



RACC

Research on Adaptation
to Climate Change

Welcome to the
5th Annual
V e r m o n t E P S C o R
Student Research Symposium

April 4th, 2013, 3-8 pm

DoubleTree Hotel



Vermont EPSCoR
CWDD
Center for Workforce Development & Diversity
AT SAINT MICHAEL'S COLLEGE



Welcome and thank you for attending the 5th Annual VT EPSCoR Student Research Symposium!

The VT EPSCoR Center for Workforce Development and Diversity (CWDD) works to cultivate and prepare students to consider science, technology, engineering and math (STEM) careers, and to broaden participation in these fields, by immersing students in active research.

The CWDD is thrilled to showcase the hard work of this year's participating high school and college students. This symposium features 36 high school students from 12 Vermont school districts and 3 districts outside Vermont, and 38 undergraduate students, all of whom have conducted research as a part of the NSF-funded Research on Adaptation to Climate Change in the Lake Champlain Basin: New Understanding through Complex Systems (RACC) program. Students will present their findings, experience how scientists disseminate their work, and network with undergraduates, scientists, managers, and other interested state and local groups and representatives.

Thank you for a fun and successful year of RACC research. Your passion and dedication make this event possible!



Agenda

2:30-3:00 Registration

Welcome & Introductions – Garden Ballroom

- 3:00** Welcome: **Dr. Judith Van Houten, Director, VT EPSCoR**
Introductions: **Miranda Lescaze, Director, VT EPSCoR Center for Workforce Development and Diversity**
- 3:10** Research on Adaptation to Climate Change: An Update
Dr. Andrew Schroth, University of Vermont

Presentations – Garden Ballroom

- 3:30 Elizabeth Bennett - University of Vermont and Courtney Pinto - Saint Michael's College**
A Comparison of Total Suspended Solids in Agricultural and Urban Streams within the Winooski Watershed
- 3:40 Corynne Dedeo - Saint Michael's College**
The Effects of Land Use on Nutrient Content in the Lamoille River Basin Streams
- 3:50 Josh Farber, Rosie Jacobson and Kathy Rossman- Rock Point School**
An Analysis of the Relationship Between Rainfall, Temperature, and Macroinvertebrate Populations
- 4:00 Jessiliz Camacho, Melanie Quiñones and Yiria Muniz - Jose E. Aponte de la Torre School**
Effect of Climate Change on the Macroinvertebrate Populations in the Maracuto River in Carolina, Puerto Rico
- 4:10 Ethan Marsh, Teja Pammi & David Spero-Burr and Burton Academy**
A study of the effects of major storm events on macro-invertebrate communities in the Mettawee River
- 4:20 Emily Wei - Middlebury College**
In-Situ Analysis of Hydrodynamics and Sediment Dynamics in Missisquoi Bay, Lake Champlain
- 4:30 Ismael Orenge Sanchez - Universidad Metropolitana**
Beyond The Null Hypothesis: Detecting Biologically Important Patterns Ignored By Traditional Statistics
- 4:40 Samouel Beguin - Middlebury College**
Effects of Elevation, Land Cover, and Irene Disturbance on Stream Macroinvertebrate Communities

Presentation Session, *Continued*—Garden Ballroom

4:50 George Dowhan, Miranda Orcutt and Sarah Smith Conroy - Rice Memorial High School
Land Use along Potash Brook

4:55 Program Surveys

5:00 Break

5:15 Poster Session — Garden Ballroom

*See poster titles on pages 3-6

6:45 Dinner — Garden Ballroom

*Awards for Best Oral and Poster Presentations

Poster Presentations

Megan Anderson - Middlebury College

The Effects of Substrate Size on Periphyton Composition and Abundance in the New Haven River

Sarah Bodell, Seth Mason and Jeff Robins- Harwood Union High School

The Effect of Land Use on Stream Water Phosphorus Concentrations in the Lake Champlain Watershed

Patrick Bousquet - Saint Michael's College

The Effects of Urbanization on Sediment Size and Benthic Macroinvertebrate Communities

Andrea Brendalen - University of Vermont

Haleigh Marshall - Hobart and William Smith Colleges

Nonpoint Phosphorus Pollution from Groundwater in Georgia, Vermont

Anne Burnham - Saint Michael's College

Detecting Duckweed Mediated Trophic Cascades Using Standard Effect Size

Sarah BurrIDGE, Rachel Emerson, Madison Smith, Carl Hildebrandt and Patti Valley- Oxbow Union High School

We're Not in Kansas Anymore...



Andrew Chambers, Jacqueline Nuzzo and Don McDowell - Stowe High School

The Effect of Elevation on Phosphorus Levels in Soil and Water in the Winooski, Lake Champlain and Missisquoi River Basins

Hannah Choiniere, Rebecca Cross and Maria Dezotell-

Missisquoi Valley Union High School

The Impact of Superstorm Sandy on Water Quality in Vermont

Eunice Chun - Middlebury College

Problem Definition in Lake Champlain

Allison Compagna – Johnson State College

Riparian Zones and Phosphorous Concentrations of Nineteen Tributary Sites in the Lamoille River Watershed, Vermont

John Dawkins – Johnson State College

Phosphorus Levels in Streams in Agricultural Areas with Nutrient Management Plans

Denir Djozic, Andrew Pike, Grace Yasewicz and Kara Lenorovitz –

Colchester High School

How Do Streams with Different Riparian Land Uses Vary in Their Response to Precipitation Events as Measured by Phosphorus Levels?

Nate Dooley, Isaac Longley, Trevor McNaney, Brooke Phillips and

Lynn Fosher- Milton High School

The Effect of Stream Disturbance on Total Phosphorus in Rural Agricultural Streams Compared to Mountain Streams

Nicholas Dragone - Middlebury College

Colonization of Leaf Pack Microhabitats by Macroinvertebrates in the New Haven River

Courtney Dyche – University of Vermont

Changes in Total Soil Phosphorus from Field to Stream Bank in the Missisquoi Watershed



Ashley Fortin – Lyndon State College

Brittany McCarthy – Johnson State College

A Comparative Study of Local Climates in Vermont

Kristen Friedel – Green Mountain College

Lake Champlain Water Quality: Missing Links

Levi Gardell, Emily Pomichter, and Tom Lane – Bellows Free Academy-Fairfax

Storm Effects: The Correlation of Storm Duration and Intensity to Phosphate Levels in the Upper Missisquoi River

Justin Healy, Emily Millar and Gregory Hennemuth—

Lake Region Union High School

Comparative Study of Riparian Zone Impact on Burgess Branch
Macroinvertebrate Communities

Adam Heckle – Community College of Vermont

Data Analysis: Comparison of Macroinvertebrate Species Richness Between Urban and Forested Streams

Caroyln Herkenham – University of Vermont

A Quality Control Assessment of ISCO Portable Samplers within Winooski Watershed

Nora Hill, Aiden Villani-Holland and Peter Goff - Vermont Commons School

A System Dynamics Approach to Modeling Reach-Level Indices of Stream Quality

Frances Iannucci - University of Vermont

Impact of Diet Differentiation on the Fatty Acid Composition of White Perch

Lindsay Jordan and Elizabeth Olliver - University of Vermont

Stream Channel Migration of the Mad River

Philip Lavoie, Emerson Prager and Sharon Boardman-

Rice Memorial High School

Monitoring Water Quality of Potash Brook: A Four Year Perspective

Andrea Mejia - Universidad Metropolitana

Changes in Soil Test Phosphorus from Field to Stream Bank in the Missisquoi Watershed

Abigail Murphy – Johnson State College

Connection between Total Suspended Solids and Amount of *E. coli* Bacteria in the Lamoille River Tributaries, Vermont

Kiernan Nicholls and Sheila Tymon- Peoples Academy

The Effect of Climate Change on Point Bar Formation as a Function of Increased Suspended Solids, Secondary Flow Sediment and/or Erosion from the Opposite Bank

Jared Peick – Saint Michael's College

A Manipulative Study on the Effects of Sediment on Macroinvertebrate Communities

Hannah Rickner – University of Vermont

The Macroinvertebrate Population of Missisquoi Bay and the Potential Impact on Nutrient Fluctuation

Lorianny Rivera-Mendoza – University of Puerto Rico

Changes in Soil Inorganic Nitrogen from Field to Stream Bank in the Missisquoi Watershed

Gabriela Rosario, Nattalia Rosario and Frank Torres Velez-

University Gardens High School

The Effect of Precipitation on Macroinvertebrate Abundance of Two Streams in San Juan, Puerto Rico

Elizabeth Rutila – University of Vermont

Seasonal Changes in the Phosphorus Composition of Missisquoi Bay Sediments

Melissa Shapiro – University of Vermont

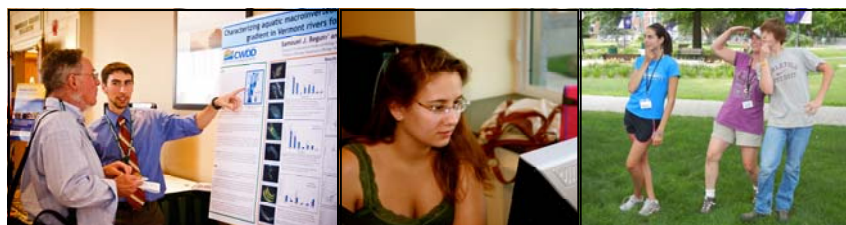
Lake Champlain Basin Focusing Events and Media Coverage

Bronson Shonk – University of Vermont

New England Heavy Precipitation

Anna Tadio – University of Vermont

Actors Affecting Water Quality in Lake Champlain



2012 RACC Interns



Funding Sources & Partners

National Science Foundation	ECHO Lake Aquarium & Science Center
Vermont EPSCoR	Lake Champlain Basin Program
Community College of Vermont	Lake Champlain Sea Grant
Green Mountain College	McNair Scholars Program, UVM
Johnson State College	NH EPSCoR/LoVoTECS Network
Lyndon State College	NOAA/NWS Burlington
Saint Michael's College	Northeast Cyberinfrastructure Consortium
Middlebury College	Rubenstein Ecosystem Science Lab
Norwich University	UVM Watershed Alliance Program
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University of Vermont	Vermont Internet2 SEGP
Vermont Technical College	Vermont Technology Council
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CoCoRaHS	



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2012-2013 RACC High School Teams