of Sponsored Programs, Research Foundation of the State of New York SUNY Plattsburgh. David Franzi; Robert Fuller, CEES/SUNY Plattsburgh, Stephen Kramer, W.H. Miner Agricultural Research Institute. August 2012.
69. *Toxic Substance Management Strategy: Managing Toxic Contamination of Lake Champlain*. Lake Champlain Basin Program. September 2012.
70. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain*. Mary C. Watzin, Susan Fuller, Leman Bronson, Rebecca Gorney and Lesley Schuster, Rubenstein Ecosystem Science Laboratory, Rubenstein School of Environment and Natural Resources, University of Vermont. September 2011.
71. *Monitoring and Evaluation of Cyanobacteria in Lake Champlain*. Mary C. Watzin, Susan Fuller, Rebecca Gorney, and Joseph Caron, Rubenstein Ecosystem Science Laboratory, Rubenstein School of Environment and Natural Resources, University of Vermont. June 2012.
72. *Quantifying Sediment Loadings from Streambank Erosion in Selected Agricultural Watersheds Draining to Lake Champlain*. Eddy J. Langendoen, Andrew Simon, Lauren Klimetz, Natasha Bankhead, and Michael E. Ursic, US Department of Agriculture - Agricultural Research Service National Sedimentation Laboratory, Watershed Physical Processes Research Unit. December 2012.
73. *Fish Passage and Connectivity in the Ausable Watershed using GIS Prioritization and Field Assessment Tools*. Corrie Miller, Project Manager, Ausable River Association; Michelle Brown, Dirk Bryant and Craig Cheeseman, The Nature Conservancy, Adirondack Chapter; Tim Mihuc, QA Manager, Lake Champlain Research Institute, SUNY Plattsburgh; Curt Gervich, Center for Earth and Environmental Science, SUNY Plattsburgh. December 2012.