



*Protecting our Waters and our Land for more than 30 Years*

## Success at Bayne Park!

by Laura Kelm, GSWA Director of Water Quality Programs

In the fall of 2011, Great Swamp Watershed Association (GSWA) constructed several vegetated buffers at Bayne Park in Harding Township. These areas, which include native shrubs, trees, and grasses, were designed to help reduce the flow of stormwater runoff into the park pond and Bayne Brook. Stormwater moving down the hill from the park's grassy areas and nearby Blue Mill Road are thought to be the source of several potential pollutants, including road salt and oil (from the paved area)

and nutrients and bacteria (from animal droppings).

The buffer area was broken into four sections when it was constructed. Deer fences surround three of the plots containing shrubs, trees, and grasses, while a fourth plot containing only grasses is protected by a lower goose fence. Fencing has successfully protected the buffer from trampling and browsing by deer and geese, while providing enough time for the young plants to establish themselves.

*(continued on page 33)*



Figure 1. Taken in June 2010, this Google Earth image shows the south side of the pond at Bayne Park (Harding Township, NJ) before buffer plantings were installed to help slow and infiltrate stormwater runoff. Note the very narrow strip of taller vegetation along the pond's edge.



Figure 2. Taken in November 2012, this Google Earth image shows the south side of the pond at Bayne Park approximately one year after buffer plantings were installed. Areas with deer fencing are visible at both ends of the buffer area. The narrow strip of taller vegetation along the pond's edge shown in Figure 1 has been widened considerably and protected by goose fencing.

# From the Desk of the Executive Director



by Sally Rubin

**T**his spring I am very pleased to announce the start of an exciting new initiative!

We call it the Great Swamp Upper Passaic Municipal Alliance (GSUPMA), and through it the Great Swamp Watershed Association will help towns within the watershed and along upper portions of the Passaic River work together to develop municipal policies and ordinances that focus on protecting open space, reducing stormwater runoff, curbing pollution, and protecting local water supplies.

Membership in the Alliance will be voluntary and will offer participating municipalities a no-cost way to access expert assistance from well-known consulting

firms; as well as, opportunities to maximize municipal investment in local environmental, planning, and zoning improvements by coordinating efforts on a regional scale.

The primary goal of the Alliance will be to keep municipal officials and communities informed and motivated as they address specific environmental, planning, or zoning issues that may be of shared concern. Where appropriate, members will be encouraged to adopt model ordinances that effectively address local needs, and effectively contribute to broader, mutually beneficial solutions.

One of the first areas of shared concern Alliance members will work to address is effective deer herd management. These

## Issues of Shared Concern

The Great Swamp Upper Passaic Municipal Alliance will address a host of shared environmental and non-environmental issues, including:

- disconnecting networks of impervious surface cover,
- improving road salt application,
- managing wastewater discharges,
- installing porous pavement,
- building rain gardens and bioretention basins,
- protecting stream corridors and wildlife habitat,
- managing deer,
- preserving forests,
- managing lakes and ponds,
- protecting and stewarding land,
- reducing flood damage and improving flood resiliency,
- managing soil erosion and preserving steep slopes, and
- aligning municipal planning and zoning strategies with current best practices.

animals routinely fail to observe political boundaries, so establishing a more regional approach to herd management would provide a better return on investment for all involved.

Flooding is also an issue of shared concern among municipalities. And, given the number of severe weather events our region has seen over the past few years, another of the Alliance’s early campaigns will focus on demystifying the Federal Emergency Management Agency’s (FEMA) National Flood Insurance Program (NFIP). Through the NFIP, New Jersey communities have a rare opportunity to lower flood insurance premiums for residents and business owners. The key to unlocking the benefit resides in a sub-program of the NFIP known as the Community Rating System (CRS). Incentives for joining the program are considerable, and I encourage you to learn more about it by reading the five-part article about the NFIP and the CRS that appears in this issue of *Across the Watershed*. Our Alliance will offer information and guidance to member municipalities interested in qualifying for a CRS Classification Rating.

Other issues of shared concern that the Alliance will be able to address in the future may include, but certainly will not be limited to, septic and stormwater management, soil and tree management, open space asset management, and, where appropriate, municipal planning and zoning strategies.

As a founding member of the GSUPMA, we envision that GSWA will:

- facilitate sharing of information and best-management practices,
- bring relevant topics to the attention of other members, and

*(continued on next page)*

## Across the Watershed

is a publication of the **Great Swamp Watershed Association**.

GSWA is a member-supported non-profit organization that has been protecting the waters and the land of the Great Swamp Watershed for more than 30 years.

**Editor:** Steven Reynolds

**Designer:** Ann Campbell

**Contributors:**

- Frank Banisch
- Karen DeTrolio
- Hazel England
- Laura Kelm
- James Northrop
- Blaine Rothausser
- Sally Rubin

### In This Issue:

|                                     |    |
|-------------------------------------|----|
| Success at Bayne Park!              | 1  |
| From the Executive Director         | 2  |
| Watershed Watch                     | 5  |
| Outdoor Programs                    | 6  |
| GSWA Expands Stream Monitoring      | 8  |
| Rain Barrel Building Workshop       | 9  |
| Breakfast Briefings                 | 10 |
| Going Green at the Pingry School    | 12 |
| Conversations & Collaboration       | 13 |
| Mink or Otter?                      | 16 |
| Revisioning Local Land Use Policy   | 19 |
| Deciphering Flood Insurance         | 20 |
| Treasures In Your Backyard          | 34 |
| Got Some Time? Volunteer!           | 36 |
| Home and Garden Tour                | 37 |
| Equine Management                   | 38 |
| Changes to Board & Advisory Council | 39 |

## From the Desk *(continued from previous page)*

- encourage members to collaborate in the creation of complimentary solutions that stretch across municipal boundaries.

GSWA also has the staff, experience, and other resources required to coordinate meetings, facilitate timely communication between members, and secure the participation of issue experts. Dr. Stephen Souza and Mr. Frank Banisch are two of the first experts we plan to work with.

Dr. Souza is a principal at the Ringoes-based environmental consulting firm Princeton Hydro. Princeton Hydro maintains an impressive portfolio of environmental work in New Jersey and recently provided technical support for GSWA's collaborative pollution remediation project at Seaton Hackney Stables in Morris Township.

Mr. Banisch is a widely-respected municipal planner whose depth of experience with cooperative efforts like the Alliance is exceptional. He is particularly knowledgeable about the development of the *Sourlands Mountains Comprehensive Management Plan*, an agreement that coordinates the environmental policies of seven communities in Somerset County, Hunterdon County, and Mercer County. I strongly encourage you to read the short article on re-envisioning municipal land use policy that he has generously contributed to this issue of our newsletter. Frank will be the first speaker to address the Alliance at our inaugural meeting on April 16. (See page 19 for meeting details.)

We know that we are facing many challenges as we work to get this new initiative started. Time and resource

commitments will always hinder or delay participation. And, unfamiliar strategies and solutions will always require research, conversation, and time before they are widely accepted.

In recognition of these concerns, let me present our vision for the program:

- The Alliance hopes to provide a forum where members can engage in free and open dialogue; where they can actively explore shared interests and shared issues of concern.
- The Alliance hopes to recommend practical, feasible, and cost-effective actions that each member may own and implement; actions that derive from a common sense of purpose.
- And, above all else, the Alliance hopes to improve the quality of the land under our feet, the quality of the water in our streams, and the quality of life in our towns; to protect that national treasure we call the Great Swamp National Wildlife Refuge, along with the waters and land of the greater Passaic River Watershed located downstream.

I hope you enjoy reading the rest of this issue of *Across the Watershed!* Please feel free to give us a call at (973) 538-3500 or send an email message to [info@GreatSwamp.org](mailto:info@GreatSwamp.org) if you have any question or comments for the organization. 🌿

Like GSWA  
and join the cause on

facebook.

# Watershed Watch – Environmental Hot Spots

by Sally Rubin, GSWA Executive Director

The “environmental hot spots” described below outline some of GSWA’s advocacy activities throughout the Great Swamp Watershed over recent months. Where appropriate, we continue to closely monitor each situation.

## **Morris Township: Seaton Hackney Stables at Loantaka Brook Reservation**

Work funded by the \$300,000 319 grant GSWA received to do remediation at this site is winding down. A few more projects remain to be designed, and a few more remain to be implemented. Gutters and leaders will be installed on the front of the barn. This hardware will help reduce and redirect the flow of the stormwater sheet that moves across the adjacent pavement area during rain events. Water will be redirected into the nearby restoration area.

A new manure storage area will be designed to keep manure in containers prior to being removed from the site. (This project will be implemented at a later date.) The new storage area will prevent stormwater from washing across the manure and carrying contaminants into nearby Loantaka Brook.

## **Long Hill Township: Restore Meyersville**

The Long Hill Planning Board recently denied an application for a Volleyball Academy at the former Archie’s site in Meyersville. Many objections were raised, including some about increased traffic and some about building a structure that is sized inappropriately for the area. Plans indicated that impervious surface coverage would

be reduced by approximately 10% should development proceed. And, existing asbestos and polycyclic aromatic hydrocarbon (PAH) contamination would be cleaned up under the supervision of a Licensed Site Remediation Specialist approved by the New Jersey Department of Environmental Protection. We anticipate that a revised plan requiring fewer, if any, variances will be submitted shortly.

## **Bernardsville Borough: TD Bank**

Stay tuned for an application to construct a new TD Bank branch at a site located between Weichert Realtors and the Kings Shopping Center (Bernardsville Centre) on U.S. Route 202/Morristown Road. No details are available at this time, but rest assured that GSWA will follow this application closely. Steep slopes and stormwater discharge are issues of significant concern at this location. 🌲



TD Bank may file an application to construct a new branch office on the site of this wooded lot located between the Kings Shopping Center (Bernardsville Centre) and the Weichert Realtors building at 62 Morristown Road in Bernardsville. (February 2014)

## Outdoor Programs

**W**ant to explore the Great Swamp region? Then join the Great Swamp Watershed Association (GSWA) for one of our outdoor exploration events this spring and summer. These programs are fun, informative, and accessible for people of all ages and skill levels. We'll see you outside!

### **Great Swamp Scavenger Hunt Saturday, May 10, 9 a.m.—5 p.m.**

*Helen C. Fenske Visitor Center, Great Swamp National Wildlife Refuge, 32 Pleasant Plains Road, Harding Township, NJ*

Calling all would-be explorers, adventurers, and buccaneers! Think you know a thing or two about New Jersey's Great Swamp? Then it's time to test your powers of navigation and observation at the Third Annual Great Swamp Scavenger Hunt!

We will provide you with a route to travel, questions to answer, and a list of treasures to find throughout the 55-square mile Great Swamp Watershed region. It's your job to navigate your own way, seek answers, and return with all your scavenged booty at the end of the day!

Hurry back to the Helen C. Fenske Visitor Center at 4 p.m. because you will have a chance to win some special prizes. A free cookout waits for all who participate, so don't forget your barbecue enthusiasm. Feel free to bring along a covered side-dish (to share or not). We'll supply the burgers, dogs, and drinks!

Registration is recommended. Register online at [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500 x22. Donations to the Great Swamp Watershed Association are gratefully accepted.

### **Close Encounters of the Leafy Kind: Invasive Plant ID Hike & Workshop Friday, May 16, 6—7:30 p.m.**

*GSWA Conservation Management Area,  
1 Tiger Lily Lane, Harding Township, NJ*

Aliens are all around us. In fact, they might even be taking over... seriously! When it comes to plants that are not from around these parts, New Jersey has more than its fair share. Can you tell the difference between a beneficial native plant and an alien invader? Few people can.

The truth is out there! Join Hazel England—GSWA's very own resident alien species—to find out why non-native, invasive plants pose a threat to us. Learn how to identify them, how to control them effectively, and how to choose home-grown native plants for your home that are both beautiful to look at and attractive to desirable wildlife. A hike at GSWA's 53-acre Conservation Management Area provides the perfect natural laboratory for observing how both native and non-native invasive plants behave in the environment.

Registration is recommended. Register online at [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500 x22. Donations to the Great Swamp Watershed Association are gratefully accepted. Participation is capped at 30 people.

**“Full Strawberry Moon” Hike**  
**Saturday, June 14, 10–11:30 a.m.**

*GSWA’s Conservation Management Area,  
1 Tiger Lily Lane, Harding Township, NJ*

Join GSWA’s Director of Education & Outreach Hazel England for a rare late-night hike under the Full Strawberry Moon at our Conservation Management Area in Harding Township. The moon rises late on the 14th, so this hike will start at 10PM. By then, bull frogs will be croaking away and the boardwalk across our marsh will transform into an eerie, shadowy, moonlit wonderland. Participants should also expect a special treat for staying up past their bedtimes!

Registration is recommended. Register online at [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500 x22. Donations to the Great Swamp Watershed Association are gratefully accepted. Participation is capped at 30 people.

**Night Hike at Primrose Farm**  
**Thursday, July 10, 8:30–10 p.m.**

*Primrose Farm, appx. 15 Brook Drive South,  
Harding Township, NJ*

Join GSWA as we escape the summer sun and cool down with a twilight hike through the woods and over the meadow at Primrose Farm in Harding Township. Director of Education and Outreach Hazel England will help you get in touch with your night senses. Learn how to distinguish the song of a cricket from that of a grasshopper, or a cicada, or a katydid. Listen for the cry of

coyotes. And, find out how moths find their way through the dark night. Families with children are encouraged to attend.

Participation is free. Donations to GSWA are gratefully accepted. Register online at [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500 x22. Participation is capped at 30 people.

**Important Information About Events**

Please register as requested for each program listed above (see descriptions). Unless otherwise noted, current GSWA members participate free of charge. Non-members are asked to make a voluntary donation of \$10/adult and \$5/child (6 to 17 years), or \$35/family (includes 4). There is no suggested donation for children five and under.

Please dress for the weather when attending an outdoor program. Conditions may be wet, muddy, hot, or cold.

Event dates, times, and locations are subject to change. Provide your email address or phone number at registration and GSWA will make every effort to inform you about scheduling changes. Updated scheduling information is available via our *Event Information Hotline* at (973) 538-3500 x22. 🌲

Please be sure to let us know if you change your e-mail address. Send a note with your name, address, and old e-mail address to [sreynolds@GreatSwamp.org](mailto:sreynolds@GreatSwamp.org) so you don’t miss out on our new monthly e-newsletters.

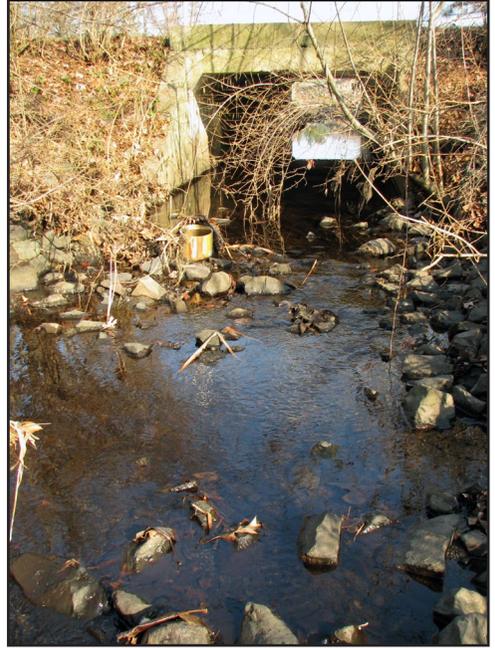
# GSWA Expands Its Stream Monitoring Program

by Laura Kelm, GSWA Director of Water Quality Programs

Since 2005, the Great Swamp Watershed Association's Adopt-a-Stream program has allowed us to intensively monitor a single watershed stream over the course of a three-year period. By establishing multiple sites on each monitored stream, we have been able to see how water quality changes as each one runs its course. Our quarterly monitoring procedures have allowed us to see how parameters, such as total dissolved solids from road salt and nutrients from fertilizers, vary from season to season.

To date, we have used Adopt-a-Stream to monitor Loantaka Brook (2005-07), Great Brook (2008-10), and the Upper Passaic River (2011-13). Only Black Brook and Primrose Brook remain to be studied, so we are anxious to begin collecting our baseline data. Because the last two streams are smaller than the others, we have decided to monitor them both at the same time. Our study began in February 2014 and will run through 2016.

Loantaka Brook and Great Brook have not been monitored in several years, so there is no current water quality information available for them. The data analysis produced for our recent *State of the Streams* report could only speculate about their present conditions based on recent macroinvertebrate assessments. Thanks to a grant from The Watershed Institute, we are now able to revisit past monitoring sites to see how they are doing now. We plan to return to one past monitoring site on each stream for five rounds of water testing. This initiative began in December 2013, and will continue throughout the rest of 2014.



Having current data on all of our watershed streams will allow us to compare their present conditions to conditions observed in the past. This will help us determine whether or not any new issues of concern have arisen.

For more information about the stream monitoring program or to volunteer to help with monitoring efforts, please contact GSWA Director of Water Quality Programs Laura Kelm at [lkelm@GreatSwamp.org](mailto:lkelm@GreatSwamp.org) or 973-538-3500. 🌲

## When It Rains, it Stores! Rain Barrel Building Workshop

Wednesday, July 23, 6-8 p.m.

**GSWA Headquarters, 568 Tempe Wick Road, Morristown, NJ**

Rain barrels placed under downspouts hold onto rainwater, allowing you to use it for free watering—55 gallons at a time! Stored rainwater also slows storm flow into area streams, and helps reduce flooding, one gallon at a time. Build your own water-saving rain barrel at our hands-on workshop on July 23.

Using a recycled, food-grade barrel and a spigot-adaptor kit, we will walk you through the entire process. Each registered participant will leave with their very own handcrafted rain barrel. And, if the hands-on approach is not your thing, additional rain barrels will be available to purchase for \$100.

Cost for participation in the hands-on workshop will be \$75 per barrel. Class size is extremely limited, so register right now! (If you decide to participate at the last minute, please call ahead to make sure we will have a barrel for you.)

To register, please visit [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500 x22. Your participation fee may be paid at the time of your registration, or on the night of the event.

Want to see some pictures of the barrels that you can take home? Visit [greenmojoecoconsulting.com/rain-barrel.html](http://greenmojoecoconsulting.com/rain-barrel.html).



*A functioning rain barrel. Credit: istockphoto.com/EJ-J*

### Know Someone Who Would Like to Become a Member?

GSWA relies on members like you to help protect our watershed's natural resources. So please pass this newsletter along, and encourage your friends and neighbors to join us! Visit [GreatSwamp.org](http://GreatSwamp.org) for more information.

## Start Your Day with GSWA

**G**reat Swamp Watershed Association's (GSWA) Breakfast Briefing speakers series returns in March!

Our seasonal Breakfast Briefings were developed to help busy professionals stay informed about community environmental issues without taking valuable time away from work or family life. Presentations are brief, focus on current environmental topics, and minimize overlap with most traditional business hours. Briefings are usually, although not always, held on the second Tuesday of the month from 8 to 9:30 a.m. Scheduling exceptions are noted below, so please read carefully.



### **Pro Tips for a Healthier Lawn and a Healthier Environment Tuesday, March 11, 8–9:30 a.m.**

*GSWA Office, 568 Tempe Wick Road.,  
Morristown, NJ*

It's more than just cutting the grass! Lawn care is the topic for this timely, early spring discussion. We will help you learn all the best-management practices you need to know if you want to develop some beautiful, environmentally sensitive turf outside your home.

Peter Coviello of Madison-based Coviello Brothers Horticultural Services will be our lawn care expert. The Coviello family has been providing landscaping services in our region for more than 40 years. Peter's presentation will tap into those decades of experience by showing how poor

landscaping practices, poor product choices, and poor irrigation habits can hurt local water quality, and waste your hard-earned money and resources. Come armed with your own lawn care and irrigation questions and we will do our best to get you some answers during "Ask Pete!"—a special Q&A session we have created just for this event!

Seating is limited. Register online at [GreatSwamp.org](http://GreatSwamp.org), or call 973-538-3500 x22.

### **The Last Eight Miles: Cleaning Up the Lower Passaic River Tuesday, April 8, 8–9:30 a.m.**

*GSWA Office, 568 Tempe Wick Road.,  
Morristown, NJ*

Revitalizing communities and restoring waterways are top priorities for the U.S. Environmental Protection Agency (EPA). Here in New Jersey, the agency is developing a plan to restore a 17-mile stretch of the lower Passaic River where river sediments laden with PCBs, dioxins, pesticides, mercury, and other hazardous substances pose a significant threat to public health and wildlife populations.

David Kluesner, team leader for community affairs from EPA Region 2, will join us to discuss EPA's upcoming proposal to clean up the last eight miles of the tidal Passaic—a stretch of river running from the Newark/Belleville border to Newark Bay. Within the larger 17-mile area of concern, nearly 85% of contaminated surface sediment already identified is located along the river's final eight-mile stretch. David's presentation will review some of the major

challenges EPA faces as it develops a cleanup plan capable of addressing important issues centered around urban water degradation, environmental justice, and legal compliance. Community involvement will play a critical role in shaping the final approach to cleanup, and proposed environmental interventions will soon be opened for public comment and review. Decision-making on a final cleanup plan is tentatively scheduled for late 2014.

Seating is limited. Register online at [GreatSwamp.org](http://GreatSwamp.org), or call 973-538-3500 x22.

### **What Can Wildlife Tell Us About Our Water? Tuesday, May 20, 8–9:30 a.m.**

*Kemmerer Library Harding Township, 19  
Blue Mill Road, New Vernon, NJ*

Did you know that bugs, worms, mollusks and other small, spineless creatures can tell us a lot about how clean our water is? Known as macroinvertebrates in scientific circles, the presence or absence of these little critters in our rivers, lakes, and streams serves as an indicator of local water quality and environmental health. Dr. Lee Pollock, Professor Emeritus of Biology at Drew University, has studied populations of macroinvertebrates in New Jersey's Great Swamp region for many years. Join us to hear about findings from his 2013 macroinvertebrate studies, and hear his perspective on the long-term environmental trends they reveal.

This event will take place at Kemmerer Library, 19 Blue Mill Road, New Vernon, NJ. Participation is free for all, however voluntary donations to the Great Swamp Watershed Association are sincerely appreciated.

Seating is limited. Register online at [GreatSwamp.org](http://GreatSwamp.org), or call 973-538-3500 x22.

### **Mapping Inland Floods Tuesday, June 10, 8–9:30 a.m.**

*GSWA Office, 568 Tempe Wick Road,  
Morristown, NJ*

Tom Suro, an hydrologist and surface water specialist with the United States Geological Survey (USGS) New Jersey Water Science Center, will discuss his work on a pilot project designed to map inland flooding in the Passaic River Basin. This presentation will offer important information about flooding and flood dynamics for all New Jersey residents living along the western and northern reaches of the Passaic River and its tributary streams.

Seating is limited. Register online at [GreatSwamp.org](http://GreatSwamp.org), or call 973-538-3500 x22.

### **Important Information About Breakfast Briefings**

Please register as requested for each program listed above (see descriptions). Unless otherwise noted, GSWA members participate free. Non-member are asked to make a voluntary donation of \$10/adult and \$5/child (6 to 17 years old), or \$35/family (includes 4). There is no suggested donation for children five and under. Programs are suitable for all ages.

Event dates, times, and locations are subject to change. Provide your email address or phone number at registration and GSWA will make every effort to inform you about scheduling changes. Updated scheduling information is available via our *Event Information Hotline* at (973) 538-3500 x22. 🌲

## Join GSWA for an exclusive tour of a LEED-certified house! Going Green, the Big Blue Way at the Pingry School

**Wednesday, June 18, 10–11:30 a.m.**

**Basking Ridge, NJ. Please register for exact location & directions.**

The 150-year-old Pingry School, whose athletic motto is “Go-Big Blue,” is going green in a big way with the recent completion of one of the most environmentally friendly residential homes ever built in New Jersey. The LEED-certified Beinecke Headmaster’s House incorporates many sustainable and energy-efficient materials and practices, including solar technology for hot water, a geothermal heating and cooling system, super-energy-efficient appliances and fixtures, and even a 6,000 gallon stormwater management system that boosts water conservation. True swamp aficionados also will be fascinated by the aquifer-recharging, engineered wetland that was constructed to treat all the waste coming from the house. Come see it all on June 18!

Registration is required. Only registered participants will receive exact location and driving directions.

To register, visit [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500 x22. If you are not a GSWA member, please consider making a donation of \$10 per adult at the time of your registration.

Want to watch a video of the construction process at the Beinecke House? Visit the Pingry School online at [www.pingry.org/page.cfm?p=1121](http://www.pingry.org/page.cfm?p=1121).

### **GSWA Experts Available to Speak to Area Groups**

Do you wonder, “What is in my water?” or “What can I do to ensure clean water for my children?” These and other questions about water quality, land preservation and local efforts to protect the environment can be answered by GSWA’s Speakers Bureau, who will present interesting, hands-on presentations that will educate and inspire members of your local club or group. Call today for more details: (973) 538-3500.

# Conversations and Collaboration over Coffee!

by Hazel England, Director of Education and Outreach

**T**he incredulous looks of mingled horror and disgust on the Bernardsville students' faces were a riot! They had just learned that the water they showered in, brushed their teeth with, and drank that morning might have been used, flushed, and cleaned two or three times over the weeks preceding its arrival at their homes. Heads lifted from notebooks, glazed eyes sharpened, and their attention was grabbed!

This is how Karen DeTrolio's students in the Advanced Placement (AP) Environmental Science class at Bernard's High School, and the water quality education programs of the Great Swamp Watershed Association (GSWA) began their collaboration. I would like to use this opportunity to shed some more light on our growing partnership, so here is a snippet of a conversation I had with Karen during a recent catch-up and planning meeting over coffee. Below, I am represented as HE. Karen is KD.

**HE:** What do you think have been the most productive and successful aspects of the collaboration we've started?

**KD:** Over the years, I've seen the impact that the Great Swamp Watershed Association's SWaMP program has had on my students. [Note: SWaMP stands for [School Water Monitoring on the Passaic.] GSWA brings much more than just a program to my classroom. You guys really develop a relationship with the students every year. You treat them like adults, yet you make sure to guide and educate them. They really see the real-world implications of the water quality

monitoring they do. SWaMP seems much more like the experience of real life, hands-on science. And, it makes sense. It's what happens with people who have made science a career, and not just through a series of practical labs laid out for a school course.

**HE:** I think it's interesting that in the first year, we were a little nervous about using the enviroscape model to begin to explain concepts like non-point-source pollution to high school students. [Note: the enviroscape model is a plastic replica of a watershed. It is often used to teach basic watershed science concepts to elementary school children.] We worried that the students would think they were being talked down to, but it was immediately clear that it made the chapters on water quality they were reading about—and the water quality tests they performed in Penn's Brook behind the school—that much more real. I think it offers a really good starting point for our conversations about water quality each year. It's a lot like getting them to understand where their community's water comes from and where it ultimately ends up. That's one of the most important things we've been able to achieve with the program; helping students understand that the water cycle they learn about in their textbook is far more complicated in real life. And, it's impacted by the small decisions that they make every day.

**KD:** Yes! I think it's really interesting that the day after we've had a watershed model presentation, I've had students come and tell

*(continued on next page)*

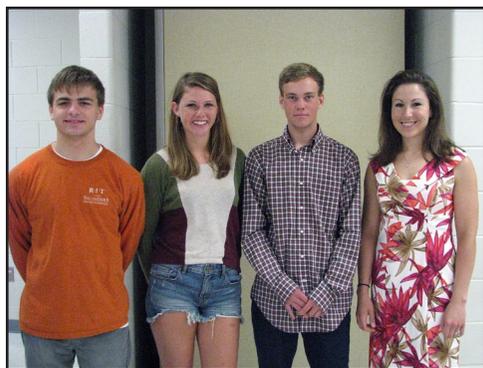
## Conversation *(continued from previous page)*

me that they asked their parents to switch to using low phosphate soap. Or, they get really excited about telling me when they saw brine being used for snow removal instead of regular rock salt. Because it never seems like they are being “preached to,” I think the kids really listen. And, they seem more open to taking in and acting on the water quality information they learn about. As an educator, it’s exciting for me to have students willingly bring in articles related to the study materials. It’s even better when they ask thought-provoking questions, or share some of the answers they find with their families.

**HE:** That is exciting to see as an educator, and as a local nonprofit!

**KD:** I think it’s really helpful to have a balance between in-class study and field-trip experiences to reinforce the learning. Of course, having Penn’s Brook just a two-minute walk from the classroom doesn’t hurt. All we have to do is walk out the door and behind the school to get some field experience!

**HE:** I agree. Having the stream that close opens up some good water quality testing opportunities. But, I think it also helps the kids develop a sense of stewardship—a sense of responsibility for the environment right there around them. I was really impressed when you shared the details of that one discussion your students started after they did our water turbidity test in Penn’s Brook. [Note: the turbidity measurement reveals information about soil disturbance and vegetation loss.] They really dove into the school’s plan for building lacrosse fields near the forest surrounding the stream. It really nailed the idea that local decisions have real consequences for the environment. And, it sounded like the conversation happened organically; it was not forced.



*Bernards High School Advanced Placement Environmental Science teacher Karen DeTrollo (far right) poses for a photo with Class of 2013 students (l to r) Matt Whitlock, Katie Hildebrandt, and Till Rosscamp. Working with guidance from GSWA, the trio tracked down the source of Bernardsville Borough’s drinking water supply, and identified potential environmental issues that might threaten its cleanliness. The students entered the final report from their post-AP-exam study project in The Nature Conservancy’s regional “Show Us Your H2O” contest. And, they took top honors in their category! In recognition of the students’ victory, The Nature Conservancy will build a new rain garden on school grounds.*

**KD:** Yes! Field trips are an integral part of my curriculum now, but even on our first trip to Penn’s Brook—you and Laura were there—I was amazed at the number of teachable moments that came up, and they all came up naturally. [Note: GSWA’s Director of Water Quality Programs Laura Kelm directs many aspects of the ongoing SWaMP program.] This is one of the best ways SWaMP has evolved over the years. Now, students learn firsthand about what happens to the water they’ve used that morning on a field trip to the Bernardsville Wastewater Treatment Plant. It’s probably not their most favorite field trip of all time, but you can see the learning happen. They ask really good questions, and you can see and hear the connections they’re making to stuff they’ve read for class! When we look

at the macroinvertebrates living below the outflow pipe at the treatment plant; I think that really distills their learning. I am always surprised and delighted by how excited some of them get when they turn over a rock and find some interesting bugs.

**HE:** The programs we do with the AP students have really expanded over the last few years. And, I think it's meaningful that we've kept the program evolving—trying new things and fresh approaches. Each time I get up in front of a new AP group, I imagine that I'm looking into the face of a future head of the Bernardsville Borough Council, or the Planning Board. And, I want them to know how to ask the tough questions. I want them to understand the science, and the kind of impact that any decision will have. One of the most recent highlights for me was the post-AP-exam project we started last year. I'm looking forward to continuing it this year.

**KD:** That really ended up being a great culminating project for the last five weeks of the school year. It was great to see the kids present their own research. And, I'm glad we focused on local water quality issues. I think that knowing their work would become part of GSWA's Watershed Friendly Homes program really kept them engaged at a time of year when they usually switch off. It helped that you and the rest of GSWA's staff treated the projects like they were meaningful, and let them know that their work would be used. I know they felt like what they did was important. Whatever the topic was—environmentally friendly lawn care, or drinking water choices, or constructing rain barrels for stormwater management—they all got to speak from their own experience. Having them give PowerPoint presentations in front of environmental commissioners

and GSWA staff members made it all quite professional. And, I think that was reflected in their effort. The prizes you awarded for the best presentations didn't hurt either.

**HE:** It was really gratifying to us [GSWA] that a couple of the graduating students approached us about summer internships. I think that happened in part because they got to see how environmental science could actually end up leading to a viable career. That kind of exposure to scientists and scientific knowledge on a daily basis really drives the point home in a way that books and tests cannot.

**KD:** One of the things I like is that we see what works with the collaboration each year and expand on it. I think we've found a way to modify stuff that turns out to be less than effective. When I'm preparing my instruction now, I always ask myself: "How can I connect this content to the students' lives and the community? Is there a field trip we can take to see this in action? What can I do to make this topic meaningful?" And, when I can bounce those ideas off of you and other GSWA staff members, it helps me tailor my approach year after year.

**HE:** I'm hopeful that our new idea to give them real water quality data—raw data—to analyze and interpret will help them understand how scientific information gets used in the real world. I'm looking forward to having them present recommendations for a proposed development or remediation project as if they were real, working environmental consultants. It will really help them hone their decision-making and critical-thinking skills. I'm really happy we're trying new things, and having you as a partner in this has been absolutely fabulous! Time for another coffee? ☕

## Was It a Mink or an Otter?

by Jim Northrop, GSWA Volunteer

**B**ack in the fall, there was a particularly warm and sunny day. A friend and I took a walk along the Passaic River, enjoying the autumn colors and the diversity of birds in the trees above us. About thirty minutes into our walk, we noticed some movement along the shoreline just ahead of us. There was some kind of animal in the bushes.

We stopped and silently watched. The animal continued to move toward the water, and now we could see him fully.

“Oh,” my friend said, “that must be an otter.”

Well, I was not so sure. I wondered if it might be a mink—although they are rare in our area.

The animal was about two feet long, including its six-inch tail. It had short, stubby legs, a long neck, and a thick tail. I would guess it weighed four to six pounds. It sported a dark brown coat with a white-to-cream-colored underside, and it had white fur on its chin and throat.

My friend was not convinced that it was a mink. He said the creature was too large. In fact, he was sure it was a young otter. By that time, the animal had slipped into the Passaic River and disappeared.

Later that day, I continued to puzzle over the animal’s identity. With the help of my computer and some reference books, I did some research. Here is what I learned.

### **The Northern River Otter (*Lontra canadensis*)**

River otters were one of the major animals hunted and trapped for fur after Europeans began to settle in North America. Although they were harvested extensively, habitat loss is the main reason they are far less common today than they used to be. Development and environmental degradation of waterways have led to declines in otter populations not only in New Jersey, but all over the country.

Otters are the most aquatic member of the *Mustelid* family, a group of mammals that includes weasels, mink, and skunks. Although otters have short limbs, their bodies are long, slim, and streamlined; and they move with much grace and flexibility. Their paws are webbed and their claws are sharp so they can grasp prey. River otters are three to four feet in length and weigh from 10 to 30 pounds. The tail makes up about forty percent of its total length.



Northern River Otter (*Lontra canadensis*). Photo copyright ©2009 Blaine Rothausser. Used by permission.

More often than not, otters feed on fish, but they supplement their diets with frogs, crayfish, and crabs. Some otters have become experts at opening shellfish, while others will take any small mammal or bird that happens to be available. River otters have a high rate of metabolism, especially in winter, and they must eat 15% to 25% of their body weight every day. And, they can spend up to five hours a day in search of the food that they need to survive.

Otters are highly social animals, and family groups form around a female and her young. One often sees otters playing with each other in the water or on the shore. Because otters are playful and active, they make popular zoo exhibits. But, their presence is unwelcome on agricultural land. That is because their daily activities can extensively alter river banks. Although river otters leave lots of evidence behind them, the animals themselves are very secretive and difficult to see during the daytime in New Jersey. Most of the time, the only thing that proves otters are present are signs like tracks, scat, or the foot-wide “slides” they wear into the soil and vegetation in places where they choose to enter the water.

Otters use special flaps to close their nostrils and ears. And, they are able to remain submerged underwater for up to eight minutes on one breath. That makes them great fishermen.

### **The American Mink (*Neovison vison*)**

The American mink is often mistaken for an otter. However, they are much smaller, and have fluffier tails and pointed snouts. The mink is a semi-aquatic species of the *Mustelid* family (sub-family *Mustelinae*, genus *Neovison*) which is native to North America. They are related to animals such as skunks, otters, and weasels. And, like skunks, they can defend themselves by spraying a foul-smelling liquid. However, unlike skunks, minks cannot aim their spray.

While they are beautiful to look at, some say that an indiscriminate killer lurks behind the alluring façade. Mink are carnivores that feed on birds, frogs, fish, amphibians, crustaceans, insects, and small mammals. They are known to tackle fish as large as themselves. And, they kill their prey by biting it on the neck. Sometimes, they even store extra food in their dens.

*(continued on next page)*



American Mink (*Neovison vison*). Credit: flick.com/photos/peter-trimming (CC Attribution)

## **Mink or Otter** *(continued from previous page)*

The American mink, with its sleek, streamlined body, is agile and flexible. And, they will pursue prey on land and in the water. They are excellent swimmers. And, they have a dense coat of water-resistant fur. They are known to dive as deep as 16 feet underwater.

The mink is mostly a nocturnal and solitary animal. People seldom encounter them face to face in New Jersey. As with otters, secondary evidence reveals their presence at a particular location.

Mink do not hibernate, nor do they establish mating pairs. Males usually defend a territory along a stretch of water where six or seven females live. Both male and female mink make “galleries” inside the hollows of logs or inside abandoned beaver or muskrat burrows. Although they do line their galleries with hair, feathers, and grasses, they rarely use the same one for very long.

Once widely hunted for their fur, which was made into fine clothing, the American mink is now generally raised on farms for greater efficiency. With the shift to mink farming and a marketplace that is increasingly disinterested in fur coats, wild mink populations have started to re-establish themselves. They may become more and more common along the Passaic River in years to come.

### **Conclusion**

So, after much research and study, is there any certainty about the identity of the animal that my friend and I saw briefly along the Passaic River? We only had a glimpse. But, based on size, I believe it was a mink. Actually, I am a little bit sorry about this. While the mink is very beautiful to behold, with its magnificent fur coat, I think otters are much more fun. I think they would make much more lively neighbors! 🌲

### **Across The Watershed** is also available electronically

Help reduce our print and mailing costs by signing up for electronic delivery of future issues of ***Across the Watershed*** at [GreatSwamp.org](http://GreatSwamp.org) or send an e-mail with your name and address (so we can identify you in our member database) to [sreynolds@GreatSwamp.org](mailto:sreynolds@GreatSwamp.org). By giving GSWA your e-mail address, you'll also receive our monthly e-newsletter, which provides timely

information on upcoming programs and events along with news on what's happening in and around the watershed.

Your e-mail address will be used solely for the purpose of sharing information with you about GSWA-related programs and events. We will not provide your e-mail address to any other person or entity without your permission.

# Revisoning Local Land Use Policy

by Frank Banisch, Founder and President, Banisch Associates, Inc.

**W**ith a suburban office market no longer strong (25% overbuilt) many towns are watching their office ratable base erode. And, the housing needs and preferences of the baby boom and millennial generations are fueling a renewed fascination with walkable downtowns that will only increase over the next several decades. Given current economic and demographic dynamics, most New Jersey towns need to seriously reexamine their master plan policies.

Much of the good environmental work done since World War II may be undermined if we allow political and economic expediency to rule and push the environment into the background. The Great Swamp Upper Passaic Municipal Alliance offers municipalities an opportunity to get out in front of these issues and prevent widespread *ad hoc* planning by variance on a site-by-site basis. It also lets them view their options through a prioritized watershed-based lens.

Many suburban municipalities will be required to make major policy adjustments

as they cope with these changing times. Rezoning of surplus office parks and outdated strip malls will be needed, or variances will rule. And, re-envisioning and repositioning auto-dependent downtowns for a downtown renaissance will be easier in the era of Complete Streets and Safe Routes to School.

The demographic wave we are riding will be felt far and wide, as healthier lifestyles become more widespread, and renting in an exciting, walkable center becomes the new owning on a cul-de-sac. Towns that clarify their vision and usher in the new order will likely get the best opportunities. And, contrary to what might be expected, all will benefit from working together. 🌱

*Note: Frank Banisch, founder and president of Banisch Associates, Inc. of Flemington, NJ, currently serves as one of several expert consultants attached to the Great Swamp Watershed Association's Great Swamp Upper Passaic Municipal Alliance. Frank is widely respected throughout the state as an experienced municipal planner. And, he is closely associated with the development of the well-known Sourlands Mountains Comprehensive Management Plan.*

## First Municipal Alliance Meeting Scheduled!

The first meeting of the Great Swamp Upper Passaic Municipal Alliance, featuring a presentation by Mr. Frank Banish of Banisch Associates, will take place on Wednesday, April 16, from 8 to 9:30 a.m., at the offices of the Geraldine R. Dodge Foundation located at 14 Maple Ave #400, Morristown, NJ.

For more information, please call (973) 538-3500 or write to [info@GreatSwamp.org](mailto:info@GreatSwamp.org).

# Deciphering The National Flood Insurance Program

If Hurricane Irene, Hurricane Sandy, and other extreme weather events of the past few years have done nothing else for us here in New Jersey, they have reminded us, beyond a shadow of a doubt, that floods happen. The thought is an unhappy one, but it must be confronted without misconception. If you live in a place where it rains, you live in a place where flooding is a very real possibility.

## Part 1: Understanding The Goals Of The NFIP

If you own your home, you may know quite a bit about the NFIP already. One of the reasons it was first established was to make low-cost flood insurance widely available to homeowners and small business owners.

Carried in addition to ordinary property (homeowner's) insurance, these special policies only cover property loss and damage sustained as a result of narrowly defined flooding conditions (FEMA, June 2012). The federal government, through the NFIP, is just about the only guarantor of flood insurance in the nation, thanks in part to the potential magnitude of payouts in many high-risk flood areas. And, while homeowners have the option of foregoing a policy, most lenders will not write mortgages on high-risk properties without a policy in place.

The financial protections individuals are afforded by federally backed flood insurance are necessary and important for recovery in the wake of a disaster. But, the extension of cheap policies was not the sole reason the NFIP was written. In fact, to place essential

How do you cope? How do you protect yourself and your property from a flood? In 1968, the U.S. Congress stepped up to offer one possible solution called the National Flood Insurance Program (NFIP). Forty-five years later, the NFIP endures and continues to provide millions of people with affordable options for recovery after a flood disaster strikes.

focus on the way the NFIP benefits the individual property owner is to understand only a fraction of the real story behind its creation.

Prior to 1968, the U.S. primarily responded to flood disasters by building flood-control infrastructure (e.g., dams, levees, seawalls) and by offering disaster relief to flood victims (FEMA, March 2011). This did little to reduce flood losses, and nothing to discourage unwise development—such as building in a floodplain—that put people in harm's way.

After Hurricane Betsy tore through Florida and parts of the Gulf Coast in 1965, the human and financial toll taken by flood disasters had become so great that Congress decided a new approach was in order (H2O Partners, 2013). With the National Flood Insurance Act of 1968, they took a multifaceted approach to reducing and preventing future flood damage. The resulting program did work to provide stable, affordable flood insurance for all Americans, but it did not stop

there. To receive the benefit, Americans had to work together to change their relationship with flooding and the conditions that caused it. They had to work proactively to protect themselves and their neighbors from future flooding catastrophes.

Congress married the promise of post-disaster aid to the concept of disaster prevention by requiring the NFIP to work first and foremost at the community level. Before any individual property owner could apply for federally backed flood insurance, the wider community needed to unite and voluntarily adopt certain minimum standards for community-wide flood reduction and loss prevention.

Under the NFIP, participating communities have always been required to take two important steps. First, they must agree to abide by and base future decision-making on important environmental information contained in a Flood Insurance Rate Map (FIRM) (FEMA, March 2014a). Second, they are required to create, implement, enforce, and maintain a floodplain management plan made up of flood-conscious zoning, subdivision, and building requirements, as well as special-purpose floodplain ordinances (FEMA, March 2011). Although each community necessarily tailors a floodplain management plan to suit local needs, adopting the basic standards of the NFIP sets the stage for all communities to improve their overall understanding of flooding issues and take concrete steps to address them.

The rationale for implementing the NFIP on a community-by-community basis, rather than individual-by-individual, is nuanced, but not inscrutable. There are few, if any, places in the U.S. where building regulations and construction priorities are set or maintained by individual authority. Similarly, flood reduction and prevention efforts made by any single individual would be all-too-easily nullified by the careless activity of others. By contrast, when an entire community of individuals practices “adequate flood hazard mitigation” in a coordinated fashion, the potential for reducing loss is substantially increased (FEMA, March 2011). Multiply the improved efficacy of a community-based flood management approach exponentially across the country and, in theory, flood losses from event to event begin to decline nationwide.

The incentive for individuals to support and participate in their community’s NFIP effort ties back to two important things. First, the NFIP makes affordable flood insurance policies widely available to property owners who might not be able to secure them otherwise. Second, as the community as a whole does more and more to reduce the impact of flooding, insurance rates for individual property owners should begin to decline.

In the final equation then, Congress empowered the NFIP to make flood insurance widely available in order to use the benefit as a wedge to change behavior

*(continued on next page)*

## **Flood Insurance** *(continued from previous page)*

on a national scale. While insurance plays a critical role in driving individual support for the NFIP, the program does not work without a robust community-based component. The community is the catalyst for building awareness about flooding issues and the environmental realities that underlie them. It also serves as the primary venue for demonstrating and promoting actions that need to be taken in order to reduce and prevent future flood damage.

The NFIP has provided the blueprint for a future where human and financial losses from flooding are manageable and controlled. Planning, and a nationwide

awareness of flood risk, is meant to preempt flood disasters and protect communities from significant harm. And, costly claims for disaster relief are supposed to be replaced with an insurance alternative when property repair and restoration is required (FEMA, March 2011). Four-and-one-half decades after it became law, a modified version of the NFIP is still with us, but the circumstances under which it works have changed substantially. Some now question whether or not the original vision behind the NFIP remains relevant or capable of meeting the needs of the 21st century.

## **Part 2: The NFIP In Crisis**

The NFIP has become very popular with Americans. Currently, the program guarantees about 5.6 million individual flood policies nationwide (FEMA, March 2011). And, enough communities have adopted the program to make 98% of the U.S. population eligible to receive federally backed flood coverage (FEMA, March 2011). The civic and distributional success demonstrated by these statistics is undeniable. Still, with every new flooding disaster, the NFIP sinks further and further into debt. According to most recent reports, the program is now about \$25 billion in arrears to the U.S. Treasury (Pinter, 2013). Here are some of the reasons why this is happening.

As the number of flood policies underwritten by the NFIP has soared, so too have the frequency and intensity of flooding events. The number and cost of claims filed against the NFIP began outpacing the amount of money taken in through insurance

premiums as early as the Great Midwestern Floods of 1993 (King, 2012). Now, in the wake of several extremely destructive weather events—including Hurricanes Katrina (2005), Ike (2008), Irene (2011), and Sandy (2012)—the situation has grown worse (FEMA, March 2014b).

Much of the blame for the NFIP's ongoing insolvency has been laid at the feet of insurance rate subsidies. Written into the original National Flood Insurance Act, these subsidies were created to keep insurance rates artificially low for those who owned property and inhabited structures in high-risk flood areas prior to the time when their local communities adopted the NFIP and accepted the ensuing Flood Insurance Rate Map (FIRM). Known as the "grandfathering" program, rate payers operating under these subsidies have never paid premiums equal to the real risk of flooding on their properties; neither have they been required to rebuild

at higher elevations or retrofit vulnerable buildings to meet minimum standards for flood-hardened structures.

Although they represent less than 20% of all insurance policies backed by the NFIP, grandfathered properties are at increased risk for damage and loss by virtue of being located in coastal and floodplain areas (Walsh, 2013; FEMA, March 2011). This has led many to view the NFIP as nothing more than an entitlement program (Will, 2014). Under the terms of such an entitlement, public (taxpayer) money is siphoned off to support a relatively small number of property owners who have chosen to put themselves in harm's way. This perception is exacerbated by the existence of "repetitive loss" properties where successive, and progressively more expensive, claims have been paid out following multiple catastrophic flooding events. Only about 1.3% of all policies in existence are attached to repetitive loss properties, but, depending on who is doing the talking, they account for anywhere between 25% and 40% of all claims filed against the NFIP (Walsh 2013; Murphy, 2013; Sheppard 2013). (According to FEMA/CRS (2011, June), about a quarter of all claims made against the NFIP since 1978 have been paid out to repetitive loss properties.) And, in the absence of any kind of reform, they could continue to account for at least 15% to 20% of all future claims (FEMA, June 2011).

The grandfathering program is also implicated in the NFIP's apparent inability to create meaningful and lasting changes in the way the nation understands and approaches flood risk. Many in the environmental community have noted that

perpetual rate subsidies make it simpler and more cost effective to remain in a floodplain (Earthjustice, 2008; UCS, 2013). In part, this has to do with the fact that property owners, and by extension the communities in which they reside, "lack a direct, accurate market signal that communicates their true [flood] risk (UCS, 2013)." As a result, they have no motivation to protect themselves from floods—a circumstance that stands in stark contradiction to the NFIP's original intent.

Loopholes created by the grandfathering program further the disincentive. Properties with structures existing before a FIRM was created and approved are not required to take any steps to reduce their exposure to flood damage—even in cases where repetitive loss has been established. Similarly, when FEMA updates existing FIRMs, properties that are rezoned into high-risk flood areas are automatically grandfathered. Insurance rates on newly grandfathered properties are maintained at levels established by the old, unrevised FIRM; and, once again, owners are not required to take any action to reduce their flood risk. Under the worst case scenario, these loopholes—in combination with interventions from state government and other entities—may even be responsible for actively encouraging new development in environmentally sensitive locations (e.g., wetlands and barrier islands)—a situation that further erodes the nation's natural defenses against flooding (UCS, 2013).

This almost-monomaniacal approach to keeping insurance rates artificially low using subsidies and loopholes has delivered two devastating hammer blows to the NFIP. On

*(continued on next page)*

## **Flood Insurance** *(continued from previous page)*

one hand, they have led the program into a financially unsustainable quagmire. On the other hand, they have stifled the nation's progress toward a more responsible and, eventually, less costly approach to building, land development, and disaster recovery (UCS, 2013).

Unfortunately, cause for concern about the NFIP does not begin and end with subsidies. Groups like the Union of Concerned Scientists (2013) also point out that the program's primary tools for assessing flood risk—the FIRMs—may be based on obsolete or incomplete data. Support for this criticism can be found by looking at the FIRMs themselves, many of which have not been revised since the 1980s (UCS, 2013). It is also true that FEMA has not been authorized to update FIRMs with vital information about certain environmental realities like the long-term impact of erosion, sea-level rise, and other climatic trends.

These data deficiencies further reduce the effectiveness of the NFIP in two important ways. First and foremost, they prevent FEMA from delivering the most up-to-date and accurate estimates of a community's true flood risk. Such information is critical for establishing adequate insurance rates. Second, FEMA's data gaps also translate into its recommendations and minimum standards for preventing flood loss. This means that the building codes, zoning schemes, floodplain ordinances, and other interventions the NFIP requires participating communities to write into their floodplain management plans may not be strong enough to provide adequate protection in the event of a disaster (UCS, 2013). The same is true for interventions and

actions the NFIP recommends to individual policy holders who are interested in being proactive about lowering their personal flood risk and their insurance rates.

Taken together, subsidies, loopholes, data gaps, and weakened minimum standards within the NFIP have created real cause for alarm. Not only is the public facing the prospect of a nationwide financial meltdown at a time when more intense flooding events are resulting in larger and larger claims filed against the NFIP; they must also contend with the idea that a popular government program—one entrusted to protect public health and safety—may not be as robust or informed as it really should be.

Fortunately, many of the NFIP's afflictions have been recognized, and remedies are beginning to take shape. In July 2012, the U.S. Congress passed the Biggert-Waters Flood Insurance Reform Act (BW12), a piece of legislation designed to confront insurance rate subsidies head on (FEMA, April 2013). The law also incorporates measures to close up information gaps in the nation's FIRMs. Given recent events (see Part 4), BW12 is not likely to become the definitive act of reform that rejuvenates the NFIP and restores it to effectiveness. Nevertheless, its initial impact has garnered significant nationwide attention.

The Twitter logo, consisting of the word "twitter" in a lowercase, blue, sans-serif font.

Follow us at [www.twitter.com/gswa](http://www.twitter.com/gswa)

## Part 3: The NFIP In Reform

Several legislative actions have modified and transformed the NFIP since 1968. For instance, the Flood Disaster Protection Act of 1973 made it mandatory to carry flood insurance on all properties located in Special Flood Hazard Areas (SFHAs) as defined by FEMA's FIRMs (FEMA, March 2011). And, the National Flood Insurance Reform Act of 1994 created the Community Rating System, an incentive program that encourages participating NFIP communities to find ways to exceed minimum standards for flood loss prevention (FEMA, March 2011). But, a more recent amendment—the Biggert-Waters Flood Insurance Reform Act of 2012 (BW12)—has introduced some of the most significant reforms in the program's history.

One of the most discussed provisions of BW12 is one that is supposed to eliminate many of the insurance rate subsidies associated with the NFIP's grandfathering program. This represents an attempt to return the program to financial stability by ensuring that policy rates on as many properties as possible reflect the true risk and potential costs of flooding (H2O Partners, 2013). As a result, insurance premiums are supposed to increase on some, but not all of the approximately 1.1 million subsidized policies backed by the NFIP (FEMA, March 2011).

Expected rate adjustments are meant to be rolled out gradually and according to a published timeline (FEMA, April 2013b). While some changes have occurred and others are pending, most subsidized policies are supposed to begin the conversion to full-risk rates by the end of 2014. Most affected policy holders will see up to a 25% increase

in their premiums each year until the full-risk threshold is reached. However, full-risk policy rates are supposed to kick in without a ramp-up period in three specific cases: when a property has not been insured prior to the enactment of BW12, when an existing policy has been allowed to lapse, or when a property is sold and purchased after the enactment of BW12.

BW12 also contains provisions to address problems and deficiencies in the nation's flood insurance maps. FEMA received a new mandate to update FIRMs nationwide when the law was enacted in July 2012. While new developments, new land use behaviors, levee classification adjustments, and other environmental shifts have continued without pause, BW12 often represents the first official recognition of changing flood patterns that some NFIP communities have seen in several decades (UCS, 2013). Presumably, new FIRMs will also translate into new recommendations for all NFIP communities engaged in active floodplain management. Building codes, zoning, and other ordinances will need to be strengthened and adapted, and new protective actions will need to be taken in order to guarantee local health and safety.

These required FIRM updates will have a substantial impact on individuals as well. Policy holders who find themselves rezoned into a coastal flood zone or SFHA—geographies with the highest flood risk—will not be grandfathered into lower insurance rates as they were in the past (FEMA, April 2013a). Instead, like their previously

*(continued on next page)*

## **Flood Insurance** *(continued from previous page)*

subsidized counterparts, their premiums are meant to rise incrementally until their policies reflect their newly designated true risk. In these cases, full-risk rates were scheduled to be phased in over five years in increments up to 20% per year (FEMA, April 2013b).

Taken as a whole, the reforms introduced by BW12 are very wide ranging. While they have been lauded by many environmental groups, tax-payer advocates, and proponents of a more free-market approach to the insurance industry, broader reaction to the Act can only be described as mixed (Anderson, 2013; Bernard 2013; Davenport,

2014; Lynn, 2014; Murphy 2013; Pinter 2013; Walsh, 2013). And, in light of some more recent action taken by the U.S. Congress (see Part 4) it seems unlikely that the Act will do much at all to shift the nation's focus away from the oversimplified business of providing cheap insurance and back onto the business of incentivizing communities and individuals to become more resilient (Sheppard, 2014). In fact, it is possible that there will be even less incentive for Americans to change their relationship with the floodplain or seek ways to reduce future flood losses.

## **Part 4: The Trouble With Reform**

Even though more than 80% (more than 4.5 million) of the 5.6 million policies backed by the federal government will not experience any change as a result of BW12, popular reaction to the prospect of any flood insurance rate increases has been less than enthusiastic (Walsh, 2013, H2O Partners, 2013, FEMA, March 2011).

Every week since BW12 was enacted, local, state, and national news outlets have filed more and more reports about ordinary, hard-working Americans who have seen their insurance rates skyrocket. In the most extreme cases, policy premiums have jumped from a manageable couple of thousand dollars per year into the tens of thousands of dollars per year (Alvarez and Robertson, 2013; Anderson, 2013). For a few, this has created an unfathomable financial nightmare: Their insurance rate are so high that they can no longer afford to stay in their homes, but they are unable to sell

because there are no buyers willing to take on the new insurance burden.

Concern over insurance rate increases is even greater in communities where low incomes are the norm. Many of these communities are located in areas that have been hit hard by past storms (like Hurricanes Katrina and Sandy) and will be hit hard again in the future. For many in these places, paying a subsidized insurance rate would have been difficult enough. But, with true-risk policies looming on the horizon, a large number of property owners will be forced to sell, go into foreclosure, or forego insurance all together. At the end of the day, these communities will end up bearing a disproportionate amount of the financial burden needed to return the NFIP to stability (UCS, 2013). In the absence of any form of aid making NFIP protections affordable and attainable, residents of modest means will be placed at greater risk for loss of life and property. Their

options for real recovery in the wake of a flood disaster will be few.

In response to the ongoing outcry over rate hikes, the federal government has waded into the NFIP fray once again; this time, to reform their reforms. In January, Congress used the Consolidated Appropriations Act of 2014 to delay rate increases on properties that have been rezoned into high-risk flood areas as a result of FIRM updates (FEMA, February 2014). In March, they also passed the Homeowner Flood Insurance Affordability Act of 2014 (HFIA14). This new piece of legislation has, for all intents and purposes, repealed all subsidy reforms originally enacted under BW12 (Sheppard, 2014; Linksey, 2014; Lehmann, 2014). As this article was being prepared for publication, President Obama's signature on HFIA14 legislation was imminent (Alpert, 2014). Although the NFIP was re-authorized to operate for an additional five years in 2012, it remains unclear if the recent repeals will themselves be repealed by another legislative action, or if Congress will shelve any new attempt to address the NFIP's insolvency until 2017.

Immediate reactions to the appeal of subsidy reform have been as mixed as the responses to the original BW12 legislation. Advocates of insurance rate relief have declared victory for themselves and the American people, while those concerned about the actuarial soundness of the NFIP and

the long-term implications that insolvency holds for taxpayers and the federal budget are dismayed.

Many scientific and environmental groups were cautiously optimistic about BW12's original reforms. For them, the approach to change was flawed from the outset. For instance, Congress only provided funding for a single round of FIRM updates in BW12. And, questions remained about whether or not the nation would be able to respond as needed to more rapidly changing flood patterns in the absence of a more routine FIRM review process. Congress also made no provision for incorporating important new data sets into the FIRMs that would adequately account for sea-level rise, erosion, and other environmental factors that would improve map accuracy and effectiveness. Nevertheless, BW12's re-envisioned subsidy system, along with the mandate it provided to update and improve woefully outdated FIRMs, was viewed as a giant step in the right direction (UCS, 2013). Now, that HFIA14 has essentially wiped the slate clean on subsidy reform, these same groups are expressing profound disappointment. And, many among them are profoundly concerned that the U.S. will continue to turn a blind eye toward the growing threat of flood disasters and the climatic changes driving them (Sheppard, 2014).

## **Part 5: Remedies & Solutions Available Through The Community Rating System**

While the nation resumes its wait in earnest for Congress to fix the NFIP's financial woes, individuals and communities are left on their own to ponder ways to reduce

liabilities, improve disaster resiliency, and reduce insurance premiums at the local level. The good news is that there is a tested,

*(continued on next page)*

## **Flood Insurance** *(continued from previous page)*

reliable framework that can be used to make a significant impact. It is another federal government program called the Community Rating System or CRS.

Instead of relying on superficial subsidies to lower individual insurance rates, the CRS encourages and rewards communities that act on their own to do three things: (1) reduce flood damage to insurable property, (2) strengthen and support the insurance aspects of the NFIP, and (3) take a comprehensive approach to floodplain management (FEMA/FIMA, 2014). Communities are able to address these primary concerns by engaging in a series of well-defined actions that earn them special recognition from FEMA in the form of CRS points. FEMA uses the total number of CRS points earned in a community to calculate its overall CRS Classification Rating. And, every time a community earns enough points to advance its Classification Rating, residents and business owners—particularly those located in any SFHAs—receive incrementally larger discounts on the premiums charged for their NFIP flood insurance policies.

The classification system used by the CRS is similar to those used by the private insurance industry to grade a community's effectiveness in terms of fire suppression or building code enforcement (FEMA/FIMA, 2014). Class ratings are ranked on a scale from ten (10) to one (1). Communities not participating in the CRS or those that have not earned a minimum of 500 points through the implementation of flood-awareness and loss-prevention activities receive a ten (10). Residents in Class 10 communities receive no discount on their flood insurance

premiums. By contrast, communities that have earned more than 4,500 points by doing all that they can to improve their flood management activities receive a one (1). Residents living or doing business inside SFHAs in Class 1 communities receive a 45% discount on their NFIP flood insurance policies (FEMA/CRS, 2006).

Most communities join the CRS with ratings between 7 and 9, depending on their initial level of activity. For property owners inside SFHAs in these communities, initial insurance premium discounts will range from 5% to 15% (FEMA/CRS 2006). Residents in low-flood-risk locations will see their premiums reduced by 5% (FEMA/CRS, 2006).

The CRS is open to any community interested in finding ways to exceed the minimum standards for floodplain management laid out by the NFIP. Participation in the program is entirely voluntary; however, some pre-requisites do apply. Applicant communities must ensure that the following conditions are being met before FEMA will provide a Classification Rating:

1. The community must be part of the regular phase (as opposed to the emergency phase) of the NFIP for a year or more. (This statement is true for all the municipalities in and immediately surrounding New Jersey's Great Swamp Watershed.)
2. FEMA must confirm that the community has complied with minimum NFIP standards by performing a one-to-three-day community assistance visit (CAV).

3. The community must maintain FEMA elevation certificates for all new construction in its floodplain areas.
4. Any repetitive loss properties identified by the NFIP must be mapped, and steps must be taken to determine how repeat flood damage can be avoided in the future.
5. The community's CEO (mayor, administrator, etc.) must certify (by letter) that every community-owned building requiring flood insurance is carrying a current policy.
6. Communities in coastal areas must agree to include a measurement known as the Limit of Moderate Wave Action (LiMWA) on their FIRMs. (Communities within and immediately adjacent to the Great Swamp Watershed are not impacted by this requirement.) (FEMA/CRS, 2014)

The costs a community might incur by seeking to participate in the CRS will vary depending on the level of effort expended to achieve a high classification. Municipalities must designate a CRS Coordinator to act as a point of contact between FEMA, CRS administrators, and those local departments responsible for implementing creditable flood awareness and prevention activities. Most of the time the position of CRS Coordinator is assigned as an extra task, but additional expenditures may be required to make sure that coordination activities are performed properly. Other additional costs may also be incurred as a result of record-keeping activities, such as maintaining FEMA elevation certificates and tracking information for FEMA certification and re-

certification visits. By far the largest costs communities face when participating in the CRS center on the implementation of creditable activities associated with doing good floodplain management (FEMA/CRS, 2014). Creditable activities (see callout) that earn CRS points for a community vary considerably and come with a wide array of price tags. For instance, actions defined as part of the CRS's *Public Information Series*—e.g., outreach campaigns, websites, and other projects that advise residents about flood hazards—may be relatively quick and inexpensive to implement, while actions defined as part of the *Flood Damage Reduction Series*—e.g., buy-outs of flood-prone properties, elevating vulnerable structures, fixing drainage systems, etc.—may be time consuming and expensive. Still, CRS participation remains quite flexible, and a community may choose to do as much or as little as it likes to maintain or advance its Classification Rating, just as long as it continues to meet the program's six prerequisites.

Unfortunately, the opportunities afforded by the CRS are underutilized. Nationwide, only about 6% of communities participating in the NFIP also participate in the CRS (UCS, 2013). And, while the small number of participating communities does represent about 70% of the 5.6 million policies backed by the NFIP, few communities are taking full advantage of CRS opportunities (UCS, 2013). The situation here in New Jersey is similar to that of the nation as a whole. Of the 551 New Jersey municipalities that actively participate in the NFIP, only 11% (61 municipalities) are also engaged in

(continued on next page)

### **Activities that Earn CRS Credit**

Communities may engage several different types of CRS-creditable activities. These activities generate points that are used to improve the community's overall CRS Classification Rating, and, ultimately, reduce flood insurance premiums for local homeowners and businesses. Activities are categorized into four series. They are:

- the **Public Information Series**, which confers credit for flood-awareness outreach campaigns, websites that provide information about local flooding issues, technical assistance programs for loss prevention, and other projects that advise people about flood hazards;
- the **Mapping and Regulation Series**, which confers credit for mapping the floodplain, keeping parts of the floodplain undeveloped, raising building standards for new construction in the floodplain, and other projects that center around new development;
- the **Flood Damage Reduction Series**, which confers credit for buying out or elevating flood-prone properties, maintaining drainage systems, developing comprehensive flood protection plans, and other projects that reduce the overall risk of flood loss;
- and the **Warning and Response Series**, which confers credit for emergency management activities performed before, during, and after flooding events to minimize property damage and loss of life. (FEMA/CRS, 2014)

For a complete list of creditable activities and the component that make them up, visit <http://www.fema.gov/national-flood-insurance-program-community-rating-system>.

CRS activities (UCS, 2013; FEMA/CRS, 2012). This translates into a tremendous opportunity for lowering flood insurance rates statewide, even though it will need to happen community by community.

So, what is next? What will it take to get more New Jersey municipalities interested in the CRS? One of the first steps will require building a new awareness of the program and offering assistance to those who are interested in jumping in. Much of that effort will hinge upon demonstrating how effective the CRS is at lowering flood insurance premiums, all at once, across an entire community.

Premium reductions will provide an immediate incentive to join the CRS, but communicating some of the big-picture benefits of participation will be important as well (FEMA/CRS, 2014). For instance, residents and business owners will need

to know that money saved by lowering insurance rates is more likely to remain inside the local community. Property owners who pay for flood protection through stormwater utilities or property taxes will need to understand that those expenses may actually be offset by discounts applied to flood insurance policies. And, community leaders will need to know that the program can be used as a tool for improving coordination between municipal departments, and for building stronger relationships with their own constituencies.

Above and beyond all these benefits, there is a very real and critical need to keep flood disaster prevention and damage reduction efforts alive within public consciousness. When a community has not experienced a major flood in several years, there can be pressure from developers and other parties

to lower standards for development in the floodplain (FEMA/CRS, 2014). In cases like this, it can be all too easy to eliminate flood hazard reduction programs. CRS communities are not as likely to de-prioritize or forget about floodplain management because they are motivated to keep the credits and the Classification Rating they have already earned. After all, losing credits and receiving a lower rating is likely to result in insurance premium increases throughout the community.

As Executive Director Sally Rubin mentioned in her introductory letter to this issue of GSWA's *Across the Watershed* newsletter, the organization's newly formed Great Swamp Upper Passaic River Municipal

Alliance (GSUPRA) will make regional flooding issues one of its top priorities. And, one of the major thrusts of that initiative will be finding ways to help local communities work together to better identify and reduce flood risks and liabilities, not only for themselves, but also for their neighbors living downstream. The CRS may be one of the most important tools that Alliance members can use to make that happen.

Through the GSUPRA, GSWA and its consultants will be able to provide additional resources in the form of technical assistance for any regional municipality interested in pursuing CRS enrollment. If you think your town could benefit, please call us right now at (973) 538-3500 for more details. 🌲

## Sources

Alpert, Bruce. (2014, March 18). Bill blocking large flood insurance premium increases sent to White House. *The Times-Picayune*. Retrieved from [http://www.nola.com/politics/index.ssf/2014/03/bill\\_blocking\\_large\\_flood\\_insu.html](http://www.nola.com/politics/index.ssf/2014/03/bill_blocking_large_flood_insu.html)

Anderson, Jenny. (2013, July 28). Outrage as homeowners prepare for substantially higher flood insurance rates. *The New York Times*. Retrieved from <http://www.nytimes.com/2013/07/29/nyregion/overhaul-and-a-hurricane-have-flood-insurance-rates-set-for-huge-increases.html?pagewanted=all>

Bernard, Tara Siegel. (2013, May 10). Rebuilding after Sandy, but with costly new rules. *The New York Times*. Retrieved from <http://www.nytimes.com/2013/05/11/your-money/after-hurricane-sandy-rebuilding-under-higher-flood-insurance.html?pagewanted=all>

Davenport, Coral (2014, January 28). Popular flood insurance law is target of both political parties. *The New York Times*. Retrieved from [http://www.nytimes.com/2014/01/29/us/politics/popular-flood-insurance-law-is-target-of-both-political-parties.html?\\_r=0](http://www.nytimes.com/2014/01/29/us/politics/popular-flood-insurance-law-is-target-of-both-political-parties.html?_r=0)

Earthjustice. (2008, September 29). *Federal scientists: Flood insurance program is pushing salmon and orcas to Extinction*. Retrieved from <http://earthjustice.org/news/press/2008/federal-scientists-flood-insurance-program-is-pushing-salmon-and-orcas-to-extinction>

H2O Partners, Inc. (Producer). (2013). *Getting to know flood reform*. [Video]. Available from <http://www.h2opartnersusa.com/nfip-training/video/>

King, Rawle O. (2012, June 12). *National Flood Insurance Program: Background, challenges, and financial status*. Retrieved from the Library of Congress Congressional Research Service at <http://www.washingtonpost.com/wp-srv/business/documents/health-science-NFIP-123110.pdf>

Lehmann, Evan. (2014, March 14). Risk: Obama will sign discounted flood insurance bill after it sailed through the Senate. *ClimateWire*. Retrieved from <http://www.eenews.net/stories/1059996153>

Linskey, Annie. (2014, March 14). Good news: The government will no longer make you put your house on stilts. *Businessweek*. Retrieved from <http://www.businessweek.com/articles/2014-03-14/good-news-the-government-will-no-longer-make-you-put-your-house-on-stilts>

Lynn, Kathleen. (2014, February 25). North Jersey homeowners trapped in flood zones looking for help from feds. *The Record*. Retrieved from [http://www.northjersey.com/realestate/247135941\\_Rising\\_flood\\_insurance\\_premiums\\_make\\_homes\\_impossible\\_to\\_sell.html?page=all](http://www.northjersey.com/realestate/247135941_Rising_flood_insurance_premiums_make_homes_impossible_to_sell.html?page=all)

Murphy, Matt (2013, October 29). Flood coverage increase may wait. *Charleston Daily Mail*. Retrieved from <http://www.charlestondaily.com/News/201310290034>

(continued on next page)

## Flood Insurance *(continued from previous page)*

Pinter, Nicholas (2013, August 28). The new flood insurance disaster. *The New York Times*. Retrieved from <http://www.nytimes.com/2013/08/29/opinion/the-new-flood-insurance-disaster.html>

Property Casualty Insurers Association of America. (n.d.). *National Flood Insurance Program (NFIP): The need for long-term solutions*. Retrieved from [http://www.pciaa.net/web/sitehome.nsf/lcpublic/304/\\$file/nfip\\_long-term-solutions.pdf](http://www.pciaa.net/web/sitehome.nsf/lcpublic/304/$file/nfip_long-term-solutions.pdf)

Sheppard, Kate (2013, July/August). Flood, rebuild, repeat: Are we ready for a Superstorm Sandy every other year? *Mother Jones*. Retrieved from <http://www.motherjones.com/environment/2013/07/hurricane-sandy-global-warming-flooding?page=2>

Sheppard, Kate (2014, March 17). Congress just undid the 1 good thing it's done on climate change. *The Huffington Post*. Retrieved from [http://www.huffingtonpost.com/2014/03/17/congress-flood-insurance\\_n\\_4981226.html?utm\\_hp\\_ref=tw](http://www.huffingtonpost.com/2014/03/17/congress-flood-insurance_n_4981226.html?utm_hp_ref=tw)

Union of Concerned Scientists. (2013, August). Overwhelming risk: Rethinking flood insurance in a world of rising seas. Retrieved from <http://www.ucsusa.org/floodinsurance>

U.S. Federal Emergency Management Agency, National Flood Insurance Program. (2011, March). *Answers to questions about the NFIP* (FEMA Publication No. F-084). Retrieved from <http://www.fema.gov/media-library/assets/documents/272?id=1404>

U.S. Federal Emergency Management Agency, National Flood Insurance Program. (2012, June). *Definitions*. Retrieved from <http://www.fema.gov/national-flood-insurance-program/definitions#F>

U.S. Federal Emergency Management Agency, National Flood Insurance Program. (2013a, April). *Questions about the Biggert-Waters Flood Insurance Reform Act of 2012*. Retrieved from [http://www.fema.gov/media-library-data/20130726-1912-25045-9380/bw12\\_qa\\_04\\_2013.pdf](http://www.fema.gov/media-library-data/20130726-1912-25045-9380/bw12_qa_04_2013.pdf)

U.S. Federal Emergency Management Agency, National Flood Insurance Program. (2013b, April). *Biggert-Waters Flood Insurance Reform Act of 2012 (BW12) timeline*. Retrieved from [http://www.fema.gov/media-library-data/20130726-1912-25045-8239/bw\\_timeline\\_table\\_04172013.pdf](http://www.fema.gov/media-library-data/20130726-1912-25045-8239/bw_timeline_table_04172013.pdf)

U.S. Federal Emergency Management Agency, National Flood Insurance Program. (2014, February) *National Flood Insurance Program and the Consolidated Appropriations Act of 2014*. Retrieved from <https://www.fema.gov/media-library/assets/documents/90829>

U.S. Federal Emergency Management Agency, National Flood Insurance Program. (2014a, March). *Flooding & flood risk: Understanding flood maps*. Retrieved from [https://www.floodsmart.gov/floodsmart/pages/flooding\\_flood\\_risks/understanding\\_flood\\_maps.jsp](https://www.floodsmart.gov/floodsmart/pages/flooding_flood_risks/understanding_flood_maps.jsp)

U.S. Federal Emergency Management Agency, National Flood Insurance Program. (2014b, March). *Hurricanes can bring inland flooding*. Retrieved from [https://www.floodsmart.gov/floodsmart/pages/media\\_resources/fact\\_inland.jsp](https://www.floodsmart.gov/floodsmart/pages/media_resources/fact_inland.jsp)

U.S. Federal Emergency Management Agency, National Flood Insurance Program, Community Rating System (Producer). (2014, February). *Community Rating System (CRS) overview*. [Video]. Retrieved from <http://www.fema.gov/national-flood-insurance-program-community-rating-system>

U.S. Federal Emergency Management Agency, National Flood Insurance Program, Community Rating System. (2006, April). *Community Rating System: A local official's guide to saving lives, preventing property damage, and reducing the cost of flood insurance*. (FEMA Publication No. 573). Retrieved from [http://www.fema.gov/media-library-data/20130726-1708-25045-7720/99032\\_nfip\\_small\\_brochure.pdf](http://www.fema.gov/media-library-data/20130726-1708-25045-7720/99032_nfip_small_brochure.pdf)

U.S. Federal Emergency Management Agency, National Flood Insurance Program, Community Rating System. (2011, June). *Strategic plan evaluation: Repetitive loss strategy*. Retrieved from [http://crs2012.org/uploads/docs/other/repetitive\\_losses\\_final.pdf](http://crs2012.org/uploads/docs/other/repetitive_losses_final.pdf)

U.S. Federal Emergency Management Agency, National Flood Insurance Program, Community Rating System. (2012, May). *Flood insurance policies and community rating system participation: State of New Jersey*. Retrieved from <http://www.fema.gov/media-library/assets/documents/27808?id=6202>

U.S. Federal Emergency Management Agency, Federal Insurance and Mitigation Administration. (2014, March 21) *Fact sheet: Community Rating System*. Retrieved from <http://www.fema.gov/media-library/assets/documents/9998>

Walsh, Bryan. (2013, October 1). The hard math of flood insurance in a warming world. *Time*. Retrieved from <http://science.time.com/2013/10/01/the-hard-math-of-flood-insurance-in-a-warming-world/>

Alvarez, Lizete and Campbell Robertson. (2013, October 12). Cost of flood insurance rises along with worries. *The New York Times*. Retrieved from <http://www.nytimes.com/2013/10/13/us/cost-of-flood-insurance-rises-along-with-worries.html?pagewanted=all>

Will, George. (2014, February 5). The stakes of a special election. *The Herald Sun*. Retrieved from <http://www.heraldsun.com/opinion/opinioncolumnists/will/x1385734483/The-stakes-of-a-special-election>

## Bayne Park *(continued from page 1)*

Aerial photos available through Google Earth show how well-established the buffers located on the south side of the pond have become. Figure 1 (see page 1) shows the area before the buffers were installed (taken in June 2010). A few shrubs and trees are present in a large area of turf grass. The pond edge has a narrow strip of taller vegetation. The most recent aerial image available from Google Earth (Figure 3 from September 2013) clearly shows that the buffers have established themselves with good vegetative cover. Shrubs and trees that were already in place in the June 2010 photo have been surrounded by a strip of taller vegetation stretching approximately 10 feet in width. Though not visible in the aerial photos, two mulched paths cross the buffer on the south side to allow public access to the pond.

Since the initial installation, Bayne Park has experienced some extreme weather, including one very wet spring and one very dry summer. The native plants used in the buffer are well suited for the local climate, so most have survived. A survey conducted in August 2013 revealed that 85% of the buffer plants endured from the initial planting. In an effort to account for a “normal” survival rate of 80%, the initial planting included 20% more vegetation than the area actually needed.

In the months following the first planting, many volunteers from GSWA and Harding Township have spent time on maintenance activities. Routine tasks have included weed whacking (or haying) of grasses in early spring, mulching paths, weeding, and ensuring that fences are sound enough to keep out deer and geese. Under the terms of the original project plan, GSWA agreed to maintain the buffers for two years. This spring, maintenance responsibilities will transfer to Harding Township.

From the outset of work, one of the stated project goals was to ensure that buffer maintenance would not become a burden on the Township. GSWA has worked closely with Harding’s Citizens’ Park Advisory Committee (CPAC) to plan and implement all the work that has been done so far. In an effort to assist the Township with its new responsibilities, GSWA has created a customized maintenance manual containing design plans, a list of plants and their locations, details for proper buffer upkeep, and an identification guide for plants that were purposefully planted, as well as those that have entered the buffers on their own as “volunteers.”

GSWA will hold one final volunteer work day to maintain the buffers at Bayne Park on Saturday, April 26, from 9 a.m. to noon. Volunteers will be asked to assist with several tasks including mulching, weeding, and fence maintenance. No experience is necessary. GSWA will supply all tools and instruction. To register for the work day, visit [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-2500 x22. 🌱



Figure 3. Taken in September 2013, this Google Earth image shows the south side of the pond at Bayne Park approximately 26 months after the initial buffer planting. Trees and shrubs located in the area of concern prior to the start of the project have been surrounded with a strip of new, established vegetation that is approximately 10 feet wide.

## Treasures In Your Backyard: Celebrating Harding Township's Natural and Historical Riches

The Great Swamp Watershed Association (GSWA) is combining efforts with Kemmerer Library Harding Township (KLHT) throughout the month of April to highlight the Township's natural and historical treasures. Several programs for children and adults are planned to educate members of the public about Harding's unique environment and its rich history.

April's activities get an early start on March 30 when the **Harding Township Treasure Hunt** begins. Don your fedora, summon your inner gumshoe, and then head to KLHT between 4 and 5 p.m. to pick up your special Harding Township treasure hunter's kit. All participants will have two weeks to scour the landscape in search of answers to several town-specific brainteasers. The treasure hunt concludes with a closing ceremony for all participants at KLHT at 4 p.m. on Friday, April 11.

On Saturday, April 19, KLHT and GSWA will hold two workshops about native plants and native wildlife. One workshop will be geared toward adult participation, while the other will be for children and their parents. From 10AM to noon at KLHT, GSWA's Director of Education and Outreach Hazel England will present **Wildlife "Berried" Treasures**, a program that teaches adults how to use native plants to attract beneficial wildlife into their back yards. From noon to approximately 2 p.m., KLHT and GSWA will offer a special hands-on **bird and bee**



*Ruby-throated Hummingbird (Archilochus colubris) visits a cardinal flower (Lobelia cardinalis). Learn how to attract wildlife like this to your back yard at Wildlife "Berried" Treasures on April 19. Photo copyright ©2009 Blaine Rothausser. Used by permission.*

**box building workshop** for children and their parents. Each child/parent team will leave with their very own box to take home.

On April 26, from 9 a.m. to noon, local volunteers are needed to assist with a special clean-up of all the natural treasures at Harding Township's Bayne Park. Under the direction of GSWA's Director of Water Quality Programs Laura Kelm, participants will tend shrubs and native grasses that were planted around the perimeter of Bayne Pond in 2011 in an effort to reduce pollution from stormwater runoff. Following the clean-up all volunteers are invited to attend a free luncheon across the street at KLHT.

As all of these special events progress, KLHT and GSWA plan to spotlight another one of Harding Township's most

important natural treasures—its precious water supply. Unlike many other New Jersey municipalities, Harding relies on private wells for its water. For many years, residents have taken advantage of a free well water test for *E. coli* bacteria offered by the local health department. This year, and only during the month of April, residents will be able to purchase an expanded water test offered through GSWA at a discounted rate. In addition to *E. coli*, GSWA's test measures several other water quality parameters, including nitrates, manganese, iron, arsenic, and lead.

Harding Township homeowners who are interested in taking advantage of the new well testing program may register with KLHT or GSWA between March 30 and April 22. All participants will be required to make a \$10 deposit and pick up a self-

guided water sampling kit. The supplied kit must be used to sample well water at home on the morning of Wednesday, April 23. All samples must be returned to KLHT between 8 a.m. and noon the same day. (Note: Water samples that do not follow specific timetable requirements may not return reliable test results.) The cost for a basic, multi-parameter test will not exceed \$110. Test add-ons may be purchased for an additional charge. Please call for details.

To register for any of these programs, or to receive additional details, please contact KLHT or GSWA. Find KLHT online at [HardingLibrary.org](http://HardingLibrary.org) or call (973) 267-2665. KLHT is located at 19 Blue Mill Road in New Vernon, NJ. Find GSWA online at [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500 x22. GSWA is located at 568 Tempe Wick Road in Morristown, NJ. 🌲

### **Upper Passaic Study Coming Soon!**

GSWA recently finished a three-year study of water quality in the Upper Passaic River.

Watch [GreatSwamp.org](http://GreatSwamp.org) this spring for the release of our final report!

## Got Some Time? Volunteer!

There are lots of ways to help GSWA protect the waters and the land of the Great Swamp Watershed region. Here is an upcoming volunteer opportunity for you, your family, and your friends to consider.

### **Volunteer Workday at Bayne Park Saturday, April 26, 9 a.m.—Noon**

*Bayne Park, Blue Mill Road, New Vernon, NJ*

Help GSWA maintain the vegetated pond buffers planted around Harding Township's Bayne Pond in 2011. These buffers are working to improve water quality by slowing down stormwater runoff. They also help absorb pollutants carried by runoff before they enter the pond. Volunteers will help maintain deer and goose fencing from mature planting beds, weed, spread mulch, and conduct other maintenance tasks.

Once the work is done, all volunteers are invited to celebrate the hard work they have done at a free luncheon courtesy of Harding Township's Kemmerer Library. The luncheon will take place at the library building which is located across the street from Bayne Park at 19 Blue Mill Road.

Register online at [GreatSwamp.org](http://GreatSwamp.org) or call (973) 538-3500. New volunteers will be asked to sign a waiver before beginning work.

### **Important Information for Volunteers**

Volunteer events usually take place outdoors, so please dress for the weather. Conditions may be wet, muddy, hot, or cold. Long pants and sturdy shoes or boots are strongly recommended. Long sleeves

are optional, but deter insects. Feel free to bring your own water in a reusable water bottle, and your own snacks. All other tools and supplies will be provided. Preferred volunteers are 15 or older.

Event dates, times, and locations are subject to change. Provide your email address or phone number at registration and GSWA will make every effort to inform you about scheduling changes. Updated scheduling information is available via our *Event Information Hotline* at (973) 538-3500 x22.

From time to time, GSWA calls on volunteers to assist with other land stewardship, water quality testing, and fundraising tasks. Calls for volunteers are distributed via email on an "as needed" basis. If you would like to be added to our email list, or need more information, please send an email message to [volunteer@GreatSwamp.org](mailto:volunteer@GreatSwamp.org). 🌿



GSWA volunteer Malu Greenberg works to clear non-native invasive plants from GSWA's Conservation Management Area in Harding Township, NJ (March 2012).

## Springtime Home and Garden Tour GSWA's Inaugural Home and Garden Tour

Wednesday, May 28, 2013

Check-in between 10 a.m. and 1 p.m. at the  
Madison Public Library, 39 Keep Street, Madison, NJ

This freshly minted tour will feature an assortment of classically beautiful homes, impressive gardens, and interesting eco-friendly features in and around our watershed. Find inspiration for your spring planting and decorating all while you support GSWA in its efforts to showcase distinctive and creative homes in our community. Purchase your tickets—



Credit: [istockphoto.com/dpproductions](http://istockphoto.com/dpproductions)

- in advance for a discounted rate of \$50 per person. (Visit [GreatSwamp.org](http://GreatSwamp.org) to order online, or call 973-538-3500 x22 to order by phone.)
- at the door for the full price of \$60 per person.

All participants must check in with GSWA at the Madison Public Library (39 Keep Street, Madison, NJ) before beginning the tour.

The check-in table will be open between 10 a.m. and 1 p.m. Tour maps and at-the-door ticket sales will be available at this location.

Following check-in, participants may visit tour homes any time between 10 a.m. and 3 p.m. **All tour homes will close promptly at 3 p.m.**

There is no mandatory tour route. Checked-in participants are welcome to visit tour homes in any order or combination they choose. For more information, call GSWA at (973) 538-3500.

### Interested in volunteering?

Fill out our volunteer profile at [GreatSwamp.org/VolProfile.htm](http://GreatSwamp.org/VolProfile.htm), or e-mail [volunteer@GreatSwamp.org](mailto:volunteer@GreatSwamp.org).

## GSWA Focuses on Equine Management this May

Please join the Great Swamp Watershed Association, Rutgers Equine Science Center, and Lord Stirling Stables for one, two, or all three of our upcoming tours highlighting environmental best-management practices at nearby New Jersey equine facilities.

### **Tour Rutgers University Equine Farm**

*May 5, 2014 – 5 to 6:30 p.m.*

*Ryders Lane, New Brunswick, NJ*

This walking tour will demonstrate best-management practices for equestrian properties, including composting and manure management, and toxic plant control.

### **Tour Seaton Hackney Stables**

*May 12, 2014 – 5 to 6:30 p.m.*

*440 South Street, Morristown, NJ*

Tour the water quality improvements made to this farm, including stream buffers, and manure and pasture management.

### **Tour Lord Stirling Stables**

*May, 19, 2014 – 5 to 7 p.m.*

*256 South Maple Avenue, Basking Ridge, NJ*

Following a tour of the facility, please join us for a discussion with Associate Professor Mike Westendorf from the Rutgers Equine Science Center on rotational grazing, drainage, and best-management practices. This segment will also review before-and-after pictures of all three farms.

Guided tours of all three properties will provide an opportunity to discuss all the different practices in use at each facility. Anyone with an interest may attend. There is **no cost for participation**, and **no advanced registration is required**.



*Credit: istockphoto.com/KentWeakley*



**GSWA is blogging at**  
<http://acrossthewatershed.blogspot.com>

# GSWA Announces Changes to its Board of Trustees, Advisory Council

The Great Swamp Watershed Association Association (GSWA) offers profound thanks to **Debra Apruzzese** and **Frank Stillinger** for their most recent terms of service as members of the organization's Board of Trustees. Deb and Frank completed their three-year stints on December 31, 2013. Per GSWA's bylaws, they are required to step down for a period of time before returning. Thankfully, this is not a goodbye! Both former trustees have agreed to join the organization's Advisory Council, and, should they choose to do so, may stand for re-election to the Board in 2015.

December 31 also marked the end of **David Budd's** most recent tenure as Chairman of the Board of Trustees. In addition to his latest term, David also served as board chair from 2001 to 2002, and again in 2009. This makes him GSWA's one and only three-time offender, and we cannot thank him enough for it! Although his term as chairman is over, he will remain on the Board through 2014.

On January 1, 2014, **Michael Dee** took over as Chairman of the Board of Trustees. Before assuming his new position, Michael served as the Board's vice chair. He also led the committees responsible for organizing GSWA's very successful 2012 and 2013 gala celebrations.

In other good news, GSWA wishes to extend an enthusiastic welcome to the newest member of the Board of Trustees, **Nadine Vitro**. Nadine is a resident of Succasunna, NJ, and currently serves as the

Assistant Vice President Branch Manager at Investors Bank in Madison, NJ.

Several new area residents have joined our Advisory Council since our last print newsletter was issued. In addition to former Board Members Debra Apruzzese and Frank Stillinger (see above), we are thrilled to welcome **Brenda Curnin** (Far Hills), **Gerry Scully** (Harding Township), and former GSWA Executive Director **Julia Somers** (Green Village) into the group. We also extend very special thanks to outgoing Advisory Council Member **Julie Keenan**. Julie was one of the first to join our Advisory Council in May 2013. We will miss her very much!

If you are interested in environmental stewardship, education, and advocacy, and you seek an opportunity to provide your support and services as a member of GSWA's Board of Trustees, please contact Executive Director Sally Rubin at 973-538-3500 or send an email message to [srubin@GreatSwamp.org](mailto:srubin@GreatSwamp.org). 

## Correction

The Great Swamp Watershed Association strives to publish accurate information in *Across The Watershed* at all times. When significant errors do occur we will publish corrections in a subsequent issue.

On page 33 of the Fall-Winter 2013 edition of *Across The Watershed*, we erroneously reported that GSWA Board Member Jane Kendall served on the board of the Mt. Kemble Lake Homeowners Association. This information was incorrect. We sincerely apologize for any confusion this may have caused.



**Great Swamp Watershed Association**

Post Office Box 300  
New Vernon, NJ 07976  
(973) 538-3500  
[www.GreatSwamp.org](http://www.GreatSwamp.org)

Non-Profit Org.  
US Postage  
PAID  
Permit #38  
Chester, NJ



*Printed on recycled paper.  
Please recycle again.*