

# WELLSPRING



## Next Generation Science Standards...p4

It's a new day in the science classroom and our Watershed Educators are leading the way.

## NJ Senate Advances Bill to Address Runoff & Flooding...p3

## LHT to Watershed Trail Opens! p11...

Our 1800ft trail link is water permeable!



FROM THE EXECUTIVE DIRECTOR

# Raising Water-IQ

by Jim Waltman



Passersby learn about green infrastructure at the Princeton Parklet on Witherspoon Street, outside Small World Coffee.

Where does your drinking water come from? What are the major causes of water pollution? Why is flooding on the rise? What is the name of the stream in your neighborhood and where does it go?

Too many people don't know the answer to these and other basic questions about water.

In order to advance our clean water mission, The Watershed has committed ourselves to substantially increasing public awareness and understanding of water issues.

*Put simply, our challenge is to raise the region's "Water IQ".*

This effort is essential to achieving our natural resource goals of curtailing polluted runoff, addressing bacteria contamination in waterways to make them safe for recreation, and restoring migratory fish to the Millstone River and its tributaries.

But we don't just want to impart greater knowledge about water, we also need to empower and engage more people in actions necessary to secure clean water.

Experience has taught us that greater public understanding leads to more engagement on issues, changes in personal behavior, and greater advocacy for policies that promote clean water.

To this end, we are creating a suite of new educational programs, materials, and communications strategies. A new section of our website contains dozens of short videos, factsheets, quizzes, and other information about water.

We've developed new educational programs for schools that build knowledge about water (see p4) and new interactive materials and games for community fairs and festivals.



We even put a doll house with a green roof and rain barrels on display in downtown Princeton. Visitors to our Reserve can now discover a full sized dog house with a green roof that models the 1600 square foot green roof on the Center.

Our plans include additional educational signs and exhibits at the Watershed Reserve and Center as well.

We're also planning new conferences and workshops focused on polluted runoff and other critical watershed issues for municipal officials, architects, landscape professionals, and other relevant trades (p3).

How can you help us raise Water-IQ? Follow us on Facebook and Twitter, and explore [thewatershed.org/water-iq](http://thewatershed.org/water-iq). Take our quizzes, watch our videos, and send us your own ideas about how we can expand knowledge and engagement on critical water issues in our area. Share what you learn!



P.S. Please evaluate the environmental records and platforms of candidates for political office this November. The more you know, the better equipped you'll be to get out and VOTE!

# NJ Senate Advances Bill to Address Runoff

New Jersey has a \$15 billion problem. Polluted stormwater runoff causes damaging flooding, fouls rivers with pollution, and closes beaches due to dangerous bacterial contamination. With aging infrastructure, a warming climate, and expanding development, this problem will only get worse without bold action from policymakers.



The Stony Brook floods in heavy rains, closing Quaker Road in Princeton at Delaware & Raritan Canal State Park

On June 21, the New Jersey Senate took an important step towards addressing this problem when it passed legislation to reduce the twin problems of flooding and water pollution. Assemblyman John McKeon's companion bill will be considered in the Assembly this fall.

Authored by Sens. Bob Smith, Kip Bateman, Richard Codey, and Linda Greenstein, the Senate bill would provide towns and counties with a tool that is available in forty-one other states but has been lacking in New Jersey: the ability to create utilities to manage polluted runoff.

Today, the biggest sources of water pollution are mostly unintentional, but they are many: pesticides and fertilizers we spread on our lawns, petroleum and antifreeze that spill from our cars, leaks from failing septic systems and broken sewer pipes, waste from our pets, soap from washing our cars, and road salt we spread on our driveways and sidewalks, to name just a few.

When it rains, this mix of pollutants washes over our lawns, driveways, parking lots, and streets as polluted stormwater runoff. In many cases, the polluted runoff flows into storm drains, then through a series of underground pipes that carry the runoff directly to local streams. For most of us, these polluted streams are a source of our drinking water.

In twenty-one New Jersey communities, polluted stormwater runoff is combined with human wastewater and treated at wastewater plants. But in heavy rainstorms, these systems are overwhelmed, and raw sewage is spilled directly into rivers — a problem that was supposed to be eliminated under the Clean Water Act.

In June, the New Jersey Department of Environmental Protection reported that stormwater at forty-seven of the state's beaches tested high for fecal bacteria — not exactly what our state's tourism industry needs.

The pending legislation would authorize (not mandate) a way for towns and counties to fund green infrastructure solutions to polluted runoff problems.

The New Jersey Assembly should join the Senate and pass legislation to authorize towns and counties to reduce flooding and water pollution through the creation of stormwater utilities. We will all benefit from this cost effective investment in our communities.

## WEDNESDAY, SEPTEMBER 26

### Stormwater Utilities Conference

9:00–12:00PM, State & Local Officials; Free w/ registration

In collaboration with NJ Spotlight, the Watershed Institute is hosting a conference to explore how other states are using stormwater utilities to address polluted runoff and flooding. Experts involved in the creation and operation of utilities discuss what lessons they've learned. NJ Spotlight energy and environment reporter Tom Johnson will moderate a panel on the issue.

## THURSDAY & FRIDAY, DECEMBER 6 & 7

### Green Infrastructure Certification Course

9:00AM–4:00PM, Landscape Professionals

Sign up for a green infrastructure certification course for landscape professionals. Based on a core set of standards in sustainable landscaping, this two day training emphasizes green infrastructure and conservation landscaping with native plants. The certification is done in collaboration with the Chesapeake Bay Landscaping Professionals (CBLP). Register online at [thewatershed.org/events](http://thewatershed.org/events).

# The Next Generation Science Standards

The Watershed Institute is rolling out new educational curricula for schools based on the new science standards that New Jersey teachers are now required to address.

New Jersey and nineteen other states have adopted these standards, known as the Next Generation Science Standards (NGSS). Yet many teachers have found that carving out the time to create the lessons that align to these standards is challenging and time-consuming.

Watershed educators are helping schools by designing NGSS curricula for kindergarten through middle school students, said Jeff Hoagland, Education Director at the Watershed. For the past year, Science Teacher Greg Hunter, on sabbatical from the Hopewell Valley Regional School District, has served as a Teacher-in-Residence at the Watershed.

Many of the lessons involve finding solutions to real-world problems and examining the impact of human activities on the environment. Students work on engineering and science projects using critical thinking skills and collaboration.

These hands-on lessons were tested throughout the 2017-2018 school year by about 1,200 students during field trips to the Watershed and Hunter's visits to local classrooms.

As a result, the Watershed now offers programs aligned with NGSS, including pre-and-post lesson activities, on various topics such as measuring stormwater runoff, controlling erosion, and designing engineering solutions for fish who encounter dams.

"For students who are engaged in these lessons, I think the excitement comes out of them knowing that it is a real-world problem," Hunter said. "I think humans naturally are problem solvers and by focusing on real things, it can be a really powerful teaching tool."



From left, Watershed Educators, Alison Novobilsky, Tammy Love, Vicky Allen, Education Director Jeff Hoagland, Sam Bernstein, Casey Schott, and Pat Heaney, stand in their "living laboratory" on the Watershed Reserve.



Senior Watershed Educator Pat Heaney helps Toll Gate 2nd graders weigh soil erosion samples during a lesson. Students engineered and tested erosion prevention methods, gathering data and modifying models.



At left, Toll Gate 4th graders measure rainwater runoff from impervious surfaces. The students used green infrastructure strategies to slow runoff and increase stormwater infiltration.

# - A New Day in the Science Classroom

The curricula can be modified for teachers in their classrooms. For example, one middle school teacher adapted the “Erosion Eraser” lesson into an exploration of how the ground shakes during earthquakes for an earth science unit. Hoagland said NGSS is a framework for understanding science and engaging students in the act of doing science.

“I like these standards because you see deep student engagement. They gain an understanding of the world of science because they are grappling with it,” Hoagland said. “As the lessons have unfolded, they’ve been met with a resounding sense of joy from the teachers because they can see how student-centered and inquiry-based learning really enhance the process.”

Students connect in meaningful ways with data they’ve collected, and discover possible solutions to real-world problems that they refine and improvise through trial-and-error.

“Students will gain a deeper understanding if they can learn about the natural world like scientists and engineers learn about the natural world,” Hunter said. “The NGSS attempts to get teachers to have students learn science content in the same way that scientists have learned these concepts”.

## NGSS Tools for Your School

Book your school trip to the Watershed Reserve by contacting Tammy Love at [tlove@thewatershed.org](mailto:tlove@thewatershed.org) or 609-737-3735 ext. 42. Learn more online at [thewatershed.org/NGSS](http://thewatershed.org/NGSS) to see how we integrate hands-on learning into environmental programs for students and teachers alike.

Each summer, the Watershed Teacher's Academy offers professional development for K-12 teachers for exploring various NGSS strategies and models. This weeklong program is done in partnership with Princeton University.

The teachers do field-based experiments and data collection with scientists in environmental science and engineering to implement these standards into their curriculum.

Follow us online for professional development opportunities at [thewatershed.org/teachers](http://thewatershed.org/teachers).



School groups use indoor and outdoor labs on the Watershed Reserve to observe, gather data, and test methods the same way scientists and professionals do. Next Generation Science Standards stress a hands-on, collaborative teaching style.

# Trail Medicine

by Jeff Hoagland

In 1966 . . . out the front door of our house in rural Hopewell Township, fallow farm fields sprawled endlessly in most directions. Burgeoning wildflowers attracted a myriad of insects, while rabbits and groundhogs darted through swaying grasses into patches of briars. Behind our house was forest, a verdant jungle of green populated by trees, vines, shrubs and a thick herb layer.

The fields offered constant invitations for exploration with many obvious avenues between the heavily armed briar patches. We encountered multiple barriers of rusted barbed wire, and slipped through, a measure of our penetration into this wilderness. The forest, however, seemed foreboding, an impenetrable wall of green. Until we made a trail.

Armed with a collection gardening tools, we carefully cut our way into the forest. It was not just an act of convenience, lending us easy access to all hidden within the lush greenery. It was also a significant proclamation by a group of elementary students. These were our woods.

As we grew older, and learned to ride bikes, we crafted more trails that coursed further into the meadows that were quickly disappearing, replaced by an expanding array of houses. But our forest trails, our home away from home, remained. These were our woods – a place of adventure, imagination, and solace.

I've been hiking down and slipping off trails ever since. Down the trail I have discovered a tangle of garter snakes awakening from their winter slumber; the faint light of glowworms, coursing through the damp autumn duff; great horned owls, stoically tolerating the noisy harassment of resident crows; and abandoned tumbledown homesteads. I've also discovered myself.

Rob Nicolaides, the Watershed's Communication Manager, found his connection to the outdoors and trails through scouting. Every two weeks, another adventure unfolded – hiking, camping, backpacking. Rob's love for the trail came from truly inhabiting it. Living on the trail.

In 2010, Rob was an outdoor leader on a high adventure trip to Philmont Ranch in New Mexico, the Mecca of scouting.

Here, in the rugged high country of the Rockies, he was a leader in a backpacking trip. Rob lived on the trail, for two weeks, covering over 100 miles. He was in constant contact with the earth, and the elements.

Beyond scouting, Rob continued his backpacking. Heeding the call for big adventure, Rob quit his job in 2012 and hiked the entirety of the Appalachian Trail. Rob had fallen in love with the trail from a childhood full of section hikes and was in need of big medicine. Living on the trail alters your sense of necessity – everything you need is on your back – with no calendar, no e-mail, no weather forecasts. From June to October, Rob headed southbound from Maine to Georgia, on the crest of the oldest mountain chain in America.



Rob celebrates the summit of Little Bigelow in Maine

Completing this journey was a true test of mind and body. In the end, Rob not only gained a tremendous sense of accomplishment, but he was enriched by an immeasurable sense of gratitude and appreciation for everything. It was an apt feeling that wasn't fully realized at the time. It was during his hike that he first met his now girlfriend, northbound hiker, Emilyn Fox over an especially serendipitous stack of fresh blueberry pancakes.

Isn't it love that brings us to the trail? An intimacy with the world around us - the earth underfoot, the sky above, the scent of spicebush, the taste of trailside berries, the sound of falling rain?

Separately, Rob and I continue our own love affairs with the wild. You can find me any season, hiking along water. You won't find Rob – he likes it that way. Although there are so many trails, I must confess that the Stony Brook Trail on the Watershed Reserve may be my favorite. I have hiked it repeatedly since its creation. Rob's favorite trail is the next one. He hasn't hiked it yet.

# Fall 2018 Calendar

We are excited to announce the introduction of a new online portal and registration system to enhance your experience with us. You will now be able to easily sign up for programs and special events, renew your membership, and automatically receive member discounts securely from any device. Visit us online at:

[thewatershed.org/events](http://thewatershed.org/events)

Enjoy the colors of autumn with The Watershed Institute. Participate in programs & events with the whole family. Be a part of the magic that makes our work so special! Clean water and a healthy environment depend on you.

## FRIDAY, SEPTEMBER 14

### Creepy Spider Night Hunt

7:30-9:00PM, General Audience, ages 5+; \$5 per person

Crab spiders, jumping spiders, wolf spiders, orb and funnel weavers and more! Join our annual night hunt with nocturnal naturalist Jeff Hoagland. We will navigate the trails of the Watershed Reserve using our flashlights in search of many different types of spiders. Bring your own flashlight.

## FRIDAY, SEPTEMBER 14

### Citizen Science Symposium

8:30AM-3:30PM, General Audience; \$25, includes lunch

Explore how members of the environmental community have used and developed citizen science programs to better understand our environment and engage the public. The Symposium will highlight a wide range of programs and issues focused on water quality, butterfly migration, bird populations and much more. We will examine use of technology, data integrity, engaging school children, and more through presentations, panel sessions, and open discussions. Sponsored by Assoc. of Conservation Executives and Assoc. of Nature Center Administrators with support from Marshall & Sterling Insurance.

## SATURDAY, SEPTEMBER 15

### Water Wheelies

9:30AM-12:00PM, General Audience, age 8+; \$15 per child

Families will explore kinetic energy by building their own experimental waterwheel. Then put on your boots for a hike to the Stony Brook, where we will test our waterwheels for an investigation of water's energy as it turns the blades of our mini hydro-turbines. All materials included.

## FRIDAY, SEPTEMBER 21

### Campfire Storytelling

7:00-8:30PM, General Audience, all ages; Free

Step away from the screen and listen to our storytellers spin yarns from several cultures. Spark your imagination with stories both funny and poignant. Roast a marshmallow as you lend an ear to stories from far and near. Co-sponsored by Washington Crossing Audubon Society.

## SATURDAY, SEPTEMBER 22

### Learn to Canoe at Wargo Pond

9:00AM-12:00PM, General Audience, ages 9+; \$15pp

New to paddling? Here's your chance to learn some basics! Join several experienced paddlers at lovely Wargo pond to learn canoe skills and safety. We will provide all the canoes, paddles, and lifejackets! The instruction will include paddling techniques, practice on the water, and a game. A certified lifeguard will be present while we are on the water. All under 18 must be accompanied by an adult. Feel free to bring a picnic lunch to enjoy after the program. \*Program meets at our pond house at 260 Wargo Road.



Summer campers enjoying canoeing on Wargo Pond

WEDNESDAYS, SEPT 26 | OCT 17 | NOV 14

## Autumn Reading Group Out There: Voices from the Wild

7:30–9:00PM, Adults; Free

Facilitator Jeff Hoagland invites you to enjoy this unique and relaxed reading group in exploring the wide and varied terrain of nature writing, wildness and wilderness. Each month, readers will receive by email, a curated collection of poems and prose focused on a specific topic or author. Register for individual sessions or all three. Light refreshments provided. Autumn topics include:

**SEPTEMBER – Mary Oliver**

**OCTOBER – The Seacoast**

**NOVEMBER – The Survival of the  
Bark Canoe by John McPhee**

**SATURDAY, SEPTEMBER 29**

## Paddle the Delaware River

9:00AM-2:00PM, General Audience, ages 15+; Free

Join us for a Canoe trip along the Delaware River. This free program is sponsored by the William Penn Foundation as part of the annual River Days celebration of the Delaware River Watershed. We provide watercraft, paddle, and PFD as well as guide/naturalist and lifeguard services. Light refreshments will also be available.

**FRIDAY, OCTOBER 5**

## Stars, Planets and Stories in the Sky – Family Astronomy

7:30-9:00PM, General Audience, ages 6+; Free

Explore the wonders of the night sky beneath the ribbon of the Milky Way. Discover some prominent constellations and learn the stories behind them. Meet some of our planet neighbors through telescopes during this beginner family astronomy session. Co-sponsored by Washington Crossing Audubon Society.

**SATURDAY, OCTOBER 6**

## Watershed to Watershed Bike Tour

9:00AM-12:00PM, General Audience, ages 12+; Free

Explore the Lawrence-Hopewell Trail by bike as part of the River Days celebration sponsored by the William Penn Foundation. Starting with morning refreshments at the Watershed Center, we will bike the Lawrence Hopewell Trail to Lawrenceville and back, picnic lunch provided. *We will find the dividing line between the Delaware River and the Millstone River watersheds*, and enjoy the natural world along this growing pathway.

OCTOBER 7 | NOVEMBER 4 | DECEMBER 2

## First Sunday Environmental Film Series

Sunday, 1:00PM, Adults & Families, Free - Walk-ins welcome  
Visit [thewatershed.org/films](http://thewatershed.org/films) to learn more about upcoming screenings at the Watershed Center including an exciting short-film triple feature this October.



OCT 7



NOV 4



DEC 2

**SATURDAY, OCTOBER 20**

## Rocktober Hike in the Sourland Mountains

1:30-3:30PM, General Audience, ages 8+; \$5 per person

Join this moderate hike to celebrate the rugged rocks of the Sourland Mountains. Wear sturdy and comfortable walking shoes/boots and bring water bottle. \*This hike does not meet on the Watershed Reserve. Meeting location supplied upon registration.

**FRIDAY, OCTOBER 26**

## Volunteer Pumpkin Carving

6:30-8:30PM, General Audience, ages 12+; Free

Can you carve a pumpkin? We need volunteers to carve scores of Jack O' Lanterns in preparation for our Origins of Halloween Night Hike. Bring your own knife or carving tools. Bring a pumpkin to donate, if you are able.

**SATURDAY, OCTOBER 27**

## The Origins of Halloween Night Hike

6:00-8:30PM, General Audience, ages 5+; \$18 per person

Join us on a journey through the woods on a crisp autumn night. As each group arrives at the Watershed Center, they make a Halloween craft. Then they meet their trail guides and hit the trail for an exciting adventure. You will follow your guide on a trail of glowing Jack O' Lanterns; along the way you stop to meet the characters in an Irish Folktale that unfolds along the path. While other Halloween programs are designed to frighten, our goal is to educate and enchant. Guided hikes begin every 15 minutes; last hike begins at 8:30 p.m. Space is limited; register early to get your preferred time slot.

## FRIDAY, NOVEMBER 2

### New Jersey Watershed Conference

9:00AM–5:00PM, *Watershed Professionals*

Our 2nd annual conference will include presentations from local experts about state regulations related to water resources management, infrastructure requirements and maintenance, and the problems and solutions related to the health of our watersheds. We welcome NGO's, engineers, members of Environmental Commissions, Planning and Zoning Boards, as well as interested members of the general public.

## SATURDAYS, NOVEMBER 3, 10, & 17

### Owl Banding on the Reserve

5:30–10:30PM, *General Audience, ages 8+; \$15 per person*

For several years, Naturalist Tyler Christensen has been conducting field research on the Watershed Reserve utilizing mist nets to capture and band Saw-whet owls to learn more about their autumn migration. Through this unique opportunity, learn about the ecology, adaptations, and behaviors of these tiny owl visitors. Space is very limited – please register for specific timeslots indicated on our website. Children must be accompanied by an adult and all participants must be comfortable walking on uneven ground at night.

## THURSDAY & FRIDAY, NOVEMBER 8 & 9

### H2Odysey - School's Out Program

9:00AM–4:00PM, *Children, K-6th; \$85 per day per child*

New Jersey Public Schools are closed for the NJEA Convention. Spend your fall school break exploring nature with the Watershed Educators! Cold and wet weather won't stop us; we spend each day exploring outdoors, getting messy, playing, and creating. Sign up for one day or both with sibling and multi-day discounts. Before Care (8-9AM) and After Care (4-5:30PM) are also available.



Watershed trails lined with volunteer carved pumpkins

## FRIDAY, NOVEMBER 30

### Natural Holiday Crafts and Draughts

7:00–9:00PM, *Adults, ages 21+; \$20 per person*

Sip some wine or beer as you fashion tiny holiday treasures and gifts from natural materials. We will provide everything you need to make festive ornaments and decorations. This is a fun way to get into the holiday spirit. We provide everything you need to make the crafts, plus cheese and snacks. Bring your own wine or beer; we'll bring the corkscrew!

## SATURDAY, DECEMBER 1

### Volunteer Appreciation Brunch

10:00AM–2:00PM, *Watershed Volunteers; Free*

Let's do brunch! Our beloved Streamwatchers, Critter Care, Trustees, Advisory Board members, et al; we invite you and your families for a cozy mid-morning meetup. Dig into some pancakes with the Watershed Staff and enjoy some games and activities. RSVP to our online invitation and we'll see you there! Thanks for all you do!



An eastern bluebird is a year round resident of our reserve

## SATURDAY, DECEMBER 8

### Winter Bird Walk

9:00–11:00AM, *General Audience, ages 12+; Free*

Join Education Director Jeff Hoagland on a hike of the Watershed Reserve in search of wintering birds. Bring binoculars and dress for possibly muddy or snowy walking conditions. Co-sponsored by Washington Crossing Audubon Society.

## SATURDAY, DECEMBER 8

### Candle Making Workshop

1:00–3:00PM, *General Audience, ages 8+; \$18 per person*

Celebrate the approaching Winter Solstice and the return of the light by making candles! We will create hand-dipped candles and sand candles. Learn how to shape candles and add embellishments, then go home with your unique handmade gifts!

## Programs for Children

**TUESDAYS, SEPT 18 | OCT 16 | NOV 13**

### Toddler Nature Classes

10:00–11:00AM, Children, ages 18-36mo.; \$10 per child

You are never too young to start exploring outdoors! You and your toddler will experience nature as we share walks on the Reserve and story time. Classes provide a fun introduction to animals, plants and nature in general. Dress for fickle fall weather because we always go outside. All children must be accompanied by an adult.

**WEDNESDAYS & THURSDAYS, SEPT - DEC**

### Preschool Nature Classes

10:00-11:30AM, Children, ages 3-5; \$10 per child

Learn about nature while exploring nature with a Watershed Educator. Each class includes outdoor exploration, stories and a craft. A parent must stay with any child younger than 4. We go outside every class; come dressed for being outside in the day's weather. Weekly topics; choose Wednesday or Thursday.

**SEPT. 12 & 13 - Spikes, Spines, and Stingers**

**SEPT. 26 & 27 - Grasshoppers and Crickets**

**OCT. 17 & 18 - Apples Abound**

**OCT. 24 & 25 - The Forest in Autumn**

**OCT. 31 & NOV. 1 - Halloween Black**

**NOV. 14 & 15 - Air Up There**

**NOV. 28 & 29 - Mission: Decomposition**

**DEC. 5 & 6 - Winter Preparations**

**DEC. 12 & 13 - Evergreens for Everyone**

**TUESDAYS, SEPTEMBER - DECEMBER**

### Homeschool Nature Classes

10:00-11:30AM, Children, ages 5–12; \$10 per child

Join us to explore different topics in natural history. Parents must stay on the property and are encouraged to let their children participate in the class independently.

**SEPT. 11 - Nature's Defenses**

**SEPT. 25 - Insects of the Field**

**OCT. 16 - Autumn Forest Ecology**

**OCT. 30 - Autumn Animal Ecology**

**NOV. 13 - Daytime Astronomy**

**NOV. 27 - Decomposers**

**DEC. 4 - Holiday Crafting**

## Scout Programs

**SATURDAY, SEPTEMBER 15**

### Monarch Morning

10:00AM–12:00PM, Daisy & Brownie Girl Scouts, \$7 per Girl Scout or Adult

Join us to learn about the incredible migration of the Monarch butterflies as well as conservation efforts. Our Teacher-Naturalists will demonstrate tagging and releasing of Monarchs. Register directly with Girl Scouts of Central and Southern New Jersey [www.gscsnj.org/registration](http://www.gscsnj.org/registration). Search for Monarch Morning.

**SATURDAY, SEPTEMBER 15**

### Junior Girl Scout Geocache

1:30–3:30PM, Junior Girl Scouts; \$7 per Girl Scout or Adult

Discover the fun of geocaching! Girl Scouts will learn the basics of using a GPS unit and navigate through the woods. Register directly with Girl Scouts of Central and Southern New Jersey [www.gscsnj.org/registration](http://www.gscsnj.org/registration). Search for Junior Geocache.

**SATURDAY, NOVEMBER 3**

### BSA 'Soil & Water Conservation' Merit Badge Workshop

9:30–12:30PM, Boy Scouts, ages 11-17; \$20 per scout

This Boy Scout workshop will focus on watersheds, soils, and the interactions of the geosphere and hydrosphere helping scouts acquire the Soil & Water Conservation Merit Badge. Out on the trails with Merit Badge Counselor Jeff Hoagland, boys will learn the importance of conservation practices.



Pre-schoolers enjoy story time- Photo by Jessica Sanders

# LHT to Watershed Connector Trail Opens

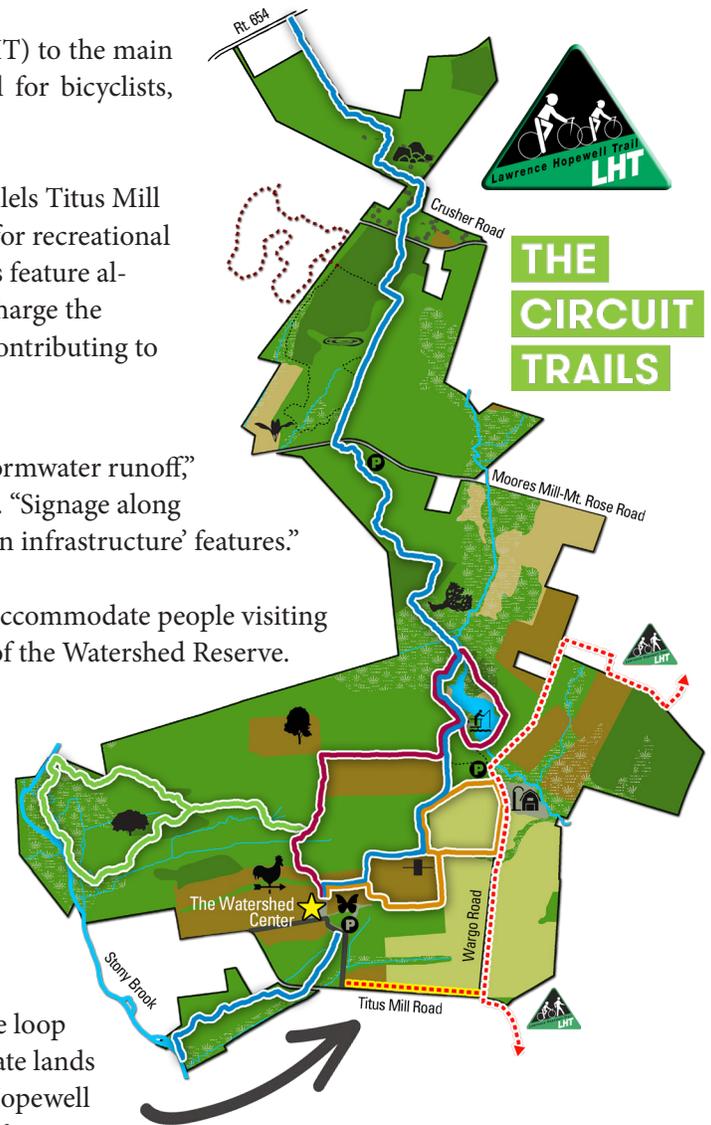
A new trail connecting the Lawrenceville-Hopewell Trail (LHT) to the main entrance of The Watershed Institute will be open this fall for bicyclists, walkers and other outdoor enthusiasts.

The 1800-foot path – about the length of six football fields - parallels Titus Mill Road, offering scenic vistas of the organic farm and safe passage for recreational users. The path is a demonstration of “permeable pavement.” This feature allows stormwater to pass through it, soak into the ground and recharge the aquifer instead of running off of hard, impervious asphalt, and contributing to flooding.

“Our connector trail is an example of how to manage polluted stormwater runoff,” said Jim Waltman, Executive Director of The Watershed Institute. “Signage along the connector path will educate the public on this and other ‘green infrastructure’ features.”

While there are plenty of bike racks at The Watershed Center to accommodate people visiting with pedal power, bicycles are not allowed on the walking paths of the Watershed Reserve.

The connector trail was funded by the William Penn Foundation and the Delaware Valley Regional Planning Commission. The project began after the necessary approvals by the Hopewell Township Zoning Board, the Delaware Raritan Canal Commission and the Mercer County Soil Conservation District.



Connector trail construction required a corridor of stone layered for permeability. Water that penetrates the top layer of asphalt will have room to settle and time to percolate into the soil naturally.



The trail corridor as seen from Wargo Road

The LHT will eventually form a continuous 22-mile loop on public and private lands in Lawrence and Hopewell townships. All but four miles of the trail have been constructed.

The trail links Mercer County parks, schools, historic villages, and playing fields, and offers views of farmland and woodlands. At the Lawrence Township end, the trail links to the Delaware and Raritan Canal State Park Trail.

The Lawrence-Hopewell Trail is part of a larger network called The Circuit Trails ([www.circuittrails.org](http://www.circuittrails.org)). Supporters aim to develop nearly 800 miles of trails in the greater Philadelphia region. We invite you to come enjoy the trails with us!

# Remembering Kit Hildick-Smith



A young Kit Hildick-Smith

Long time Watershed supporter Kit Hildick-Smith passed away in April at the age of 92. She was an adventurer who learned to fly at age 17 while in college at Bucknell University, class of 1946. Kit was involved in social service and political activities, working for the U.S Embassy as part of the Marshall Plan program and its reconstruction of post-war Europe.

Kit and her husband, Dr. Gavin “Pete” Hildick-Smith, moved to Princeton in 1955. Pete was a director in the corporate Office of Science & Technology at Johnson & Johnson, where he worked for 37 years. During his tenure at J&J he focused on searching for new opportunities in medical research for the company.



Kit Hildick-Smith is pictured here dedicating the dock on Wargo pond with friend and Watershed Advisory Board Member, Betty Wold-Johnson

Kit and Pete raised two sons as she became active in the community. In addition to being involved at the Watershed, she lent her support to the New Jersey Symphony Orchestra and Trinity Church.

In 2007, Kit donated funds to build a dock on Wargo Pond in memory of her husband. The two tiered dock provides accessibility to the pond for educational programs and is enjoyed by the public for fishing and wildlife observation. Kit cared deeply about the environment and she included the Watershed as a beneficiary in her will, helping to ensure that our work continues.

## **Muriel Buttinger Legacy Society** - *Would you like to ensure your values are supported in perpetuity?*

Consider discussing the following planned gifts with your financial advisor or attorney.

**Bequests:** You can take care of your loved ones and continue supporting the Watershed Institute for years to come. You may make a bequest or gift through your estate by including a provision in your will or living trust. The amount left to a charity can be expressed as a dollar amount or as a percentage of the assets to be given.

**Gifts of Life Insurance:** Do you have a policy you no longer need? A gift of life insurance can represent a substantial future gift at relatively little cost to you. You can make the Watershed a beneficiary of an existing policy or name us as the owner and beneficiary. Each method has tax advantages.

**Gifts of Retirement Plan Assets:** You can name the Watershed as a whole or partial beneficiary of your retirement plan. You continue to make withdrawals from your account during your lifetime. Any residual left in your account after your passing will flow tax-free to the Watershed according to the allocation indicated on your beneficiary designation form.

For more information on making a planned gift to The Watershed Institute, contact Development Director, Jenny-Ann Kershner at [jkershner@thewatershed.org](mailto:jkershner@thewatershed.org) or by phone at 609-737-3735 x36.

# Focus On Bear Brook

Residential neighborhoods dominate the landscape of the Bear Brook watershed. On an aerial map, bright green lawns stand out against the mossy ambers of the natural wetlands and forests. From above, it's not hard to imagine the scale of lawn fertilizer and pesticide use, along with other types of nonpoint source pollution often associated with suburban living.

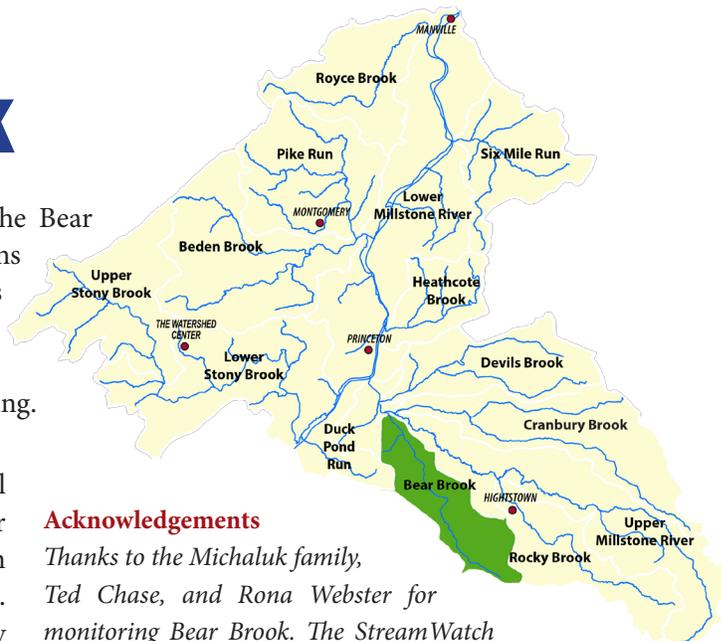
Healthy waterways, or those left untouched by developmental pressures, are protected by native vegetation along the river corridor. Plants and soil filter out pollutants and slow down the flow of stormwater runoff to prevent erosion and flooding. Without a wide, vegetated buffer protecting the brook, many of the pollutants from the Bear Brook watershed flow directly into the waterway, degrading its water quality.

When last assessed in a subwatershed report in 2015, the water quality in Bear Brook was considered “good”. In this assessment, however, the overall water quality score for the brook is linked to the amount of pavement and other hardscape in the surrounding area. About 16.7% of the area, which includes portions of West Windsor, East Windsor, and Robbinsville, are covered with roads, parking lots, and buildings.

According to research from the Center for Watershed Protection, more than 10% of impervious surfaces in a particular watershed will negatively impact that stream’s water quality. As you can see in the report card, the score for impervious cover in this watershed receives a fair rating – which echoes Bear Brook's score as well.

Rainwater is between 5-6 on the pH scale, however NJ state standards indicate that streams in our area should have a pH between 6.5-8. Bear Brook falls below the mark, perhaps due to the high impact of stormwater on the stream due to a lack of vegetated buffers. This may also explain its high levels of phosphorus, which in turn leads to lower dissolved oxygen concentrations. Each of these indicators is intertwined with the others, causing a chain reaction of degradation that impacts aquatic organisms living in the stream.

Two biological monitoring sites on Bear Brook indicate a moderate-to-high level of impairment. StreamWatch assessments of site BB1, located downstream of Grovers Mill Pond in Princeton Junction, are fair-to-poor, with NJDEP sites upstream being assessed at fair-to-good. This demonstrates the cumulative impact of urbanization on Bear Brook as it flows downstream.



### Acknowledgements

Thanks to the Michaluk family, Ted Chase, and Rona Webster for monitoring Bear Brook. The StreamWatch program is funded by Janssen Pharmaceuticals Inc, Colgate Palmolive Company, & the NJ Water Supply Authority.



An autumn view of Bear Brook, photographed by Beth April

## Scorecard

Aquatic Life .....	🔴
Nitrogen .....	🟡
Phosphorus .....	🔴
Dissolved Oxygen .....	🟠
pH .....	🟠
Temperature .....	🟡
Turbidity .....	🟠
Bacteria .....	🟠
Impervious Cover .....	🟠
<b>Overall Health</b> .....	🟠

### Rankings

🟢=Excellent   🟡=Good   🟠=Fair   🔴=Poor

# Two Pipelines Threaten Clean Water

The Watershed Institute is fighting two natural gas pipelines that threaten clean water and habitats in central New Jersey.

Our readers may be familiar with the PennEast Pipeline. The project is a proposed 120-mile natural gas pipeline from Luzerne County, PA to Hopewell, NJ, that received its certificate of public convenience and necessity from the Federal Energy Regulatory Commission (FERC) in January 2018.

With that conditional approval from FERC in hand, PennEast then filed eminent domain lawsuits in federal district courts to take private and public property along the proposed route. As of mid-August, the courts had still not responded.

PennEast applied for the required permits from the New Jersey Department of Environmental Protection (NJDEP) in 2017, but was denied because it lacked data necessary for a complete review. If and when PennEast gains access to these lands and the company completes the required environmental surveys, we expect the company to file a new application.

A second pipeline of concern is the Northeast Supply Enhancement Project (NESE). This project involves new pipes and other construction aimed at transporting gas from Pennsylvania to New York. The project includes a proposed new compressor station and new pipes in Monmouth and Middlesex counties and under Raritan Bay.



This project has not yet received a certificate from FERC. Last year, NESE began applying for permits to NJDEP. NESE withdrew its application because it also lacked important information but recently submitted a new application.

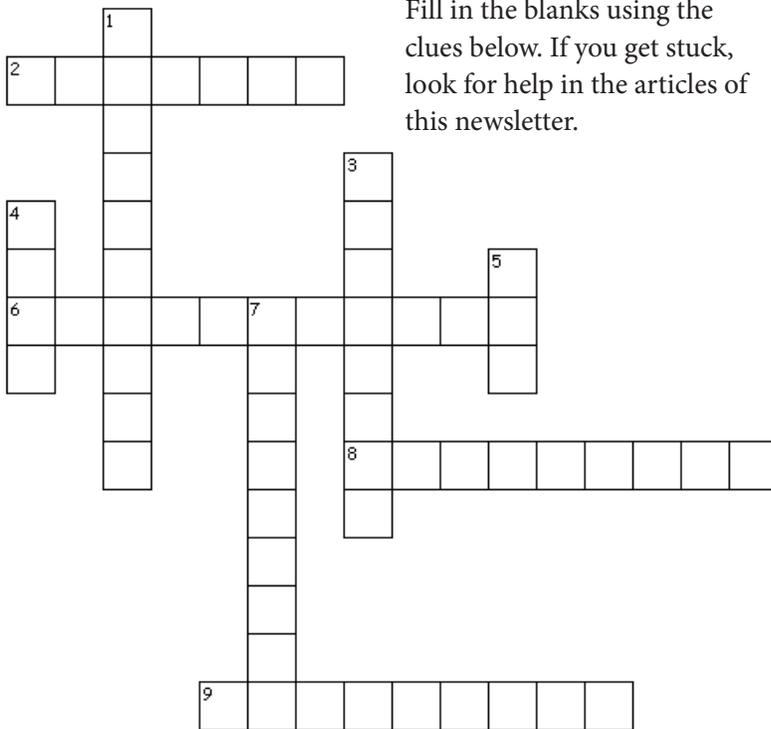
Both proposals illustrate the potential harmful impacts of natural gas infrastructure.

In order to construct the NESE compressor station, the project would trench pipes through wetlands, cross several streams and clear-cut forest. The PennEast project similarly impacts more than 30 of our most pristine streams. It threatens to destroy stream buffers, fill or degrade numerous wetlands, clear acres of forest, and would harm open space areas that were ostensibly protected.

We ask residents, community leaders, regulatory bodies, and legislators to consider not just the impact and dangers in transporting fossil fuels through our area, but the effect it has on our environment from extraction to combustion. The Watershed Institute believes in a renewable energy future for New Jersey, and continues to work with partners in opposing these damaging projects.

This map by ReThink Energy NJ shows over 1500 miles of active pipelines in our state and proposed new routes

# Clean Water Crossword



Fill in the blanks using the clues below. If you get stuck, look for help in the articles of this newsletter.

## Across

2. Testing your H<sub>2</sub>O knowledge
6. Watershed volunteer water monitoring program
8. Paddle, bike, or walk during this region wide celebration
9. Pavement type -alternative to impervious cover

## Down

1. Walk to this stream on the Watershed Reserve
3. Adj. PA/NJ River Watershed
4. Abbrev. new framework for science classroom curricula
5. Abbrev. local trail network
7. 38 mile trib. of Raritan River

*Keeping water clean, safe and healthy is the heart of our mission.*

*We work to protect and restore our water and natural environment in central New Jersey through conservation, advocacy, science and education.*

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