

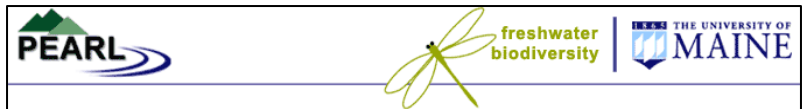


# NonPoint Source Times

Volume 16 , Issue 2 Spring 2007

## Freshwater Biodiversity in Maine

The Maine Aquatic Biodiversity Project (MABP) was a 3-year effort to compile, analyze and synthesize available information on the plants, macro-invertebrates, fish, amphibians and reptiles that live in Maine's freshwater ecosystems. MABP produced an extensive database containing over 200,000 geo-referenced taxonomic records. PEARL now features key MABP information within the Freshwater Biodiversity focus topic. The Freshwater Biodiversity home page is located at <http://www.pearl.maine.edu/windows/biodiversity/default.htm>.



From the Freshwater Biodiversity home page, you can access a series of pages that focus on major taxonomic groups: plants, fish, amphibians/reptiles, invertebrates. For invertebrate groups currently featured in PEARL go to:

<http://www.pearl.maine.edu/windows/biodiversity/invertebrates.htm>.

For each taxonomic group, PEARL provides:

- a) species checklists,
- b) species distribution maps,
- c) links to key data sets in the PEARL Data Bank, and
- d) key references.

For example, the checklist of aquatic plants indicates the counties from which each species has been recorded. [http://www.pearl.maine.edu/windows/biodiversity/plants\\_checklist.htm](http://www.pearl.maine.edu/windows/biodiversity/plants_checklist.htm)

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From the fish species checklist, you can link directly to a distribution map for each species. For example, the following page shows locations from which brown trout has been recorded in the state.



[http://www.pearl.maine.edu/windows/community/Anglers\\_Fish/species%20maps/browntrout.htm](http://www.pearl.maine.edu/windows/community/Anglers_Fish/species%20maps/browntrout.htm)

In addition to mapping each species' distribution, PEARL displays a graph to show which lakes – by size and elevation – the species inhabits. Brown trout lakes, for example, are typically > 10 acres and are found at an elevation below 800 ft. Distribution maps for invertebrate groups include odonates, ([http://www.pearl.maine.edu/windows/biodiversity/dragonfly\\_aeshnidae.htm](http://www.pearl.maine.edu/windows/biodiversity/dragonfly_aeshnidae.htm)) freshwater mussels and caddisflies. This page shows the distribution maps for six of Maine's eight non-marine turtle species:

[http://www.pearl.maine.edu/windows/biodiversity/amphibians\\_distribution\\_turtles.htm](http://www.pearl.maine.edu/windows/biodiversity/amphibians_distribution_turtles.htm)

For each major taxonomic group, the Freshwater Biodiversity pages also include key reports and journal articles, many with access to full-text documents. This page shows the listing of key fish references: [http://www.pearl.maine.edu/windows/biodiversity/fish\\_references.htm](http://www.pearl.maine.edu/windows/biodiversity/fish_references.htm)

Coming to the Freshwater Biodiversity pages in 2007!

A) Full-text version of the MABP final report.

B) Information syntheses, including:

- Spatial patterns in the composition of plant, fish and invertebrate communities in Maine;
- Analysis of patterns of fish stocking in Maine lakes;
- Patterns of native minnow species richness;
- Changes in lake fish communities over the past 60 years;
- Communities of high-elevation lakes;
- Distribution and characteristics of fishless lakes;
- The influence of elevation and alkalinity on the distribution aquatic plant species;
- Key threats to Maine's freshwater ecosystems and communities;
- & much more.

C) New data sets.

For more information on MABP, contact Peter Vaux ([peter.vaux@maine.edu](mailto:peter.vaux@maine.edu)).

## Frequently-Asked Questions

### Who provides data to PEARL?

PEARL currently hosts data from state and federal agencies, NGOs, university researchers, students and other individuals. Anyone with quality data can host their information on PEARL. Data providers may send their data to the PEARL team for upload. Alternatively, with password access and basic training, providers can upload data themselves from their own computer and then configure the on-line appearance of those data tables. Similarly, providers themselves can update their tables at any time - and even remove their data entirely from PEARL. If you have data that you would like to see made available to anyone in the world with internet access, please contact Peter Vaux ([peter.vaux@maine.edu](mailto:peter.vaux@maine.edu)).

### Do PEARL data have to address certain topics?

No. PEARL accepts any type of environmental data from Maine. Data can be contemporary or historical, but should be geo-referenced. All data sets are tagged by information category (e.g. water quality, fauna, etc) and so are automatically sorted and displayed within the appropriate information grouping.

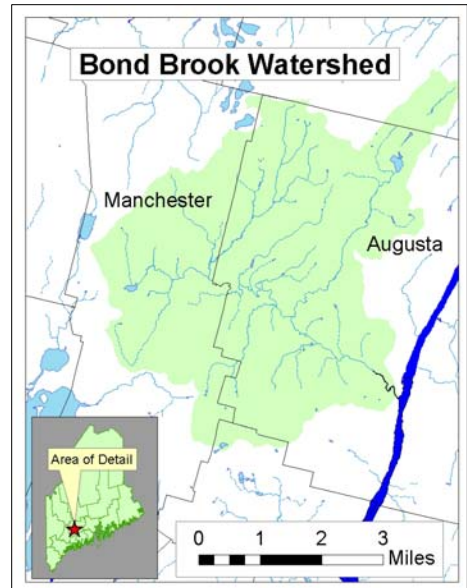
From Senator George J. Mitchell Center E-newsletter

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## Bond Brook NPS Project

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Waterbody Name: Bond Brook  
Location: Manchester and Augusta, Kennebec County  
Waterbody Status: NPS Priority Watershed, Impaired (1 tributary)  
Project Sponsor: Kennebec County Soil and Water Conservation District  
Project Duration: September 2003 – January 2007  
319 Grant Amount: \$69,821  
Local Match: \$24,359



### **PROBLEM:**

Bond Brook, located in Manchester and Augusta, has a 12,800 acre watershed. The upper reaches support a native brook trout fishery. Historically the brook supported Atlantic Salmon habitat. Watershed land use varies from light residential, agriculture, and woodlands at the headwaters to dense residential, past gravel mining sites, and heavily urbanized further downstream. The removal of riparian buffers along some of the drainage in the watershed has eliminated shade, increased water temperatures, and reduced detritus and woody debris for fish and other aquatic organisms. One tributary of Bond Brook is listed on the State's list of impaired waters due to urban nonpoint source.

In 1998 a stream survey identified 36 riparian buffer problem areas, 27 of which were determined to have either a high or medium priority. Sixteen bank erosion sites, all of which were high and medium priority sites, were also identified. In addition to these known sources of problems, the watershed is under increasing development pressure. The creation of a Watershed Management Plan for Bond Brook was funded in 2005.

### **PROJECT DESCRIPTION:**

The purpose of this project was to improve water quality and habitat in the Bond Brook watershed by reducing sediment loading through NPS pollution reduction activities and establishing buffers. Thirteen sites were remediated. Work included buffer plantings, installation of drainage swales and a retention pond, fencing a pasture to exclude cattle from crossing a tributary stream, and a major bank stabilization.



The project was well publicized and outreach included mailings, newspaper articles, and public meetings. A significant number of landowner inquiries resulted from the publicity and outreach. Regardless of the extensive outreach, getting site projects completed proved difficult. Much effort was invested in projects that did not happen and it was difficult to obtain match es-

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pecially on expensive projects. For the major bank stabilization project, match funds were obtained through DEP's SEP program (uses environmental enforcement payments to fund site specific projects).

**PROJECT OUTCOMES:**

- 13 NPS sites were treated, including installation of a retention pond and drainage swale, reshaping of a collapsed streambank, planting of trees and shrubs, and fencing to exclude cattle from the stream.
- The Steering Committee meetings resulted in increased discussion on watershed-wide issues and mitigation of commercial development. This led to a successful proposal from the Kennebec Valley chapter of Trout Unlimited to write a watershed management plan.
- 33 landowners were contacted directly either with a site visit or phone call. On-site technical assistance was provided to at least 21 landowners. 103 landowners were contacted through a mailing.
- The total estimated pollutant load reduction for the 13 installed BMPs was 29 tons sediment, 36.7 pounds phosphorus, and 112.1 pounds nitrogen. An estimated 2,985 feet of streambank were protected in the Stone Brook tributary and Bond Brook mainstem. (Methods used were USEPA Region 5: Urban Runoff, WEPP: Hillside and Road, and Reckhow 1980).
- A number of lessons were learned about working in a stream watershed that will be helpful for future projects.



October 2006: Volunteers from the new landowner (MaineGeneral) were recruited to plant an additional 100 trees and shrubs.



Riparian buffer planting on Stone Brook, from 319 work in the 1990s. Buffer is thriving, although there are some spots that need to be augmented.

**PROJECT PARTNERS:**

Kennebec County Soil & Water Conservation District  
Augusta Water District  
City of Augusta  
Kennebec Trout Unlimited  
Maine Department of Marine Resources  
Maine Stream Team

**CONTACT INFORMATION:**

Mary Ellen Dennis, DEP – (207) 287-7729, mary-ellen.c.dennis@maine.gov

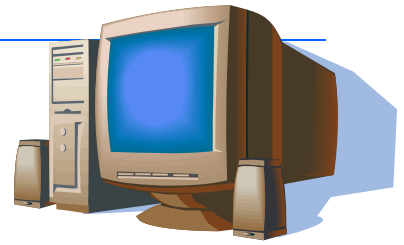
Jennifer McLean, Kennebec County SWCD – (207) 622-7847 x3, Jennifer@kcswwcd.org, www.KCSWCD.org

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## Maine DEP Launches Watershed Managers' Listserve

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The Maine DEP invites people to subscribe to the new Watershed Managers' listserve. The listserve will provide an avenue for Maine's watershed managers to share information about projects, research, announcements, events, publications, grants and training opportunities. We also encourage members to use the listserve to discuss watershed issues and answer each other's questions. The DEP encourages its partners to subscribe to the list to be abreast of watershed news in Maine and to receive DEP updates and announcements. Here are the headlines of some of the announcements and topics posted since the listserve was started in February:



### Seminar Announcement:

- Toxics in Casco Bay
- New NPS Social Marketing Book
- Live Staking Pictures Needed
- Big Presumpscot River Buffer Planting
- GMRI Science Learning Specialist Job posting
- Stream Restoration: Design and Monitoring Course offered by CRI

To subscribe, visit the listserve website, <http://mailman.informe.org/mailman/listinfo/watershedmanagers>.

For more information, contact Wendy Garland at (207) 822-6320 or [wendy.garland@maine.gov](mailto:wendy.garland@maine.gov).

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## Guide to Forming a Camp Road Association

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First published in July 2004, this manual is intended as a resource for private road residents who would like to improve planning for and implementation of successful road maintenance programs. Forming a road association can provide a way to formally manage roads in an organized and economical manner, while also protecting lake and pond water quality. The manual can be found on line at: <http://www.maine.gov/dep/blwq/docwatershed/roadassociation.htm> Electronic versions of the applicable legal forms are also available at this website.



There are a limited number of hard copies available by contacting Kristin.Feindel@maine.gov

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## Forestry BMPs Implementation Improves

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Augusta, ME — (December 11, 2006) — Maine's forest land managers continue to demonstrate continuous improvement in the use and effectiveness of forestry best management practices. That's the key finding of the Department of Conservation's Maine Forest Service report, *Maine Forestry Best Management Practices, Use and Effectiveness 2005*. The report compiles field monitoring data collected by Forest Policy and Management Division staff. Using a USDA Forest Service regional BMP monitoring protocol originally developed by the Maine Forest Service, staff evaluated over 100 harvest sites where timber harvesting could potentially affect water quality throughout Maine.



Best Management Practices (BMPs) are recommended procedures for protecting water quality during forest harvests. The report verifies significant improvement in the application of BMPs since the beginning of random statewide BMP monitoring in 2000. "Data demonstrates the forestry community's continued vigilance in protecting streams and other water resources in Maine's forests," says Chris Martin, Water Resources Forester for the Maine Forest Service. The results are especially encouraging given that 2005 was the wettest year on record in Maine. "Foresters and loggers experienced many frustrating days during 2005 as they tried to make a living harvesting timber while at the same time reducing risk to nearby waters, a public trust resource."

The report's highlights include:

- When applied appropriately, BMPs avoided soil movement into waterbodies at 92% of the approaches to stream crossing structures and 79% of the crossing structures themselves.
- Forty-five percent of harvest sites with water present in the immediate harvest area did not have stream crossings. Harvest planning that avoids crossing waterbodies is a valid BMP.
- Harvests with assigned BMP responsibility (either the logger or forester) showed significant improvement in BMP use and effectiveness. Defining objectives and assigning responsibilities for BMPs are key principles for achieving desired water resource protection outcomes.

The report also identified some concerns. Sixty-seven percent of single round culverts - the most common stream crossing structure used for land management roads - showed evidence of downstream scouring or erosion. Scouring is indicative of an undersized structure that restricts normal stream flow conditions. The result can increase water velocity and create barriers for fish passage. "Fish encountering unnatural stream bed conditions will often turn around and go back, thus missing an opportunity to reach additional habitat and food sources." says Martin.

Review of the BMP monitoring results helps the Maine Forest Service focus and improve its educational outreach and technical assistance efforts.

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Best Management Practices (BMPs) are recommended procedures for protecting water quality during forest harvests. The bureau's report, *Maine Forestry Best Management Practices, Use and Effectiveness 2005*, compiles field monitoring data collected by the Forest Policy and Management Division personnel. The report may be downloaded at <http://www.maineforestservice.org> and is also available upon request by calling 1-800-367-0223 in state, or 207-287-2791.

Contact: Chris Martin, Water Resources Forester Maine Forest Service 207-287-1073

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## Maine Volunteer Lake Monitoring Program (VLMP)

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Grants awarded under the 319 program support educational aspects of the VLMP including training volunteer monitors to collect quality data, producing three newsletters and one Annual Report per year and holding an annual meeting to share information about lake water quality issues. Volunteers monitor assigned lakes twice a month for 5-6 months of each year. Volunteers attend monitoring workshops and the annual meeting, enter data into electronic format and assist in the local coordination of VLMP activities.



### Accomplishments in 2006:

- Produced *2005 Maine VLMP Annual Report* (April 2006) which reported that during 2005, volunteers obtained 3,679 Secchi transparency readings, 14,008 dissolved oxygen readings, 1,093 total phosphorus samples, 508 chlorophyll-a samples, and 1,091 chemical samples.
- Produced three newsletters (*The Water Column: Winter, Summer, Fall*) and convened the 2006 Annual Meeting, in collaboration with the Maine Congress of Lake Associations and the New England Chapter of the North American Lake Management Society.
- Trained more than 37 new volunteers to measure Secchi disk transparency and 20 to monitor dissolved oxygen; recertified more than 100 transparency and 65 dissolved oxygen volunteers. Encouraged volunteers to collect transparency readings on days that the Landsat satellite passed over Maine.
- Reached a level of 514 certified volunteer water quality monitors in the program monitoring 575 lake basins in Maine at the end of 2006.
- Conducted workshops on dissolved oxygen monitoring and baseline water quality monitoring.

Pursued the development of a statewide training center for volunteer lake monitors through the expansion of facilities at the VLMP headquarters in Auburn. This included the purchase and use of a 24 foot pontoon boat designed to be used for training volunteer monitors.

### For More Information:

Linda Bacon, DEP Project Manager - (207) 287-7749, [Linda.C.Bacon@Maine.gov](mailto:Linda.C.Bacon@Maine.gov)  
Scott Williams, VLMP - (207) 783-7733, [Scott.Williams@MaineVLMP.org](mailto:Scott.Williams@MaineVLMP.org)  
<http://www.mainevolunteerlakemonitors.org/>

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## Request for Proposals FY 2008 Grants for NPS Control Projects

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Maine DEP plans to issue a Request For Proposals for Nonpoint Source Pollution Control Projects in April 2007. NPS Projects help restore or protect lakes, streams, or coastal waters that are polluted or considered threatened. DEP anticipates issuing grants for NPS Projects with FFY 2008 monies provided to Maine by the U.S. Environmental Protection Agency under the Section 319(h) of the Federal Clean Water Act. Maine public organizations such as state agencies, soil and water conservation districts, regional planning agencies, watershed districts, municipalities, and nonprofit 501(c)(3) organizations are eligible recipients.

The RFP is for watershed-scale projects that benefit waters listed as "NPS Priority Watersheds". A portion of funds will be allocated for projects crafted to help restore primarily NPS impaired waters that have an approved TMDL. Two types of projects will be invited: NPS Watershed Projects and NPS Watershed Surveys. DEP plans to devote about 80% of the funds for NPS Watershed Projects. A NPS Watershed Project focuses on implementing actions in a watershed to improve or protect a waterbody. Projects need to be designed to implement conservation practices in the watershed to help achieve a significant reduction in NPS pollutant loading.

There is considerable opportunity to obtain a NPS grant help restore or protect lakes, streams, or coastal waters that are polluted or considered threatened. Under last years RFP issued in April 2006, DEP received 27 proposals. This spring, DEP will award about \$560,000 for 11 projects that will continue or start NPS Watershed Projects.

The 2008 RFP will be posted at - <http://www.maine.gov/dep/blwq/docgrant/319.htm>  
FMI contact: Norm Marcotte, Maine Department of Environmental Protection, Division of Watershed Management, 17 State House Station, Augusta, ME 04333,  
[norm.g.marcotte@maine.gov](mailto:norm.g.marcotte@maine.gov) or 207-287-7727.

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## Journal of the North Atlantic

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**The Journal of the North Atlantic (JONA)** is a new multi-disciplinary, peer-reviewed and edited scientific journal focusing on the peoples of the North Atlantic, their expansion into the region over time, and their interactions with their changing environment (first issue, March 2008). <http://www.eaglehill.us/jonageninf.html>.

The Journal of the North Atlantic is intended to serve as a forum for researchers, and as an information resource for teachers, students, and the intellectually curious who would like to learn about the latest research and study opportunities within the region. The journal will be published in print and online versions.



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The journal will publish a wide diversity of research papers, as well as research summaries and general interest articles in closely related disciplines, which, when considered together, will help contribute to a comprehensive multidisciplinary understanding of the historical interplay between cultural and environmental changes in the North Atlantic world. Specifically, the journal's focus will include paleo-environmental reconstruction and modeling, historical ecology, anthropology, ecology of organisms important to humans, archaeology, human/environment/climate interactions, climate history, ethnography, ethnohistory, historical analyses, discussions of cultural heritage, and place-name studies.

The journal will also publish field observations, notes, and archaeological site reports, as well as book reviews, summaries of important news stories, opinion papers, and free brief announcements of meetings, symposia, conferences, and grant opportunities. Some advertisements that are directly related to the journal's thematic content will be accepted.

An online version of the journal will be posted in the journal's own website and in the BioOne.org database. These online versions allow authors to include special files such as video, database, and audio files with their articles. The journal will be indexed in a full range of journal databases.

We welcome your interest and questions! Joerg-Henner Lotze, Publisher [jona@eaglehill.us](mailto:jona@eaglehill.us)

Journal of the North Atlantic, Eagle Hill Foundation, PO Box 9, 59 Eagle Hill Road, Steuben, ME 04680-0009 United States.

Phone: 207-546-2821, FAX: 207-546-3042, <http://www.eaglehill.us/jonageninf.htm>

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## Nutrient Loads & Ground-Water Residence Times In an Agricultural Basin in N. Central Connecticut

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### Abstract

Nutrient loads from ground-water discharge were studied in Broad Brook Basin, a 15.8-square mile basin in north-central Connecticut, dominated by agricultural activity. Loads were calculated, along with the travel times of ground water from recharge to discharge areas, to estimate the time required for the effects of Best Management Practices (BMPs) to be observed. Most concentrations of nitrogen and phosphorus in Broad Brook exceeded U.S. Environmental Protection Agency Ecoregion XIV nutrient criteria for streams. During the study period (1993–2004), annual loads of nitrogen from Broad Brook Basin ranged from 117,000 to 270,000 pounds (lb), and yields were about 10 times larger than those from forested basins in Connecticut.

Ground-water discharge from the aquifer to the streams (base flow) during the study period was estimated with hydrograph separation and accounted for 82 percent of the total runoff from the basin. Nitrate nitrogen in base flow averaged 71 percent of the annual load of total nitrogen discharged from the basin, indicating that the largest source of nitrogen was likely from ground-water discharge. Annual loads of total phosphorus from the basin

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ranged from 2,330 to 14,400 lb, and yields were about five times higher than those from forested basins in Connecticut. Dissolved phosphorus averaged about 71 percent of the total phosphorus load, and ground-water discharge accounted for only as much as 40 percent of the annual load of dissolved phosphorus; therefore, phosphorus loads are dominated by stormwater-runoff events.

Ground-water samples collected from 11 wells in the basin contained elevated concentrations of nitrite plus nitrate nitrogen. Dissolved gas analyses indicated that little denitrification was occurring in the aquifer. Apparent ages of the ground-water samples ranged from greater than 2 to more than 50 years based on sulfur hexafluoride, tritium, and tritium/helium-3 analyses. A three-dimensional ground-water-flow model was used in conjunction with a particle-tracking program to determine advective travel times to streams from all subareas in the basin. The model simulations indicated that about half the discharge to Broad Brook and its tributaries was recharged more than 10 years ago, and that about 8 percent of the discharge was recharged prior to 1960.



The effects of changes in nitrate nitrogen loading at the water table were evaluated by applying new loading rates from urban and agricultural land and the simulated advective ground-water travel times. Five scenarios were tested: reducing estimated nitrate nitrogen concentrations in recharging ground water under urban and agricultural land areas to concentrations in forested areas; reducing estimated nitrate nitrogen concentrations under urban and agricultural land areas to the U.S. Environmental Protection Agency recommended nutrient criteria for streams; and reducing estimated nitrate nitrogen concentrations under urban and agricultural land areas by 50 percent, 10 percent, and 5 percent. Under the first two scenarios, the base-flow load of nitrate nitrogen could be reduced by 25 percent in slightly more than 5 years, although the reduction required by these scenarios is likely unrealistic. A 25-percent reduction in base-flow load of nitrate nitrogen could be achieved in about 10 years under the third scenario (where concentrations from urban and agricultural areas were reduced by 50 percent). Under this scenario, a 46-percent reduction could be achieved in about 60 years. The scenarios indicate that in this basin, and in other similar basins in Connecticut underlain by extensive glacial stratified deposits, there can be a substantial time lag between activities at the land surface and effects on the quality of water discharged to streams from ground water. This finding may be important in the expectations for water-quality improvements from land-use changes or BMPs.

A complete copy of the report can be found at <http://pubs.usgs.gov/sir/2006/5278/>

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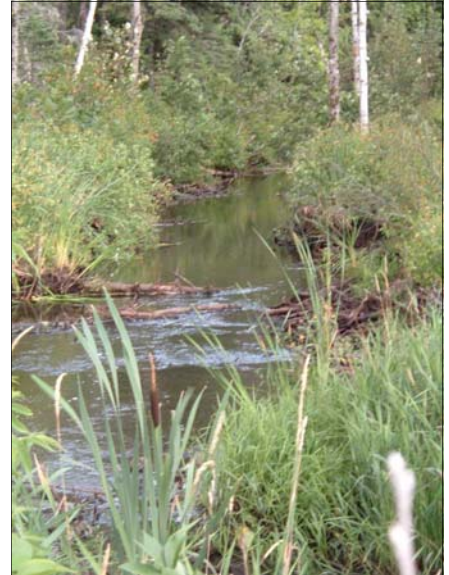
## Fluvial Geomorphology Courses

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### Course 1

John Field will be offering a fluvial geomorphology short course in Augusta, Maine on April 25-26 with an optional field trip on April 27. This course will be offered a second time in the Lebanon, NH/White River Junction, VT area May 9-10 with an optional field trip May 11. The course is entitled "Using Fluvial Geomorphology in Watershed Assessment and Stream Restoration". A course description is available on the web at < [http://www.field-geology.com/short\\_courses.htm](http://www.field-geology.com/short_courses.htm) > with an on-line registration form.

Feel free to call 207-491-9541 for further information or clarification. The course costs \$275 and the optional field day costs \$125. Registration discounts up to \$75 are available (for groups of 2 or more; students or employees of non-profit or government agencies; registering prior to March 9).



### Course #2

Introduction of Canada's first Stream Restoration: Design and Monitoring - Professional Course

The Canadian Rivers Institute (CRI) is proud to introduce the creation of a one of kind course, led by the internationally renowned, Bob Newbury. The course will be held annually in Fredericton NB (26 May - 3 June, 2007) and is designed for engineers, biologists, and other earth scientists in government, university, and environmental consulting who are working directly in the disciplines presented or are responsible for planning, assessing, and approving restoration projects. Topics include fluvial hydrology, stream ecology, restoration design, and aquatic monitoring and assessment .

Cost: \$1750 Professionals, \$875 Students - see [http://www.unb.ca/cri/StreamRestoration\\_1.html](http://www.unb.ca/cri/StreamRestoration_1.html) for more details.

For more information, please contact Michelle Gray, CRI Course Development & Training Coordinator: [m.gray@unb.ca](mailto:m.gray@unb.ca)

### **UDAF Releases Behavior Change Guidebook for Water Educators/Watershed Groups**

A new guidebook recently released by the Utah Department of Agriculture and Food (UDAF) will help watershed managers and other water education professionals improve the state's natural resources by urging citizens to adopt more natural resource-friendly practices.

"Getting Your Feet Wet with Social Marketing: A Social Marketing Guide for Watershed Programs," is designed to teach individuals or groups how to successfully promote behavior changes in their local area to targeted groups of people. Though this guide specifically addresses soil and water conservation and water quality efforts, it is based on principles that can be used in any aspect of society.

For a free down load copy <http://www.ag.utah.gov/pressrel/GettingYourFeetWet.html>

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# Maine Water Conference 2007

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Wednesday, March 21, 2007. Augusta Civic Center North Wing

M. Gordon "Reds" Wolman will be the keynote speaker at this year's Maine Water Conference. Wolman, a National Academy of Sciences member, is a pioneer in studying water quality issues and how surface waters influence the shape of the Earth's landforms.

Wolman is internationally known for his research on how rivers and other surface water systems evolve and how they modify the landscape. A central theme of Wolman's research has been the relative roles of human and natural forces in shaping the land and waters of the Earth. Many of his professional and policy interests have been fostered by field work and exposure to resource issues in the West.

## Concurrent Sessions A

- i. [Legislative issues](#) *Session facilitator: Rob Sanford*
- ii. [Volunteer Monitoring - developing a VRMP](#) *Session facilitator: Barbara Arter*
- iii. [Water resources and climate change](#) *Session chair: Glenn Hodgkins*
- iv. [Landscape change: Changes in fish assemblages](#) *Session chairs: Sarah Nelson & Kathleen Bell*
- v. [Contaminants & Toxic metals](#) *Session chairs: John Peckenham & Bob Lent*

## Concurrent Sessions B

- iv. [Landscape change: Watershed management tools and assessment](#) *Session chairs: Sarah Nelson & Kathleen Bell*
- v. [Contaminants & Toxic metals](#) *Session chairs: John Peckenham & Bob Lent*
- vi. [Sustainable water use](#). *Session chair: TBA*
- vii. [Models for Municipal Planning](#) . *Session facilitator: Brenda Zollitsch*
- viii. [Water Science Education](#) *Session facilitators: Beth Owen & Laura Wilson*

Registration forms are available online at [http://www.umaine.edu/waterresearch/mwc/Registration\\_07.htm](http://www.umaine.edu/waterresearch/mwc/Registration_07.htm).

If you would prefer to have a registration form faxed or mailed to you, please call 207/581-3244.

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# NEMO Training

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Maine NEMO has two training opportunities this March in Hallowell.

**March 27:** The **NEMO Train-the-Trainer** is focused on working with people for a day to bring them up to speed on how land use affects water quality, then turning them loose with a bunch of great educational materials so they can spread the word in their areas. Specific topics will include how pavement affects water quality and pollutants in runoff, growth in small town Maine, Low Impact Development techniques (like rain gardens, porous pavement and greenroofs), changes to state stormwater regulations and what it means for Maine Towns, and opportunities to treat stormwater on single family lots.

**March 28: Planning for Conservation and Development** will focus on the process for open space planning, how GIS can be used in the planning process and looking at how some towns are dealing with these issues in their ordinances.

## When and Where:

Both training days are expected to run from 9am to 3 pm at Maple Hill Farm in Hallowell. Lunch and snacks are provided. FMI LaMar Cannon [lcannon@maine.rr.com](mailto:lcannon@maine.rr.com)

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## Upcoming Events

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March 21, 2007. Maine Water Conference. FMI <http://www.umaine.edu/waterresearch/mwc/index.htm>

March 23, 2007. Maine Milfoil Summit. Lewiston-Auburn College

March 27 & 28, 2007. NEMO Training. FMI LaMar Cannon [lcannon@maine.rr.com](mailto:lcannon@maine.rr.com)

March 29, 2007. Maine Stream Summit. FMI <http://www.maine.gov/dep/blwq/docstream/team/MESSbrochure-07.pdf>

April 25-27, 2007. Fluvial Geomorphology Course. FMI see newsletter page 9.

May 18, 2007. Southern Maine Children's Water Festival.

May 21-23, 2007. NEIWPC NPS Conference. FMI [http://www.neiwpc.org/npsconference/nps\\_pdfs/nps07agenda.pdf](http://www.neiwpc.org/npsconference/nps_pdfs/nps07agenda.pdf)

June 23, 2007. COLA Conference in Farmington.

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## Valuing Green Infrastructure

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What is Green Infrastructure?

Green infrastructure is the interconnected network of open spaces and natural areas, such as greenways, wetlands, parks, forest preserves and native plant vegetation, that naturally manages stormwater, reduces flooding risk and improves water quality. Green infrastructure usually costs less to install and maintain when compared to traditional forms of infrastructure. Green infrastructure projects also foster community cohesiveness by engaging all residents in the planning, planting and maintenance of the sites.



The Center for Neighborhood Technology has developed a calculator tool for calculating the value of green infrastructure. Check it out at: <http://greenvalues.cnt.org/green-infrastructure>

The Center for Neighborhood Technology (CNT) is a 28-year old organization that develops tools and methods for sustainable economic development. We carry out three types of programs:

- Public policy research, advocacy and coalition building;
- Economic development programs; and
- Research and mapping.

**Clean water starts with you!**



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