

WATERSHED

A Newsletter of the Wood-Pawcatuck Watershed Association

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WINTER 2002

Strategic Water Quality Monitoring

Studying transient events

Dr. Saul Sailsa

Just as the New Year is bringing about important changes in governmental policies, so also is WPWA in the process of implementing significant changes in our water quality monitoring program. This brief report is designed to aid readers in a better understanding of the reasons as well as the probable benefits of such changes.

It seems clear that good watershed management cannot operate effectively without reliable information on water quality and causes of changes in water quality when they occur. Monitoring the repetitive measurement of a set of specified variables at one or more locations over an extended period of time according to prearranged schedules represents an important source of such information. It is also important to carefully



Short-term toxic events, such as road salt runoff from Rt. 95 entering the Wood River, will be measured with data logging equipment.

assess and evaluate at intervals the goals and effectiveness of existing monitoring activities. In evaluating a monitoring system, the obvious questions are what, how, where and when to measure; how to analyze and store data; and how to effectively present the results. Such a review has been made of WPWA-sponsored activities, and it is evident that the monitoring program has been successful in meeting its initial objectives of detecting trends and establishing certain baseline conditions. The participants in the monitoring activity are to be commended for a job well done. This work has contributed substantially to more effective planning for the future.

Water quality monitoring in the watershed to date has been designed primarily to detect long-term trends, and has

been carried out at yearly intervals. Transient (temporary) water quality events have rarely been studied in our watershed area because they are logistically difficult to sample. Transient events are significant deviations from normal conditions and they exist for short periods of time. Durations may range from several minutes to several days.

The currently-used sampling protocol, which involves sampling at weekly or bi-weekly intervals during the summer period, is unable to detect this type of event. Electronic data-acquisition techniques can provide a relatively reliable and effective means for detecting and assessing transient events in water quality. To this end, WPWA is in the process of acquiring an electronic water quality measuring device, which will permit rapid in situ measurement of a limited number of water quality parameters, for immediate evaluation at specific locations. (see *Monitor*, Page 7)

New Pawcatuck River access dedicated in Westerly

State-of-the-art stormwater management and handicapped-accessibility

R.I. Department of Environmental Management, in partnership with the Governor's Commission on Disabilities, the U.S. Fish & Wildlife Service and the Town of Westerly, dedicated a new handicapped-accessible boat ramp and parking lot on Main Street in downtown Westerly.



RIDEEM Director Jan Reitsma dedicates the new fishing access in Westerly.

Located at the mouth of the

Pawcatuck River, the facility includes a non-slip fiberglass dock with multiple landings that allow boaters with disabilities and others to easily board their boats regardless of the level of the tide.

Adjacent to the boat ramp is a paved parking area with spaces for 30 vehicles and trailers. The parking lot includes a drainage and stormwater treatment unit that will remove 80 percent of solids such as sand and gravel from stormwater entering the Pawcatuck River from the lot. In addition, a separator will remove oil and grease from the stormwater.

The project was constructed in two phases: the first, completed in 2000, included construction of

the 20-foot wide boat ramp and courtesy dock, and site work for a gravel parking area. The second, done in conjunction with R.I.D.O.T.'s 3R Improvements to Broad and Main Streets, included installation of the drainage and water treatment system and paving the parking lot.

The total cost for the project was \$346,758. \$171,103 from the U.S. Fish & Wildlife Service, through DEM's Division of Fish & Wildlife; \$39,881 from the Governor's Commission on Disabilities; \$85,774 from a legislative appropriation of state capital funds; and \$50,000 from the Town of Westerly. The project was designed by DEM's Division of Planning and Development and constructed by the Cardi Corporation and J.H. Lynch and Sons.

WPWA publishes comprehensive report of 1999-2000 Stream Monitoring Program

WPWA has recently completed three years of stream and tributary monitoring in the Pawcatuck watershed.

For the six-month periods from May through October in 1999, 2000, and 2001, volunteers collected weekly data samples from streams within the Green Falls River basin in No. Stonington, Connecticut, the Meadow Brook and Beaver River basins in Richmond, RI, and the Queens River and its tributaries in Exeter and Richmond, RI, and tributaries draining into Locustville Pond in Hopkinton, RI. Physical parameters, such as temperature, dis-

solved oxygen, and stream gauge height, were recorded. Once each month, volunteers collected water samples for chemical analysis by URI Cooperative Extension Watershed Watch. Nutrients, pH, and bacteria were recorded. At the same time, the volume of flow at the monitoring sites was measured by a WPWA intern using a pygmy flow meter, the purpose of which was to establish a correlation between the height of the stream gauge and the volume of water to expect at certain readings.

In November, WPWA published a report of results

from the 1999 and 2000 seasons. Results from these first two years indicate that

1) overall water quality is currently within acceptable limits as measured by physical parameters,

2) high bacteria counts are a concern in the Meadow Brook and the Green Falls River,

3) stage/discharge relationships for most sites were established with statistical significance, allowing more accurate interpretation of physical data.

The report, *Stream Monitoring in the Pawcatuck Watershed*, is available on our website at www.wpwa.org. Results for 2001 will be available later this year.

Capital Improvements Journal of \$25,000 from The River-front retaining wall completed. Champlin Foundations, Main building facelift continues. our renovations will continue with door and window replacement on the

Gaytha & Harold Langlois
Eugenia and Doug Rayner
Grania Ackley
P.A. Crandall
Pfizer Foundation

Watershed Club (\$50-\$99)

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Stream of Friends (Up to \$49)

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Rawlings Green Acres
Ray Hoxsie
Kerv and Irene Hyland
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William Blunt White
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Norman Chartier
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Caleb and Barbara Davis
Carol and David Shilling
Todd Fitzpatrick & Chris Kelly
William and Phyllis Arnold
M. Palmer and R. Hauschild
Elizabeth B. Perkins
Karin Soderberg
Susan Moffett
John Glista
Philip Gauvin
Myrth York

Our capital renovations are ongoing, but each step is a threshold of success.

This past December we completed the retaining wall and patio project, resulting in a sturdy foundation and a durable sea-



Roy Grinnell and Jim Caswell installing vinyl seawall.

wall. Roy Grinnell of the Grinnell-Phillips Corporation, a professional engineer involved in constructing many of the state's fish ladders, worked with Jim Caswell, a retired architect, to construct the wall.

The project first required installation of structural brackets to secure the building's falling foundation, followed by installa-



New and expanded concrete deck will make an enjoyable fishing spot.

tion of shore guard vinyl seawall and 12-foot screw anchors to hold the wall into place. Forms were installed, and a concrete deck was poured. The project was contracted by W.H. Peppes General Contractor of Lincoln, RI, and designed by Ray Cherenzia, P.E. Total construction cost: \$ 36,465.

Other progress on the main building includes cedar shingle siding and a new roof. Thanks to a recent capital grant award

upper level, reconfiguration of the floor plan to create an open conference and reference area, new carpeting, and renovated ADA-compliant bathroom facility.

Members are always welcome to stop in and see the progress.

Annual Giving Campaign 2001-2002

Thank you to members and friends who have contributed to this winter's annual fund drive. To date you have contributed \$7700.00 in support of WPWA conservation initiatives.

Leadership Giving (\$1000 and up)

Harold Ward
Richard C. and Ardis Holliday
Liepold Tool and Die Company

Major Donor (\$500-\$999)

Peter and Ann Rothschild
Catherine S. Smith
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Thurman and Doris Silks
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John McCormick
Burt Strom
James and Mary Birle
Philip Brencher

From the Executive Director

An Ambitious Plan for 2002.

At our January 2002 Board of Trustees' meeting, a 12-month Plan of Work for 2002 was approved.

Taking a close look at our resources (financial, human, and expert), we considered the next logical moves for us in the Pawcatuck Watershed Action Plan.

An outline was developed based on several categories: Watershed Council and Action Plan; Recreation and Culture; Education; Special Events; Capital Projects; Administration and Membership; and Sustainability.

The core tasks can be found within the role of WPWA as Watershed Council, toward meeting the objectives presented in the Action Plan. Here are some of the activities we have brought to the fore for 2002:

Public Access Improvement

WPWA is applying for TEA-21 enhancement monies through RIDOT to improve the Switch Road river access. We have also prioritized five access areas for acquisition and improvement on the Wood and Pawcatuck Rivers, targeted at RIDEM, as well as inventoried and mapped the entire river access system in the watershed.

Riparian Land Acquisition

Guided by priorities in the South County Greenspace Protection Plan, we will become more active in finding and negotiating with property owners re-



garding riparian land protection.

Strategic Water Monitoring

WPWA is working strategic transient monitoring into its overall plan (see page 1).

Watershed Signage

Working with RIDOT and other watershed councils in RI, we will help develop signage to identify towns within the watershed, and rivers that intersect state roads.

Stormwater Management

WPWA will work with various state agencies, providing municipal outreach and education services regarding Phase II stormwater management planning and compliance.

Aquatic Herbicide Issue

With the help of Brown University students, we will take a close look at permitting of aquatic herbicide applications on ponds, the resulting anoxic conditions, and alternative treatments to minimize impacts.

Something else to watch for in 2002 is the revised edition of the Wood-Pawcatuck River Guide, by Charlie Hickox and Elly Heyder.

For a complete look at WPWA's 2002 Plan Of Work, visit www.wpwa.org.

Enjoy the New Year !!

Email me!
Loriurso@wpwa.org

...then before you can say "daffodil..." it's spring!

April 6, 2002

Historic Mill Bus Tour

In conjunction with

R.I. State Historic and Heritage Commission

This year's annual statewide conference will be held in Westerly at the historic Westerly Armory. WPWA will offer a guided mill tour throughout Westerly and Hopkinton as part of the program. Limited seating available to general public. Call to register 401-539-9017.

April 13, 2002

6am—10am

Opening Day in the Watershed Bess Eaton Donut and Flour Company once again provides us free coffee to distribute to anglers with reusable coffee mugs. Bring your own mug to help combat the Opening Day litter problem, and you can have refills on us. Locations: Meadowbrook Pond, Route 165 Quonset Hut, Barberville Dam - WPWA HQ, Carolina Trout Pond, Frosty Hollow Pond (*free hot chocolate to kids with reusable mugs at this location only*)

April 20, 2002

9am-1pm

Earth Day River Access

Beautification

Individuals and groups are invited to help with a day of beautification at our fishing and access areas.

April 27, 2002

Naturalist training for AMC leaders at WPWA HQ. Contact Denise Burgess via info@wpwa.org if interested.

Cyber-launch of the official site: www.wpwa.org

Harold Ward

After several years of borrowing space on various university web-servers, WPWA at last has our own server space and distinctive website URL – www.wpwa.org

This allows us to make a broad range of information on our organization and on our watershed widely available and to keep that information up-to-date. The ability to keep the site current is a particular advantage for sections of the site like the Pawcatuck Watershed Action Plan. As the designated Watershed Council for the Pawcatuck, WPWA has the primary responsibility to develop this plan and to work with local, state and federal partners toward its implementation. As we proceed with implementation, some tasks are accomplished, priorities evolve and new challenges are identified. Our web presentation allows us to demonstrate progress and to solicit comments on new initiatives. For example, after the first version of our plan was completed in the summer of 2001, through comments from one of our volunteers, we became aware of impacts from the application of aquatic herbicides on some watershed ponds, and an investigation of this concern is now proposed as an emerging issue in our Action Plan -

http://www.wpwa.org/Action%20Plan/New_Initiatives.htm

We are also now able to bring to our members and to the much wider audience on the web full reports of our work. A good example is the report on Stream Monitoring that was prepared by Denise Burgess and released late in 2001 - http://www.wpwa.org/Whats_New.htm

Our About the Watershed page provides convenient links to a range of recent studies on watershed issues, and the Links page connects to background sources on watershed issues generally.

While the audience for websites is international, our primary purpose is to serve the interests of our members and our watershed. Since nearly three-quarters of Rhode Island households are now web-connected and that percentage is growing steadily, we anticipate a growing dependence on our website as a powerful way to communicate with you. Please help us by reviewing our site, and sending us suggestions for improving both the content and the presentation (e-mail to info@wpwa.org). And if you haven't given us your e-mail address already, please do so now, so that we may more effectively be in touch with you on issues urgent to the protection of our watershed.

Dr. Irene Stuckey's legacy lives on in the Watershed and beyond

Last November 10, University of Rhode Island plant physiologist Irene Hawkins Stuckey, whose interest in wildflowers brought her renown, died in Nashville, Tenn., at the age of 90.

Dr. Stuckey was a friend and supporter of WPWA for many years.

She was born in Georgia, took degrees at Vanderbilt and Cornell Universities, and came to URI's Agricultural Experiment Station in 1937.

"Her work was in forage and turf crops and that sort of thing, but she developed an interest in native plants, particularly wildflowers," said Lisa Gould, executive director of the Rhode Island Natural History Survey. "We are so fortunate that her extensive collection of slides of native plants is housed in our archives."

Ms. Stuckey marked out the trails in the W. Alton Jones Campus that thousands of visitors have followed through the years.

Her published works include "Rhode Island Wildflowers" in 1967 and "Coastal Plants from Cape Cod to Cape Canaveral" with Ms. Gould last spring.

In 1994 Ms. Stuckey received the Natural History Survey's first distinguished naturalist award.

Memorial services were held in Nashville and in Rhode Island.



Watershed Education Is AWESome!

This past fall, WPWA was contracted to instruct an *AWESome!* Workshop for Coventry school teachers.



Denise Burgess (left) conducts an *AWESome!* class for Coventry school teachers.

The Town of Coventry, in cooperation with the Southern RI Conservation District (SRICD) and the Apeiron Foundation, received funding through the State of Rhode Island for a Ground Water Protection grant to conduct the program. Six teachers participated, attending classes and field trips over an eight week period. Each teacher received graduate-level credits from the University of Rhode Island, College of Continuing Education. A three-dimensional model of the Flat River Reservoir Watershed was created at the Apeiron Center for Sustainability. Part of the funding will be made available to the teachers to use for field trips in connection with watershed education.

One of the goals of WPWA is to

get people to care about, and then act upon, watershed issues in their communities. Teaching watershed education to teachers is a practical and realistic way to achieve this goal. Each teacher transfers this information to countless students, and their families, for years to come. In 1993 SRICD and the Natural Resource Science Department, University of RI developed a watershed curriculum guide for elementary and middle school teachers called Active Watershed Education or *AWESome!* In the last five years, WPWA's Program Director, Denise Burgess, has expanded the original program from a 16 hour workshop to a 32 hour, 3-credit graduate level course. She has been contracted to serve as instructor for the course in four Rhode Island watersheds for teachers in eight school districts. Each workshop has produced a curriculum guide tailored to the watershed in which it is taught. Currently there are guides for Narrow River Watershed, Scituate Reservoir Watershed, Flat River Reservoir Watershed, and the Hunt-Potowomut Watershed, as well as the Pawcatuck Watershed.

Most of the costs to run the workshops has been covered by grants and professional development funds. Some of the school districts, such as Coventry, pay the course registration fee so that teachers take the course entirely free. Forty-five teachers have received credits as they learn how to teach the curriculum.

The *AWESome!* Curriculum is a valuable tool for teachers to use to incorporate the science of everyday life into their classes. It is a fascinating look at many of the components that make up a watershed. Much of the curriculum can be matched to educational standards and benchmarks. In her classes, Denise focuses on current issues of water quality and land use, and how they affect the communities in which teachers and their students live and work. She has extended the curriculum guide to include information about wetlands, their functions and values. Denise has also added many activities, from a variety of resources, to enhance participants understanding of the course material.



Pawcatuck Middle School students test water samples for dissolved oxygen.

Potter Hill Bridge reconstruction raises access concerns

Several river users have expressed concern about the reconstruction of Potter Hill Bridge and its potential effect on canoe portage. Rep. Brian Kennedy being among the concerned, he

contacted RIDOT to help arrange a January 11 meeting between reps from WPWA, Hopkinton Conservation Commission, and RIDOT field engineers.

Our concerns for safe portage and pedestrian use were discussed for this particular site,

and other crossings in the watershed. Alternative steps that may be taken on Hopkinton Town Property to improve access and portage were also considered.

WPWA will continue to work with Hopkinton Town Officials to address and resolve this access issue before June of 2002.



WPWA CANOE AND HIKING GUIDES

Order Form

Wood-Pawcatuck River Routes Map

By Charlie Hickox and Polly Matzinger

\$3.50 members (\$4.50 non-members)

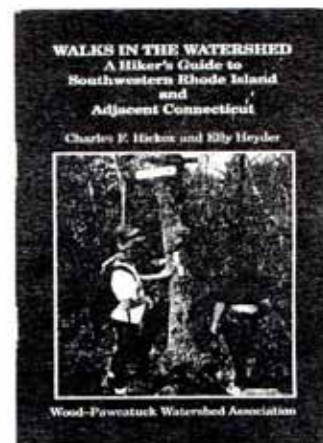
Navigate the Wood and Pawcatuck Rivers from source to sea with this colorful folded map.

**Walks in the Watershed**

By Charlie Hickox and Elly Heyder

\$3.50 members (\$4.50 non-members)

Sixteen of the watershed's best loop hikes contained in a handy pocket-sized guide



Quantity:

_____ *Wood-Pawcatuck River Routes Map*_____ *Walks in the Watershed*_____ *Pawcatuck Watershed Report (free)*

Add \$1.50 postage and handling per item.

Name _____

Address _____

Mail form and payment to:

WPWA
203 Arcadia Road
Hope Valley, RI 02832

(Monitor - from Pg. 1)

The ultimate goal is to obtain electronic water quality monitors equipped with data loggers. These devices can not only measure but also store in digital form exactly the kinds of information required for transient event analyses. The data collected by such devices lend themselves to very sophisticated statistical and mathematical analytical techniques, which increase the amount of information and inferences that can be obtained from the data.

Why should we be interested in transient fluctuations of water quality in our watershed? Although it is true that short-term fluctuations in water quality have little impact

on average conditions, these short-term events are of substantial ecological significance. Specific examples of such events with ecological significance include spills of wastes into water courses, rainfall driven pH depressions, and effects of road salting, construction, logging, and mining. There is good reason to believe that human impacts affect water quality, especially in small streams. A better understanding of transient events, and the potential risks associated with various practices, will lead to better stewardship of the entire watershed.

www.wpwa.org**Grant Awards Announced**

The Champlin Foundations
\$25,000 capital grant

Rhode Island River's Council
Legislative Appropriation
\$10,000 for Watershed Council
(correction from last issue)

WPWA welcomes Chariho students

Chariho High School seniors Emily MacDonald of Charlestown and Rachel Hampton of Richmond are working on Friday afternoons at our headquarters. Emily and Rachel selected WPWA for their Community Service volunteer program. We are enjoying their help and their company, which will continue through the Spring of 2002.

Application for Membership

Name _____

Street _____

City _____ State _____ Zip _____

Phone _____ Email _____

- ____ Individual \$25
- ____ Family \$40
- ____ Contributor \$50
- ____ Corporate \$100
- ____ Supporter \$100
- ____ Sponsor \$250
- ____ Patron \$500
- ____ Benefactor \$1000

In addition to my dues, I am enclosing an additional contribution of \$ _____

All but \$5.00 of your dues is tax deductible within the limits of the law.

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401-539-9017

Email: info@wpwa.org
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