

The Rubenstein Ecosystem Science Laboratory  
The University of Vermont  
Research in Progress: Summer 2007



**Lake Champlain Water Quality and Ecosystem Health**

**EMERGING THREATS TO THE LAKE CHAMPLAIN ECOSYSTEM**

Lake Champlain Sea Grant

Dr. Mary Watzin, Dr. Suzanne Levine, Dr. Ellen Marsden, Dr. Greg Druschel, Dr. Andrea Lini, Dr. Mark Beekey (Sacred Heart University) and graduate students Cynthia May and Vicky Tremblay

**MONITORING AND EVALUATION OF CYANOBACTERIA IN LAKE CHAMPLAIN**

Lake Champlain Basin Program

Dr. Mary Watzin, senior research assistant Susan Fuller, research assistant Tiger Bronson, graduate student Cynthia May, and undergraduate student Matt Linder

**TIER-BASED MONITORING FOR TOXIC CYANOBACTERIA IN THE LOWER GREAT LAKES**

NOAA, MERHAB

Dr. Mary Watzin, Dr. Greg Boyer and Dr. Paul Hopkins (SUNY ESF), Dr. Joe Makarewicz (SUNY Brockport), Charles O'Neill (Cornell University), Dr. Timothy Mihuc (SUNY Plattsburgh), senior research assistant Susan Fuller, and graduate students Cynthia May and Kate Crawford

**A PHOSPHORUS ACCOUNTING SYSTEM FOR LAKE CHAMPLAIN**

Vermont Agency of Natural Resources

Dr. Mary Watzin

**METAPOPULATION DYNAMICS, DECISION ANALYSIS MODELING AND MANAGEMENT OF DOUBLE-CRESTED CORMORANTS**

Lake Champlain Sea Grant Program

Dr. David Capen, Dr. Terry Donovan and Research Assistant Adam Duerr

**MONITORING AMETEOROLOGICAL CONDITIONS ON LAKE CHAMPLIAN: SUPPORT FOR THE LAKE CHAMPLAIN METEOROLOGICAL STATIONS**

NOAA and the Lake Champlain Research Consortium

Dr. Melody Burkins, and staff members Richard Furbush and Carl Waite



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Fisheries Biology

**USE OF MIGRATORY AND SEX PHEROMONES TO INCREASE  
TRAPPING EFFICIENCY OF SEA LAMPREY**

National Sea Grant

Dr. Ellen Marsden, Dr. Donna Parrish and graduate student Mike Harrington

**EVALUATION OF LAKE TROUT SPAWNING HABITAT FOR  
LAKE MICHIGAN DEEP REEFS**

Great Lakes Fishery Trust

Dr. J. Janssen (University of Wisconsin-Milwaukee), C. Bronte (USGS), Dr. Ellen Marsden,  
Dr. D. J. Jude (University of Michigan) and graduate student Jake Riley

**THE EFFECTS OF ZEBRA MUSSEL GROWTH IN DIFFERENT CALCIUM LEVELS ON  
PREDATORY SELECTION BY PUMPKINSEED SUNFISH (*LEPOMIS GIBOSSUS*).**

Helix Undergraduate Research Award

Dr. Ellen Marsden and undergraduate Erika B. Partee

Watershed Investigations

**EFFECTS OF TRANSPORTATION NETWORKS ON WATER QUALITY AND FRESHWATER  
ECOSYSTEM INTEGRITY**

University of Vermont Transportation Center

Dr. Mary Watzin, Dr. W. Breck Bowden

**MISSISQUOI RIVER BASIN, VERMONT, A WATERSHED APPROACH TO IMPROVING  
WATER QUALITY IN LAKE CHAMPLAIN**

Natural Resources Conservation Service

Dr. Mary Watzin and graduate student Dani Newcomb

**REDESIGNING THE AMERICAN NEIGHBORHOOD; COST EFFECTIVENESS OF  
INTERVENTIONS IN STORMWATER MANAGEMENT AT DIFFERENT SCALES**

US EPA New England Region

Dr. W. Breck Bowden, Dr. John Todd, Dr. Robert Costanza, Dr. Alexey Voinov, Dr. Alan McIntosh, and  
graduate students Amanda Holland and Joel Nipper



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Watershed Investigations, continued

**STREAM FLOW MONITORING PROJECT**

Vermont Agency of Natural Resources

Dr. W. Breck Bowden, research technician Meredith Curling and undergraduate students Eric Davis, Winston Ochsenein, Ethan Joseph, Chris Lang, and Neale Mahoney

**FRESHWATER VITAL-SIGNS MONITORING FOR NATIONAL PARKS IN THE  
NORTHEAST TEMPERATE NETWORK (NETN)**

National Park Service

Dr. W. Breck Bowden, Dr. Brian Mitchell (NPS) and research technicians Joe Bartlett and Chris Lang

Arctic Investigations

**THERMOKARST DISTRIBUTION AND CHARACTERIZATION IN THE NATIONAL PARK  
SERVICE ARCTIC NETWORK (ARCN) (PHASE 2): KELLY RIVER**

National Park Service

Dr. W. Breck Bowden, Dr. Jay Jones (University of Alaska Fairbanks), Dr. Michael Gooseff (Colorado School of Mines), Andrew Balser (University of Alaska Fairbanks) and graduate student Julia LaRouche

**AQUATIC BIODIVERSITY, COMMUNITY COMPOSITION AND ECOSYSTEM PROCESSES  
IN GATES OF THE ARCTIC PARK AND PRESERVE AND THE NOATAK NATIONAL  
PRESERVE (PHASE 3): PROTOCOL DEVELOPMENT**

National Park Service

Dr. W. Breck Bowden, Dr. Chris Luecke (Utah State University), Dr. Bruce Peterson (Marine Biological Laboratory, Woods Hole), post-doctoral associate Dr. Michael Flinn and graduate student Julia LaRouche

**AQUATIC ECOSYSTEM RESPONSES TO CHANGES IN THE ENVIRONMENT OF AN  
ARCTIC DRAINAGE BASIN: STREAMS RESEARCH**

US National Science Foundation, Office of Polar Programs

Dr. W. Breck Bowden

