

June 2022

Volume 18

Issue 1



Inside this issue:

President's Message

Annual TWCWC meeting

Importance of Water Testing

2021 Water Quality Monitoring Report for Walker Lake, Twin Lake and Little Twin Lake

Spring Songs from the Watershed

Close Encounters with Birds of Prey

Spotted Lanternfly They're Here

Treasurer's Report

Backyard Bird Musings

Photo Contest/ Changes in Board Membership

Cause of Historic Damaging Floods

Board of Directors

Pat Dawson, President

*Ralph Cozzolino President-Elect
Vacant, Secretary*

Kevin Dowd, Treasurer

Chet Dawson, Past-President

Bob Jones, Monitoring Coordinator

Peter Wulfhorst, Scott Rando,

Jim Deiner, Pat Messineo, Carol

Reynolds, Kirk Mackey, Bell Smith,

Ted Yerdon, Peter Loenwigkeit,

Torey Donato Tishler,

David Vonderheide,

Jackie Kaiser Cozzolino

Joyce Landise, ex officio

Rachel Marques, PCCD Rep

President's Message - Pat Dawson

1

Hopefully we are emerging from covid isolation, and the Conservancy will have some in person meetings this summer!

2 *Website and Facebook page updates*

Our Conservancy website (<https://www.twcwc.com>) has been updated and that effort is continuing. We are revamping the Conservancy Facebook page as well (link on TWCWC's website), and we are hoping to get more folks to participate in our photo contest by submitting their photos to the TWCWC Facebook page.

3 *Liaison activities*

As a result of partnering with other organizations, we have participated in a microplastic study. Pike County Conservation District reached out to the Conservancy for help in obtaining permission to sample water from streams into our lakes. The Conservancy reached out to the hunting club located on Little Walker Lake Road, and it was willing to grant permission to take samples from the stream that leads into Little Walker Lake which then flows into Walker Lake. Also, three of us attended an all-day workshop that provided information on other organizations sponsored by the Pennsylvania Organization for Watersheds and Rivers. We learned about ongoing projects, fundraising ideas, and people to contact for future collaborations.

4 *Giving back to the community*

We fund the Messineo Scholarship, providing \$500 to a high school senior at Delaware Valley High School interested in pursuing a career in environmental sciences. In addition, at our annual meeting, six tickets to the Shohola Fire House chicken barbecue were raffled off, supporting their September 2021 event.

5 This summer the Conservancy is sponsoring a visit by the raptor center on July 23rd. Bill Streeter will bring his birds for this presentation, and it is a great way to learn about these animals. Peter Wulfhorst will educate all of us about the invasive spotted lantern fly at our annual meeting on August 27th.

6 Our organization has done a lot of studies, including engineering plans for roadside swales and a retention basin. Our Growing Greener grant in 2003 provided over 100 pages of analysis of our watershed by FX Browne. Other studies include C-SAW that analyzed our water quality research. Walker Lake used some of this data to support their application for a grant, another way of giving back to the community.

7 *Upcoming Executive Board elections*

Two officer positions are open at the Executive Board level: President and President – elect. These are two-year terms. As mentioned in the newsletter, Ralph Cozzolino has agreed to run for president. Anyone who is a member of good standing can apply to run for these positions. If interested, please contact president@twcwc.com. Voting for these positions take place at the annual meeting on August 27th.

Opening for Secretary

A temporary position for Secretary on the Executive Board is open. In 2023, an official vote for this position will be taken. The hardest part of this job is attending the meetings and we only have 4 official ones each year! The agenda provides the outline for the minutes. If interested, please contact president@twcwc.com

The mission of the Conservancy is to promote a better understanding of the Twin/Walker Creeks Watershed and its ecosystems and to protect, restore and enhance the watershed through proper management and watershed stewardship.

Annual TWCWC meeting - Pat Dawson

The Twin and Walker Creeks Watershed Conservancy will have its annual meeting on Saturday, August 27th at the Walker Lake Clubhouse, 100 Walker Lake Road, Shohola, PA, starting at 10 AM. Light refreshments will be served. This will be a hybrid meeting, please email a note to president@twcwc.com if you wish to receive the zoom link for this meeting.

The Board will have its vote on the slate for President and President – elect. These are two-year terms, and anyone of good standing (ie, have paid dues/contributions to the Conservancy) may apply for these positions. Ralph Cozzolino has agreed to run as President. Anyone interested in running for office may send an email to president@twcwc.com.

There will be a presentation on Spotted Lanternflies by Peter Wulfhorst, Penn State Extension Service and a Conservancy Board member. In addition, there will be a raffle for tickets to the Shohola Fire House chicken Barbecue!

Winners of the annual Photo Contest will be announced with prize money given out. This year we are experimenting with using our Facebook page for contestants to submit photos, and the pictures getting the most likes will win first, second, third prizes. This is open to all in Pike County, and photos should emphasize nature, and taken in Pike County between September 2021 and August 2022. For those who are not in Facebook, photos can be emailed to president@twcwc.com, and those photos will be added to the Conservancy's Facebook page. The link to the Facebook page is located on the right top of the Conservancy's home page: <https://www.twcwc.com>. The Conservancy's Facebook page can be accessed in Facebook by searching Twin and Walker Creeks Watershed Conservancy. More details can be found on the Conservancy's website.

Importance of Water Testing - Peter Wulfhorst

More than one million homes are served by private water supplies (wells, springs, or cisterns) in Pennsylvania. Homeowners using this type of water supply should consider having it tested for the following reasons:

- Unlike public water systems, private water supply testing is the voluntary responsibility of the homeowner. There are no government agencies or programs that routinely test private water systems for homeowners.
- Additional studies have found that about 50 percent of private water systems fail at least one drinking water standard.
- Many pollutants found in private water systems have no obvious symptoms and can only be detected through laboratory testing.
- Water testing provides vital information to document the quality of your drinking water. Data from previous tests may be necessary if you ever need to prove in court that a nearby land use has damaged your drinking water quality.
- The only way homeowners can be certain that their water is safe to drink is to have the water tested periodically.

Private water supplies should be tested every 14 months for total coliform bacteria and E. coli bacteria. Coliform bacteria are common in soil and surface water and may even occur on your skin. Most types of coliform bacteria are harmless to humans, but some can cause mild illnesses and a few can lead to serious waterborne diseases.

If coliform bacteria are found in a water supply, a follow-up test can be done by the laboratory to look for E. coli--a type of coliform bacteria found only in human or animal wastes. A positive E. coli result is much more serious than coliform bacteria alone because it indicates that human or animal waste is entering the water supply.

Drinking water should be tested for pH and total dissolved solids (TDS) every three years. These tests are similar to a doctor taking your temperature--they are general tests that provide an index to the quality of your drinking water.

Water with a pH lower than 6.5 or greater than 8.5 can cause corrosion of lead and copper from household plumbing or bad tastes. The total dissolved solids content of drinking water should be below 500 milligrams per liter (mg/L), and the value should not change much from one test to the next. Increases in the TDS of water could indicate pollution has occurred, warranting further, more detailed testing.

If you have questions about testing your water, contact Penn State Extension Educator Peter Wulfhorst at ptw3@psu.edu.

2021 Water Quality Monitoring Report for Walker Lake, Twin Lake and Little Twin Lake - Chet Dawson & Bob Jones

This was the third year that TWCWC has been working with PLEON for our water quality monitoring; however, we have been monitoring the three lakes since 2002 and it is important to look at trends over that time. PLEON monitors 20 lakes in our region and we can also compare ourselves to these similar lakes. All three of our lakes continue to be healthy but there are differences and changes that have and are occurring.

All the lakes were thermally stratified throughout the testing period meaning that both the temperature and oxygen levels drop off rapidly below a given depth. For our lakes that depth is close to twice the secchi depth which corresponds to the clarity of the water and the ability for sunlight to penetrate. In all three lakes there is insufficient oxygen to support fish in the lower depths during the summer months. For Big Twin that depth was about 6 meters (20 ft), for Little Twin about 9 meters (30 ft) and for Walker Lake about 3.5(meters (11 ft). This difference for the three lakes has been consistent for the past several years. When I looked back at our 2003 and 2006 monitoring studies there has been some changes. Secchi depths for the two Twin Lakes have improved slightly while Walker Lake was similar to Big Twin in those earlier years, its clarity has been decreasing. It is important to look at these trends. Clarity or water transparency is generally determined by the amount of suspended solids including algae, and the amount of color of dissolved compounds. The Twin Lakes are mostly spring and rainfall fed while Walker Lake is fed mostly by Walker Lake Creek and stormwater runoff where you would expect more dissolved materials and nutrients to support algae growth. While we don't know the exact reason for these changes, the increase in rainfall in recent years may help with clarity for Twin Lakes which sits more on a plateau than Walker Lake and gets less surface stormwater runoff, while the same rain for Walker Lake would bring in more dissolved material and nutrients from storm water runoff.

Surface water temperatures for Big and Little Twin Lake have increased about 2 C (3.8 F) since 2014 and 3 C (5.4 F) since 2003. This is a significant trend. Surface temperatures for Walker Lake have remained about the same. While many lakes around the World are warming and changing global temperatures are playing a role, research on Pocono Lakes, particularly historically clear water lakes like the Twin Lakes, indicate that lake browning caused by dissolved carbon can act as an insulator trapping heat. Last year was the first year we measured DOC (dissolved organic carbon) so it is much too early to indicate its impact.

Another area that lake researchers pay close attention to is the amount of nutrients in a lake and the chlorophyl a in the water. Nutrients (phosphorous and nitrogen) are needed for plant and algae growth. Chlorophyl a is a pigment found in algae cells and is used as a proxy for algae abundance. Algae is needed to create the oxygen needed for fish and other organisms. Too much algae cuts off sunlight and abundant lake life while too little provides insufficient oxygen for abundant life. Total phosphorous is the primary nutrient and the one most closely followed. We have seen a decrease in total phosphorous for all three lakes since 2003. This may be due to the elimination of phosphorous in most fertilizers and soap products and is a positives sign. Except for the August sampling period when Walker Lake exceeded the 25 micro gram per liter threshold set by the Penn State Extension, all three lakes were comfortably below that value. Both Big Twin and Walker Lakes showed an increase in Phosphorous during the late summer possibly indicating an anoxic release of phosphorous from the bottom sediment. Chlorophyl a was similar for the three lakes in the early years of our testing but has since decreased for both Twin Lakes while increasing for Walker Lake indicating an increase in algae. Remembering that algae impact secchi depth, this change is consistent with improved secchi depth for the Twin Lakes and reduced foe Walker Lake.

PLEON includes cyanobacteria as part of their Phyto plankton analysis for the two Twin Lakes, while Walker Lake's, lake manager does the same for Walker Lake. Cyanobacteria are among the oldest known life forms on earth and are the ones that can cause the toxins that have shut down lakes in our region. Cyanobacteria have been the most prevalent Phyto plankton over the past three years for Little Twin and the least prevalent for Walker Lake. They have been decreasing for Big Twin. Their numbers can rapidly change and it is important that we continue testing and look for blooms. One localized bloom was noted for Big Twin and none for the other two lakes in each of the past two years.

The PLEON report as well as TWCWC reports going back to 2002 are available on the TWCWC website (TWCWC.com).

Spring Songs from the Watershed - Scott Rando

We think of a watershed as Twin and Walker Lakes, the associated streams and the river that they drain into, but also in the watershed environment, is a multitude of ponds and wetlands. These various bodies of water form a diverse habitat for wildlife and plants. Some of the wildlife we can hear in the spring are frogs and toads; various species serenade us at different times of the spring.

The first frog heard in the spring is the wood frog. This species usually starts calling in early or mid-April when they migrate to small ponds where the males try to attract females with a quacking call. Several wood frogs in a pond calling is a sound to behold. Many of these ponds are vernal ponds; ponds that only hold water during the spring, then dry out as summer arrives. The secret of the wood frog tadpoles surviving is that due to this species starting breeding early, tadpoles have time to develop into air-breathing froglets before these vernal ponds dry up. Once wood frogs finish breeding, they leave the ponds. During the rest of the year, the adults and emerged young froglets live in shaded forests, away from water.

A week or so, after the first wood frogs are heard, spring peepers are heard. They prefer small ponds and wetlands. Frequently, spring peepers and wood frogs can be heard from the same pond. Spring peepers are heard in more areas and last longer into spring with calls. They are aptly named with their high pitched “peep” call. Many spring peepers are very easily heard. They are in the chorus frog family, and night is when they really get active with calling.

During the first week of May, the first American toads are first heard. Unlike the first 2 species of frogs, American toads prefer lakes rather than small ponds. Males make a prolonged trilling sound that resembles a cricket, except the sound is continuous, lasting several seconds. American toads can be found along the shore during breeding season. In our region, the courtship calls of American toads last through May and into June. Around the first week of July, tiny toadlets appear along the shore as they leave the lake for good (till it’s their time to breed when mature). Adults, along with the young toadlets may be found in woods, fields, or even near houses as they seek shaded areas. Like the wood frog, they don’t require to be near water when not breeding.



Wood frogs are seen and heard near vernal ponds and wetlands during the first mild days of spring when the ponds begin to thaw. Breeding season only lasts for a week or two, after which the adults disperse away from the water into shaded woodlands.

Spring Peepers are heard more than they are seen. They are small and can hide well in grass or aquatic vegetation. This image shows the cross pattern that is an identifying feature for the spring peeper; the scientific name for this species is aptly named, *Pseudacris crucifer*.



This is an American toad trying to attract a mate in Walker Lake during May of last year. American toads return to water during May to breed and can be heard during the day into mid-June before they leave the water for the rest of the summer



Close Encounters with Birds of Prey

Join the Twin and Walker Creeks Watershed Conservancy for the Delaware Valley Raptor Center presentation!

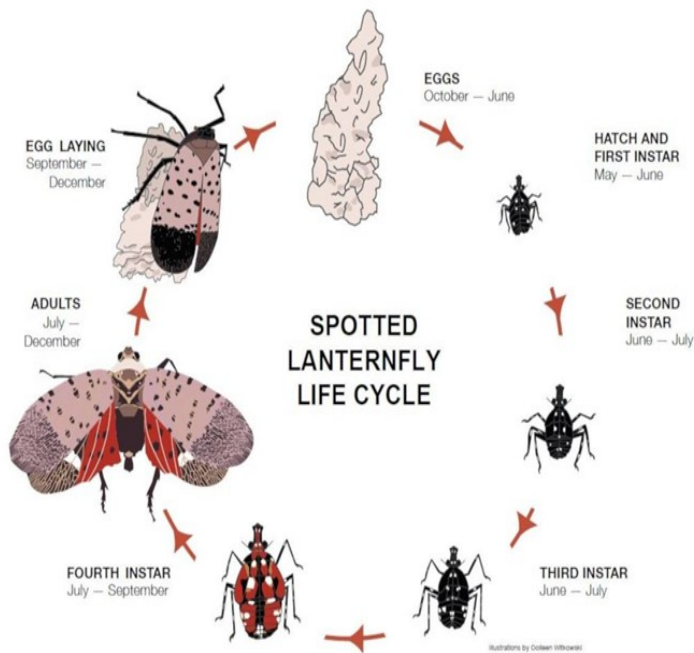
The Delaware Valley Raptor Center will bring live raptors! This educational program will discuss predator-prey relationships, rehabilitating wildlife, and basic information about these birds. Please visit their website: www.dvrconline.org/eduprog.html

July 23, 2022
Time: 10 AM – 11 AM
Where: Walker Lake Clubhouse
100 Walker Lake Road
Shohola, PA



Free, open to the public, all ages encouraged to come!
For more information, email president@twcwc.com

Spotted Lanternfly: “They’re Here” - Ted Yerdon



Spotted Lantern flies arrived during 2014 in Philadelphia by hitchhiking on cargo ships from Asia and spread quickly like tentacles: first along the Pennsylvania Turnpike, then up I81 and now out I84 to Pike County. They found their preferred host, *Ailanthus alisma* (trees of heaven). Around those routes and quickly moved on to another favorite, grape vines, where they have already caused significant damage to this industry in Pennsylvania. While they can be found almost anywhere, trees in our area known to be hosts include sycamore, maple, black walnut, birch, apple and pine.

They destroy or severely damage any plant on which they land by tapping into the plant's internal “plumbing” by which the plant draws moisture and nutrients from the ground for nourishment. They also release a sugary dropping that flies through the air and settles on the ground, cars, and other vegetation around their habitat. This honey-dew-like excrement has an unpleasant odor resembling sooty mold and destroys the forest floors and grassy fields on which they land.

Egg masses are laid in the fall and usually consist of 30 to 50 eggs laid in vertical rows 1 to 2 inches long. If you see dark sooty mold on a tree, that is one sign that they have been there. The egg masses initially look like gray putty-like material with a waxy coating that darkens over time to look like dried mud. A female can lay up to two masses. Adults then die during the winter.

If you encounter egg masses, scrape the eggs off of the surface using a stick or knife and destroy the eggs. If you encounter live insects, you can use a fly swatter or hose/power washer to kill them because they drown easily. Try avoiding pesticides to the extent possible around the lakes. At all stages spotted lantern flies climb to reach more easily eaten parts of the tree and circular traps are being used to catch them as they climb. They don't bite or sting and are harmless to humans.

Credit for much of this information goes to the Penn State Extension Service and Twin Lake's Ed Nickles.

Treasurer's Report - Kevin Dowd

Well, it was a cold Winter with little snow, but our finances are in good shape! TWCWC had a great fundraising year in 2021 We had many new members join. I thank you all and all our loyal members. A special welcome to 3 new lifetime members. Your generous contributions are appreciated. Our regular dues were \$6,500 and we received an increased donation from the TLPOA of \$2000.

Our total income of \$8,788 covered our expenses of \$6,930 and gave us a net income of \$1,850 for fiscal 2021. We have maintained our original endowment in CDs and will add to that as appropriate. We covered our increased expenses for the newsletter and water testing, as well as the purchase of new equipment.

We are asking everyone who comes to the special Raptor Presentation on July 23, 2022 at 10:00 A.M. for the CLOSE ENCOUNTERS WITH BIRDS OF PREY program presented by the Delaware Valley Raptor Center to make a small donation. If you have any fundraising ideas, please send them to me.

Have a great summer and I hope to see you at our annual meeting on August 27th at the Walker Lake Clubhouse at 10 AM. For those who prefer to attend virtually, please email a request for the zoom link to president@twcw.com

Backyard Bird Musings - Torey Donato Tishler

Snowdrops by Louise Glück

Do you know what I was, how I lived? You know/what despair is; then/winter should have meaning for you./I did not expect to survive,/earth suppressing me. I didn't expect/to waken again, to feel/in damp earth my body/able to respond again,/ remembering/after so long how to open again/in the cold light/of earliest spring--/afraid, yes, but among you again/crying yes risk joy/in the raw wind of the new world.

It is spring again and the birds are calling for dawn, risking joy. The weather has shifted, ice once knocked our bones, but now warmer temperatures are upon us. The tulips have lifted their heads towards the sun and the magnolias open their mouths for the busy bees at work. It is with spring we remember hibernation only lasts so long. The cold, dark months are behind us. Like a snowdrop or crocus piercing through earth, with resilience, we too can awaken and taste “the cold light of the earliest spring”. Searching for hope and adventure, searching for light in darkness, always remembering to risk joy.

With the magic of spring, the lake, flowers and birds are in high vibrations. I make myself a cup of coffee and put out the bird feeders, my daily ritual. I see the regulars-black-capped chickadee, tufted titmouse and the white-breasted nuthatch. I sit for a while watching, listening and musing and I hear a peculiar sound. It sounds as if someone is laughing, even cackling. What could that be? I look around and grab my binoculars. As I try to locate the sound, suddenly three pileated woodpeckers fly over me. They are large with their gorgeous wings spanning over two feet. I could not believe the size! They are also being chased by a few neighborhood crows. I am watching for a long minute the crows chasing the woodpeckers through the trees, almost as if a game of tag. This sighting reminds me of the bird presentation a few years ago at the Walker Lake Clubhouse. Bill Streeter from the Delaware Valley Raptor Center, mentioned how crows like to cause havoc. Yes, they can be territorial, but they also like to cause mischief. The pileated woodpeckers successfully are chased away and I decide to go for a walk.

It is sweet to smell the damp earth again, to walk again the paths once covered with snow, once beds for bears. So much has happened, yet nothing has changed. I see an Eastern Phoebe in the distance bobbing her tail. As I hear the birds around me, the black-capped chickadees, downy woodpeckers and the tufted titmouses are calling for spring. I look through my binoculars and jot a few birds down in my birding journal. Keeping track of the spring migrants, I see my first warbler of the year, a pine warbler. The pine warbler with yellow and olive features and gray wings. I awaken again from my winter slumber to feel the warm sun on my skin, to go on a birding adventure. From winter despair to promise, we embark towards spring, we embark towards hope, risking joy.

Photo Contest & Changes in Membership - Pat Dawson

For the first time, winners of the Conservancy's annual Photo Contest winners will receive money prizes! At our “Photo Gallery” event, BYO wine and we will provide cheese, appetizers, and nonalcoholic drinks on Friday, September 2nd where attendees will vote on first, second, third places for adults (18 and older), youth (under 17), and Conservancy board members (who receive ribbons as prizes instead of money) contestants. This will be held at the Walker Lake clubhouse, 100 Walker Lake Road, Shohola, PA from 4 -6 PM. A panel of judges will select the 10 best photos in each category; these photos will be displayed for the attendees to vote on. This year we are experimenting with using our Facebook page for contestants to submit photos.

This is open to all in Pike County, and photos should emphasize nature taken in Pike County between September 2021 and August 15, 2022. For those who are not on Facebook, photos can be emailed to president@twcwc.com, and those photos will be added to the Conservancy's Facebook page. The link to the Facebook page is located on the right top of the Conservancy's home page: <https://www.twcwc.com>. The Conservancy's Facebook page can be accessed in Facebook by searching Twin and Walker Creeks Watershed Conservancy. More details can be found on the Conservancy's website.

Bill Boehme has resigned from our Board after serving since 2017. Bill helped out tremendously with our water quality program, wrestling with the Van Dorn bottle to collect samples, using the probe to gather physical and temperature information in Walker Lake. Thank you, Bill, for all of your help, even during the pandemic! Bill's wife, Marissa, was instrumental in revamping the Conservancy's website and trained our present webmaster, Carol Reynolds, in downloading and updating our website. Again, many thanks for all of your help, Bill and Marissa.

The Conservancy Board added two new members, Ralph and Jackie Cozzolino. Both have been hard at work on the Lake Committee at Walker Lake, and both have helped throughout the years with our water quality work at Walker Lake, bringing this expertise to our organization. We welcome both to our Board!

Cause of historic damaging floods on the Delaware River—

David Vonderheide, Retired, National Weather Service

Those of us in TWCWC know about the damaging floods that occasionally affect the communities that exist along the section of the Delaware River running along the north and east boundaries of Pike County. This short article is a review of those floods and their causes. In addition to preserved historical records, river gauges at Barryville, Port Jervis, and the Milford bridge are good resources to use in identifying the highest floods as well as the range and frequency of all floods there.

The earliest floods in the literature, are two floods described from the 17th century, those of 1687 and February 1692, the latter being called a “great flood”. I could not find any reference on the internet mentioning significant floods during the 18th century, although it’s certain that they occurred. Back then the annual rise of the river from melting snowpack was called a “freshet”. During the 19th century large floods occurred in 1832, 1834, 1837, 1841, 1852, 1869 (Saxby’s gale), and 1895, the latter one being described as “the greatest”. However, the flood of 1832 was significant because it was described as the “worst in 150 years”. This may shed light on the apparent lack of big floods in the literature during the 18th century.

After a dry May in 1832, a violently heavy rainstorm brought high water that carried away almost all of the lumber and rafts at Handsome Eddy (timber was a major industry on the river at the time). In 1875 an ice jam took out the bridge crossing the Delaware at Port Jervis. The 20th century began with a very high flood in October 1903. That flood took lives and caused some \$200,000 dollars in damage along the upper Delaware, quite a high figure in terms of the dollar’s value at the time. Both the Pond Eddy bridge and the Port Jervis bridge were taken out (this was the third time the Port Jervis bridge had been destroyed by nature).

The 1903 flood was called “The Great Pumpkin Flood” due to the many pumpkins that were seen erratically bobbing in the water as they headed downriver. Two storms combined to produce very heavy rains over Pike County, one a strong low-pressure system over the Great Lakes and the other remnants of a tropical storm.

During the 20th century population and development along the river increased, making the impacts of river flooding more serious. Other large Delaware River floods that occurred in the first half of the 20th century were those in 1922, 1936, and 1942. Each was caused by either heavy rain alone or a combination of melting snowpack and heavy rain. The largest flood of record was in August 1955. Some of us reading this article were living here at that time and remember the event. The flood crest reached the tollhouse at the Dingmans Ferry bridge. Hurricane Connie had soaked the ground with a heavy rainfall (6 to 8 inches in Pike County), followed a week later by Hurricane Diane (another 8 to 13 inches of rain). Almost all of the rainwater became runoff which headed down to the Lackawaxen and Delaware rivers. Ten people died in Greentown, and 30 people lost their lives at a camp on Brodhead Creek near Analomink.

Both Hawley and Newfoundland had severe damage. Every bridge along Rt 209 between Milford and the Delaware Water Gap was washed out. So much water emptied out of Brodhead and Binnekill creeks that the Delaware was seen to be flowing in reverse, upstream, at Shawnee Island. After 1960 are the floods that many residents remember. There were significant local floods in 1973, 1978, 1981, 1986, 1996, 2004, 2005, 2006, and 2011.

The floods in 2004-2006 were noteworthy because they occurred in successive years. In September 2004 the remnants of Hurricane Ivan dumped heavy rain a week after the remnants of Hurricane Francis had saturated the ground. The flood of April 2005 was caused by heavy rain and snowmelt. After a wet spring in 2006, a week of heavy rain in June, brought by a tropical low that parked itself over eastern Pennsylvania, brought the river up with backwater flooding at the Neversink-Delaware confluence. Two high level events occurred on the river in 2011, both from tropical systems moving northward along the East Coast. In summary, flooding on our stretch of the Delaware River can be caused by, 1) extended periods of heavy rain on saturated ground, 2) heavy rain from tropical systems that cross directly over Pennsylvania, 3) a combination of heavy rain and melting snowpack, and 4) long ice jams that completely block the river.

Twin & Walker Creeks
Watershed Conservancy

108 Lakeview Drive
Shohola, PA 18458
www.twcwc.com

NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT #15
MILFORD PA 18337

Resident
RR 4
Shohola, PA 18458

Twin & Walker Creeks Watershed Conservancy
C/O Kevin Dowd, Treasurer

108 Lakeview Drive

Shohola, PA 18458

www.twcwc.com (president@twcwc.com)

Name _____ Phone _____

Address _____ City _____

State _____ Zip _____ Email _____

Memberships: (Circle One)

Individual (\$25) Family (\$40) or Lifetime Member (\$500, one time contribution) \$ _____

Additional Donation: \$ _____

Volunteer Opportunities (please circle any areas that are of interest)

Lake monitoring Education (Children, Brochures, Other)

New programs (please note if you would like to participate or just learn more through our education program)

Invasive plant identification & control Macro-invertebrate stream testing Other interests _____

Suggestions for TWCWC _____

Twin & Walker Creeks
Watershed Conservancy

108 Lakeview Drive
Shohola, PA 18458
www.twcwc.com

NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT #15
MILFORD, PA 18337

Resident
RR 6
Shohola, PA 18458

Twin & Walker Creeks Watershed Conservancy
C/O Kevin Dowd, Treasurer

108 Lakeview Drive
Shohola, PA 18458

www.twcwc.com (president@twcwc.com)

Name _____ Phone _____

Address _____ City _____

State _____ Zip _____ Email _____

Memberships: (Circle One)

Individual (\$25) Family (\$40) or Lifetime Member (\$500, one time contribution) \$ _____

Additional Donation: \$ _____

Volunteer Opportunities (please circle any areas that are of interest)

Lake monitoring Education (Children, Brochures, Other)

New programs (please circle if you would like to participate or just learn more through our education program):

Invasive plant identification & control Other interests _____

Suggestions for TWCWC _____

**Twin & Walker Creeks
Watershed Conservancy**

*108 Lakeview Drive
Shohola, PA 18458
www.twcwc.com*

**NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT #15
MILFORD, PA 18337**

**Resident
RR 5
Shohola, PA 18458**

**Twin & Walker Creeks Watershed Conservancy
C/O Kevin Dowd, Treasurer**

*108 Lakeview Drive
Shohola, PA 18458*

www.twcwc.com (president@twcwc.com)

Name _____ Phone _____

Address _____ City _____

State _____ Zip _____ Email _____

Memberships: (Circle One)

Individual (\$25) Family (\$40) or Lifetime Member (\$500, one time contribution) \$ _____

Additional Donation: \$ _____

Volunteer Opportunities (please circle any areas that are of interest)

Lake monitoring Education (Children, Brochures, Other)

New programs (please circle if you would like to participate or just learn more through our education program):

Invasive plant identification & control Other interests _____

Suggestions for TWCWC _____