

# WATERSHED

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A Newsletter of the Wood-Pawcatuck Watershed Association

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Summer 2009

## Pawcatuck Watershed Water Use Optimization Project

The Wood Pawcatuck Watershed Association (WPWA), Natural Resources Conservation Service (NRCS), US Geological Survey (USGS), and several other partners announce the completion of the Pawcatuck Watershed Water Use Optimization Project. The Study is the culmination of over a decade of stakeholder involvement and advocacy along with years of intensive data gathering and analysis. The idea began in the mid 1990's when the Pawcatuck Watershed Partnership established the Water Use Stakeholders Group to address various issues, concerns and conflicts related to the use of water in the Pawcatuck Watershed. NRCS received an initial allocation to begin development of the model in 2002. Additional funding was allocated to complete the effort thanks to the efforts of Senator Jack Reed's Office. As of this year, the project has been completed. Results were shared with stakeholders throughout the watershed through a series of workshops. The model will be used by water managers to ensure sustainable use of the water resources of the Pawcatuck Watershed.

### **Background on the Project:**

The Pawcatuck Watershed is home to some of the most pristine water resources in all of southern New

England, providing prime trout habitat, outstanding recreational opportunities, and a home to rare and threatened species. The region is also home to some of the most productive agricultural lands in the Northeast. Farming remains a dominant feature of the Pawcatuck Watershed landscape. Farmland is especially concentrated in the river valleys, where glacial outwash deposits provide significant groundwater aquifers. Farmers historically have relied on streams and groundwater fed ponds for irrigation water supplies. Thousands of acres of cropland are irrigated in the watershed. The area has also been under extreme development pressure in the past and continues to be looked at for future growth needs. New development relies on groundwater supplies to provide well water for homes and businesses. Areas in the Pawcatuck Watershed, first identified in the 1970's by USGS, are being investigated as potential public drinking water supplies by the RI Water Resources Board. Overall, water use in the region has grown to the point where demand threatens to exceed supply.

This provides the Pawcatuck Watershed with several challenges. Given all of the wonderful assets that the Pawcatuck Watershed possesses, it is no wonder that there are

a myriad of competing uses that require an abundance of clean water. Farmers need water to irrigate their crops during the dry summer months. An influx in summer residents and visitors place a higher demand on local water suppliers. Typically, watershed streams are naturally at their lowest levels during the same periods. Recent development patterns have only added to the challenge with large subdivisions being the largest consumer of vacant land. Towns will continue to be faced with increasing development pressures as the area grows in response to shifting populations and land development priorities. The challenge is to balance the needs of current and future water users, while recognizing the limits of the resources that we rely on. To accomplish this, the state and the towns must have the scientific information they need regarding water supply and availability to make effective long range planning decisions or to evaluate site specific and cumulative impacts of development proposals. Without this information, new development in the watershed only aggravates the problem, as new homes, businesses, golf courses, etc., compete for the limited water supplies.

*Continued on page 2*

## From the Executive Director

The summer of 2009 is starting to wind down and WPWA staff are beginning to shift focus to winter housekeeping. We are making a final push to get our new website completed and finalize our Google based water quality data map. We hope to make even larger technical upgrades in 2010 pending the infusion of new grant funding.

Looking back over the summer, WPWA accomplished an extraordinary amount of outreach work and launched more programs than ever before. Despite the June and July rains almost none of our educational kayaking, hiking, and fishing events were affected. Nor were our fish sampling and research projects along the Pawcatuck main-stem and its tributaries. We are also busy bringing the results of the "Pawcatuck Optimization Study" completed by the USGS to our members and the public through a series of workshops that conclude in September.

I am pleased to report that our membership continues to grow and our mission to serve our members and the watershed is stronger than ever. In 2009 WPWA began its historic work to restore the upper Pawcatuck River to a more natural condition while promoting fish passage. These dam removal and fishway construction projects in the Village of Shannock have generated much excitement within the community and we are proud to sponsor these historic efforts. Thank you all for your continued support of WPWA and its programs. I look forward to reporting on even more growth within our organization, its mission and partnerships within the community as the year comes to a close.

-Chris Fox



## Optimization Study *continued*

As a result of continued concern over competing water uses in the watershed, NRCS met with local producers, town officials, regulatory agencies, local environmental and watershed groups, and concerned citizens on how best to address the increasing need for water in the Pawcatuck Watershed. NRCS Staff then consulted with its partners and the NRCS National Water Management Center, housed in Little Rock, Arkansas. The Center recommended development of a water shed wide "Conjunctive Use Optimization Model" to better assess existing water use needs, and strategically plan for new uses. The Project was initiated in 2002 through a Congressional appropriation from Senator Jack Reed to develop and apply a Conjunctive Use Optimization Model.

What is a "Conjunctive Use Optimization Model"? Very simply, it looks at the combined (conjunctive) water uses and provides a look at how to balance (optimize) those uses. It required the development of two computer models, one that looks at groundwater availability and flow patterns, and one that does the same for surface water. The models were then "linked" to interact with one another (i.e. used conjunctively) to illustrate the integrated effects of water use in the watershed. For instance, as water is withdrawn from a well, the model will illustrate the reduction in groundwater flow to nearby streams. The "Optimization" component adds management constraints specified in the model. For instance, we will be able to program the model to tell us where to locate an irrigation well to optimize yield and minimize impacts to the stream

for a farm or for a collection of farms in an agricultural valley.

## Project Goals:

- Provide a tool for state agencies and municipalities to best manage the use of the water resources over time.
- Develop a tool to evaluate site specific and cumulative effects of surface and groundwater withdrawals for agriculture over time.
- Develop a tool to assist determining the location of a well to maximize yield potential and minimize impacts to aquatic environments and other users.
- Use the tool to aid in formulating alternatives, evaluating alternatives, and producing a long term management scheme for agricultural users that meets their needs and protects other users and the environment, in the context of existing/developing legal frameworks.
- Provide a tool for municipalities and state agencies to use in evaluating new development proposals and/or new water uses.
- Provide a scientific framework to allow sustainable irrigation and continued agricultural production in the watershed.
- Provide information to minimize further regulatory burdens on the farm community. Provide the scientific information needed to help resolve water use conflicts.

## Uses for the Model:

Now that it is developed, the model can help water users and decision-makers as follows:

*Continued on next page*

## Optimization Study *continued*

- It will aid decision maker and stakeholders in determining if the minimum stream flow needed to support aquatic habitat can be maintained, while minimizing impacts to new and existing businesses.
- It will optimize the location and rates of new water withdrawals in order to maintain specified minimum stream flows, ground water levels, and supply for established or priority users.
- It will be used to assess different management schemes, their effect on stream flows, and their effect on existing water users prior to establishing regulations or criteria that serve to limit water use by large volume users. Without the model, the state will most likely develop water use allocations based on limited knowledge of the resulting impact on both the resources and the businesses that rely on readily available water.
- To help towns guide development to areas adequately capable of meeting water demands while maintaining stream flows, and avoids development in areas not capable of meeting those criteria.
- To help define the sustainable yield for the hydrologic system, both surface and groundwater, over the long term.

More information on the  
**Pawcatuck Watershed Water Use  
 Optimization Project**  
 can be found on the WPWA website.



## Getting To Know Your Watershed A Lecture Series at WPWA

*By Peter V. August*

There are a lot of exciting projects happening in the watershed these days! To help keep the community informed, the WPWA has organized a series of brief lectures to review various activities in the watershed. The first two presentations will be at the WPWA campus in Barberville and the third will be a special presentation at our annual meeting in May 2010.

Lectures are free for members of the WPWA and their guests. The schedule and RSVP instructions can be found at [www.tinyurl.com/wpwa-lectschedule](http://www.tinyurl.com/wpwa-lectschedule)

Be sure to RSVP if you want to attend because space is limited. The lecture topics and speakers are:

November 1, 2009, 4:00 – 6:00 PM, WPWA Headquarters, Barberville

“Getting To Know The Watershed ... Electronically: New Breakthroughs in Web-based Information for RI’s Watersheds”

*Greg Bonyng, RI Geospatial Extension Specialist, URI*  
*Elise Torello, WPWA*

Greg and Elise will demonstrate some incredible new web technologies that are free and simple to use to explore the watershed’s natural resources.

January 24, 2010, 4:00 – 6:00 PM, WPWA Headquarters, Barberville

“Restoring Our Connections To The Sea For Migratory Fish”

*Christopher Fox, Executive Director, WPWA*  
*James Turek, NOAA*

Chris and Jim will brief us all on the dam removal projects underway in the watershed.

May 2010, WPWA Annual Meeting, Location and Date TBA

“The Natural History of Trout and Trout Fishing in the Wood River”

*Ed Lombardo, WPWA Trustee*

Fishing legend Ed Lombardo will give a special lecture at the annual meeting on recreational fisheries in the Wood River. This is not to be missed!

## Wood River Youth Kayak Program *By Denise Poyer*

This spring, thanks to a \$5,000 grant from REI, WPWA was able to offer the chance to learn how to kayak to almost 100 students, including underserved and special needs populations from around the state. The Wood River is one of the cleanest rivers in the region, with the highest biodiversity of any river in New England. As many of our members know, the best way to learn about the Wood River is from a the seat of a boat. Since WPWA has a fleet of kayaks at our disposal, we are always looking for ways to make this experience available to more and more residents of the state.

In the spring of 2008 WPWA was nominated by employees from the REI store in Cranston, RI, to submit a grant proposal to the REI Foundation. REI's Grant Program seeks to engage communities, especially youth, in outdoor recreational activities. These competitive grants are available by invitation only. WPWA proposed the Wood River Youth Kayak Program, with the intent to reach out to children in Rhode Island who normally would not be able to experience kayaking on a pristine river. The plan for this program was to have five schools participate, with up to 100 students. After contacting fifteen schools we were able to register five schools in the program. The participating schools were Compass School, a charter school in South Kingstown; Nuweetooun School in Exeter, a private school run by the Narragansett Indian Tribe; Alternatives School in Providence, a residential school for teenagers; Valley Day Program in Pawtucket, a day treatment school; and Gateway Healthcare Children Residential Programs for teenagers.

The volunteers who assisted on the field trips were teachers, parent chaperones, and regular WPWA volunteers who helped supervise students on the kayaking field trips. It was not very difficult to recruit enough volunteers for this program. The prospect of kayaking on the Wood River was a big draw for many.



Students are taught basic paddling skills outside the WPWA education center before taking to the river.

The program included an initial visit by WPWA's Program Director to the schools during class time to help prepare the students for the field trip. They went over safety procedures and behavioral expectations for the field trips. Along with kayaking, they discussed the ecology of rivers and some of the wildlife students might see. As a means of helping the students connect to the river and learn about its habitat, they focused on the life cycles of dragonflies and damselflies. These species are important indicator species of good water quality as well as being easy to see and interesting to study. At this initial meeting Mrs. Poyer had the opportunity to speak to about 120 students. At a separate date, students were transported to the WPWA campus in Hope Valley for the field trip. A total of 87 students were able to take part in the kayaking program. Again safety was stressed, as well as proper paddling techniques.

Although the weather was often overcast and wet and water levels were high, students took to paddling

like fish to water. We were able to see a nice variety of wildlife and wildflowers. Osprey, great blue herons, cedar wax wings, tree swallows, belted kingfishers, red-winged black birds, and many other birds treated paddlers to areal displays over the river. Eastern painted turtles seeking any hint of sun could be seen on many of the logs along the river's edge. A stink pot turtle and a snapping turtle made appearances on the banks near the WPWA office. Muskrats, mother black duck and ducklings, and a northern water snake were seen on at least one outing. Due to the weather, dragonflies and damselflies were not abundant, but were readily seen and identified by students. Along the banks swamp azaleas, mountain laurel, and high bush blueberries were in bloom.

On many levels this program was very successful. Most of the students never before had a chance to experience the recreational opportunities of a vibrant river. Many of those who started off fearful were able to paddle back to the dock tired but triumphant. Through this program WPWA was also able to teach the students, their teachers and parents some key facts about the Wood River and its importance to everyone in RI. This program was made entirely possible through the REI Grant and their continued support of recreational and educational organizations such as WPWA.



Students practice their newly acquired skills before they make their way up the river.

## Reuniting Our Rivers

By Chris Fox

WPWA has partnered with local, state, federal, and private organizations to enhance existing fish passage facilities in the Pawcatuck River and to restore fish passage to the upper Pawcatuck River watershed. Earlier this summer the WPWA, in partnership with the Rhode Island Coastal Resources Management Council, was awarded American Recovery and Reinvestment Act (ARRA) funding through the National Oceanic and Atmospheric Administration (NOAA) to complete removal of the Lower Shannock Falls Dam and to design and construct fish passage at the Horseshoe Falls Dam and Kenyon Mill Dam in Richmond and Charlestown, Rhode Island.

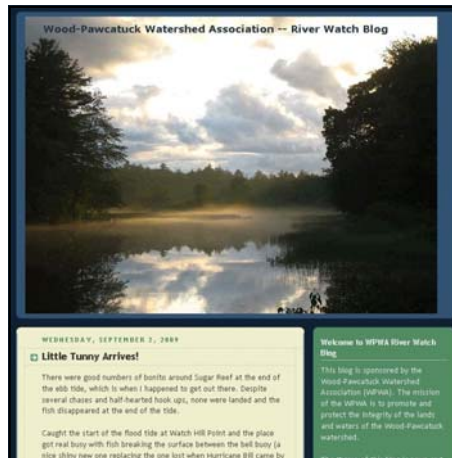
Fish passage at the these dams will allow migratory and resident fish and wildlife access to the upper mainstem Pawcatuck River, portions of the Beaver and Usquepaugh Rivers, and remove the final barriers to Rhode Island's largest natural freshwater body, Worden Pond. This multi-phased project will provide approximately 1300 acres of foraging and spawning habitat for diadromous fish in the upper Pawcatuck River watershed and represents a rare opportunity to restore significant, high quality, fish and wildlife habitat in Rhode Island.

There has been some concern regarding the potential negative impacts these projects could have to the existing river, pond and habitat conditions. WPWA is diligently working to ensure that the selected restoration alternatives will maximize the net benefit to the rivers, ponds and their resources and species composition. WPWA remains committed to preserving and protecting the watershed and will not support or initiate

any restoration activities that would result in a net loss or adverse degradation of the watershed environment.

While WPWA continues to conduct the in depth investigations necessary to ensure minimal impacts and project success we encourage you to review the informational flyer included in this edition of *Watershed*. Please post, publish and circulate this flyer in an effort to raise awareness, dispel any misconceptions, and promote the environmentally beneficial goals of the project. If you have questions or concerns, please contact Chris Fox at the WPWA office.

### WPWA Blog – The Go-To Site For Interesting News and Stories About the Watershed



**The WPWA blog site has become quite active with terrific postings on fishing conditions in the watershed, wildlife sightings, and river conditions.**

**If you don't follow the blog, now is a great time to start.**

**Check it out at:**

<http://wpwariverwatch.blogspot.com/>

## Upcoming Fall Events

Sunday, October 4 - 1pm - 4pm  
**Fall Foliage Paddle** on the Upper Wood River. Enjoy the changing leaves on this intermediate paddle starting at the route 165 put-in and ending at the WPWA campus in Barberville.

\$10m / \$15 non-members

Sunday, October 18 - 10am - 1pm  
**Hike the Long and Ell Pond trail** with WPWA Program Assistant, Danielle Aube. Hoping to catch the last of the changing leaves, participants will meet at the trail head on Canonchet road in Rockville, RI for this strenuous, 5 mile hike. Proper footwear is required.  
\$5m/ \$10 non-members

Saturday, November 28 - 10am - 4  
**Patchaug Forest Hike**  
Walk off the turkey with WPWA Program Director, Denise Poyer, for a strenuous, 8 mile hike, over rugged but beautiful terrain along the CT and RI border. Proper footwear is required.  
\$5m/ \$10 non-members

Saturday, December 19 - 10am - 12  
**Napatree Point Hike** to welcome the Winter Solstice. Join Ms. Aube for this family oriented, 3 mile hike along the shore in Watch Hill, RI. Proper footwear is required.  
\$5m/ \$10 non-members

**Keep your schedules open for a greatly anticipated new event coming in the winter of 2010...**  
**Fly Rod Building Class**

Welcome to a new section of Watershed! The Children's Page will include great learning tools for our little ones and for the kid in all of us! Please take some time to explain the information provided to your children so they can better understand how the pictures and puzzles included are not only fun but more importantly how they apply to our big backyard. Have Fun!

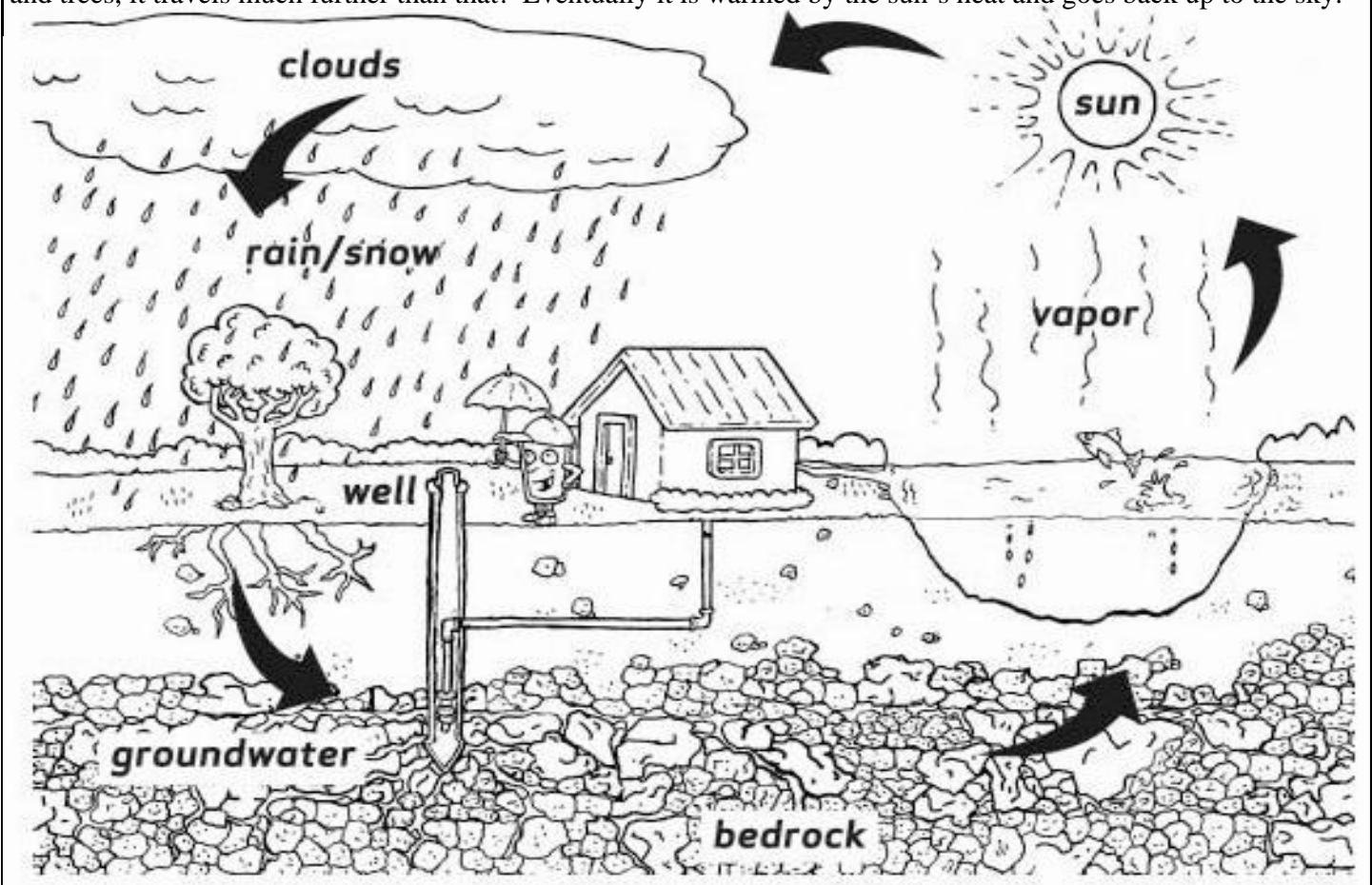
**Match the word with its definition:**

1. Watershed	a. A species (plant or animal) which has been found living in a certain area for a very long time.
2. Water table	b. The underground surface beneath which earth materials, as soil or rock, are saturated with water.
3. Precipitation	c. A species that does not naturally occur in a specific area that was probably brought in by humans, and which is likely to cause environmental harm.
4. Native Species	d. An area of land where all the water that falls onto it drains out to one common outlet, such as a river, river system, or other body of water.
5. Invasive Species	e. Water falling to the ground in the form of rain, snow, sleet or hail.

**Get your crayons and color the picture of the Water Cycle!**

Answer Key 1.d; 2.b; 3.e; 4.a; 5.c

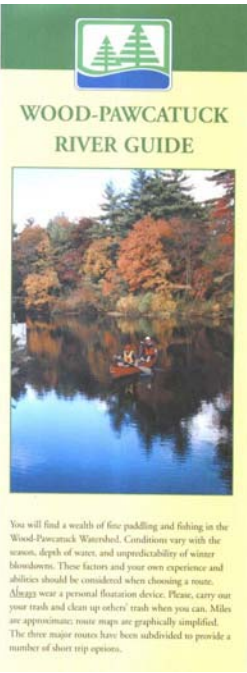
The black arrows show where water goes after it falls to the ground. Rain does not simply get sucked up by grass and trees, it travels much further than that! Eventually it is warmed by the sun's heat and goes back up to the sky.



Special Thanks to the Environmental Protection Agency for allowing WPWA to use this picture intended as a learning tool for children in kindergarten through grade three. However, it is certainly appropriate for all ages!

**Wood-Pawcatuck River Guide (2nd edition)**

By Charlie Hickox and Elly Heyder \$5.00  
 Navigate the Wood and Pawcatuck Rivers from source to sea with this colorful folded map.



Quantity: \_\_\_\_\_ *Wood-Pawcatuck River Routes Map*

Add \$1.75 postage and handling per item.

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Mail form with payment to:

WPWA, 203 B Arcadia Road, Hope Valley, RI 02832

**Walks in the Watershed**

WPWA's Hiking guide is currently in the process of being revised by co-authors, Charlie Hickox and Elly Heyder, and is not available for purchase at this time.

The finalized 3rd edition is anticipated to be available toward the end of Fall 2009.



If your family or business are interested in becoming a sponsor of the 3rd edition of "Walks in the Watershed" contact WPWA today at 401-539-9017

**Summer Programs at WPWA**  
 By Denise Poyer

The summer of 2009 was a challenging and interesting time at WPWA. Rainy days caused some delays and anxiety in the early summer, but hot weather later in the season provided much needed sunshine. This year we offered more family oriented programs than ever before.

We started off the paddle season in late May and June with introductory kayaking courses. Last summer Denise Poyer became certified by the American Canoe Association (ACA) to teach these courses, which uses industry standards and proven techniques to get people comfortable in their kayaks. Space was limited due to the low student to teacher ratio required by the ACA for the course the overwhelming response. She plans to offer this course at least twice next summer.

Our annual Source to Sea paddle was on the Pawcatuck River this year. A total of 35 people did at least one of

the paddles. We ended, as usual, at the inspiring home of Dr. Philo Willets in Avondale for a pizza party supplied by Pizza Place of Westerly. An intrepid crew of 11 paddlers completed all 55 navigable miles of the Pawcatuck over the four Saturdays in June, our largest "graduating" group ever. Certificates and gifts from URE Outfitters were handed out to them.

We also offered family paddles every Sunday in June. Unfortunately, we did not receive a big response to these events and ended up canceling one of them. However, those that did attend brought children as young as eight years old to learn the joy of paddling their own kayak. Next year we may focus on beginner paddles instead, which will be open to everyone.

Another usually popular family event, Family Fun Fishing, was offered three times in July. Again attendance was down for this event, yet several families still joined us for lively mornings of fishing at the Carolina Trout Pond in Richmond.

Learn to Fly Fish, instructed by volunteers from Narragansett Chapter of Trout Unlimited, drew many eager students at the end of July. Also in July we held two Summer Evening Paddles. Flowers were a bit slow to bloom this year, but by mid-summer we had many varieties in full splendor for paddlers to identify along the Upper Wood River.

August was a slow month for programs, with only our Tuesday Lunch Paddle series being offered. Two of the four Tuesdays were well attended. In addition to these trips, we had a full slate of camp groups and summer school groups who took to the water at the WPWA campus. This fall we will be offering one more paddle trip before we get back into our popular hiking series.

As we plan our events for next year, WPWA asks for your feedback about what programs you would like to see offered. Please send your suggestions for activities, including days of the week and times that work best, to Denise at [denisep@wpwa.org](mailto:denisep@wpwa.org).

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Street \_\_\_\_\_

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In addition to my dues, I am enclosing an extra contribution of \$ \_\_\_\_\_

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