MESSAGE FROM THE DIRECTOR

Two Water Center projects on very different topics have recently been completed. Dr. Sallie Sheldon of Middlebury College investigated the impacts of an invasive aquatic plant species, Eurasian watermilfoil, on the viability of native plant species in Vermont lakes. Dr. Sheldon’s hypothesis was that native species would be most affected in those lakes long ago infested with Eurasian watermilfoil. Her research team sampled 39 Vermont lakes. Surprising, there was no relationship between the time since Eurasian water-milfoil invasion and the richness of native plant species in the lake. While conventional wisdom holds that larger lakes have more plant species, the research identified no such pattern in Vermont lakes. Dr. Sheldon’s results did suggest that land use in a lake’s watershed may be an important factor, with any use generating nutrient or sediment inputs to the lake perhaps favoring domination by an exotic species like Eurasian watermilfoil. Dr. Sheldon hopes to continue this research with funds from the USDA.

Dr. George Pinder of UVM’s Civil and Environmental Engineering Department has completed a project designed to develop a computer-based method to reduce the cost of remediating contaminated groundwater. Dr. Pinder has combined several different models to provide a computer-aided analysis that can be used by professionals to design pump-and-treat based cleanup of contaminated groundwater. The software package has been field tested on a coastal aquifer suffering from saltwater intrusion. It is hoped that Dr. Pinder’s approach will offer substantial cost savings to scientists and engineers involved in cleaning up the nation’s contaminated groundwater.

UVM Earns Sea Grant and New Specialist

Lake Champlain has received an invitation to the big leagues, making Vermont worthy of a sea grant and UVM a sea grant university. The National Sea Grant Program supports the sustainable development of coastal and Great Lake resources; any state with a coastline or a border on a Great Lake-now, Lake Champlain-has a sea grant program. Therefore, New York, already in the program, will extend its sea grant status to Lake Champlain, in collaboration with Vermont.

Housed in the Aiken Center, newly hired Dr. Jurij Homziak, a sea grant specialist with UVM Extension, explained that the program will work very much like other Extension programs—as catalyst and facilitator, with educational and advisory missions. Jurij, extension Assistant Professor in Natural Resources, was most recently employed as an international expert in natural resources and environmental protection projects. He also has had years of sea grant and other aquatic and coastal experience, working for Mississippi State University and the U.S. Agency for International Development throughout the world.

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Depending on their location, sea grant specialists might tackle issues of seafood processing, farm pollution that affects watersheds, invasive species, or water quality—Jurij has experience in all those areas.

"My success has been in being an honest broker," he said, emphasizing the non-advocacy, problem-solving roles of his work. In Mississippi, for example, shrimpers objected to the Congressionally mandated excluder device meant to protect sea turtles from nets. "It didn't work," Jurij said, and the shrimpers were worried about losing income. He and other sea grant staff tracked down a Florida man who had invented an excluder to keep out cannonball jellyfish and worked with him to modify his device to exclude turtles for the Mississippi shrimpers.

Jurij believes Vermont is a somewhat unusual grantee in that "it already has a large, active group of players who are good at what they do." He will work closely with faculty, staff, students, and partners within the Lake Champlain Basin and the state who are involved with management of the lake. Jurij also looks forward to working with his New York counterpart, Mark Malchoff at SUNY Plattsburgh (where Cornell University runs the Extension Service). Mark will tackle fisheries and invasive species for both sides of the lake; Jurij will focus on watershed issues for the entire lake. He also hopes to improve UVM's involvement with local governments and communities.

"Local governments," he said, are "perhaps an underserved clientele." His role will be to give local planning and select boards, councils and mayors informational and technical support so they can make better decisions. He'll also work with farmers on issues that affect the health of the watershed. Dr. Don DeHayes, Dean of SNR, said that the sea grant and Jurij's work would help "UVM's effort to more effectively manage the Lake Champlain basin and to engage the citizens of Vermont in issues related to watershed quality."

New Project Being Initiated: Evaluation of Potential Blue-green Algal Toxins in Lake Champlain Summer 2000

In 1999, cyanobacteria, also known as blue-green algae (BGA), bloomed in parts of Lake Champlain and may have produced toxins potentially harmful to human health. The death of three dogs from two separate bloom events supports the need for more complete analysis of potential health issues associated with BGA in Lake Champlain. The Lake Champlain Basin Program and the Center for Disease Control are supporting a new project this summer, the detailed screening for potential toxin-producing BGA blooms in Lake Champlain. This will be accomplished by identifying the organism/s of concern and assessing their toxicity and abundance during blooms throughout the lake during the summer of 2000. Partners in this project include the University of Vermont, SUNY-Syracuse, Wright State University, the Vermont, Maine and Florida Departments of Health, the VT ANR and NY DEC.

Specifically, the following objectives will be addressed in this study:

1) What are the species of bloom-forming BGA in Lake Champlain and how abundant are they?

2) Are these species known to produce toxins as reported by other investigators?

3) Are these species producing toxins in Lake Champlain?
4) Are these toxins in the raw and/or finished water of drinking water facilities or the recreational areas of the lake?

5) What are the types and ranges in concentrations of toxins present in the waters of Lake Champlain?

6) Are monitoring with field samples and/or satellite imaging useful tools for tracking or locating and providing information on the dynamics of BGA bloom?

Contact Barry Rosen at (802) 656-1036 for more information.

PUBLICATIONS

Managing Nutrients and Pathogens from Animal Agriculture NRAES-130 documents recent research, field experience, and government response concerning the interaction of animal agriculture and the environment in eastern North America. Includes 36 papers. Available from NRAES, Cooperative Extension, 152 Riley-Robb Hall, Ithaca, NY 14853-5701 OR Call (607) 255-7654. For more information about NRAES, or to view the entire publication catalog and place orders on line, visit web site www.NRAES.org. Cost is $30 per copy, plus shipping and handling of $5.50.

Low-Impact Development: An Integrated Design Approach (EPA 841-B-00-003, January 2000) was prepared for local planners, engineers, developers, and officials. This document details how to develop and implement Low Impact Development methods to protect water quality from the impact of new development. Low-Impact Development Hydrologic Analysis (EPA 841-B-00-002, January 2000) is the companion document. It contains a methodology that can be used to estimate changes in site hydrology due to new development and also to design appropriate treatment systems to maintain the pre-development hydrology of the site. Copies can be obtained from the National Service Center for Environmental Publications (NSCEP) (800) 490-9198 or online at www.epa.gov/ncephom/orderpub.html.

WEB PAGES

Visit the Vermont Water Resources and Lake Studies Center website at: nature.unr.uvm.edu/vtwater for information about the Water Center and the School of Natural Resources at The University of Vermont.

The University of Wisconsin - Extension Water Resources Program web site: clean-water.uwex.edu/pubs has a number of fact sheets in PDF format including Erosion Control for Home Builders, Pet Waste and Water Quality, Yard Care and the Environment series, Stormie's Clean Water Tips storm water management series, the Shore land Stewardship series, Land Stewardship articles for use in newsletters, and the Keeping Current newsletter. All of the fact sheets on the web site can be printed and are also available from Extension Publications at (608) 262-3346.

A website featuring Best Management Practices for maintenance of water quality during forest management operations is located at www.usabmp.net

Visit the EcoLogical solutions website, Vermont Agency of Natural Resources, at www.anr.state.vt.us/ecosolutions. Includes a series of brochures on automotive care and maintenance, lawn and yard care, global warming, water conservation, hazardous waste, solid waste, sprawl, and wildlife and forests. Or you may phone the Agency of Natural Resources at (800) 974-9539.
VIDEO

"After the Rain: Urban Runoff" explores the importance of water, the pressures that towns and cities place on the resource, and ways that individuals can protect local drinking water supplies. Available for $19.95 (including shipping). Send your request and check or money order payable to Oregon State University to: Publication Orders, Extension & Experiment Station Communications, Oregon State University, 422 Kerr Administration Building, Corvallis, OR 97331-2119. Web at eesc.orst.edu.

MEETINGS AND CONFERENCES

July 9 - 12, 2000, is the Annual International Meeting of American Society of Agricultural Engineers, Milwaukee, Wisconsin. Includes soil and water sessions morning and afternoon of each day. Includes new product expo, 900 technical sessions, and 20 continuing professional development workshops. Contact: American Society of Agricultural Engineers, 2950 Niles Road St. Joseph, MI 49085-9659, phone (616) 429-0300, e-mail at: hq@asee.org

July 31 - August 5, 2000, The Environmental Training Institute for Small Communities in Morgantown, West Virginia is offering a 6 day series of courses on: Assessing Wastewater Options for Small Communities, Managing a Small Drinking Water System: A Short Course for Local Officials, Training Adults in Remote Classrooms: Demystifying Distance Delivery, and Solid Waste Management Options for Small Communities. The cost to trainers and assistance providers to communities is $249 for one course and $400 for two courses. Local officials only pay $59 for one course and $99 for two. Call (800) 624-8301 to register or for more information.

August 21 - 25, 2000 or October 21 - 27, 2000, the University of Maine Cooperative Extension is offering a Compost School. Registration is $425 per person. Rooms rates are $49 for a single room or $54 for a double. For more information contact: Neal Halle, Waste Management Specialist, University of Maine Cooperative Extension, 5741 Libby Hall, Orono, ME 04469-5741, phone (207) 581-2722, e-mail nhalle@umext.maine.edu or check out the Web site at www.composting.org

August 28 - 31, International Conference on Riparian Ecology and Management in Multi-Land Use Watersheds, Double Tree Portland/Lloyd Center Hotel, Portland, Oregon. Contact: American Water Resources Association, 4 West Federal St., P.O. Box 1626, Middleburg, VA 20118-1626, phone (540) 687-8390, e-mail: info@awra.org and Web Site at www.awra.org

September 11 - 14, 2000 is the 8th National Nonpoint Source Monitoring Workshop. The topic of this year's program is "Monitoring and Modeling Nonpoint Source Pollution in the Rural-Urban Interface." The conference will take place in Hartford, CT. For additional information please view the conference Web page at www.ce.uconn.edu/nps.html. Or contact: John Clausen, Associate Professor, Department of Natural Resources Management and Engineering, University of CT, 1376 Storrs Rd., U-4087, Storrs, CT 06269-4087, phone (860) 486-2840, or e-mail at jclausen@cnr.uconn.edu.
October 16 - 18, 2000, is the **National Poultry Waste Management Symposium** at Sheraton Fontainebleau Hotel, Ocean City, Maryland. The symposium will provide the latest information on technology for poultry waste management. Contact: Richard Reynnells, National Program Leader, Animal Production Systems, USDA/CSREES/PAS, Room 3702 Waterfront Center, 800 9th Street, SW, Washington, DC 20250-2220, phone (202) 401-5352, e-mail at rreynnells@reesusa.gov.


**AQUACULTURE CORNER**

**PUBLICATIONS**

The U.S. Department of Agriculture’s National Agriculture Statistics Service (NASS) has published the Nation’s first census of aquaculture. Available on the NASS Web site at www.usda.gov/nass, the census provides a valuable baseline that can be used to track the progress of one of agriculture’s fastest-growing sectors. There has been an astounding growth in the value of products sold from the aquaculture sector --- from $45 million in 1974 to $978 million in 1998. The statistics in this census will provide Congress with the information they need to develop, evaluate and change current farm programs to benefit the aquaculture industry. The section "Quick Facts of Aquaculture" provides a snapshot of regional statistics. A printed copy of the census can be obtained by phoning NASS Order Desk at (800) 999-6779.

**WEBSITES**

The USDA Regional Aquaculture Center newsletter is online at ag.anse.purdue.edu/aquanic/newsltrs/rac/racnews.htm

Newsletters from across the country can be accessed at ag.anse.purdue.edu/aquanic/newsltrs/state/statenew.htm

**MEETINGS AND CONFERENCES**

October 4 - 6, 2000, **The Aquaculture Marketing Seminar** sponsored by Aquaculture Magazine will be held in Asheville, NC. For information contact: Beth Wiseman, P.O. Box 2329, Asheville, NC 28802, phone (828) 254-7314, e-mail aquamag@ioa.com. Cost is $295 per person, $50 companion fee.
November 1 - 4, 2000, East Coast Live! 2000: The Business of Marketing Live Aquatic Products, Annapolis, Maryland. Registration fee is $175 until August 31, and $195 afterwards. To register contact: Don Webster, Maryland Sea Grant Extension Program; phone (410) 827-8056 or dw16@junoail.umd.edu. For program and trade show information, contact John Ewart, Delaware Sea Grant Marine Advisory Service, ewart@udel.edu. You can register via the Web and get more detailed information and updates at: www.eastcoastlive.seagrant.org

January 21-25, 2001, Aquaculture 2001 at Disney's Coronado Springs Resort, Lake Buena Vista, Florida (near Orlando). Will host the largest aquaculture trade show in the Western hemisphere, with over 200 booths. Web sites include: www.oas.org, www.afs.org, and www.was.org

WORKSHOPS

The Harbor Branch Oceanographic Institution, Aquaculture Center for Training, Education and Demonstration, 5600 US 1 North, Ft. Pierce, Florida 34946, phone (800) 333-4264, e-mail at: acted@hboi.edu. Web sites: www.hboi.edu/aquaculture/aqua.html and www.aquaculture-online.org

This organization offers reasonably priced hands-on workshops on such topics as opportunities in aquaculture, marine aquarium keeping for hobbyists and educators, production planning for a start-up aquaculture business, fish processing technology, backyard aquaculture tilapia, live feeds culture techniques and recirculating systems. Contact the Center for a full color catalog describing the workshops, courses and housing options.

This newsletter is prepared by Linda Marek Howe, Extension Water Resources Specialist, University of Vermont Extension, 617 Comstock Road, Suite 5, Berlin, VT 05602-9194, (802) 223-2389; and Dr. Alan McIntosh, Director, Vermont Water Resources and Lake Studies Center, School of Natural Resources, University of Vermont, George D. Aiken Center, Burlington, Vermont 05405-0088, (802) 656-4057. This newsletter is published with funds provided in part by the U.S. Geological Survey, Department of the Interior, as authorized by the Water Resources Research Act of 1984 and by the University of Vermont Extension System and U.S. Department of Agriculture.

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Linda M. Howe
Extension Water Resources Specialist