NPS newsletter

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Working to Prevent Nonpoint Source Pollution (NPS)

Torrential rains, a rare weed and beaver antics were no match for determined officials in Stratham

The winter rains of 2002 and spring rains of 2003, plus a very determined beaver, plus the rare Star Duckweed slowed down the restoration of Mill Pond, but did not dampen the resolve of Stratham conservation commissioners and highway department staff to restore the pond. The Mill Pond is located in the middle of Routes 33 and 108 and has been an important resource in the town for 200 years. Silt filled in the Mill Pond over the years until only a foot of water remained in the shallow pond. The town's conservation commission applied for and received a DES Watershed Assistance Grant to restore the pond and determine the reasons behind the siltation.

A Community Effort

The restoration of the Mill Pond was a true community effort. Supported by the selectmen, the conservation commissioners set out to restore not only the health of the pond, but its many uses as well. The highway department, along with a local contractor Audley Construction Company, was poised to do their part by de-watering the pond and dredging the silt. The Rockingham County Conservation District was hired to engineer plans for the dredging and help out with the state Wetlands Permit application. In the process, the conservation commissioners also wanted to protect downstream waterbodies, including the Squamscott River from excessive silt and nutrients. The fire department was anxious to resume using the Pond as a source of water during fire emergencies. And the conservation commissioners sought to revive the pond for use fish and lo-

Mill Pond, *continued on page 2*

Weed-choked Mill Pond in Stratham before restoration efforts began.

NH Stream Team Making Strides

In 2001 an ad hoc group comprised of representatives from state and federal agencies, as well as university and private entities formed the New Hampshire Stream Team (NHST). The NHST's mission is to advance the use of science in river restoration and streambank stabilization efforts, and provide a venue for communication among river management stakeholders. In order to meet its mission, the NHST has established goals to develop a Regional Hydraulic Geometry Reference Curve (see sidebar #1 on page 4), provide and/or promote education, training, and technical assistance regarding natural stream channel design (NSCD) and fluvial geomorphic principles, incorporate NSCD methods in the New Hampshire wetlands permitting process, and collaborate with other New England states and academia regarding NSCD and regional hydrologic curve development.

Getting Started

In the Spring of 2003, the NHST identified

Stream Team, *continued on page 4*

Mill Pond, *continued from page 1*

cal wildlife too.

The skillful leadership of commissioners Jim Cushman and Pat Elwell and the supportive actions of the town administrator Paul Deschaine contributed to the success of the project. In preparation for the dredging, commissioners conducted water testing through the DES Volunteer Lake Assessment Program and an aquatic plant survey was performed by DES biologists. The water testing indicated that the pond was "aging" based on very high levels of the nutrient phosphorus and the presence of a blue-green algae called *oscillatoria*. This confirmed that something had to be done. During the plant survey, a rare plant species, called Star Duckweed, was identified by DES biologist Amy Smagula. According to the state Division of Forest and Lands Natural Heritage Inventory, this aquatic plant has been reported to exist at only three locations in the state in last 20 years. Without missing a beat, a plan to protect the rare species was devised and approved by the state Wetlands permitting staff.

Beavers worked all night to undo restoration efforts.

Lab testing of the pond sediments indicated that the silt had "background" concentrations of certain compounds but no levels of toxic contaminants that necessitated restrictions on where the dredged material could be placed. While testing of the water and sediments was underway, several behind the scenes but very important steps were being accomplished. An easement deed was drawn up and agreed to by the landowners, Robert and Janet Neily. A state permit to dredge the pond was applied for and granted. A place to dispose the dredged sediments was located at the old French farm on Route 108. And, an agreement with Audley Construction was drafted and signed. Everything was in place.

When the Trouble Started

According to the engineering plans, Audley would create three "pools" in the pond of differing depths during the dredging. The pools promoted different habitats and supported the needs of a variety of animals. Highway department director Fred Hutton and his crew worked with Audley to de-water the pond by lowering the dam and pumping water into the stream that flows out of the pond. As *The Exeter News-Letter* put it, "This is when the trouble started." A beaver that called the Mill Pond home worked all night chopping down trees and plugging up the dam that seemingly sprung a leak.

The following day, hardy highway workers, Rob Cook and Russell Stevens pulled the sticks and mud from the dam in what soon began a "back-and-forth battle." The highway crew resorted to using a "beaver deceiver," which was

In December 2002, it rained so much that the dredging operation was overwhelmed, and "the rains were so heavy that Hutton and an Audley employee had to rescue the backhoe at midnight."

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described by the *News-Letter* as an underwater drain pipe meant to trick the amphibious mammal — but the beaver was not fooled and spent the night plugging the underwater pipe. It was not until Audley brought trucks and a backhoe to the site, did the beaver retreat across Route 33 and began building a new dam upstream.

What next for the Stratham crew? Rain, rain and more rain. In December 2002, it rained so much that the dredging operation was overwhelmed. As the *News-Letter* put it, "the rains were so heavy that Hutton and an Audley employee had to rescue the backhoe at midnight." Due to the heavy rains, to complete the dredging was going to have to wait until summer. Unfortunately, the summer of 2003 was also rainy causing the dredging to be put off until the fall. The long-anticipated dredging was finally completed in December 2003.

Investigating the Pond's Pollution Sources

The conservation commissioners sought training from UNH Extension specialist, Jeff Schloss to learn how to investigate pollution sources that silted the pond. Commissioners participated in a program called "Follow the Flow" offered by the university. After the training, commissioners conducted a pollution survey in the watershed and found that aside from some dumping of garden waste products along the stream that feeds the pond, the most substantial pollution was coming off the roads. In addition, the roadsides were eroding and, in some places, devoid of vegetation that holds soil in place and acts as a stabilizing force. The findings of the survey point to the need to develop a better working relationship with the N.H. Department of Transportation to improve erosion and sediment management along Routes 33 and 108, which drain to the pond.

The project price tag was about $130,000, of which $68,000 was provided by the DES Watershed Assistance Grant program. Local matching funds took many forms and included volunteer time for water testing, a plant survey, Follow the Flow training and survey, and coordination of the grant requirements. Other major town contributions included police direction during the dredging, highway department staff time to maintain drain pumps, and use of town equipment to spread the dredge material at the field.

The restoration of the Mill Pond was a success because numerous people from various backgrounds came together to take care of what was important to them. The commonality of all these needs was the goal of having a healthy pond. Wildlife habitat, good water quality, fire protection and recreation were all important to the town. Pat Elwell, Statham conservation commissioner, sums it up like this, "With this project and future vigilance, the town will be able to maintain the health of this important water resource for generations to come." ●

The restoration of the Mill Pond was a success because numerous people from various backgrounds came together to take care of what was important to them.

BMPs to Control Nonpoint Source Pollution Now Available

The DES Watershed Assistance Section announces the release of the new edition of *Best Management Practices to Control Nonpoint Source Pollution: A Guide for Citizens and Town Officials*.

Characterized as polluted runoff from the land, nonpoint source (NPS) pollution is a major source of water pollution in New Hampshire. This guide describes the causes of NPS pollution and suggests ways that it can be prevented or reduced. From backyards to salvage yards, on farms or construction sites, the guide serves as a comprehensive reference for everyone from homeowners and volunteers, to businesses and town officials.

For your free copy, contact Barbara McMillan, DES Watershed Outreach Coordinator, at (603) 271-7889 or bmcmillan@des.state.nh.us. This guide is also available on-line at www.des.nh.gov/WMB/Was/ under "What's New?" ●

suitable sites with stream gages to be surveyed as part of a Regional Hydraulic Geometry Reference Curve on the Wild, Oyster, Baker, Upper Ammonoosuc, Pemigewasset, and Ammonoosuc rivers, and began surveying and collecting data at gage sites. The resulting data combined with the data collected from the Smith and West Branch of the Warner River in 2002, allowed for a University of New Hampshire student to develop the provisional Regional Hydraulic Geometry Reference Curve in 2004.

In addition, the U.S. Forest Service hosted two fluvial geomorphology short courses at the Hubbard Brook research center in Hanover. This opportunity allowed staff from the U.S. Forest Service (USFS) and the N.H. Department of Environmental Services to network and to gain an understanding of fluvial geomorphology principles and river response and adjustment. The courses were so well received that DES hosted similar training opportunities in the fall of 2003 and spring of 2004.

Highlights of Stream Team Assisting Restoration Projects

While the goals of the NHST are quite ambitious, it has made significant progress due to the diversity of individuals involved. The NHST presently consists of professionals from the USFS, Trout Unlimited/National Park Service, the University of New Hampshire, the N.H. Fish & Game Department, the N.H. Department of Transportation, the U.S. Army Corps of Engineers, DES, and representatives from several consulting firms with experience in NSCD. These partners working together have enabled river management stakeholders to create and complete more productive and efficient projects.

Five restoration grant projects funded by the DES Watershed Assistance Section in 2002-2003 are utilizing geomorphic stream measurements as a primary tool for determining appropriate methods of restoring channel stability and aquatic habitats: the Towns of Stratford, Thornton and Warren for designing and implementing stream and river morphology projects on Bog Brook, Mill Brook and the Baker River respectively; a local Chapter of Trout Unlimited for generating a natural channel design for an impaired reach of the

1 – What is a Regional Hydraulic Geometry Reference Curve?

Bankfull hydraulic geometry relationships, otherwise known as **regional curves** were presented by Dunne and Leopold in (1978). They found bankfull stage to correspond to the discharge at which channel maintenance is the most effective, that is, the discharge for which stream restoration should be designed. Since Dunne and Leopold's presentation of regional curves in 1978 other research efforts have led to the development of regional curves for many areas of the United States. In these areas, regional curves have proven to be an invaluable tool for use in river assessment, protection, restoration, and general management.

2 – Why the Geomorphic Data?

The collection of geomorphic data is the primary tool for determining appropriate methods of restoring channel stability and aquatic habitats. Stream morphology data can reveal the underlying cause of stream instability and at the same time provide the information necessary to develop a solution. Identifying and understanding the source or sources of channel instability is critical to the success of stream and river restoration projects. When this is not fully understood, work performed with the best intentions can create more instability and a bigger problem than it hoped to repair in the first place. The current channel instability along the impaired reach of the Baker River in Warren is a perfect example of this lack of understanding and assessment of the triggering mechanisms that lead to a failed restoration effort and a river that has abandoned natural function and form.

Pemigewasset River in Woodstock; and the Swift River Advisory Committee for restoration on the Swift River. All of these projects are utilizing geomorphic stream measurements that eliminate guess work and provide an objective way of assessing stream characteristics and conditions that identify the causes of channel instability (see sidebar #2 on page 4).

In addition, the Towns of Stratford, Thornton and Warren along with Trout Unlimited pooled resources and obtained additional grant funding to facilitate the development of a Generic Quality Assurance Project Plan for Stream Morphology Data Collection (Generic QAPP) that would serve as the reference document for data collection. The Generic QAPP presents the procedures conducted for stream data collection that are intended to be consistent from year to year, yielding precise, accurate, and comparable assessments of project reaches. Sampling methods outlined in the Generic QAPP include the collection of available data, conducting stream gage surveys, reference reach surveys, project reach surveys and sediment transport evaluation along with supporting data review, verification and validation.

The Swift River project focused on impacts from the Conway Scenic Railway Bridge including: channel constriction leading to instability, active erosion, development of a large mid-channel bar upstream of the bridge, and significant changes in channel plan-view geometry. All work is being conducted in accordance with the Generic QAPP.

Trout Unlimited received grant funding for the Pemigewasset River in North Woodstock to address significant disruptions in natural channel form resulting from aging transportation infrastructure in the form of rail and highway bridges almost identical to the anthropogenic triggers found along the Swift River corridor. The funding is to help conduct a detailed geomorphic assessment of this reach of the Pemigewasset River and to generate a restoration plan to stabilize the active erosion and to reconnect the river with the original channel form.

With a project addressing water quality impairments through the introduction of excessive sediment on the Baker River, Geomorphologists using the Vermont Regional Hydraulic Geometry Curves (2001) determined the appropriate bankfull width for a channel with a drainage area matching that of the Baker River. The project goal for the Baker River at the Bixby and Studio Road Bridges is to develop a plan to restore a stable, self maintaining channel with appropriate cross-sectional, longitudinal, and plan view geometry.

Stream Team setting up on the Mohawk River channel to do a typical corss-section survey. Photo by Craig Rennie.

All of these projects employ the principals of fluvial geomorphology and natural channel design to accomplish specific restoration goals related to channel disturbances and instability. These projects will also demonstrate that addressing river-related problems yields greater benefits when compared to treating symptoms with costly, bank-armoring techniques. The Watershed Assistance Section is excited to see this trend in natural channel design based stream and river restoration continue to increase as more and more potential project collaborators take advantage of the Generic Quality Assurance Project Plan for Stream Morphology Data Collection and the continued efforts and outputs of the New Hampshire Stream Team. The successful implementation of these river and stream restoration projects will demonstrate the necessity for watershed based assessments designed to reveal underlying problems, yielding the information necessary to develop appropriate, cost effective solutions. This is a trend that DES personnel responsible for permitting and grants management will continue to encourage and/or require when appropriate.

For more information about the NHST or any of these projects, contact Steve Landry at 603/271-2969 or slandry@des.state.nh.us. ●

Coming Soon to a Watershed Near You: DES's "Watershed Approach"

How should DES and its stakeholders prioritize which watersheds to focus limited state resources? DES asked that question in 1999, and with input from lake associations, watershed organizations, state agencies, non-governmental conservation groups, and financial support from the US Environmental Protection Agency, DES developed an answer: the Watershed Approach Pilot Program.

The Watershed Approach is a coordinating framework for water quality management that focuses public and private sector efforts to address the highest priority issues within hydrologically-defined geographic areas.

The Watershed Approach begins with a geographic information systems (GIS) analysis of 15 variables that pertain to water quality and quantity, biological resources, land resources, human influences, and recreational resources. These variables are applied to a 10-digit hydrologic unit code (HUC) watershed (see map insert), which prioritizes New Hampshire's watersheds by management categories: need for protection, need for restoration, or threatened (see sidebar). The DES analysis has identified the top 20 watersheds within each management category.

This fall, the DES Watershed Approach Pilot Program will be available, through a competitive proposal process, to the top 20 "Priority" watershed within each management category. DES will select the three top proposals to become part of the Watershed Approach Pilot Program. The three watersheds will be assigned coordinators from DES, as well as targeted assessment, monitoring, planning, and outreach assistance. The DES Watershed Management Bureau will also have a suite of consultants on retainer to provide specialized assistance as required.

Watershed Management Categories:

"In Need of Restoration." Watersheds in need of the manipulation of physical, chemical, or biological characteristics of a watershed with the goal of returning natural or historic functions of its waterbodies.

"Threatened." Watersheds whose aquatic systems are unlikely to maintain chemical, physical, and biological integrity due to anthropogenic influences.

"In Need of Protection." Watersheds in need of taking action to prevent or restrict human activity in a watershed in order to prevent degradation of water quality.

The focus of the pilot watersheds contains the most important aspect of the Watershed Approach. DES will assist the partners to develop action plans to protect and/or restore their watersheds. The range of activities could include education of municipal land use boards regarding stormwater runoff, collection and analysis of water quality data, and construction of best management practices. DES anticipates that the state level prioritization combined with focused support of local initiatives will provide significant results at a watershed level.

If your watershed is one of the top 20 watersheds listed, and you are interested in learning more about the pilot program, please contact Eric Williams at (603) 271-2358 or ewilliams@des.state.nh.us. ●

DES Awards $239,310 in Watershed Assistance Grants

The DES Watershed Assistance Section awarded nine Watershed Assistance Grants to local watershed organizations and New Hampshire communities to address nonpoint source pollution problems. The grant awards total $239,310; when combined with matching funds from the applicants, the total value of projects is $1.5 million.

These grant recipients are once again the champions for water quality in New Hampshire. Project highlights include: the Nashua Conservation Commission partnering with the Department of Public Works to put up buffer markers to protect and maintain existing vegetated buffers around Nashua's prime and critical wetlands; and the Green Mountain Conservation Group working with area residents, state and municipal officials, local non-profit agencies to establish the Ossipee Watershed Coalition. The Coalition will then

GRANTS, *continued on next page*

GRANTS, *continued from previous page*

work to survey and analyze regional environmental concerns and draft master plan goals, environmental ordinances and best management practices (BMPs) for towns to enhance regional protection of shared natural resources across the entire watershed; The University of New Hampshire is continuing to work with microbial source tracking methods to identify the source species responsible for fecal contamination in order to focus pollution reduction strategies in the Hampton/Seabrook Harbor watershed.

Nonpoint Source funds for Watershed Assistance Grants are appropriated through the DES Watershed Assistance Section from the U.S. Environmental Protection Agency under Section 319 of the Clean Water Act. Grant funds are available to identify and address nonpoint source pollution problems through watershed management, including assessment, planning, and implementation. Requests for proposals are sent out each fall to municipalities, regional planning commissions, non-profit organizations, county conservation districts, state agencies, and watershed associations. Approximately $320,000 is available for 2004-2005, contingent upon receiving federal funds.

Contact Jillian Jones for more information at 271-8475 or jjones-@des.state.nh.us, or go to www.des.nh.gov/wmb/was/grants.htm.

Watershed Assistance Grant Recipients in 2004

Applicant	Project Title	Grant Amt.
DES Biology Section	Lake and watershed diagnostic feasibility study of Perkins Pond, Sunapee	$6,300
University of New Hampshire	Management of non-human sources of bacterial pollution in Hampton/ Seabrook Harbor	$59,022
Nashua Conserv. Comm/DPW	Nashua Wetland Buffer Outreach Project	$8,025
Green Mountain Conservation Group	Ossipee Watershed Environmental Planning Initiative	$30,000
DES Waste Management Div.	NH Green Yards - Phase II	$33,400
UNH Sea Grant Extension	Protecting water resources in NH's coastal communities	$22,563
City of Portsmouth	Bartlett Street stormwater treatment device installation	$50,000
DES Air Resources Division	Mapping of NH forest sensitivity to acid deposition	$20,000
Granite State Designers and Installers	Developing additional septage disposal capacity in NH	$10,000
	TOTAL	**$239,310**

Salt, *continued from page 12*

This creates quite a challenge for reducing salt use and protecting water quality in this region.

Elevated chloride levels threaten the health of sensitive fish species and smaller organisms that serve as the primary food source for fish populations. In addition, elevated chloride levels in drinking water supplies can pose a health risk to people in need of restricting their sodium intake.

Reducing chloride levels in our groundwater and surface waters requires using less salt. Unlike other pollutants, salt cannot be treated or removed from runoff in a treatment pond or swale – what goes into the system moves through the natural system and eventually reaches our groundwaters or surface waters. Our only option to restore our water quality is to better manage our salt use to reduce unwanted releases.

Over the next year, DES, DOT, and EPA Region I will be working together to develop a plan to further study chloride levels and relative contributions by various sources in the region and identify needed reductions to restore water quality to meet current standards. These organizations will also be taking appropriate actions themselves to reduce salt use and releases and will work with area communities to help them understand why salt is a threat to water quality and assist them with solutions for addressing this problem.

Objectives, Action Plans & Implementation … Oh My!

The Beaver Lake Watershed Management Plan development and implementation process has begun! It's time to think outside of the box, as they say; or in this case, outside of the lake, and expand lake protection strategies throughout the entire Beaver Lake watershed.

An abundance of resources have been devoted to studying and assessing Beaver Lake over the past decade or two. The completion of the sewer line around Beaver Lake coincided nicely with the increased education and outreach efforts conducted by the Beaver Lake Improvement Association (BLIA). The combined results of eliminating septic systems around the lake and increasing the level of lake protection awareness has played a huge role in stabilizing the water quality in Beaver Lake. In order for Beaver Lake to retain its current reputation as a "recreational gem" in Derry, some serious watershed management needs to happen and it needs to happen right now.

The Beaver Lake Watershed Partnership convened its first meeting in April of this year. Representatives came from the Town of Derry Community Development, Public Works and GIS Departments and the town's Conservation Commission; Rockingham County Conservation District; Southern New Hampshire Resource Conservation and Development; DES; Natural Resource Conservation Service; and Beaver Lake Improvement Association. The meeting provided a forum for each organization to voice ideas, concerns, and its perceived priorities for the Beaver Lake watershed.

The group also considered this definition of a watershed management plan in its discussion: *"a watershed management plan is a comprehensive management process that should lead to the implementation measures that collectively protect the Beaver Lake watershed from the impacts of existing and future development while establishing a baseline to gage the effectiveness of that implementation."*

The objective was to show that Beaver Lake's watershed management plan should generate an *active process* or doctrine, which is adopted by the residents and officials of Derry, Chester and Auburn. Ideally, a watershed management plan is a dynamic framework for watershed protection, which is constantly revisited and revised as necessary to adapt to changes and to assimilate additional action plans. The most important aspect of any watershed management plan is to have the stakeholders work together to create and implement the plan, and continue as a partnership into the future to ensure that the plan adapts to changes in the watershed.

Timing is everything

Watershed management plans will only become a success if there are engaged stakeholders, a defined and manageable geographic area, specific and realistic objectives, and a core organization with the capacity to implement the plan well into the future. The Beaver Lake watershed has all of the above ingredients and more! The timing is perfect for this effort and in addition to having the local interest and energy in the process, DES has funds dedicated to developing watershed management plans and is very excited to work with the Partnership to see this project come alive and deliver.

At its April and May meetings, the Partnership developed a concise list of objectives to incorporate into the watershed management plan.

These objectives are:

- Education and outreach
- Land preservation
- Compliance coordination
- Watershed definition and assessment
- Capacity building

Under each of these objectives, the Partnership developed specific action items. Implementation of these action items will depend upon resources available, priorities and the schedule outlined in the watershed management plan.

The timing for this effort couldn't be better since many groups and organizations in Derry have identified these same objectives independently. The watershed plan will bring all these parties together to facilitate a coordinated effort at the watershed level. In addition, the Town of Derry is designated as a Phase II community under the new stormwater regulations issued by the EPA. This essentially means that the Derry DPW has an unfunded mandate to implement six minimum strormwater control measures designed to improve surface runoff from stormwater. The six minimum measures include objectives like education and outreach, public involvement, stormwater discharge detection and elimination, and pollution prevention for municipal operations (road sanding/salting, snow removal and storage etc.). These minimum measures fit seamlessly into the Beaver Lake watershed management plan and bring the Derry DPW into the partnership with a vested interest in accomplishing the goals established by the Partnership.

The Beaver Lake Watershed Partnership will continue to meet and work toward developing a grant proposal that will secure funding through DES to guarantee the development and implementation of the watershed management plan for Beaver Lake. A portion of the grant funding will be designated for hiring a natural resource consultant to act as the project facilitator. This professional will be responsible for convening meetings, developing the plan, overseeing implementation of specific action plans and for building the capacity and membership of BLIA.

It's anticipated that the successful completion and continued implementation of the Beaver Lake Watershed Management Plan will serve as a model for other lake and watershed communities throughout New Hampshire. It may take "a village to raise a child," but it's going to take a watershed management plan to protect Beaver Lake for current and future generations to enjoy. Those involved with the Partnership now are committed to ensuring that this happens.

For more information, please contact Steve Landry, DES Merrimack Watershed Supervisor, at slandry@des.state.nh.us or (603) 271-2969. ●

DES Loses NPS Investigator to Steward the Connecticut River

Last year, if you thought you noticed some polluted discharge in a river or if you had to do a QAPP for your NPS project, then you probably contacted Andrea Donlon, NPS Special Investigator at DES. But after more than three years of multi-tasking between hunting for illicit discharges, writing QAPPs and technical and guidance documents, training New Hampshire public works staff on federal stormwater regulations, and much more, Andrea left the DES Watershed Assistance Section team to become the River Steward for the Connecticut River in Greenfield, Mass.

Andrea's new responsibilities include advocacy, education, outreach, and technical assistance on issues affecting the Massachusetts part of the Connecticut River watershed. She is also organizing the river's Source-to-Sea cleanup and is involved in some dam removal and fish ladder projects. Outside of work, Andrea is running her first marathon, and traveling to Switzerland and Italy!

After almost a year of trying to fill in the gaps from Andrea's leaving, DES has received the go-ahead to refill her position. So, hopefully the WAS team will soon be operating at full staff once again. But we still miss Andrea. ●

Nonpoint Source Annual Report Highlights Projects

DES's most recent Nonpoint Source Annual Report is now available. The 2003 report provides an overview of projects and activities that have been started or completed utilizing Clean Water Act, Section 319 funds awarded to DES. To obtain a copy of the *2003 Nonpoint Source Management Annual Report*, as well as prior year reports, go to www.des.nh.gov/WMB/WAS/NPSpubs.htm, or contact Wendy Waskin at (603) 271-8861. ●

Internships — Assistance for Watershed Assistance

Every spring for over a decade, DES has offered internships in many of its programs benefiting both DES and the intern. An intern at DES can gain confidence in the environmental field by constant interaction with supervisors, coworkers, and the public connected with the environmental job experience.

Academically, most interns get the chance to integrate classroom theory with real-life work experience allowing for better choices about any future coursework. Professionally, a DES internship can create an opportunity to examine and evaluate career plans and make changes accordingly. DES interns can gain a leading edge in the job market by giving possible future employers a look at their abilities along with building a solid resume in the environmental field.

The DES Watershed Assistance Section benefits from the intern program in many ways. By hiring interns we gain an enthusiastic, skilled employee who helps complete environmental projects that might not be initiated using full time staff due to either time or funding constraints. With the help of interns, these projects will get up and running and be completed.

During the spring and summer of 2004, the Watershed Assistance Section has been fortunate to have four hard working and experienced interns. These students and graduates are this region's next generation of environmental professionals and the experience they gain while working with DES will help them be successful with their future endeavors.

Colin Edwards helping a youngster understand non-point source pollution.

Colin Edwards is a 2003 graduate of Connecticut College with a B.A. in environmental science and a minor in European history. In addition to collecting water samples for various monitoring programs and investigations in the coastal watershed, Colin is assisting with report writing and data management. He also coordinates and assists with various outreach and education projects associated with the Watershed Assistance Grant Programs. Colin is planning to use the concepts and ideas that he has studied with practical applications in a real world setting. Possible job fields he is considering include consulting firms or conservation organizations. Eventually he hopes to go onto graduate school.

Ingrid Nugent providing final touches on smart growth outreach materials

Ingrid Nugent is a December 2003 graduate of UNH with a B.S. in environmental conservation and a concentration in policy and economics. Ingrid assists in the development of smart growth-related outreach materials, creates basic GIS maps, and researches background information for various smart growth projects. Because of her internship experience at DES, Ingrid better understands the advantages and challenges of environmental work in the context of state government. Ingrid anticipates that this knowledge will be valuable this fall as she enters the Masters of Environmental Management Program at the Nicholas School of the Environment and Earth Sciences at Duke University.

Rachel Scudder, an earth science major, is in her junior year at UNH. Rachel is coordinating the Illicit Discharge Detection and Elimination Program for the Merrimack River Watershed. Rachel is focusing her efforts in the Town of Auburn and the City of Nashua this summer where she will locate and sample any outfall that exhibits flow in dry weather conditions. Rachel is also

Rachel Scudder collecting water quality sample for illicit discharge investigations on the Merrimack.

assisting with complaint investigations throughout the Merrimack River Watershed and managing the data input and retrieval to and from the Environmental Monitoring Database at DES. Rachel is hoping to go to law school and eventually work as an environmental lobbyist.

Tim Rowell, is a second-year biology major at College of the Holy Cross, in Worcester Mass. Tim is involved with the Coastal Illicit Discharge Elimination Project working with towns and cities to find and eliminate illicit connections using investigative techniques including shoreline surveys, water quality sampling and smoke/dye testing. Tim is hoping to pursue a career in wildlife biology, ecology, and/or an environmental field.

Tim Rowell collecting a water quality sample for illicit discharge investigations in Portsmouth.

The DES intern program offers many different summer job opportunities. Information on summer internships at DES is available in April by contacting the DES Human Resources at (603) 271-8875 or visiting the DES website at www.des.state.nh.us/employ.htm. For interning with the Watershed Assistance Section specifically, contact Barbara McMillan at (603) 271-7889. ●

Gulf of Maine Visionary Awards Presented in New Hampshire

Portions of this article are by Andi Reardon, Editor, Gulf of Maine Times

Each year, the Gulf of Maine Council on the Marine Environment, a US-Canadian partnership of government and non-government agencies, provides a Visionary Award to an individual and an organization in each state and province bordering the Gulf. **Danna Truslow**, executive director of the Seacoast Land Trust (SLT), was the individual recognized this year for her "innovation, creativity, and commitment to protecting the marine environment." The organization that received this year's Visionary Award was **the Isinglass River Protection Project**, for their efforts to protect this river that runs through Stratford County.

Danna Truslow, Seacoast Land Trust. Photo by Bill Truslow

The Gulf of Maine Visionary Award recognized **Danna Truslow**'s numerous accomplishments related to protecting and preserving valuable land in the New Hampshire seacoast. According to SLT president, Robin Najar, "Danna's work ethic is incredible and she truly enjoys her work." Najar added, "She has taken a new land trust, and guided it through to where it has become a house-hold name in the seacoast." Natalie Landry from DES Watershed Assistance Section presented this prestigious award to Danna at the SLT annual meeting in Portsmouth.

Islinglass River Protection Project. Thanks to the Islinglass River Protection Project (IRPP), the Islinglass became one of 14 rivers designated in 2002 under the New Hampshire Rivers Management and Protection Program. Formed in 2000, IRPP is comprised of a handful of local citizens who organized a strong network of support through educational outreach programs, petitions and public meetings. Their nomination outlining the river's values and importance persuaded the state's environment commissioner and ultimately the state legislature that the designation would go a long way toward ensuring the river's integrity. Michele Tremblay, Executive Director, N.H. Conservation Districts, presented their award at the N.H. Rivers Management Advisory Committee meeting in Concord. ●

Check Out These Events!

Gulf of Maine Summit, October 26-29, at Fairmont Algonquin Hotel in St. Andrews, New Brunswick. Contact David Keeley, Member of the Gulf of Maine Council on the Marine Environment, State Planner, Maine State Planning Office, (207) 287-1491 or visit www.gulfofmainesummit.org/ for more information.

Office of Energy and Planning, Fall Planning and Zoning Conference, October 30, at the Waterville Valley Conference Center, Waterville Valley, NH. Call (603) 271-2155 or visit www.nh.gov/oep for more information.

New Hampshire Municipal Association Conference, November 3-5 at The Center of New Hampshire Holiday Inn, Manchester, NH. Contact Audrey Bentley at the N.H. Local Government Center, (603) 226-2861 ext.117 for more information.

DES Rivers and Watershed Conference, November 13 at DES, 29 Hazen Drive, Concord, NH. Contact Jacquie Colburn at DES, (603) 271-8801 or visit www.des.state.nh.us/rivers/ for more information or to register.

New Hampshire is hosting the **Annual New England Interstate Water Pollution Control Conference (NEIWPCC),** May 24-26, 2005 at the Mount Washington Hotel, Bretton Woods. Contact Barbara McMillan at DES, (603) 271-7889 or bmcmillan@des.state.nh.us for more information.

For more information on DES related events:
www.des.nh.gov/workshops/calender2.htm

Salt: An Emerging Issue for Water Quality

Over the past two years, environmental experts have looked at the issue of salt use and current chloride levels in streams, ponds, and groundwater in the Lower Merrimack Watershed as part of efforts to examine the effect of the I-93 road improvements from Salem to Manchester on water quality. Unexpectedly, it was discovered that several area streams experienced chloride levels that exceeded our current standards for healthy waters several times during the winters of 2002-2003 and 2003-2004. Chloride levels in groundwater and several area ponds and wetlands were also higher than expected. In fact, historical data shows chloride levels have increased steadily and substantially over the last 25 years.

DES, the N.H. Department of Transportation (DOT), and the U.S. Environmental Protection Agency's (EPA) Region I office initiated a coordinated sampling effort in the Lower Merrimack River watershed area to evaluate chloride levels across the watershed and examine areas above and below I-93 in particular. The preliminary results from the past two years of study demonstrate continuing and widespread elevated salt levels throughout the region from many sources, not just I-93. Runoff from local roadways and parking areas, runoff from salt storage areas, and discharges from water softening systems from regional water suppliers and individual homeowners also contribute to the problem.

Salt, *continued on page 7*

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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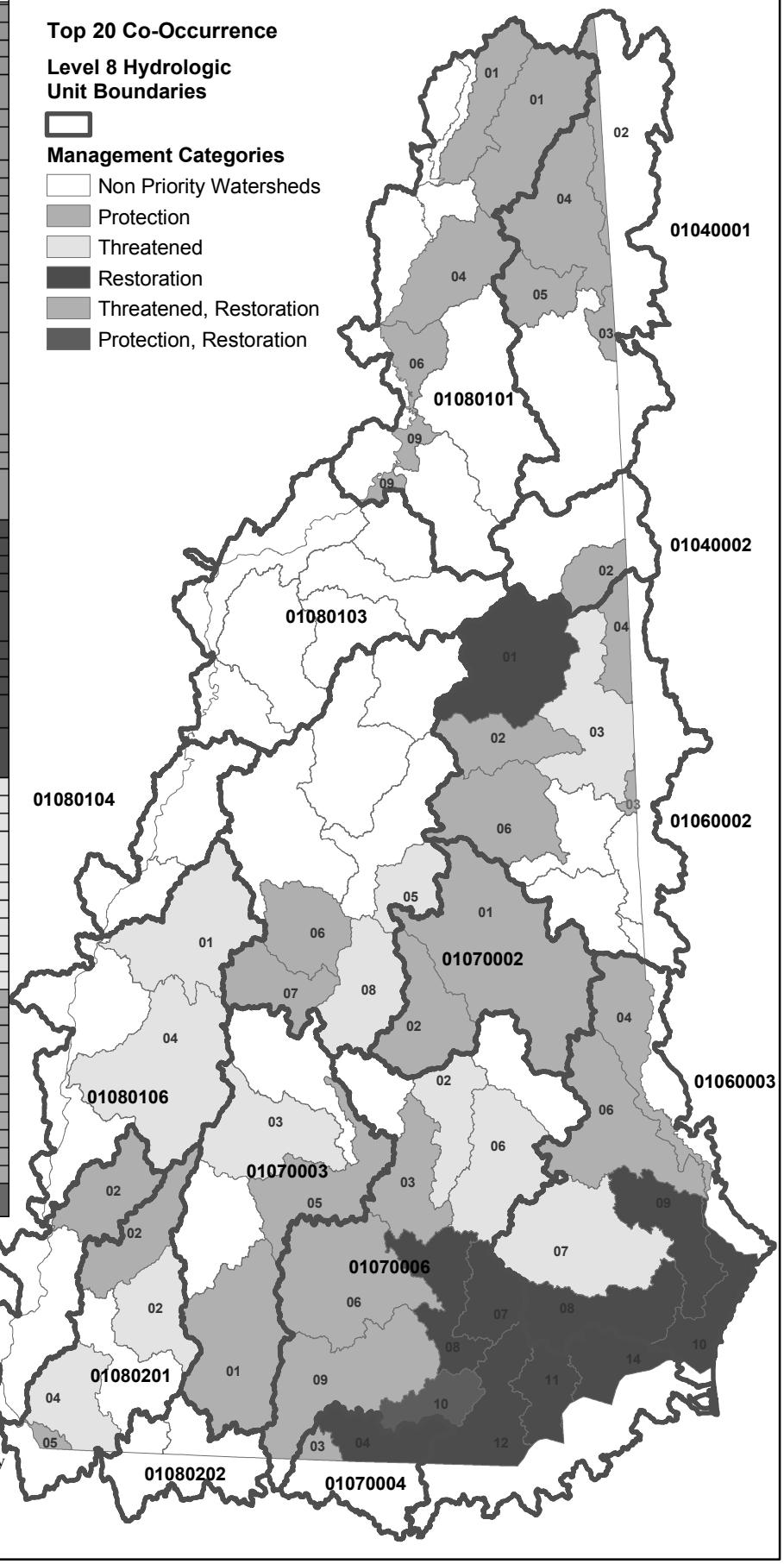
NH Department of Environmental Services Watershed Approach

Top 20 Watersheds
- from each Management Category

HUC_10	NAME	MANAGEMENT CATEGORY
0104000102	UMBAGOG LAKE DRAINAGE	Protection
0104000103	AZISCOHOS LAKE DRAINAGE	Protection
0104000104	MAGALLOWAY RIVER	Protection
0104000105	CLEAR STREAM	Protection
0104000202	ANDROSCOGGIN RIVER AT RUMFORD POINT	Protection
0106000202	SWIFT RIVER	Protection
0106000204	SACO RIVER-LOVEWELL POND	Protection
0106000206	BEARCAMP RIVER	Protection
0107000106	NEWFOUND RIVER	Protection
0107000107	SMITH RIVER	Protection
0107000403	SQUANNACOOK RIVER	Protection
0108010101	CONNECTICUT LAKES DRAINAGE	Protection
0108010102	HEADWATER TRIBUTARIES	Protection
0108010104	CONNECTICUT RIVER-MOHAWK RIVER TO NULHEGAN RIVER	Protection
0108010106	CONNECTICUT RIVER-NULHEGAN RIVER TO UPPER AMMONOOSUC RIVER	Protection
0108010109	CONNECTICUT RIVER-UPPER AMMONOOSUC RIVER TO JOHNS RIVER	Protection
0108010702	COLD RIVER	Protection
0108020101	UPPER ASHUELOT RIVER	Protection
0108020105	CONNECTICUT RIVER-VERNON DAM TO DEERFIELD RIVER	Protection
0106000201	UPPER SACO RIVER	Restoration
0106000308	EXETER RIVER	Restoration
0106000309	GREAT BAY DRAINAGE	Restoration
0106000310	COASTAL DRAINAGE	Restoration
0107000404	NASHUA RIVER-SQUANNACOOK RIVER TO MOUTH	Restoration
0107000607	COHAS BROOK	Restoration
0107000608	MANCHESTER TRIBUTARIES	Restoration
0107000611	SPICKETT RIVER	Restoration
0107000612	MERRIMACK RIVER-NASHUA RIVER TO SHAWSHEEN RIVER	Restoration
0107000614	MERRIMACK RIVER-SHAWSHEEN RIVER TO MOUTH	Restoration
0106000203	CONWAY TRIBUTARIES	Threatened
0106000307	LAMPREY RIVER	Threatened
0107000105	SQUAM RIVER	Threatened
0107000108	LOWER PEMIGEWASSET RIVER	Threatened
0107000303	WARNER RIVER	Threatened
0107000602	SOUCOOK RIVER	Threatened
0107000605	SUNCOOK RIVER	Threatened
0108010601	MASCOMA RIVER	Threatened
0108010604	SUGAR RIVER	Threatened
0108020102	THE BRANCH	Threatened
0108020104	LOWER ASHUELOT RIVER	Threatened
0107000609	SOUHEGAN RIVER	Threatened, Restoration
0106000304	SALMON FALLS RIVER	Threatened, Restoration
0106000306	COCHECO RIVER	Threatened, Restoration
0107000201	LAKE WINNIPESAUKEE DRAINAGE	Threatened, Restoration
0107000202	WINNIPESAUKEE RIVER	Threatened, Restoration
0107000301	UPPER CONTOOCOOK RIVER	Threatened, Restoration
0107000305	LOWER CONTOOCOOK RIVER	Threatened, Restoration
0107000603	CONCORD TRIBUTARIES	Threatened, Restoration
0107000606	PISCATAQUOG RIVER	Threatened, Restoration
0107000609	SOUHEGAN RIVER	Threatened, Restoration
0107000610	LITCHFIELD-HUDSON TRIBUTARIES	Protection, Restoration



This coverage analysis was created using the best available information and methodology. As a result, the coverage may not always incorporate all existing information and it may occasionally contain unintentional inaccuracies. NHDES is not responsible for the misuse or misinterpretation of the information presented by this analysis.

Map Document: (H:\Bureau Administration\Strategic Plan\Goal 6 Watershed Mgt Approach\Objective 2-Watershed Approach\GIS\mxd\Top20WS_CoOccur.mxd) 8/24/2004 -- 12:40:48 PM

Layer Description

NH DES Watershed Approach Geospatial Variables	
Description	**Resource Category**
Indicator of watershed fish community uniqueness.	Biological Resources
Length of free flowing river per river mile	Biological Resources
Measure of watershed invertebrate community health (quality)	Biological Resources
Indicator of watershed invertebrate community uniqueness.	Biological Resources
Rate of change of population between 1990 Census and 2000 Census	Human Factors
Road mileage per total acreage	Human Factors
Estimated acreage impact of wetland permits on wetlands	Human Factors
Unprotected stream headwaters (with an 150 ft buffer) that are forested	Land Resources
Unprotected unfragmented natural lands	Land Resources
Agricultural land (based on land use coverage) that is not protected	Land Resources
Chance that waters will be come infected with exotics by downstream hydrologic transport	Recreational Resources
Number of waterbodies with exotic species	Recreational Resources
Number of fishing derbies/tournaments	Recreational Resources
Percentage of HUC10 that is surface water	Recreational Resources
Acreage of surface water over 2000 ft in elevation per total surface water	Recreational Resources
Number of recreational and support facilities per land acre	Recreational Resources
Miles of Class I and II roads within 1 mile of ponds greater than 10 acres and 4th order streams	Recreational Resources
Number of impoundments per river/stream mile	Water Resources
Length of impounded river per river mile	Water Resources
Combination of prime wetlands and designated river reaches	Water Resources
Population served by a municipal water supply per acre	Water Resources
Number of NPDES (National Pollutant Discharge Elimination System Outfalls) per river mile	Water Resources
Portion of fully supporting designated uses per 2002 305b/303d list	Water Resources
Portion of impaired designated uses per 2002 305b/303d list	Water Resources
Number of private wells per acre	Water Resources
Worst case seasonal average withdrawal, adjusted for seasonality of river flow	Water Resources