

Report for 2003ME24B: Information Transfer

- Water Resources Research Institute Reports:
 - Hallsworth, R., 2003. Waterlines Vol. 9 No. 1. Newsletter, Senator George J. Mitchell Center, March 2003.
 - Hallsworth, R., 2003. Maine Water Conference Program. Senator George J. Mitchell Center, April 2003
 - Hallsworth, R. and Schmitt, C., 2003. Waterlines Vol. 9 No. 2. Newsletter, Senator George J. Mitchell Center, October 2003.
 - Kahl, J.S., S. Nelson, J. Stoddard, S. Norton, T. Haines, B. Breen, and B. Gawley, 2003. Twenty years of surface water chemistry: how does Acadia NP fit into the regional response to acid rain? Chapter 8 in: Final report for EPA/NPS PRIMENet, Mitchell Center, University of Maine, Orono, ME.
 - Kahl, J.S., S. Nelson, T. Haines, and K. Johnson, 2003. Mercury and nitrogen dynamics in response to fire in paired watersheds at Acadia National Park. Chapter 7 in: Final report for EPA/NPS PRIMENet, Mitchell Center, University of Maine, Orono, ME.
 - Kahl, J.S., S. Nelson, A. Amirbahman, J. Eckhoff, I. Fernandez, H. Good, T. Haines, G. Jacobson, K. Johnson, R. Lent, D. Manski, M. Nielsen, S. Norton, J. Parker, J. Peckenham, P. Ruck, L. Rustad, M. Schauffler, K. Tonnessen, B. Wiersma, 2003. Inferring regional patterns and responses in N and Hg biogeochemistry using two sets of gauged paired-watersheds. Final report to EPA and National Park Service, Mitchell Center, University of Maine, Orono, ME. 171 p., plus attachments.
 - Nelson, S. and J.S. Kahl (editors), 2003. Inferring regional patterns and responses in N and Hg biogeochemistry using two sets of gauged paired-watersheds. Final report to EPA and National Park Service (9 chapters), Mitchell Center, University of Maine, Orono, ME. 172 p.
 - Nelson, S., R. Hallsworth, J. Boothroyd, J. Ledenican, M. McGarry, J.S. Kahl, V. Venkataraman, 2003. PEARL: Promoting Conservation, Responsible Recreation, and Public Education Through Innovative Information Technology. Final Project Report to Maine Outdoor Heritage Fund. December 22, 2003
 - Nelson, S.J., J.S. Kahl, (editors) 2003. Final Integrated Report: Establishing paired gauged watersheds at Acadia National Park for long-term research on acidic deposition, nitrogen saturation, forest health, and mercury biogeochemistry (1998-2002). Submitted to US EPA and National Park Service.
 - Morse, C., J.S. Kahl, and D. Witherill, 2003. Measuring the impact of development on Maine surface waters. Information Digest, Senator George Mitchell Center, 12 p.
 - Schmitt, C., Hallsworth, R., 2004. Safe Drinking Water. Information Digest, Senator George J. Mitchell Center, Drinking Water Program/ Department of Human Services, 8p.
 - Schmitt, C., Hallsworth, R., 2004. Protecting Groundwater Supplies: Maines Source Water Protection Program. Information Digest, Senator George J. Mitchell Center, Drinking Water Program/ Department of Human Services, 8p.
- Conference Proceedings:
 - Peckenham, J.M., 2003. Moving from Source Assessment to Source Protection Workshop, Maine Water Utilities Association Annual Winter Meeting.
 - Peckenham, J.M. and C. Schmitt, 2003. Moving from Source Assessment to Source Protection in Maine, Amer. Water Works Assoc. Symposium on Source Water Protection.

- Articles in Refereed Scientific Journals:
 - Campbell, J. L., J.W. Hornbeck, M.J. Mitchell, M.B. Adams, M.S. Castro, C.T. Driscoll, J.S. Kahl, J.N. Kochenderfer, G.E. Likens, J.A. Lynch, P.S. Murdoch, S.J. Nelson, and J.B. Shanley, 2004. A Synthesis of Nitrogen Budgets from Forested Watersheds in the Northeastern United States. *Water, Air, and Soil Pollution* 151: 373-396.
 - Johnson, K.B., Nelson, S.J., Kahl, J.S., Haines, T.A. and Fernandez, I.J.: 2004b, Mass balances of mercury and nitrogen in burned and unburned forested watersheds at Acadia National Park, Maine, USA, *Environ. Monit. Assess.*
 - Kahl, J.S. and S. Nelson, 2004. guest editors, special issue of *Environmental Monitoring and Assessment* on watershed research at Acadia National Park.
 - Kahl, J.S., J. Stoddard, R. Haeuber, S. Paulsen, and others, 2004. Response of surface water chemistry to changes in acidic deposition: implications for the upcoming debate on the federal Clean Air Act. *Environmental Science and Technology*, Feature Article in review.
 - Peckenham, J., J. Kahl, S. Nelson, K. Johnson, and T. Haines, 2004. Landscape controls on mercury in streamwater at Acadia National Park, USA, *Env. Monit. Asses.*, in press.
 - Amirbahman, A. P. Ruck, I Fernandez, T. Haines, and J.S. Kahl, 2003. The effects of fire on mercury distribution in soils of Acadia National Park. *Water Air, Soil Pollut.*, in press.
 - Campbell, J, J. Hornbeck, M. Mitchell, M. Adams, M. Castro, C. Driscoll, J.S. Kahl, and others, 2003. Input-output budgets for inorganic nitrogen for 24 watersheds in the northeastern United States. *Water Air Soil Pollut.*, in press.
 - Kahl, J.S., S.J. Nelson, J.L. Stoddard, S.A. Norton, T.A. Haines, 2003. Lakewater chemistry at Acadia National Park, Maine, in response to declining acidic deposition. In press, *Joint Conference Proceedings: The 2003 George Wright Society Biennial Conference and CR2003: A Conference for the National Park Service and Its Partners.*
 - Peckenham, J.M., J. S. Kahl, and B. Mower, 2003. Background mercury concentrations in river water in Maine, USA. *Env. Monit. Assess.*, 89, pp. 129-152.
- Dissertations:
 - Schmitt, C., 2003. The Effects of the 2001-2002 Drought on Maine Surface Water Supplies, M.S. Thesis, December 2003.
 - Seger, E., 2003. Seepage Lakes as Indicators of Climate Change: Is Maine Really Cooling? M.S. Thesis, December 2003.
- Other Publications:
 - Hallsworth, R., 2003. PEARL Links with Laptop Initiative. Fogler Library newsletter article, *The Olive Tree*, v 11 number 1, summer 2003
 - Hallsworth, R., 2003. PEARL: One-Stop Shopping for your Lake Data! Cooperative Extension Water Quality newsletter article, summer 2003
 - Kahl, J.S., 2003. Re-use planning for the former Schoodic Point Navy base: the Schoodic Education and Research Center at Acadia National Park. Consultant report to the National Park Service. 37 p.
 - Stoddard, J., J.S. Kahl, F. Deviney, D. DeWalle, C. Driscoll, A. Herlihy, J. Kellogg, P. Murdoch, J. Webb, and K. Webster, 2003. Response of surface water chemistry to the Clean Air Act Amendments of 1990. EPA/620/R-03/001, U.S. Environmental Protection Agency, Washington, DC. 78 p.
- unclassified:
 - Schauffler, M., Nelson, S.J., Kahl, J.S., Jacobson, G.L., Jr, Haines, T.A., Patterson, W.A., III,

and Johnson, K.B.: 2004, Paleocological assessment of watershed history in PRIMENet watersheds at Acadia National Park, USA, Environ. Monit. Assess.

Report Follows

INFORMATION TRANSFER, FY03

The Senator George J. Mitchell Center for Environmental and Watershed Research

Dr. Jeffrey S. Kahl, Director
John Peckham, Assistant Director
Ruth Hallsworth, Outreach and Development Coordinator
Sarah Nelson, Research Associate
Ken Johnson, Field Coordinator
Tanya Hyssong, Laboratory Manager
Jennifer Boothroyd, Scientific Technician
Dr. Mary Ann McGarry, College of Education
Dr. Peter Vaux, PEARL Project Director
Sherman Hasbrouck, Publications Advisor

Introduction

One goal of the Mitchell Center is to foster increased cooperation and communication between the academic community, state agencies, environmental organizations, and private companies. The Mitchell Center is a vehicle for the State of Maine to access the substantial technical abilities of the University of Maine on issues of water resources. Information transfer is an important role in this mission. Using part-time staff and non-federal funding, the Center will continue to disseminate research results, organize meetings, participate in statewide forums, serve on committees dealing with water resource issues, work with teachers and conduct special projects.

Summary for 3/03-2/04

Publications

Peer-reviewed articles.

Campbell, J. L., J.W. Hornbeck, M.J. Mitchell, M.B. Adams, M.S. Castro, C.T. Driscoll, **J.S.**

Kahl, J.N. Kochenderfer, G.E. Likens, J.A. Lynch, P.S. Murdoch, **S.J. Nelson**, and J.B. Shanley, 2004. A Synthesis of Nitrogen Budgets from Forested Watersheds in the Northeastern United States. *Water, Air, and Soil Pollution* 151: 373-396.

Johnson, K.B., Nelson, S.J., Kahl, J.S., Haines, T.A. and Fernandez, I.J.: 2004b, 'Mass balances of mercury and nitrogen in burned and unburned forested watersheds at Acadia National Park, Maine, USA', *Environ. Monit. Assess.*

Kahl, J.S. and **S. Nelson**, 2004. guest editors, special issue of *Environmental Monitoring and Assessment* on watershed research at Acadia National Park.

Kahl, J.S., J. Stoddard, R. Haeuber, S. Paulsen, and others, 2004. Response of surface water chemistry to changes in acidic deposition: implications for the upcoming debate on the federal Clean Air Act. *Environmental Science and Technology*, Feature Article in review.

Peckham, J., 2004, in prep. The persistence of MtBE in groundwater in Maine, to be submitted *Groundwater Contamination and Remediation*. (revisions in progress).

- Bank, M. C. Loftin, A. Amirbahman, **J. Peckenham**, T. Haines, and R. Jung, 2004. Mercury bioaccumulation in lotic and lentic amphibians: regional conservation implications for aquatic ecosystems in the Northeastern United States. Abstrc. ARMI
- Schmitt, C. and J. Peckenham**, 2004. Source Water Protection, submitted to Journal Amer. Water Works Assoc.
- Peckenham, J., J. Kahl, S. Nelson, K. Johnson**, and T. Haines, 2004. Landscape controls on mercury in streamwater at Acadia National Park, USA, *Env. Monit. Asses.*, in press.
- Peckenham, J.M.** and M. G. Nielsen, 2004, in prep. Spatial and temporal patterns of MTBE in ground water in Windham, Maine.
- Schauffler, M., **Nelson, S.J., Kahl, J.S.**, Jacobson, G.L., Jr, Haines, T.A., Patterson, W.A., III, and Johnson, K.B.: 2004, 'Paleoecological assessment of watershed history in PRIMENet watersheds at Acadia National Park, USA', *Environ. Monit. Assess.*
- Amirbahman, A. P. Ruck, I Fernandez, T. Haines, and **J.S. Kahl**, 2003. The effects of fire on mercury distribution in soils of Acadia National Park. *Water Air, Soil Pollut.*, in press.
- Amirbahman, A., A. Pearce, R. Bouchard, S. Norton, and **J.S. Kahl**, 2003. Relationship between hypolimnetic phosphorus and iron release from 11 lakes in Maine, USA. *Biogeochemistry*, in press.
- Campbell, J, J. Hornbeck, M. Mitchell, M. Adams, M. Castro, C. Driscoll, **J.S. Kahl**, and others, 2003. Input-output budgets for inorganic nitrogen for 24 watersheds in the northeastern United States. *Water Air Soil Pollut.*, in press.
- Evans, G.C., S. Norton, I. Fernandez, **J.S. Kahl**, and D. Hanson, 2004. Changes in concentrations of major and trace metals in northeastern U.S and Canadian sub-alpine forest floor. *Water, Air, and Soil Pollution*, in press.
- Fernandez, I, L. Rustad, S. Norton, **J.S. Kahl**, and B.J. Cosby, 2003. Experimental acidification causes soil base cation depletion at the Bear Brook Watershed in Maine. *J. Soil Soc Assoc Am.*, in press.
- Kahl, J.S., S.J. Nelson**, J.L. Stoddard, S.A. Norton, T.A. Haines, 2003. Lakewater chemistry at Acadia National Park, Maine, in response to declining acidic deposition. In press, Joint Conference Proceedings: The 2003 George Wright Society Biennial Conference and CR2003: A Conference for the National Park Service and Its Partners.
- Neilsen, M.G., and **J.S. Kahl**, 2003. Nutrient export from watersheds on Mount Desert Island; differences in export as a function of fire history. *JAWARA*, in review.
- Norton, S., I. Fernandez, **J.S. Kahl**, and R. Reinhardt, 2003. Acidification trends and the evolution of neutralization mechanisms through time at the Bear Brook Watershed, Maine, USA. *Water, Air, Soil, Pollut.*, in press.
- Peckenham, J.M., J. S. Kahl**, and B. Mower, 2003. Background mercury concentrations in river water in Maine, USA. *Env. Monit. Assess.*, 89, pp. 129-152.

Reports and Miscellaneous Publications

- Hallsworth, R.**, 2003. Waterlines Vol. 9 No. 1. Newsletter, Senator George J. Mitchell Center, March 2003.
- Hallsworth, R.**, 2003. Maine Water Conference Program. Senator George J. Mitchell Center, April 2003
- Hallsworth, R.**, 2003. PEARL Links with Laptop Initiative. Fogler Library newsletter article, The Olive Tree, v 11 number 1, summer 2003
- Hallsworth, R.**, 2003. PEARL: One-Stop Shopping for your Lake Data! Cooperative Extension Water Quality newsletter article, summer 2003
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- Nelson, S.**, 2003. Progress Report to the Margaret E. Burnham Charitable Trust: Water resources mapping software. July, 2003.

- Nelson, S.J., J.S. Kahl**, (editors) 2003. Final Integrated Report: Establishing paired gauged watersheds at Acadia National Park for long-term research on acidic deposition, nitrogen saturation, forest health, and mercury biogeochemistry (1998-2002). Submitted to US EPA and National Park Service.
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- Peckenham, J.M.** and **C. Schmitt**, 2003. Moving from Source Assessment to Source Protection in Maine, Amer. Water Works Assoc. Symposium on Source Water Protection.
- Schmitt, C.**, 2003. The Effects of the 2001-2002 Drought on Maine Surface Water Supplies, M.S. Thesis, December 2003.
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Professional Presentations

- Kahl, J.S.**, S. Paulsen, and J. Stoddard, 2003. Evaluating of the effectiveness of the Clean Air Act for changes in surface water acidification. *Invited plenary*, National Atmospheric Deposition Program annual meeting, October, 2003. Washington DC
- Kahl, J.S.**, 2003. Is water chemistry the smoking gun for endangered Atlantic Salmon? *Invited lecture*, College of the Atlantic, July, 2003.
- Kahl, J.S.**, 2003. Chemistry trends and spatial distribution of Maine lakes. Maine Volunteer Lake Monitoring Program annual meeting. Lewiston ME. June, 2003 (*invited*).
- Kahl, J.S.**, 2003. The environmental chemistry of salmon rivers: is there an acid rain link? *Invited lecture*, College of the Atlantic, May, 2003.
- Kahl, J.S.**, 2003. Biologically-relevant aquatic chemistry: the intersection of the Clean Air Act and the Endangered Species Act. US EPA Corvallis OR Research Laboratory, April 18, 2003 (*invited*).

- Kahl, J.S.**, J. Stoddard, and D. Manski, 2003. Evaluating the effectiveness of the Clean Air Act in recovery of surface waters: The 2002 EPA Assessment of the Clean Air Act. George Wright Society biannual meeting. San Diego, CA, April 15, 2003.
- Kahl, J.S.**, and K. Tonnessen, 2003. Developing a cooperative national research network of calibrated watersheds in the National Parks. George Wright Society biannual meeting. San Diego, CA, April 14, 2003.
- Kahl, J.S.**, and K. Johnson, 2003. Status and trends in water chemistry in downeast Maine relative to Atlantic salmon. Proceedings, Water quality and recovery of Atlantic Salmon; is there a link? March, 2003.
- Kahl, J.S.**, 2003. pH: the persistently problematic parameter for public policy planning. Proceedings, Water quality and recovery of Atlantic salmon; is there a link? March, 2003.
- Kahl, J.S.**, 2003. Invited speaker, National Academy of Sciences panel on the future of water research
- Nelson, S.**, 2003. Gordon Research Conference – Catchment Science, July 20-25, 2003, New London, NH. *Can forest fires affect nitrogen retention for centuries? Patterns of nitrogen flux in a chronosequence of burned watersheds (Poster)*
- Nelson, S.**, 2003. American Geophysical Union Chapman Conference on Ecosystem Interaction with Land Use Change, June 14-18, 2003, Santa Fe, NM. *The Effects of Increasingly Variable Climate and Disturbance History on Episodic Acidification at a Coastal Maine Site, USA (Poster)*
- Nelson, S.**, 2003. Forest Explorations, Acadia National Park, May 31, 2003, Bar Harbor, ME. *Hydrologic pathways and mercury research in forested watersheds at Acadia (invited)*
- Nelson, S.**, 2003. College of the Atlantic, Bar Harbor, ME, May 30, 2003. *Patterns in N and Hg processing in lakes and streams across Maine (Invited)*
- Nelson, S.**, 2003. Maine Water Conference, April 16, 2003, Augusta, ME. *Maine's Lakes and Research Watersheds: Indicators of Response to the Clean Air Act (Oral)*
- Peckenham, J. M.**, 2003. Source Water Protection and Lakes, presented at the Congress of Lake Associations Annual Meeting, June 21, 2003.
- Peckenham, J.M.**, 2003. Source Water Protection and Security. University Council for Water Research meeting, Washington DC.
- Peckenham, J.M.**, 2003. Biosolids Experiment and White Paper. Maine Water Pollution Control Association meeting, Casco Maine.
- Peckenham, J.M., J. Nadeau**, and A. Amirbahman (2003) Biosolids Leachate Experiment, New England Water Environment Association, Bedford, NH, November 13, 2003.
- Peckenham, J.M. and J. Nadeau**, 2003. Biosolids Field Stacking Experiment, Maine Waste Waste Control Association, Casco, ME, September 18, 2003.

- Peckenham, J.M.**, 2003. Biosolids Leachate Experiment. New England Waste Water Association meeting, Manchester, NH.
- Peckenham, J.M.**, 2003. Maine's Source Water Protection Program, Protecting our Drinking Water at the Source Conference, Worcester, MA, October 17-18, 2003.
- Peckenham, J.M.**, 2003. Boothbay Regional Water District, Protecting our Drinking Water at the Source Conference, Worcester, MA, October 17-18, 2003.
- Peckenham, J.M.**, 2003. Arsenic Removal for Small Water Supplies (series of 4 workshops for small community water systems in Maine) September/October, 2003.
- Peckenham, J.M.**, 2003. Moving from Source Assessment to Source Protection Workshop, Maine Water Utilities Association Annual Winter Meeting, February 11, 2003.
- Schmitt, C.**, 2003. Drinking Water Supplies Pushed to the Edge, Poster Presentation, Maine Water Conference, April 2003.

Conferences, Workshops, Annual Meetings

Maine Water Conference 2003 Augusta Civic Center, Augusta, ME. April 16, 2003. The Maine Water Conference was founded in 1994 by the University of Maine Water Research Institute as an annual forum for water resource professionals, researchers, consultants, citizens, students, regulators, and planners to exchange information and present new findings on water resources issues in Maine. Guest speakers at this year's plenary session included: Dr. Robert Sanford, University of Southern Maine; John McPhedran, Maine Department of Environmental Protection; Dawn Gallagher, Commissioner, Maine DEP; and Bill Townsend, Maine Rivers. Afternoon sessions included: Sprawl and Ecosystem Health; State of Maine's Environment; Stormwater and Wastewater Issues; How Beaches Work; Lake Education Roundtable. A juried student poster competition and exhibit area were available for viewing throughout the day.

Congress of Lake Associations Annual Meeting 2003 University of Maine campus, Orono, ME. June 21, 2003. Mitchell Center staff worked closely with COLA volunteers to organize the annual meeting on the UMaine campus. It is the first time the conference has taken place in northern Maine. Organization involved working with other campus services to schedule meeting locations, food arrangements and AV equipment rental.

Linkages between Acid Rain and Atlantic Salmon meeting Black Bear Inn, Orono, ME. Mitchell Center Director Steve Kahl joined participants from NOAA Fisheries and the Atlantic Salmon Commission on the conference organizing committee. Kahl and Mitchell Center staff member Ken Johnson provided oral and poster presentations entitled: "Is there a link between water chemistry and salmon populations?"

Public Service

Media/Press

6/19/03, CBS Evening News, **John Peckenham** interviewed by Betty Chin, Poland Spring Class Action Lawsuit

7/10/03, Lewiston Sun, **John Peckenhams** interviewed by Trevor Maxwell, Poland Spring Class Action Lawsuit

7/10/03, AP Wire Service, **John Peckenhams** interview, Poland Spring Class Action Lawsuit

8/27/03, News Conference, attended by **John Peckenhams** and **Catherine Schmitt** concerning issues regarding contamination of Birch Stream by airplane deicing chemicals

9/26/03, Boothbay Register, **John Peckenhams** interview on Boothbay Regional Water District and Knickerbocker Lake

12/11/03, Bangor Daily News, **John Peckenhams** (with J. Rubin and C. Clavet) interview with Misty Edgecomb on MtBE

1/12/04, Portland Press Herald, **John Peckenhams** interview with Chen Yap on MtBE

Birch Stream Op Ed by Pechenham and Kahl

12/24/03, Bangor Daily News, article on Steve Kahl's election as NIWR President.

12/25/03, Portland Press Herald, article on Steve Kahl's election as NIWR President.

12/24/03, Maine Public Radio, feature on Steve Kahl's election as NIWR President.

12/24/03, Lewiston Sun, article on Steve Kahl's election as NIWR President.

12/24/03, Penobscot Times, article on Steve Kahl's election as NIWR President.

October 2003, National Park Service News Release: *2003 Canon National Parks Science Scholars Announced Scholarships Announced at the Vth World Parks Congress in South Africa*. Mitchell Center Ph.D. student **Sarah Nelson** is one of the recipients.

12/11/03, Bangor Daily News: *UM Grad student tracking Acadia winter trends*. Article on Canon award winner and Mitchell Center Ph.D. student **Sarah Nelson**.

Workshops and Other Activities

PEARL – Public Educational Access to Environmental Information – Under the direction of Steve Kahl and Peter Vaux of the Nature Conservancy, major new funding was secured in 2003 which will move PEARL into the next phase of development in 2004. Funding from Maine Inland Fisheries and Wildlife and USGS will allow the integration of stream and river data into the database. This will provide the support needed for the addition of databases from the Maine Aquatic Biodiversity Project and from IF&W. Funds from the Atlantic Salmon Commission will allow salmon fisheries data to be added. Some of these funds will also be used to create interfaces for specific user groups which will provide educational features along with data specific to that particular group – for example, anglers. Maine Department of Environmental Protection continues to provide long-term support for the project.

Arsenic Removal for Small Water Supplies - Assistant Director John **Peckenhams**, in conjunction with colleagues from the Maine Drinking Water Program and the Environmental Protection Agency, provided a series of four workshops for small community water system operators in Maine. These workshops took place during September/October 2003.

Protecting Our Drinking Water at the Source Conference - Assistant Director **John Peckenham** lead two workshops at this conference held in Worcester, MA: Maine's Source Water Protection Program, and Boothbay Regional Water District, October 17-18, 2003.

Maine Project WET - Project WET Director **Mary Ann McGarry** has worked closely with Maine Lakes Conservancy Institute to integrate aspects of Project WET, PEARL, and Maine's Laptop Initiative into a unique educational program. Working with middle school students and teachers, the project provides hands-on study of Maine's most important freshwater natural resource utilizing MLCI's floating classroom. Ongoing professional development workshops draw on Project WET's interdisciplinary hands-on activities and demonstrate the ease with which these activities can be implemented. Participating teachers are also introduced to the PEARL database system to which students and teachers will have the opportunity to funnel scientific findings and data that they have researched themselves. Teachers have the opportunity to become a dynamic part of the creation of PEARL's "Students Portal," an exciting concept which allows students a view into, and a means to contribute interactively to, comprehensive lake-science findings represented by PEARL.

Cove Brook Watershed Council Management Plan - Mitchell Center graduate student **Heather Caron** was contracted by the Cove Brook Watershed Council to create a watershed management plan that would serve as a guide for restoration, protection and future planning efforts within the watershed. Cove Brook is one of eight rivers in the state of Maine with habitat for federally protected Atlantic salmon. Historically this river was home to many spawning salmon and other fish species. Funding efforts for this project came from the State Planning Office and the Salmon Commission.

Penobscot River and Bay Institute - May-June 2003: Penobscot River Keepers Expeditions. These were day-long canoe expeditions on the Penobscot River with students in grades 7 to 12. In 2003 we provided about 450 students with an opportunity to learn about rivers, watersheds, history, and ecology.

Dexter Middle School Career Day – October 2003: Graduate student Jennifer Boothroyd made presentations on careers in environmental science to groups of students at Dexter Middle School.

NIWR Annual Meeting – Feb. 28-Mar. 2004: Director **Steve Kahl**, along with Mitchell Center staff and students organized the 2004 NIWR annual meeting in Washington DC. Planning included scheduling speakers, registering participants, preparing evaluations, and traveling to DC to ensure the event ran smoothly.

Kenduskeag Watershed Tour 2003 – Assistant Director John Peckenham collaborated with teacher Ed Lindsey to conduct a watershed tour of Kenduskeag stream for students at Bangor Central High School.

Committees and Service:

Steve Kahl

- *Hancock County Aquatic Invasive Plant Working Group (2003 -)*
- *Eco-reserves classification advisory committee, Nature Conservancy (2002-03)*
- *March Island Wildlife Management Committee (local towns; 2002-03)*
- *Environmental Policy Advisory Committee, gubernatorial candidate John Baldacci (2002)*
- *Global Program of Action Coalition, Gulf of Maine Forum committee (regional coalition 2002-)*
- *Chair, Boat launch and invasive species committee, Hopkins Pond Association (2002-03).*
- *Union River Watershed Coalition (local agencies, 2001 -)*
- *Atlantic Salmon Research and Information Management Committee (multi-agency, 2001 -)*
- *Headwater Streams Research Advisory Committee (Forest Products Industry; 2000 - 03)*
- *Drinking Water Education Strategy Task Force (State Planning Office, 2000-01)*
- *Maine Watershed Management Advisory Committee (2000 -)*
- *Mercury Products Advisory Commission (Gubernatorial appt, 2000 – 03)*
- *River Flow Management Commission (Gubernatorial appt, 1998 -)*
- *Co-chair, Council on Environmental Monitoring & Assessment (Gubernatorial appt, 1997 -)*
- *Maine Forest Advisory Team (interagency/industry/environmental advisory group (1997- 00)*
- *Scientific Advisory Panel, Maine Forest Biodiversity Project (1996-98).*
- *Organizing committee and co-sponsor, Maine Water Resources Conference (1993-2000).*
- *Maine Great Ponds Task Force, 1995-97 (Gubernatorial appointment).*
- *Maine Environmental Priorities Project (‘Ecology’ & ‘Monitoring’ working groups; 1994- 97).*
- *Technical Support, Pushaw Lake Association, 1995-96. Public service grant, Univ. Maine.*
- *Hopkins P. Lake Association (2003 -)*
- *Friends of Acadia National Park (2001 -)*
- *Maine Lakes Conservancy Institute (1999-)*
- *Univ. of Maine Graduate Board (1999-01)*
- *ME Lake Volunteer Monitor. Prog.(1996-)*
- *Nat'l Institutes Water Resources (1998-01)*
- *Penobscot Institute (1994-96)*
- *Environmental Policy Roundtable (2004 -)*
- *Freshwater Ecology Research Group (2003 -)*
- *University Research Council (VP-Research; 2002 -)*

- University Environmental Sustainability Coalition (2000 - 03)

John Peckenham

- *River Flow Advisory Commission – Drought Task Force*
- Board of Directors, *Penobscot River and Bay Institute*
- New England Governors & Eastern Canadian Premiers ‘acid rain’ working group
- *Maine DEP-Consulting Engineers of Maine Task Force*
- *Water Resources Committee*, Maine Water Utilities Association
- *Watershed Committee*, Maine DEP and USEPA Region I
- *Union River Watershed Coalition* (local agencies)
- *Project S.H.A.R.E.* (multi-agency)
- *Northern Maine Children’s Water Festival Committee*
- *Maine Water Conference Organizing Committee and Meeting Co-Chair 2000, 2001, 2002,2003*
- *Ad Hoc Committee on Antimony in Drinking Water*
- *Planning Consortium- Environmental Health Tracking System, Maine DHS*

Environmental Justice

- Assisted woman in Glenburn with a water supply contaminated by tri-chloroethylene. Analyzed water samples and worked to get problem resolved by the Department of Human Services.
- Assisted apartment tenants in getting the Maine Air National Guard, City of Bangor, and Maine Department of Environmental Protection to respond to contamination of stream by aircraft de-icing chemicals (on-going).

Sarah Nelson

- Co-Chair, Maine Water Conference 2004
- Maine Water Conference Organizing Committee
- Ecological Society of America, Member
- American Geophysical Union, Member Biogeosciences Section
- University of Maine Professional Employees Advisory Council
- *Subcommittees of PEAC: Nominations Committee, Professional Development Survey Committee*
- Association of Graduate Students Grant Review Committee
- Chair, Town of Clifton Planning Board (2002-2003). Received \$3500 software grant for GIS projects.

Andrea Grygo

- Union River Watershed Coalition

Student Support

Notable Awards and Achievements

Mitchell Center Graduates: Students Catherine Schmitt and Emily Seger graduated with Master's degrees from the Water Resources option in the Ecology and Environmental Science Program. Schmitt's thesis is titled, The Effects of the 2001-2002 Drought on Maine Surface Water Supplies. Seger's thesis is titled, Seepage Lakes as Indicators of Climate Change: Is Maine Really Cooling?

Mitchell Center Student receives NALMS conference "Best Student Poster" award: In early November, Graduate student Kirsten attended the North American Lake Management (NALMS) Conference in Mashantucket, CT. While at the conference, Kirsten presented a poster based on her thesis study design and conceptual model, as well as preliminary results from the project's summer 2003 sampling. Entitled "Defining reference conditions for measuring the effects of shoreline development on lakes in Maine", the poster received the "Best Student Poster" award at the conference. Kirsten's advisor is Dr. Katherine Webster who is the principal investigator on the study along with Roy Bouchard of the Maine Department of Environmental Protection.

Mitchell Center's collaborative partner receives international award for "Effective and Creative Education" The Maine Lakes Conservancy Institute (MLCI) received the Technical Excellence Award in Public Education and Outreach from the North American Lake Management Society (NALMS). The award was presented at the 2003 NALMS International Conference held in Connecticut, and was given in recognition of the Maine Lakes Conservancy Institute's "Effective and Creative" educational programs. These programs are a collaboration of MLCI, Project WET and PEARL.

Mitchell Center Director on 2003 UMaine Research Honor Role: Director Steve Kahl was listed in the top 25 ranking for research funding at the University Maine out of 600 faculty. This is the third concurrent year that Kahl has made the list.

Mitchell Center Graduate Students Receive Travel Awards: Students Melinda Diehl and Cecilia Clavet received awards from the Nancy Morse Dysart '60 Academic Travel Awards. The fund provides financial support to students who wish to participate in professional conferences, organized meetings, club competitions, research and other events of an academic nature. The selection committee of alumni representatives reviews applications for professional appearance and award funds based on the persuasiveness of the applicants essays in illustrating the potential benefits to the University of Maine and the state.

Kahl appointed to Land Use Regulation Commission: The Maine State Senate has confirmed Steve Kahl's appointment to the state's Land Use Regulation Commission (LURC). LURC acts as the local planning and zoning board for a region that encompasses 421 townships, eight towns, 32 plantations and 424 islands

Project WET Director and Mitchell Center student appear in Fox video: Mary Ann McGarry and graduate student Sara Colburn appeared in a "Yes! to Youth" video during a "floating classroom" presentation. Yes! To Youth is an organization which involves 7-12 grade students in the broadcast media. The video aired on Fox television stations in the Portland, ME area throughout February.

Student Sarah Nelson receives prestigious Canon Award: Mitchell Center Ph.D. student Sarah Nelson has received one of eight 2003 Canon National Park Science Scholarships awarded in September to students studying at national parks in North and South America. Nelson will use the \$78,000 three-year scholarship to analyze winter trends in watershed chemistry at Acadia National Park. Her project is titled, *Closing the loop on hydrologic and mass balances for a temperate forested park.*

Mitchell Center receives funds from Maine Community Foundation: The Maine Community Foundation provided funding for a community project to develop a pilot regional lakes assessment program in Hancock County. This will provide long-term water quality monitoring of area lakes. The objective is to bring together organizations already active in lake monitoring in the region, and grow the program by adding more lakes and recruiting more lake associations through time. This project will serve an important environmental education role for Hancock County communities – better informed communities will yield better stewardship.

Graduate Student has article published: Catherine Schmitt, a graduate student at the Mitchell Center has had a number of articles published in local Maine publications related to the environment and water resources. 2003 articles included *Tracking Acid Rain Across New England*, published in Northern Sky News, November 2003.

The USGS base grant provided a basis for the Senator George J. Mitchell center to secure other research funding. In addition to support from the US EPA to continue acid-rain related research, the following projects were funded in 2003:

Title: PEARL.

Investigator: Kahl/Vaux

Agency: Maine Department of Environmental Protection.

Title: Fisheries Data Integration Project

Investigator: Kahl/Vaux

Agency: Maine Department of Inland Fisheries and Wildlife

Title: Developing PEARL as the Environmental Database for Atlantic Salmon Restoration

Investigator: Kahl/Vaux

Agency: Atlantic Salmon Commission

Title: Water Chemistry Trends in Downeast Salmon Tributaries

Investigator: Kahl/Johnson

Agency: Atlantic Salmon Commission

Title: Investigating the Effects of Water Chemistry on Juvenile Atlantic Salmon in Downeast Maine

Investigator: Kahl/Johnson

Agency: NOAA Fisheries

Title: Calcium Enhancement of Downeast Area Rivers

Investigator: Kahl/Johnson

Agency: Project SHARE

Title: Biosolids White Paper

Investigator: Peckenham

Agency: State Planning Office