



Great Swamp Watershed Association
The Passaic River **WATERKEEPER®** ALLIANCE Affiliate



Across the Watershed

Spring-Summer 2019

Protecting our Waters and our Land for More Than 35 Years

Bring on the 2019 Plastic Bag Challenge

by Hazel England, Director of Education, Outreach and Stewardship

It's trite but true, it's not always easy being green! It's easy to be horrified by photos of oceans filled with plastic, saddened by turtles entwined in plastic bags or determined to say no to the straw, and pledging to be part of the solution. Our new microplastic sampling program is looking at sources of plastic in freshwater systems, and though it will be some time before results yield where plastics in the Passaic emanate from, we know that as New Jerseyans we use huge amounts of single use plastics. Many plastics we use daily bring us ease and convenience, and quitting them can be harder than saying no to that second brownie!

So how do you put your money where your mouth is, and become effective in changing your own behaviors in saying no to plastic? As with many things, in my own household it's down to competition, coupled

with fear of being shown up by the kids! We found that although we owned huge numbers of reusable shopping bags declaring colorful support to NJ's finest nonprofits, and we were effective in using them at large weekly shops, our quick trips to CVS, the local bakery, or whilst holiday shopping were still netting the house many single use plastic bags. We stored and dutifully recycled them at supermarket collection points, but we realized we had to up the ante. One of our family's 2019 resolutions was to strive to

become plastic-bag-free in 2019. As a house full of scientists, we needed data. Our statistics-minded daughter made the family a chart to record our moments of forgetfulness week by week, (with pencil attached to make it impossible to forget to record the shameful event). We mark on the chart when we forget

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WEEK	MON	TUE	WED	THUR	FRI	SAT	SUN	TOTAL
1								
2								
3								
4								
5								
6								

april 2019
newspaper

From the Desk of the Executive Director

GSWA is Thrilled to Announce the Addition of Five New Members to our Board of Trustees

by Sally Rubin

We are pleased to welcome these outstanding leaders, each of whom brings with them a deep commitment to the environment. Their unique experiences and insights will undoubtedly help advance our mission of protecting and improving the water resources of the Passaic River region, from the Great Swamp headwaters to Newark Bay, for present and future generations.

Incoming members of the GSWA Board of Trustees:

Reed Auerbach: Reed has been a GSWA member since 2000 and has served on the GSWA Advisory Council for the last six months. He recently completed his tenure as a member of the Board of Trustees at Franklin & Marshall College and currently serves on the Advisory Board of Columbia University School of International and Public Affairs and the Board of the Structured Finance Industry Group. Recognized as one of the nation's leading structured finance lawyers, Reed currently serves as the global leader of the structured transactions group at Morgan Lewis in New York City. Reed and his wife reside in Bernardsville.

Kate Barry: Born in Morristown and raised in New Vernon, Kate graduated from The College of Charleston then attended graduate school at University College London where she pursued a degree in

Environment and Sustainable Development. Passionate about her home state, she moved back to New Jersey and worked in environmental policy in New York and New Jersey. She earned her real estate license in order to work in her hometown with her father, Jim Barry. Kate currently lives in Harding with her husband and family, which includes a cat, donkey, and two goats.

Jordan Glatt: As Director of Strategic Partnerships at the Community Foundation of New Jersey (CFNJ), Jordan works with corporations, entrepreneurs, and families to design charitable vehicles that deliver impact in New Jersey communities. Previous to the Community Foundation, he was President of Magla Products, a \$90 million consumer products company. A graduate of Drew University where he later served as a trustee, Jordan is a former two-term Mayor of Summit and served as an at-large councilman in the town. He was recently appointed by New Jersey Governor Phil Murphy as co shared services czar alongside GSWA's Chair, Nicolas Platt. He resides in Springfield with his wife.

Eric Inglis: An attorney at Schenck, Price, Smith & King, Eric is certified by the Supreme Court of New Jersey as a Civil Trial Attorney. He co-chairs Schenck, Price, Smith & King's Litigation Department and

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Across the Watershed

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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 35 years.

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Plastic Bag Challenge *(continued from page 1)*

and take a plastic bag. We decided on rules of engagement, and the competition began...

We discussed the difficulties of purchasing loose vegetables in the produce market, how do you avoid the produce bags? What about the bag the newspaper comes in on a wet day? The long protective bag the dress for the dance came in? Our personal rules of engagement state that you record the bag only when you had a choice in taking it — so every store plastic bag gets a tally, however, we note produce bags and newspaper bags just for a full data set! Just being more aware has changed our behavior. We are using newspaper bags again as storage bags, reducing the already low number of Ziploc bags we might be tempted to use. We become creative in refusing or limiting the number of produce bags, and kick ourselves at the Chinese takeaway that by calling ahead the food came pre-bagged!

I mentioned our quest at a staff meeting and coworkers also pledged to try our plastic bag challenge. More discussion ensued- what about dog owners who must pick up the poop to be good citizens-are there realistic plastic free alternative pet waste bags? More discussion and some research- there are, but they are often more expensive. And so here is where it gets tricky. When you pledge to change your behavior, sometimes it is easy, and

sometimes it is not. You may swap ease of use or convenience for virtuous feelings, or pay more money for the ethical or environmental alternatives that avoid single use plastics. Where along the continuum of difficulty do you fall off the wagon and just use the darn bag! We've found that by recording what we do, where we fail, and verbalizing the daily difficulties, we are more likely to stay on track and reduce our use.

Our family realized that once we set the goal and it became the 'norm' to avoid single use plastic, and we felt good old fashioned guilt at forgetting, then we were prepared to go the extra mile and forgo some inconvenience for the sake of our pride. We are not perfect-but we are making changes that are having ripple effects, and if magnified by our friends and coworkers, could make a discernable difference!

So if you want to join our plastic bag challenge, we'd love to hear from you. What creative single use plastic alternatives have you found? How do you motivate yourself to stay on track? We lay down the gauntlet- can you also commit to reducing your reliance on single use plastics in 2019? Email hazele@greatswamp.org to tell us your successes, and your difficulties as you reduce your reliance on single use plastics. 🌱

Interested in volunteering?

If you are interested in getting actively involved in efforts to protect and preserve the watershed, GSWA has a number of volunteer opportunities (see GreatSwamp.org/volunteer/).

Please send an email to volunteer@GreatSwamp.org if you would like to volunteer!

Save the Date



GSWA 2nd Annual Music Festival

Live music, food trucks,
local vendors, beer & wine, fun!

Sunday, June 9
12 - 5 pm

9 Hartley Farms Road, Morristown, NJ

Tickets and details
GreatSwamp.org / 973-538-3500

Upcoming Events

Evening Briefing: Environmentally Friendly Cleaning Solutions Wednesday, February 27, 7–8:30 p.m.

Madison Public Library, 39 Keep St.,
Madison, NJ

White vinegar, baking soda, and lemon juice. Believe it or not, these are the key ingredients of many environmentally safe cleaning products. And it all works! Learn about the ingredients found in our personal and household cleaning products you may want to avoid, and how products labeled as “environmentally safe” are not all created equal — and why you should be concerned. Common ingredients in many household products can have detrimental environmental impacts on you, our local environment and our regional water supply. You will leave with some DIY cleaning product recipes to make your own homemade cleaning products! Registration is required. Register online at GreatSwamp.org or call (973) 538-3500. *This free program is co-sponsored by GSWA and Madison Public Library.*

Like GSWA
and join the cause on

facebook.

Frog Watch & CoCoRaHS Training Workshop Wednesday, March 6, 6–8 p.m.

GSWA Headquarters, 568 Tempe Wick Road,
Morristown, NJ

Do you know your spring peepers from your wood frogs? Have a passion for weather? Hop on over to GSWA



Spring Peeper
Credit: FynKynd Photography

Headquarters for this dual, hands-on citizen science program training session where you can become an official FrogWatch and/or CoCoRaHS neighborhood volunteer. Eric Jackson, Environmental Educator at Hartshorn Arboretum, will train you to properly log your frog and toad sightings, which helps establish long-term and large-scale data on amphibian populations. David Robinson of CoCoRaHS (Community Collaborative Rain, Hail and Snow Network) will teach you to measure and map precipitation (rain, hail and snow) joining a network of other backyard weather observers of all ages and backgrounds who do the same in their local communities. This is a free workshop. Registration is required. Register online at GreatSwamp.org or call (973) 538-3500.

**Breakfast Briefing: Lawncare & Gardening:
Environmentally Friendly Techniques
Tuesday, March 12, 8–9:30 a.m.**

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

A lush, green lawn, beautiful native plants, and a garden that yields healthy produce. This is something many of us strive for each year. But at what cost to our water supply and environment? There are a variety of ways to conserve water and eliminate weeds using sustainable techniques. And now is the time to find out about these solutions, before the last bit of snow melts. Join us as Amy Rowe, Ph. D., County Agent, Rutgers NJ Agricultural Experiment Station, demonstrates environmentally sound techniques to get the most out of our gardens this year! This program is free to all GSWA members; a \$10 donation is appreciated from non-member adults. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

**Evening Briefing: Water Quality Report Card
Tuesday, March 12, 6:30–8 p.m.**

*Summit Free Public Library, 75 Maple St.,
Summit, NJ*

Everyone still asks, “So how’s the water?” Come out and learn about the water quality along your stretch of the Passaic River and get the answers. Great Swamp Watershed Association Director of Water Quality, Sandra LaVigne, will present the 2018 water quality year in review, with data from our in-depth sampling program that covers the Passaic

River from its headwaters in Great Swamp through the Florham Park/Livingston region. GSWA’s new microplastics sampling program will also be discussed. Registration is required. Register online at GreatSwamp.org or call (973) 538-3500. *This free program is co-sponsored by GSWA and the Summit Free Public Library.*

**Evening Briefing: Environmentally Friendly
Cleaning Solutions
Tuesday, March 14, 6:30–8 p.m.**

*Parsippany-Troy Hills Public Library (Main
Library), 449 Halsey Road, Parsippany, NJ*

See description for February 27 (opposite page). *This free program is co-sponsored by GSWA and Parsippany-Troy Hills Public Library.*

**Vernal Pool Exploration Hike
Friday, March 29, 7–9 p.m.**

*GSWA Conservation Management Area
(CMA), 83 Tiger Lily Lane, Harding
Township, NJ*

With temperatures rising, the forest floor will be hopping with new life as frogs and other amphibians crowd into shallow puddles of water to breed and lay their eggs. These puddles, better known as vernal pools, provide a perfect opportunity to learn more about Mother Nature here in New Jersey. But we have to hurry! They disappear quickly. This annual Vernal Pool Exploration provides a fun, outdoor learning experience for kids and adults alike. Discover the differences between a spring peeper, a chorus frog,

(more events on next page)

Upcoming Events *(continued from previous page)*

and a wood frog. Find out how far an endangered spotted salamander will walk to find a mating pool. And, learn how much everything we have come to appreciate about the springtime depends upon a few unassuming puddles of water on the forest floor. Warm clothing and waterproof footwear, especially hiking boots, are strongly recommended. This hike is free to all GSWA members; a \$10 donation is appreciated from non-member adults, \$5 for children. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Paterson Falls Explorer Hike and Tour **Sunday, March 31, 12:30–3 p.m.**

*Paterson Great Falls National Historical Park,
72 McBride Ave, Paterson, NJ*

Explore Paterson from the other end of the Passaic. Join us for an afternoon of nature and natural history. Ilyse Goldman, Interpreter at the Paterson Great Falls National Historical Park, will guide us on an informative hike through the area where we will check out the new viewing platform to explore the 77-foot high waterfall. From there we'll hike along the old raceway, and we'll even squeeze in a museum visit. It's a great opportunity to gain insight into the importance of Paterson, the first planned industrial city that was centered around the Great Falls, and how it changed the face of our country. We will meet at the Great Falls and go from there. Dress for the weather, hiking boots recommended for potentially muddy conditions. This hike is free to all GSWA members; a \$10 donation is appreciated from non-member adults, \$5 for children. Registration required. Register online at GreatSwamp.org or call (973) 538-3500.

Evening Briefing: Environmentally Friendly Cleaning Solutions **Thursday, April 4, 6:30-8 p.m.**

*Summit Free Public Library, 75 Maple St.,
Summit NJ*

See description for February 27 (page 6).
*This free program is co-sponsored by GSWA
and Summit Free Public Library.*

Stream Assessment Training **Saturday, April 6, 10 a.m.—2 p.m.**

*Florham Park Public Library, 107 Ridgedale
Ave., Florham Park, NJ*

Interested in becoming a stream monitoring volunteer or just learning more about stream health? This is the training for you! An indoor classroom session teaches you how to conduct visual and biological stream assessments, identify macroinvertebrates, and recognize environmental factors that may impact stream health. An outdoor session lets you practice your new-found skills at a local stream site. By afternoon, you will be a fully trained visual-stream assessment volunteer and ready to conduct an assessment! Bring a pair of boots and clean shoes to change into. There will be a short walk to reach the stream. Tools and supplies are provided. Preferred volunteers are 15 or older. Includes indoor and outdoor sessions. This training will be conducted in conjunction with the AmeriCorps New Jersey Watershed Ambassador Program. Registration is required for this free training session. Register online at GreatSwamp.org, or call (973) 538-3500.

**Breakfast Briefing: Disposing of Non-recyclables the Right Way
Tuesday, April 9, 8–9:30 a.m.**

GSWA Headquarters, 568 Tempe Wick Road, Morristown, NJ

Can I throw my old computer in the garbage? What do I do with my leftover medications? Is shredded paper recyclable? Disposing of our trash can be somewhat tricky, leaving us with more questions than answers. Gone are the days of tossing everything in a dented metal trash can and forgetting about it. And thank goodness for that! April, known as “spring cleaning” month, is a time to get rid of the stuff that has accumulated around us during our winter hibernation. Let us help you get your home in tip-top shape while keeping Mother Nature happy. We have solutions for the proper disposal of those pesky items we know shouldn’t go in the trash, and we’re pretty sure we can’t recycle. Come get the facts. This program is free to all GSWA members; a \$10 donation is appreciated from non-members. Registration is required. Register online at GreatSwamp.org, or call (973) 538-3500.

**Hike at Watchung Reservation
Friday, April 26, 6–8 p.m.**

Watchung Reservation, 452 New Providence Road, Mountainside, NJ

Want to explore a deserted village? Do you like scenic gorges and trails that follow the water? Our hike at Watchung Reservation will have all those things and more! Join us for an adventure through the reservation led by GSWA Education Associate, Adam Palmer. We will walk and talk about the winding paths and forest as

we adventure alongside the Blue Brook, and we may even stop at Lake Surprise! (It’s a... surprise.) This hike is free to all GSWA members; a \$10 donation is appreciated from non-member adults, \$5 for children. Registration is required. Register online at GreatSwamp.org, or call (973) 538-3500.

**Breakfast Briefing: 2018 Water Quality Report Card
Tuesday, May 14, 8–9:30 a.m.**

GSWA Headquarters, 568 Tempe Wick Road, Morristown, NJ

See description for March 12 (page 7) Registration is required. Register online at GreatSwamp.org, or call (973) 538-3500.

**Workshop: Create Your Own Walking Stick
Thursday, May 16, 5:30–8:30 p.m.**

GSWA Conservation Management Area (CMA), 83 Tiger Lily Lane, Harding Township, NJ

Learn how to make your very own walking stick so you can hit the trails with confidence. Retired science teacher turned walking-stick-guru, Brad Koller, leads a fun-filled DIY workshop where you will choose from a variety of rough sticks including red cedar, maple, beech, and iron wood, and walk away with a finished product — and the ability to create one on your own! All tools and safety equipment will be provided. This is one of our most popular workshops and space is limited, so don’t miss out - sign up today! \$30/person includes everything you will need. Register online at GreatSwamp.org or call (973) 538-3500.

(more events on next page)

Upcoming Events *(continued from previous page)*

Full Moon Hike at the CMA Saturday, May 18, 7:30–9 p.m.

GSWA Conservation Management Area (CMA), 83 Tiger Lily Lane, Harding Township, NJ

May's full moon is known as the "Flower Moon" to signify the flowers that bloom during this month. Join Hazel England, GSWA Director of Education and Outreach, Land Steward, as she leads us on a hike to discover some gentle nighttime creatures. May is a great time to enjoy a moonlit hike at the CMA. The canopy and bright moonlight provide the perfect backdrop to hear and spot owls. This hike is free to all GSWA members; a \$10 donation is appreciated from non-member adults, \$5 for children. Registration is required. Register online at GreatSwamp.org, or call (973) 538-3500.

Fungus Walk Through the Swamp Thursday, May 23, 6–7:30 p.m.

GSWA Conservation Management Area (CMA), 83 Tiger Lily Lane, Harding Twp., NJ

Join your fellow fungus enthusiast and GSWA Education Associate, Adam Palmer, on a foray into the mysterious world of mushrooms, slimes and molds. Enjoy a hike around our Conservation Management Area as we look for and talk about the important roles of decomposers, symbiotic relationships, and even parasites in an ecosystem. Register today as there won't be mush-room left on this hike if you wait! This hike is free to all GSWA members; a \$10 donation is appreciated from non-member adults, \$5 for children. Register at GreatSwamp.org, or call (973) 538-3500.

Full Moon Hike & Campfire Stories at Jockey Hollow Friday, June 14, 8:30–10 p.m.

Jockey Hollow section of Morristown National Historical Park, 600 Tempe Wick Road, Morristown, NJ

Take a moon-lit stroll through Jockey Hollow. Look and listen for owls and other nightlife creatures by the light of a full moon. Later we will relax by a roaring bonfire and hear stories that 18th century colonists told around their own campfires and learn about their views on the darkness. Don't miss out on this unique opportunity with two highly experienced and knowledgeable naturalists, Adam Palmer, GSWA Education Associate, and Eric Olsen, Park Ranger and local historian. Space is limited and it will fill up fast! This hike is free to all GSWA members; a \$10 donation is appreciated from non-member adults, \$5 for children. Registration is required. Register online at GreatSwamp.org, or call (973) 538-3500. 🌲

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 srubin@GreatSwamp.org so you don't miss out on our new monthly e-newsletters.

Watershed Watch— Environmental Hot Spots

by Sally Rubin, GSWA Executive Director

Rolling Knolls Landfill in Chatham Township has been and will continue to be a hot spot for many years. As we mentioned in our last newsletter, GSWA was in the process of establishing a Community Advisory Group (CAG) through the EPA to facilitate public participation in the Superfund process. Our first meeting was held on September 17, 2018, with almost 50 local residents participating. The EPA provided an independent facilitator for the CAG. The meeting provided an overview of the site and an orientation to the CAG process. The group selected Sally Rubin as its chairperson. Additional information about Rolling Knolls and the CAG is available on the greatswamp.org website.

The second meeting, held in October, provided an overview of the Technical Assistance Services to Communities (TASC) provided by EPA to support the CAG. The CAG also adopted its mission statement:

The mission of the Rolling Knolls Community Advisory Group is to

facilitate community stakeholder participation in the Superfund cleanup process and planning for the site's future use, and to ensure all cleanup is adequately protective of human health and the environment and provides ecological revitalization.

The next meeting, held in December, included a site visit to the landfill. Additionally, the EPA gave a presentation on its Remedial Investigation at the site.

The next meeting of the CAG will take place on March 11 at 6 p.m. at the Chatham Township Municipal Building. The agenda will include an EPA presentation of the human health risk assessment and ecological risk assessment conducted at the site. The Great Swamp National Wildlife Refuge will make a presentation on some site remediation options and the different requirements for working in the management area versus the wilderness area and what those designations mean. The meetings are open to the public and anyone interested is encouraged to attend. 🌲

GSWA Experts Available to Speak to Area Groups

Do you wonder, “What is in my water?” or “What can I do to keep water clean for my children?” These and other questions about water quality, land preservation, and local efforts to protect the environment can be answered by the Great Swamp Watershed Association (GSWA). GSWA speakers give interesting, hands-on presentations that will educate and inspire members of your local club or group. Call (973) 538-3500 or e-mail srubin@GreatSwamp.org for more details.

Take the “Change-1-Behavior” Challenge

by Val Thorpe, Director of Communications and Membership

We’ve all heard the many “challenges” that our friends dare us to take: the ice bucket challenge, the 30-day no carbs challenge, the “a year of my trash fits in a mason jar” challenge (now THAT’S a challenge!) And you may even remember the Pepsi challenge. I’d like to propose a new one, the “Change-1-Behavior” challenge. It’s sounds self-explanatory, but there’s a back story that goes along with it that I hope will drive home my point. I’ll be brief:

Chapter 1: I’ve always prided myself on being pretty darned environmentally conscientious. I was a girl scout. I’ve always been an outdoor enthusiast, following the rule that we should leave a place cleaner than when we arrived. I recycle, reduce, and make big plans to reuse, which explains my cabinets being packed with things like old jelly jars, lettuce containers, and gently used plastic sandwich bags. Not bad, right?

Chapter 2: A lot of what I do at GSWA is gather and share meaningful information with our membership base and the general public. So, I do a lot of research, and pick the brains of my extremely knowledgeable co-workers and other experts on a variety of environmental topics. What I’ve learned is that our planet is in for a world of hurt if we keep going in this trajectory.

Chapter 3: At the risk of annoying my friends and family, I’m tenderly sharing my knowledge with them. My hope is that they will really engage, put extra effort into their

daily actions, and think about the cumulative effects.

So, what’s the point? This enlightened, environmentally conscious person (me) walks into the supermarket and forgets her reusable bags every time. Every time! How is this possible?! I’m aware!

I’m not proud to expose this fact about myself, but I’m sharing this for a reason. I believe most of us have the best of intentions when it comes to taking care of our planet. But life is hectic, and we are often pulled in many different directions. We know there are a lot of behaviors that we need to change, and it can be overwhelming. Hence, my challenge to you... Change just 1 behavior and focus on it until it’s as routine as brushing your teeth. Once that happens, change another. A great way to do this is to make it a true challenge. Make a family chart. Engage your friends. Take ownership.

“You have to be inconvenienced to do the right thing sometimes.”

—Rick Porter, GSWA Director of Institutional Relations

I’m not going to sugar-coat it — at first, changing our old behaviors can take a little more time. According to a research team at the University College London, on average it takes 66 days for something to become habitual. During this time, we need to consistently refocus and remind ourselves to do things differently; but eventually it happens. We retrain our brain and voila — a

new behavior is born. And check the math, this means we can essentially change about six behaviors in one year. That's a lot of change for the better!

At GSWA, our entire staff has signed up for a plastic bag challenge. We took a pledge to eliminate our use of single use plastic bags from grocery stores, department stores, and even restaurants. Read all about it in Hazel England's 2019 Plastic Bag Challenge article.

“Change requires effort.”

—Kristina Necovska,
GSWA Membership Associate

Here are some other “Change-1-Behavior” ideas for consideration:

- Don't buy bottled water. Use refillable bottles.
- Refuse plastic straws and purchase a portable straw to keep with you.
- Keep some reusable containers in your car to serve as “doggie bags” for restaurant leftovers.
- Refresh your knowledge on recycling rules — visit your town's website to learn the specifics (rules vary with each town, municipality, county, and they can change

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Board of Trustees *(continued from page 2)*

its Commercial Litigation Practice Group. Additionally, he is the past president and current board member of the Morristown and Morris Township Library Foundation, and past president and current member of the West Morris Soccer Club. Eric resides in Mendham with his wife and children.

Dorothea Stillinger: Dorothea (Dot) is a returning GSWA board member who has served several terms on the board in the past, most recently from 2012-2017. A member and active volunteer since 1995, Dot offers her institutional history of the area and the organization. In addition, Dot serves as Chatham Township Environmental Commission Chair. During the summer she works in the nature program of the Silver Bay

YMCA on Lake George in New York. With a B.S. in mathematics from the University of Rochester, an M.S. in mathematics from Yale, and additional computer science coursework at NYU, Dot enjoyed a 40-year career as a computer systems consultant at Bell Labs before retiring in 2000. Dot resides in Chatham Township with her husband, Frank, who is also an active GSWA volunteer.

The GSWA staff and Board of Trustees gratefully acknowledge the considerable contributions made by the trustees who completed their terms at the end of 2018, and who will now serve as Advisory Council members. These individuals are: Mary Horn, Jane Kendall, John Neale, and Lois Olmstead. 🌲

GSWA and Students2Science Fall Review

by Hazel England, Director of Education, Outreach and Stewardship

How can you look at an area of land in a short period of time and yet still make a sound assessment on its ecological value? What can chemical testing tell you about possible threats to water quality due to upstream activities? How does knowledge of what constitutes a wetland soil inform what development activities can occur in a given area?

These were some of the questions and challenges that more than 170 9th through 11th grade high school students from Cristo Rey High School in Newark attempted to answer last fall as they undertook five, day-long, field-based environmental assessments as part of GSWA's new collaboration with Students2Science. Students2Science is a nonprofit organization dedicated to improving scientific literacy and knowledge and interest in STEM careers for underserved students through authentic STEM experiences. These have previously taken

place in state of the art labs, where scientists in lab coats can share valuable insight about the role of STEM careers in solving real world chemistry, biology and physics problems. Now, with the expansion to partnership with GSWA, this learning can also showcase a broader range of STEM careers, including scientists who wear jeans, binoculars and rubber boots as their daily uniform, and whose lab includes the soils, water, animals and plants of the Great Swamp Watershed Association's Conservation Management Area and the Great Swamp National Wildlife Refuge.

Students rolled off their school bus and straight into hands-on outdoor experiential learning opportunities. After a quick stop to be pre-assessed to enable us to better track growth in knowledge through undertaking the program, students ventured out with GSWA education staff, interns and volunteers into one of their three environmental assessment rotations.

The premise given was that GigantiCorps is planning to build a giant office complex with parking and other associated development right upstream, next



Ecological assessment team brave the rain to observe a variety of floodplain habitat at Great Swamp National Wildlife Reserve

Using binoculars for the first time at Great Swamp National Wildlife Refuge.



door to the property. How could we look at potential impacts to inform what GSWA's response should be to this development?

Students conducted hands-on chemical, visual or macro-invertebrate sampling of the water, identifying which parameters might highlight impaired water quality, and recorded data to be able to support their conclusions in the afternoon's discussions. They hiked the property to survey the ecological values the property provided. Assessment included looking at the biodiversity, constructing food chains and webs from the species observed as being present, examining the variety of ecosystem services the land provided; such as recreational space, flood storage or other non-tangible values.

For many students this type of environment was unfamiliar and disconcerting. Muddy trails, overgrown forests and wetlands with bugs, and unexpected wildlife such as snakes, salamanders and spiders, initially caused discomfort. After curiosity overcame initial hesitations however, students became engaged in discovering what species called the area home. They learned the use of the ecologist's tools, using binoculars to observe woodpeckers, chickadees and hawks in their native environment, sticks to poke under rotting logs to find worms,



salamanders and slugs, or soil corers to sample and examine by feel the makeup of wetland soils to inform their assessment. They sampled and sorted macroinvertebrates with buckets and tweezers to enable swift assessments of the health of the stream, then put all their learning together into an analysis of whether the GigantiCorps development would be detrimental to the area. We brainstormed solutions that might reduce that impact, talked about some of the skills field ecologists and soil scientists possess, and how we personally gained the experience to have the STEM jobs that we do. Then it was back on the bus for the students, to regale each other how they held a salamander, a harvestman, or spotted a bald eagle directly overhead — all equally novel species for many of these students!

Our initial season proved popular with students and

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Holding worms discovered during decomposition study.

Plastivores: Examples of Using Bioremediation to Tackle the Plastics Problem

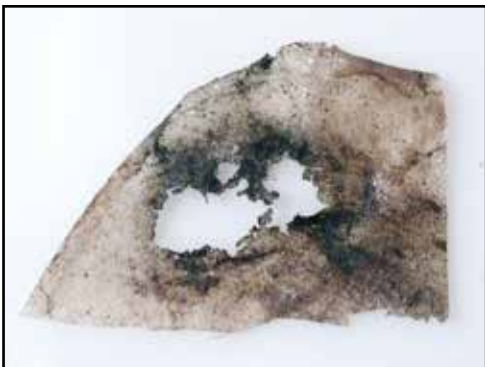
by Adam Palmer, Education Associate

Pollution, waste, runoff, toxic, plastic. More and more we hear these words when we talk about our environment. It has been an issue for decades, yet somehow we still can't figure out a great way to get rid of our waste. Even more worrying is that we can't find a good way to fix ecosystems that have been inundated and impacted by it. Sometimes, even when we do figure out how to fix a problem, we end up altering the ecosystem inadvertently or introduce another substance or species (see Cane Toads) into the environment that may have unintended consequences. So what other options are there? Enter, bioremediation. Bioremediation is the process of using microorganisms and other forms of life to remove toxins and pollutants from an environment using their normal biological functions. Bioremediation has been explored in the past, but it is still an emerging concept and the pros and cons of which need to be further evaluated. However, it does provide a glimpse of promise and every day new discoveries are being made to help further the progress. Check out a few examples below of some of the ways bioremediation might be able to help us with environmental crises and remediation in the future.

1. Plastic-eating bacteria: Plastic has moved to the forefront of the pollution issue and it's no surprise that these hardy polymers are an issue in the environment. Man-made polymers are much different than natural occurring polymers, which

usually are water based, so bacteria which breakdown natural polymers can have a hard time breaking down man-made non water based polymers. However, researchers in 2016 discovered a novel bacterium in a Japanese recycling center *Ideonella sakainesis*, which was found to produce two enzymes which broke down the world's most popular plastic, polyethylene (PET)¹. Springboarding off of that discovery, scientists accidentally modified the enzyme to be even more effective at breaking down PET while studying its evolution and origin. These discoveries could help lead to an environmentally friendly and effective way of removing PET from the environment or to more sustainable recycling methods.

2. Plastic-eating fungus: As the resident fungus enthusiast I cannot pass up an opportunity to talk about *Aspergillus tubingensis*, aka the plastic-eating fungus. A 2017 study published in *Environmental Pollution* identified a novel soil-dwelling fungus at a landfill site in Pakistan. The study not only discovered that the fungus degraded polyester polyurethane (PU), but that its mycelium actually colonized the plastic surface and caused visual scarring when viewed under a scanning electron microscope². Because we produce so many different types of plastics, it will not only be the popular PET that we will face problems



A piece of polyester polyurethane (PU) colonized and degraded by the fungus *A. tubingensis*
Source: <https://www.sciencedirect.com/science/article/pii/S0269749117300295?via%3Dihub>

with. That is why *A. tubingensis* is so important, because it shows other man-made polymers like PU can be naturally degraded as well.

3. Microplastic-filtering mollusks: To finish our exploration into the exemplary field of bioremediation, we look to an organism which could potentially help rid the waters of microplastics. A study conducted in 2018 and published in *Environmental Science and Technology* exposed freshwater scallops to six-hour bursts of spherical polystyrene nanoparticles of two different sizes (24nm and 250nm). After the six-hour period, 30% of the 24nm and 15% of the 250nm particles had been accumulated into the scallop. Under these rates a scallop could accumulate 95% of its capacity in microplastics in just eleven hours for smaller particles and 30 hours

for larger-sized pieces. When placed back into a non-inundated environment, the scallop was able to purge its body of the majority of plastics within three days, with no traces of the 24nm particles after 14 days, and no traces of the 250nm after 48 days³. In some parts of the world, filter-feeders like scallops are already being used to improve water quality in places like the Chesapeake Bay. Further studies into the implications, benefits and downfalls of using filter-feeders to help filter microplastics could be the right step towards making a notable impact on the effort to clean our waters.

Works Cited:

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2. Khan et al., 2017. <https://www.sciencedirect.com/science/article/pii/S0269749117300295?via%3Dihub>
3. Al-Sid-Cheikh et al., 2018. <https://pubs.acs.org/doi/10.1021/acs.est.8b05266>. 🌱

S2S (continued from page 15)

educators, and we will host another ten field days this spring. Students from Jersey City, Newark, and Somerville and Bound Brook will engage with our staff and volunteers for a messy, but rewarding day of hands-on field-based STEM learning. 🌱



GSWA Begins Microplastic Sampling

by Sandra LaVigne, Director of Water Quality

This fall, GSWA began our first round of sampling for microplastics in the Great Swamp Watershed and the Upper Passaic River. Our goal is to begin to understand the extent of microplastics pollution in our local waters so we can begin to work with local communities to address the issue. This first round of sampling was designed to help us pinpoint potential hotspots for microplastics so that, with the help of a grant from The Watershed Institute, we can do a further, more in-depth study later this year.



To get started, we needed to have the right equipment, specifically a sampling net that would allow us to work in the areas we selected for our study. Through a grant from Captain Planet, we were able to purchase a net designed for the collection of microplastics in streams. The design was based on existing nets used in open ocean waters but scaled down for sampling in smaller, wadeable, streams like those in our headwater areas. Eleven sites were selected



throughout the area including seven sites on the Passaic River and one site each on Black Brook, Primrose Brook, Loantaka Brook and Great Brook. Due to excessive flooding at the end of November we were only able to sample ten sites.

Stream Team volunteers John Kramer, Cathy Lee and Kathy Schwartz as well as William Patterson University Intern Chris Gocklin and GSWA Education Associate Adam Palmer all came out to help sample and brave the cold. At each site we collected two samples, one with the net and one grab sample in a glass jar, a visual assessment, and stream flow data. Our samples were brought back to GSWA for processing and sorting.

Early in 2019, we began to strain and dry the samples so they could be examined under a microscope. Reem Shair, one of our

new interns, began sorting and counting microplastics once the samples were ready. This is a slow process as each sample has to be sorted. The microplastics are mixed with leaves and twigs that were also collected during sampling. In our first samples, we are finding many fibers and small chips of plastics that have broken off from larger items such as bottles and bags.

As we compile our data and finish sorting our samples in the coming months, we will continue to post updates on our findings to our GSWA website and social media pages. Here are some ideas that everyone can use to help reduce plastics in our waters while we await further results from our sampling:

- Use reusable bags — not just at the super market but wherever you shop.
- Bring your reusable coffee or tea mug to the coffee shop and ask them to fill it instead of a disposable cup with a plastic lid.
- Put a reusable bag with a few reusable storage containers in your car and bring



them into a restaurant if you might have leftovers to bring home.

- At restaurants, ask for a drink with no stirrer or straw. If you like to use a straw, bring a reusable one.
- Carry your own travel cutlery in your car for take-out or on the go eating.
- And support local businesses that are making changes to reduce their plastic use. 🌱

“Change-1-Behavior” *(continued from page 13)*

periodically). Create a recycling area and post directions for your family.

- Buy in bulk and split it up into reusable containers when you get home.

“It’s not about perfection, it’s about progress.”

—*Kelly Dresser, my friend*

Let’s make a pact with the planet to keep the momentum going. Whatever motivates you to make a change, do it! And then challenge your family and friends to do the same. Brag about your progress on our Facebook page: facebook.com/GreatSwamp. This is the type of challenge where everyone wins! 🌱

So You Want to be an Intern? Here's the Inside Scoop!

by Hazel England, Director of Education, Outreach and Stewardship

While water quality monitoring, environmental education, advocacy and land stewardship are the primary focus of GSWA, we also have a responsibility to share knowledge with future scientists, educators and advocates. Learning by doing is a good way to build experience, and we've developed a robust intern program to do just that! Over the years we've engaged countless interns, from local area high schoolers undertaking senior year experiences, to semester long college interns from area colleges such as Drew, FDU or William Paterson University. We get many requests from returning college students or recent graduates home for summer and desperate to build resumes and glean job experience, or under pressure from long suffering parents to get out and do something! Our email inboxes begin ping in January with the onslaught of requests for potential internship advice and guidance, or available summer opportunities.

For the last few years I have spoken about my own work experience and pathway as part of Drew University's Capstone series, speaking to classrooms of Environmental Science seniors just a few months away from entering the job market. Since GSWA staff have all been in that unenviable position, we try to give people time and advice.

College students are focused on the here and now — their grades, course selections, and ensuring they meet prerequisites for their degree. It can be daunting to also think about the future. When we speak to students

about the types of skills, traits and attributes a good intern or prospective employee must cultivate, they are often nonplussed by the necessary soft skills we, as potential employers, are looking for.

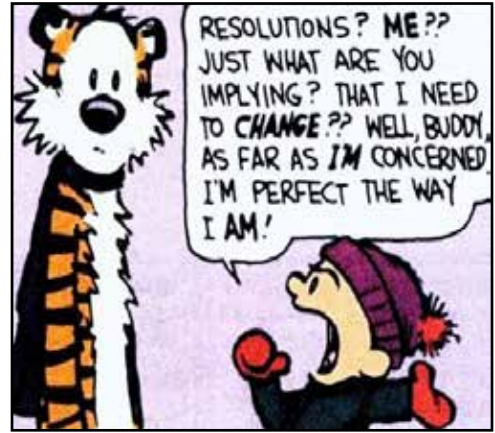
In my own home, we joke that these are 'Essential Life skills' — the things you really need to know to survive in the world and don't learn in class! Everybody's life skills list differs. Mine includes such critical skills as knowing how to change a flat tire, write a good thank you letter (even for a horrendous gift), do a disaster-free load of washing, to being able to cartwheel, make an acorn cap whistle, or conduct polite conversation with a total airhead!

While the essential life skills will change over time — it's no longer necessary to know how to balance a check book — focusing on employing good soft skills as a potential intern can enable you to be a successful employee. During Capstone program discussions I often ask what skills students think successful interns/prospective employees should have. Students call out responses, and their list often includes traits such as: Good data analysis, relevant environmental courses, field research skills and competency in Microsoft Office. While these are all valuable skills, students are often surprised that the life skills I think most valuable have little overlap to their own!

Great communication skills top my list as the life skill most underrated by prospective interns as one to demonstrate, and yet most valued by organizations for potential interns

and employees to possess! Whether you want to be a field ecologist, work as a researcher, or save the world through your novel sustainability idea, you will without a doubt need to know how to talk and write well and to communicate effectively with different audiences. Blanket emailing a generic letter to fifty area organizations asking for a job will never be as effective as a personalized letter showcasing your good writing and research skills. We can immediately tell the difference! Interns who effectively show they have dug a little deeper into the work we do, and speak specifically to what they would like to get out of an internship as well as what they can offer, stand out. Impress us with your thoroughness and writing ability, don't write to us as if we were an old friend you are texting to arrange a get-together at Starbucks! If you feel your writing or speaking skills need bolstering, tell us those are skills you wish to strengthen — this type of honesty tells us you want to grow through your internship and are prepared to work hard to gain essential resume skills.

Tenacity and persistence. Most non-profit staff are overloaded. We are super busy checking emails from the field or on the go, so if you send an email and don't hear back, reach out again. Show some persistence. Though it happens unintentionally, we might ignore your first communicate, so always follow up! Leave a voicemail. Demonstrate interest — just as colleges often require prospective students to do, we tend to respond positively to those who



show us they are interested in learning what we have to offer by their tenacity. Over the years, the best interns have often been those that quickly learn how to get and hold our attention. If we say to call us at a particular time, call us — if you are running late or can't make a meeting, let us know. This may sound like du-uh — simple common sense, and it is, but it's amazing how many prospective interns passively wait to be chased up. If this is the organization you have targeted for an internship, demonstrate your interest be following though. If we contact you with potential opportunities several times and you don't get back to us, we'll stop including you in future offers. Follow up, follow up, and follow up.

Be Flexible and Available! We understand you may need to work a paying job or take classes while you intern with us, and we support many interns who do just that. Our experience shows that the more you invest, the more you will learn and grow from your internship. Perhaps you can spare two full weeks and are available every day for that time period. Great! Or around work commitments you can offer up a Tuesday

(continued on next page)

Intern (continued from previous page)

and Friday every week all summer — fine by us. When prospective interns are upfront about their constraints, but show willingness to be flexible in order to gain experience, we are more likely to respond in kind. Telling us that you are available one day a week after 3:30 p.m. and another before 11 a.m. doesn't show that this internship is a priority for you, especially if we happen to be water sampling from 7:30 a.m. until 5 p.m. or conducting a stewardship workday all day!

Give a little, get a little. It's important to understand that in internship experience is a give and take between the organization and the individual. We invest energy in offering you training and field experience, and in return you help on a variety of tasks we need accomplished. We are more willing to put ourselves out to show you new skills if we see the same level of commitment from you. Interns need to be realistic about their value to an organization. If you want to add to your resume that you have chemical and biological water sampling experience, then you have to put in the required effort to gain those skills. It can be frustrating to invest time in training interns in a technique, and then have them unavailable to help whenever you need to put that skill to work!

Engage! I recently received a request to write a graduate school recommendation from an intern from five years ago. Since they had stayed in touch, sent occasional updates, and stopped in to say hello when they were home, I was happy to do it — we were still

connected. Recommendations from GSWA, whether you were a high school or college intern, can highlight relevant skills when you apply for your next position. If, as an intern you often showed up late, didn't finish tasks or demonstrate much enthusiasm, it's hard for us to rave about you to your potential new employer! The more you engage and opt to try new things, the more you learn about what you like and don't like in your chosen career field. Realizing what you don't like can often be as instructive as learning what you do!

What's the goal? I often ask our interns what ideal job they see themselves working in their future. If there were no limits, what would be their dream job? Sometimes it

isn't a question they have thought much about before. Visualizing exactly what you would love to be doing in five years' time may help you to focus on what skills you need to gain now to get you there, and help get more out of work experiences you undertake. Being realistic about what you know and

don't know at this point in your fledgling environmental career can help you make more informed choices about what should be your next steps. Nowadays it is not as easy to walk into a great job straight out of college. Relevant work experience, and honed essential life skills, whether gleaned from dealing with difficult customers as a waitress, conducting data analysis for a nonprofit, or striving to make an urban high school student excited about macroinvertebrates

(continued on opposite page)



Diana Karamourtopoulos

Diana is a sophomore at Drew University, pursuing a degree in international relations with a double minor in environmental studies and Spanish. She was interested in preserving the environment from a young age. Diana got involved with the Office of Sustainability and decided she would like to continue to work in that field. She is very excited to gain experience at GSWA and is hoping to go into environmental policy or advocacy work after college. Aside from her studies, she also is passionate about music and has recently started playing guitar!

Rebecca Schuman

Rebecca (Becky) is a sophomore at Drew University and is from Baltimore, Maryland. She is majoring in both environmental studies and studio art. She grew passionate about environmental advocacy after learning of environmental and animal rights issues both domestic and abroad at an early age. After school, she is interested in pursuing a career in animal rights, veganism, and environmental activism. On the side, she loves to oil paint, hike, and collect records.

Reem Shair

Reem is a senior at William Paterson University studying public health. After graduation she will be attending graduate school and hopes to get a master's in healthcare administration. She is very passionate about public health and environmental health and hopes to make it her career. Other interests of hers are reading, hiking and animal rights.

Chris Gocklin

As a senior at William Paterson University majoring in Earth Science, Chris is pursuing a second bachelor's degree with plans to teach high school earth science. He would like to center his career around scientific research, earth and environmental science education, as well as communication. This is Chris's third semester interning with GSWA. Chris's favorite part about having the opportunity to intern with the GSWA, other than conducting raw science to ensure water and soil quality, is teaching. 🌲

Intern *(continued from opposite page)*

and their role in water quality, can often be the edge you will need to get called for an interview, or receive the next step on your pathway to your dream job!

If you are interested in interning with us, bear the above in mind, then email us — Hazel England, hazele@greatswamp.org, or Sandra Lavigne, sandral@greatswamp.org. Good luck! 🌲

Thank You to The Watershed Institute and The Nature Conservancy

by Rick Porter, Director of Institutional Relations

In October, 2018, The Watershed Institute in Pennington, N.J., through a partnership with The Nature Conservancy, offered a new cycle of grants for the Roots for Rivers Reforestation Grant and Technology Assistance Program.

Great Swamp Watershed Association (GSWA) is very grateful for the support of the Watershed Institute, and proud to announce that we recently were awarded a grant of \$7,350 under this program.

The Roots for Rivers Reforestation grants support municipalities, school districts and local non-profit land conservation organizations' efforts to undertake floodplain reforestation initiatives. Planting trees within floodplain areas that have been degraded is an excellent way to protect the lands and waters on which the citizens of our communities, and future generations,

depend and raise awareness about the importance of freshwater conservation.

Starting in early spring 2019, GSWA will be working on restoring an additional 750-foot-length of the banks of Silver Brook at our Conservation Management Area (CMA) in Harding, NJ. Several groups of corporate work day volunteers and GSWA volunteers will be removing invasive plants in the targeted areas and replanting with native shrubs and trees. Funds from the Roots for Rivers Reforestation grant will be used to pay for the cost of the 750 plants that will be planted in this area.

The CMA is a 73-acre contiguous parcel of wetlands and deciduous upland forest, and is a "living laboratory" and classroom for our environmental education activities, as well as a free, public space for passive recreational opportunities for the public

such as hiking our trails and bird watching. More than 1,000 students from schools across the greater Passaic River region utilize the CMA each year for environmental education purposes. 🌲



One of the areas along Silver Brook awaiting restoration.

“2100 Members By 2021”

by Wade Kirby, Director of Development

We here at the Great Swamp Watershed Association are on a quest! The participation and support we receive from our members is so important that four current and former Board Chairmen are committed to helping us grow from 1,800 to 2,100 members by the year 2021. Reconnecting prior members with our mission is a welcome task given the latest developments and accomplishments of which they may be unaware, but about which we are very proud:

- We recently became an accredited land trust through the national Land Trust Alliance, a mark of distinction, showing that we meet the highest standards for land conservation. This, in turn, enhances the credibility of our organization by demonstrating superior ethical operating standards and practices.
- In November 2017, we acquired 20 additional acres for a total of 73 contiguous acres at our Conservation Management Area (CMA) in Harding. The CMA is used as a “living laboratory” for our many educational programs and is being restored to ecological health through hundreds of volunteer hours.
- While our water quality testing continues at 16 different sites from the Great Swamp

to Livingston, our newest water quality initiative is the sampling for microplastics, a serious and growing contamination issue in our local waterways.

- Working with the EPA in New Jersey, a Community Advisory Group has been formed to keep residents informed of and engaged in the ongoing investigation and ultimate clean-up of the Rolling Knolls Superfund Site. As described in the previous issue of *Across the Watershed*, this was a 200-acre-plus landfill, which operated for 30 years and closed in the 1960s, that contains some toxic materials; 37 acres of which are located in the Great Swamp National Wildlife Refuge.

Our Board Chairmen have sent a letter to approximately 100 prior members informing them of these accomplishments and requesting their renewals. If you haven't yet renewed your membership, please help us to reach this goal by doing so. If you have friends who you feel would be interested in our work to preserve the health and beauty of this special part of New Jersey, please introduce them to us. Our goal is achievable by reacquainting our past, present and future constituency with the Great Swamp Watershed Association of 2019! 🌱



**GSWA is blogging at
GreatSwamp.org/blog**

April Flowers Bring May Showers... Wait, What? How Climate Change Impacts the Biological Clock

by Adam Palmer, Education Associate

Phenology is a field that you may not have heard of but with the looming risk of a shifting climate, it becomes ever more important every day. As defined by the International Biological Program, it is “the study of the time of recurrent biological events, the causes of their timing with regard to biotic and abiotic forces and the interrelation among phases of the same or different species.”¹ Essentially, phenology is the study of seasons and seasonal biological events, looking at the non-living conditions such as temperature, day length etc., and the relationship those have with the lifecycle and behavior of living things like animals and plants as cues.

So what does a Phenologist actually study? According to project Budburst, a citizen science group based in the Chicago Botanic Garden, phenology aims to answer questions like “how animals know when it’s time to hibernate, and how plants know when to bloom.”² Plants and animals don’t use clocks or calendars, but a lot of them take cues from the change in seasons. Changes in weather with the seasons, such as temperature and precipitation, signal many organisms to enter new phases of their lives, also called phenophases. For example, buds form on plants as temperatures warm in the spring. As temperatures get cold in the fall, deciduous trees and shrubs lose their leaves and enter dormancy. Phenology seeks to understand the timing of these changes. But there are a lot of cues all working in tandem across large areas, and timing of seasons

depends on a multitude of abiotic conditions including climate. How is it possible that all of that data is able to be observed and collected? Through the power of people!


While most of the professional studies are done by scientists with degrees and working with institutions, a large majority of phenology is done through the help of citizen scientists. Citizen scientists are everyday people who work collaboratively with researchers, botanists, and educators to answer “specific, timely, and critical ecological research questions by making careful observations of the timing of plant [and animal] life cycle events.”² Every plant species has different phenophases but they usually all include leafing, flowering, and fruiting phases of the plants including the changes in leaf color. The USA National Phenology Network is a collective database where people can login and record these signs of spring and other sets of data which are important to global and local climate research. (*If you are interested in citizen science make sure you come to our spring training March 6th, featuring Frogwatch and CoCoRAHS.*) This can be a fun way for families to get outside to observe and appreciate the nature all around us, while learning the biotic and abiotic signs of changing seasons and contributing important data to ongoing and future research!

So why is phenology such an important field to be paying attention to today? A recent brief from the US National Park System states “changes in phenology constitute

one of the most proximate responses to climate change.”³ As the climate shifts, the abiotic forces determined by climate trends do too, ultimately affecting the arrival of changes in season. In 2016, a collaborative team evaluated the timing of spring onset for the past 10-30 years in 276 US natural resource parks. Of those 276 parks, “spring is advancing in three-quarters, and half are experiencing an extreme early spring exceeding 95% of historical conditions.”³ These shifts in arrival of spring as well as other seasons can have major impacts to the ecosystem. Because some species also depend on other species to properly interpret clues, things like pollination and migration face serious threat as phenophases begin to fall out of sync. A study conducted by Chung et al. in 2011 “projected changes in phenology will especially have a substantial effect on the reproduction, distribution and productivity of [plants] as the coincidence of

ecosystem processes, such as flowering and the emergence of pollinators, is disrupted.”⁴ Beyond just studying and understanding these changes, phenologists are also working on solutions to the big problems they may bring to industries like agriculture which depend heavily on plants and pollinators. So go on out there this spring and start looking for and recording the signs! Who knows, maybe the data you help collect could be the difference to finding an answer in the future?

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1. Badeck, et al., 2004. <https://www.jstor.org/stable/1514502>
2. Project Budburst, <https://budburst.org/index.php/>
3. US National Park System, 2016. <https://www.nps.gov/subjects/climatechange/springonset.htm>
4. Chung, et al., 2011. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3210174/> 

Saving The Great Swamp: Battle to Defeat the Jetport

Now on iTunes, Amazon Prime and Google Play

Saving The Great Swamp: Battle to Defeat the Jetport is familiar to many GSWA members who attended the 2016 premiere or viewed the film on PBS last year. Narrated by **Blythe Danner**, the award-winning 64-minute documentary chronicles the historic struggle to preserve the Great Swamp between 1959 and 1968. For those who missed it or would like to own a copy, the film is now available to purchase or rent online. You can find direct links to the three online stores at <https://conta.cc/2RCivtT> and at www.savingthegreatswamp.com. And, if you like the film, please post a rating and review!

Gala Concludes 2018 with a Stellar Finish

by Debbie Rice, Office Manager and Event Coordinator

Glamorous Brooklake Country Club in Florham Park was the site of our 2018 Great Swamp Gala and Silent Auction which we are proud to boast was our most successful gala fundraiser yet! Swamp lovers and distinguished guests, numbering close to 400 in attendance, gathered to enjoy fine food and drink and to celebrate GSWA's many recent successes. We were delighted that Thomas Kean, former New Jersey Governor, was in attendance as the year's Gala Honoree, and many guests took advantage of the evening's private meet-and-greet to spend some personal time with this remarkable man and environmentalist. Other highlights of the evening included a heart-warming talk by Governor Kean, a delectable sit-down dinner, a fun Live Auction segment with fantastic grand prizes, our famous Silent Auction with

175 great prizes and gifts, and our first-ever Paddle Raise that generated nearly \$30,000 in support of GSWA's expansion to microplastics monitoring work.

We are so very grateful to Governor Kean as well as our many outstanding sponsoring organizations and individuals, advertisers, donation vendors, and ticketholders—all of you helped make the evening the great success that it was. The combination of your participation, contributions, and auction sales carried the Gala to an all-time high, grossing \$228,375 from the event! Rest assured that revenue generated by the Gala will be put to good use towards future GSWA funding and program expansion for the environmental health and vibrancy of our beautiful communities and the life-giving water they supply to us all. 🌿



U.S. Representative Mikie Sherrill shares a laugh with (left to right) GSWA Executive Director Sally Rubin, former NJ Governor Tom Kean, GSWA Board Chairman Nicolas Platt and Lucy Shurtleff at the 2018 Great Swamp Gala fundraiser on October 11, 2018, at Brooklake Country Club, Florham Park.

Thank You to the Victoria Foundation!

Great Swamp Watershed Association is very grateful for the generous support of the Victoria Foundation.

Over the past two years, the Victoria Foundation has awarded grants to GSWA that have had a measurable impact on our organization's ability to fulfill goals of the strategic mission expansion we adopted in 2016 to protect the Passaic River from "source to sea."

With the foundation's help, we have been able to:

- Develop and strengthen relationships with Newark-based organizations focused on the environment and water quality such as the Trust for Public Land, Newark D.I.G. (Doing Infrastructure Green), and the Lower Passaic Superfund CAG (Community Advisory Group).
- Launch a new education collaboration with Students 2 Science (S2S), a not-for-profit organization dedicated to involving students from urban-centered communities like Newark, Jersey City, and Irvington in S.T.E.M. education. More than 750 Newark high school students will participate this school year in the environmental education programs GSWA has developed for S2S.

- Establish new partnerships with schools in Newark for Environmental Education. Over the past two years we have reached more than 1,200 Newark students from a wide variety of schools.
- Present public environmental education events to residents of downstream communities on the Passaic River. GSWA's programs give them an understanding and awareness of the integral connection between their health and quality of life and the health of our waters and land. Events have reached more than 1,000 people in communities like: Newark, Livingston, Millburn, Summit, and Berkeley Heights.

The current round of funding received from the Victoria Foundation will allow for further expansion downstream of our programs and activities in 2019. 🌲



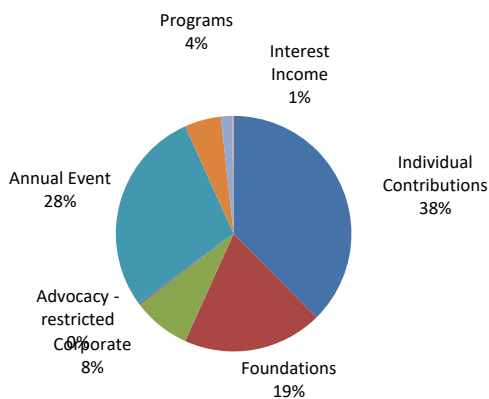
Students from an S2S class at Cristo Rey High School in Newark studying salamanders they discovered during their program at the Great Swamp National Wildlife Refuge.

Financial Report: Statement of Activities for the Fiscal Year Ended June 30, 2018

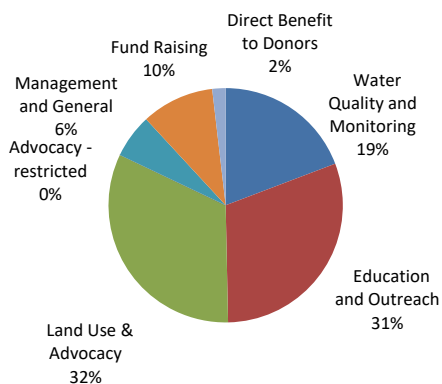
by Sue Levine, Director of Finance & Human Resources

	2018
INCOME	
Individual Contributions	\$ 317,463
Foundation Support	161,850
Corporate - see Note 1	67,240
Annual Events (Gross)	239,339
Endowment transfer in (4% draw) - see Note 2	42,283
Programs	13,106
Miscellaneous & Interest Income	1,610
Total from Primary Operations	842,891
Other Income - Pilgrim Pipeline	1,752
TOTAL INCOME	\$ 844,643
EXPENSES	
Programs:	
Water Quality and Monitoring	\$ 156,230
Education and Outreach	\$ 247,425
Land Use & Advocacy	\$ 263,186
Depreciatopm	
Total Program Expense	666,841
Management and General	49,241
Fund Raising	81,514
Direct Benefit to Donors	14,997
Total from Primary Operations	812,593
TOTAL EXPENSES	\$ 812,593
SURPLUS/(DEFICIT) - see Note 2,3 (a)	\$ 32,050
Loss on Disposal of Corporate Assets (b)	\$ (9,997)
ENDOWMENT ACTIVITY	
Market Value 6/30/17	\$ 1,160,542
Investment Income & Interest Earned (c)	27,645
Gain/Loss on Investments (d)	74,454
Net change - see Note 3	102,099
Board Reserve / Prior Year Adjustments	18,539
Transfer to Board Designated (4% draw) - see Note 2 (e)	\$ (42,283)
Market Value 6/30/18	\$ 1,238,897

INCOME



EXPENSES



Note 1: Income from the Corporate category includes matching gifts \$6,684

Note 2: Depreciation is \$3500. In addition, the organization did not use the 4% allotted to operations from the endowment which will become Board Reserve. The funds were set aside as Board Discretionary in an Investment Account. The Endowment has \$65,080 permanently restricted funds.

Note 3: To tie to the audited financial statement's "change in net asset" line, you need to add (a), (b), (c), (d) and (e) above. The audited financials reflect a gain of \$81,869



Great Swamp Watershed Association

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