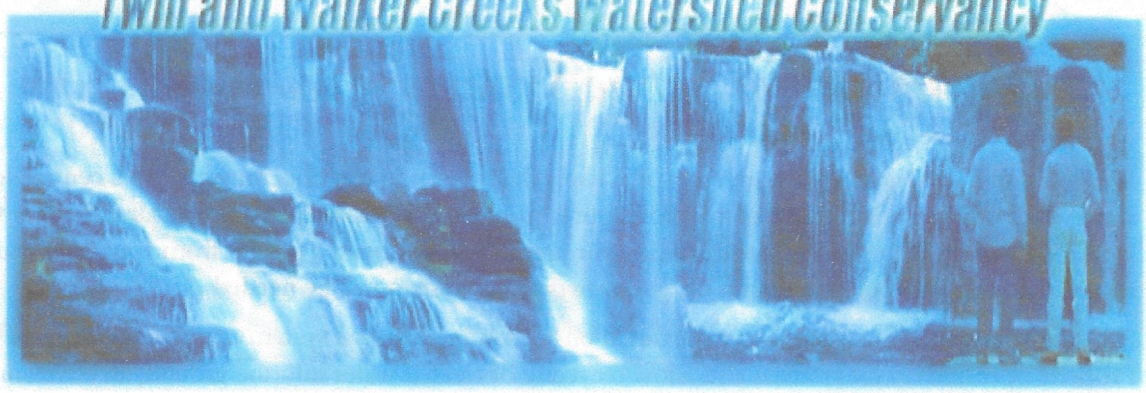
June 2023

Volume 19
Issue 1

Twin and Walker Creeks Watershed Conservancy



Inside this issue:

President's Message - *Ralph Cozzolino*

As the New President of the Conservancy I am honored to promote the Conservancy mission:

> **"To promote a better understanding of the Twin/Walker Creeks Watershed and it's ecosystems & to protect, restore and enhance the watershed through proper management and watershed stewardship"**

My wife Jackie and I became full time residents at Walker Lake as Covid hit the country. We transitioned from Nyack NY, along the Hudson River. Our full time residency has increased our appreciation of the beauty here at Walker Lake and the surrounding area and this has inspired our desire to help preserve that beauty.

In 2023 the Conservancy will continue to expand our footprint in the community and increase our membership by sponsoring events that focus on our relationship with our environment and highlighting community cooperation.

Going forward :

- TWCWC will continue to fund the Messineo Scholarship awarding $500 to a high school senior at Delaware Valley High School interested in pursuing a career in environmental sciences.
- Six tickets will be raffled off for the Shohola Firehouse Chicken BBQ supporting their event at our annual meeting.
- We will welcome back Bill Streeter from the Raptor Center with his incredible "Birds of Prey". This event had great community participation last year. We will couple this event with a Snake presentation by Scott Rando.
- Beth Norman, Director of Science and Research at Lacawac Sanctuary and a long time partner with TWCWC will do a presentation on water quality & nutrients in our lakes. This will give all attendees a better understanding of the challenges of water management.
- A bird/nature walk led by Peter Wulfhorst will be on June 10th; meet and park at the Bridge Preserve, 7—9 AM on Twin Lakes Road near Route 6.
- Peter Wulfhorst will give a presentation on home water quality and home testing with kits being distributed to all attendees. The presentation will also include responsible septic maintenance protocols, with a home owners check list to be distributed.
- Our annual photo contest will return by popular demand. This event also had a great turnout from the community and provides further opportunity to expose TWCWC to the lake communities and beyond
- Membership: We need a president elect & Board Members.
- Members will elect the Secretary and Treasurer at the annual meeting, 5 –5:30 PM on September 1st prior to the photo contest reception.

Managing On-lot Septic Systems - *Peter Wulfhorst*

If you live in a rural area in Pennsylvania, it is likely that your home is not connected to a central sewer system. On-lot wastewater treatment and disposal may be the only means of disposing of the wastewater flowing from toilets, sinks, and appliances within your home. Pennsylvania law requires you to obtain a permit from your local municipality before you repair or construct a building for which a sewage disposal system will be needed.

A properly designed, installed, and maintained on-lot sewage disposal system can provide years of trouble-free service. Properly operated on-lot systems also allow recycling of treated water into the ground, an environmental benefit.

An on-lot wastewater system is a three-stage treatment system consisting of a treatment tank (most commonly a septic tank), a distribution system (the pipes), and a soil absorption area. In short, the treatment tank removes most of the solids from the wastewater, the distribution pipes distribute the treatment tank effluent as uniformly as practical to the soil absorption area, and the soil absorption area receives the liquid effluent where it can be absorbed into the soil and renovated.

Properly designed on-lot septic systems provide adequate treatment and disposal of liquid household wastes. In spite of the efforts of regulators and contractors to properly design and size these systems, on-lot systems may still malfunction. A malfunctioning on-lot system results in sewage backup in the household, and untreated sewage causing smelly, unhealthy wet spots in your yard and possibly contaminating groundwater. Although contaminated groundwater may be out of sight, it is important since nearby drinking water wells, possibly even your own, and nearby streams can become contaminated.

A common reason that septic systems fail is when the soil is not capable of absorbing all of the wastewater delivered to it by the sewage system, called hydraulic overloading, and the drainfield becomes clogged due to the development of a slime layer or bio-mat created as a result of persistent wet conditions in the absorption area.

In addition to requiring costly repairs, malfunctioning systems can contaminate surface and ground waters, cause various health problems and create unsightly messes and foul odors when raw sewage surfaces or backs up into the home. On-lot systems not only treat and dispose of domestic sewage from toilets, they also receive wastewater from various other household fixtures, including baths, showers, kitchen sinks, garbage disposals, automatic dishwashers and laundries. Conserving water and reducing the amount of waste flow from these household activities is an important step to ensuring long-term use. The more water using devices in a household, the greater the burden is on the on-lot system.

Every homeowner can take a few simple steps each year to assure that the system will remain trouble-free and to prevent unsanitary and costly septic system failures. These include keeping oil and grease out of the system; keeping harsh chemicals and acids (pesticides, disinfectants, paint thinner, medicines, some cleaners) out of the system; having the septic tank pumped at least every 3-5 years, depending upon tank capacity and usage; and reduce solids including disposable diapers, cigarettes, sanitary napkins and solids from garbage grinders from going into your septic tank.

2022Water Quality Monitoring Report for Walker Lake, Twin Lake and Little Twin Lake - *Chet Dawson & Bob Jones*

Several conditions combined last August resulting in an extensive blue-green algae bloom on Big Twin Lake. Total nitrogen and total phosphorous concentrations, the nutrients driving algae and all plant growth, doubled combining with warming waters and the availability of blue-green algae to spawn the bloom. Blue-green algae has been the major form of algae found in both Little and Big Twin over the past several years and is the most likely form to bloom. This algae has the potential to become toxic; however, the toxicity tests performed to date have not found it to be toxic. Walker Lake has had small blooms in the past but for the past several years, blue-green algae has accounted for 3% or less of the algae found. The remaining algae for Walker Lake tend to be brown, contributing to the brownish color of the water. Nutrient levels for Little Twin also increased in August while they remained constant for Walker Lake. At this point, we do not know what caused the sudden increase in nutrients but changes like this confirms the need for regular water quality testing.

"The dissolved oxygen profiles observed in Twin and Walker lakes are typical. Dissolve oxygen concentration is often high near the surface due to diffusion of oxygen across the surface of the lake as well as the abundance of algae in this warm, typically well-lit layer. Algae produce oxygen as a biproduct of photosynthesis. Dissolved oxygen peaks at lower depths (sometimes referred to as metalimnetic oxygen maxima) can occur when algae congregate in the middle depths. This is common in clear water lakes, such as Little Twin, where lower depth waters still have plenty of light for photosynthesis but less of the harmful ultraviolet wavelengths." (Ref. 2022 Pleon Report) Oxygen levels begin to drop rapidly below 2 meters for Walker Lake, 4 meters for Big Twin and 8 meters for Little Twin. Last year (Note: 1 meter is a little more than 3 feet). TWCWC purchased a longer cable allowing us to measure to the bottom of Little and Big Twin Lakes.

TWCWC recently began measuring dissolved carbon (DOC) as a possible cause of the browning of many lakes around the globe. "Walker generally has had more dissolved organic carbon (DOC) than the Twin Lakes: however, this past year concentration in Big Twin and Walker lake were similar with both being slightly higher than for Little Twin. DOC concentration in surface waters increased over the summer in the Twin Lakes. DOC concentration in Walker was greatest during the August sampling but least during the July sampling. There was slightly more DOC in surface samples compared to composite samples in the Twin Lakes while this varied in Walker. DOC in lakes includes soluble organic compounds from runoff, biproducts of decomposition, and molecules synthesized within the water column. DOC concentration is affected by the frequency and intensity of precipitation as well as watershed soil chemistry and structure." (Ref. 2022 PLEON Report).

Zooplankton were sampled once in July by PLEON for both Twin Lakes and three times (June, July and August) by Aqua Link Inc. for Walker Lake. Aqua Link provides lake management services for Walker Lake. Zooplankton were well diversified for all three lakes except for protozoa which was not found in the Twin Lakes and was only found on one sampling in a small quantity for Walker Lake. Rotifers were the most dominant species for the two Twin Lakes and the second most dominant for Walker Lake. Because of their small size Rotifers represented less than 20% of the zooplankton biomass in all cases. Two larger species, Copepod, the most dominant in Walker Lake, and Cladocera made up the bulk of the biomass. These larger species are a major feed source for small fish.

TWCWC began their water quality program in 2001 and over that time has used different labs for chemical testing including TWCWC's own wet chemistry lab formally located in the Walker Lake clubhouse. We have seen a drop in phosphorous over that time which is significant for Big Twin which makes the large increase last August something that needs further investigation. Secchi clarity has decreased for Walker Lake. A warming trend for both Twin Lakes continues while this has not been seen for Walker Lake.

For more information see the 2022 Pleon report on the TWCWC web site (https://www.twcwc.com). Beth Norman from PLEON will also be reporting at a date to be announced.

Telling Time by the Toads - *Scott Rando*

Phenology, the study of cyclic and seasonal natural phenomena, may well be defined as when things happen in nature with time. As an example, those of us who live near woodlands know that in this region, katydids start sounding within a few days of the start of August. With spring here and summer not too far away, we'll go over some phenology of some animals that are important bio-indicator species for the watershed: frogs and toads.

The first frog species to be seen (and especially heard) are wood frogs (Lithobates sylvaticus). They can be heard in the area from mid-March into the first week or two of April. A relatively mild day, 50 deg or so is a good time to listen for them. They utilize vernal ponds for the most part, and this is part of the reason this species starts early; some of the ponds used may dry up as the weather gets warmer. The young that are produced by the early breeding effort need enough time to develop into frogs before the water in the pond dries up. Wood frogs are "explosive breeders"; they will breed at the same pond all at once, and finish in the space of a week or two. The males calling sound like a quacking noise.

Right after the wood frog is the Spring Peeper (Pseudacris crucifer). They can be seen but are more easily heard. The first ones heard from a given pond will usually be a week or two after the first wood frog is heard. The spring peeper are smaller frogs, but more numerous than wood frogs. They utilize much more habitat; they can be found in large wetlands or in small drainages that hold water. They will also utilize the same habitat as wood frogs do. The singing can be heard from late March to early May in many locations. Many people either pass by or live near the breeding habitat of these frogs; they are commonly heard during the spring.

In mid to late April, you may hear a faint snoring sound coming from pond and lake shores, especially where there is shoreline vegetation such as cattails, etc. This would the start of the breeding cycle of the pickerel frog (Lithobates palustris). They call while in the shelter of vegetation in most cases, so they will be hard to spot, though they inhabit places not real close to water after breeding. Shady places in tall grass, or even your own garden make good hiding places.

The next amphibian to make its appearance during late April to early May is the American toad (Anaxyrus americanus). Found mainly on lakes, their call can be heard, a continuous trill, lasting 30 seconds or more. They usually can be seen during breeding season in or near aquatic vegetation and other hiding spots. On lakes and ponds that they inhabit, there are usually great numbers of them, and they can be heard from a distance. After breeding, they leave the water and seek shady areas. People frequently find them around their house foundations during the summer.

During June and July, green frogs and bull frogs can be heard mostly during early summer. From my records, I've heard the first calls of both species during late May and calling through July. Both species are not in the numbers of lets say, the American toad; you may hear one to a few individuals call followed by a period of silence. When you hear either of these species, it's getting close to summer.

Two Nifty Native Shrubs - *Joyce Laudise*

Buttonbush and Clethra are two native deciduous shrubs that thrive in the moist acidic soil found abundantly in our watershed. They are disease resistant, delightfully fragrant, attract pollinators and thrive in partial shade. Gardeners describe plants that can tolerate wet soil as having "wet feet". These shrubs survive wet feet. A native plant is one that grew in this area before colonists arrived bring cherished seeds from their homeland. Native plants are well adapted to local climate and soil conditions and provide food and shelter for the animals that live here. Both shrubs are listed as moderately deer safe but newly planted tender plants should always be protected with fencing and/or deer repellent that will need reapplying after being washed away by rain.

Buttonbush (Cephalanthus occidentalis) is also called HoneyBall. It is a small shrub, roundish in shape that can grow 3 to 6 ft high. It blooms early in the season and continues throughout the summer. The pin cushion looking clusters of tiny fragrant white flowers ripen into red fruits containing small nutlets that are a good source of food for songbirds and yes, waterfowl, so don't plant it where geese can grab the nutlets. See to right.

Clethra (Clethra alnifolia) is also called Summer Sweet most likely because of its fragrant flowers. It is one of the few shrubs that bloom in late summer. The tiny white flowers grow in spikes as long as 3 inches. With a bit of imagination they resemble unlit candles on a green bush. Look for them in late July or August along the shore of Big Twin Lake and in the lake inlet. The shrub is slow growing but can be as tall as 5 to 7 feet with a 6 to 8 ft spread. Once established it spreads easily by suckers. Before they drop the leaves turn yellow adding to the panoply of fall colors in the Poconos. In addition to the standard white, nurseries also carry a pink flowering Clethra.

How did the rain and snow this winter compare with long-term trends? - *David Vonderheide, Retired, National Weather Service*

One method for measuring the water budget in a watershed is to use the "water year". By convention the water year runs from October 1st to September 30th. October 1st is generally at a time when baseflow (surface runoff and groundwater flow/discharge) can be at a minimum. This is because much of the water is stored in snow cover after October 1st. Baseflow increases during the spring as snow melts and soil moisture recharge increases. During the summer a great deal of soil moisture is lost through evapotranspiration (maximum soil moisture utilization).

The Walker Lake/Twin Lakes water year began in 2022 at 137% of normal. That was due to heavy rainfall in September and October of last year. It represented the peak value for the current water year (so far). Since October the percentage value has been dropping with February, March, and April ending with below-normal precipitation. At the end of April our water year accumulation was at 100% of normal, which looks good but the value is embedded within a long-term trend toward dryness. So, we need more rainfall in the coming months to keep the average where it's presently at.

Photo Contest - *Pat & Chet Dawson*

TWCWC kicked off the 2022 Labor Day weekend with a "Photo Gala" at the Walker Lake Clubhouse. Ninety-six photos hung from the ceiling and decorated panels and a variety of snacks were spread out for attendees. Approximately 50 people attended the event which goes down as the most successful photo contest to date.

In advance of the gala, judges chose the 10 best photos in both the youth and adult categories. Attendees then voted for 1st, 2nd and 3rd place among those ten. Those winners received $50, $25 and $10 prizes according to their finish.

YOUTH		ADULT	
1st Alex Jaffe	Bear In Woods	1st Autumn Teshner	Gwen Stefroggery
2nd T J DeBlock	Wren	2nd Mark Brunt	Morning Doves
3rd Camryn Trent	Lake Through Trees	3rd Steven Gosch	A Quick Layover

Many thanks go to Jackie Cozzolino for her tireless work in organizing the contest and gala. She will now try to exceed her high standards in 2023. Winners will be announced at our "Photo Gallery Gala" event on Friday, September 1st. This will be held at the Walker Lake clubhouse, 100 Walker Lake Road, Shohola, PA from 6 - 8 PM. Appetizers and non-alcoholic beverages will also be served (BYOB). A panel of judges will select the 10 best photos in each category and these photos will be displayed for the attendees to vote on.

Photos can be submitted digitally to president@twcwc.com, dropped off at the Walker Lake Landowners Association office. The office is open on Wednesdays and Saturdays, 9 AM – 2 PM; or mailed to TWCWC, 100 Walker Lake Road, Shohola, PA 18458. All photos will be displayed in letter size.

Prizes: $50 for first place, $25 for second and $10 for third place winners.

Categories: Adult (18 and older), Youth (17 and younger), and Conservancy Board members. Conservancy Board members will receive ribbons for 1st, 2nd, 3rd places.

Deadline for submitting photos either electronically or physically: August 20, 2023. Please include contact information, adult or youth category, & title of each photo.

This is open to all in Pike County, and photos should emphasize nature taken in Pike County between September 2022 and August 20, 2023. More details can be found on the Conservancy's website (https://www.twcwc.com). A link to the Conservancy's Facebook page can be found in the upper right corner of the website and there is a link on the homepage to the photo contest information.

Backyard Bird Musings - *Torey Donato Tishler*

"...in solitude, or in that deserted state when we are surrounded by human beings and yet they sympathize not with us, we love the flowers, the grass and the waters and the sky. In the motion of the very leaves of spring in the blue air there is the found a secret correspondence with our heart." Shelly, On Love

I am back at Walker Lake, the first time this spring and the first time with my son, born last December. The daffodils are in full bloom and the forsythias look like sparklers. Each day inching towards summer, a magical time at the lake. As I always do, I grab my binoculars and make my way to the lake's edge. I am listening to the most profound thunder in the distance. It calls for rain this afternoon and the Common Loon is dipping in and out of the water, very unbothered by me.

As I stare into the water, I think about the water's beauty, its vastness. The water seems to be in cahoots with the thunder, moving quickly, short staccato waves during the rumbling and then peaceful and still when the thunder stops. They are speaking the same language. In the midst of the chaos of the world, I have this moment of peace. The spring to remind me of rebirth and rejuvenation. A moment to be thankful for this communion with nature, this secret correspondence. A moment to be thankful for my son.

The tufted titmice are calling and the phoebes are bobbing their tails. I am amazed and also thankful for the stewards of the lake. TWCWC provides yearly testing of the lakes and provides information on how to keep harmful algae blooms from harming our lakes. I am thankful to our neighbors caring for the health of the lake. I learned that by diligently checking and maintaining our pump systems, this action will keep our lakes healthy, so we can continue to fish, swim and take boats out onto the lakes. As I think of these things, I can't help but be thankful for these stewards, these neighbors creating a special place for us all to enjoy. That future generations may enjoy too.

The Ruby-Crowned Kinglet's show up with the rain. I make my way up to the house, for being in solitude, I am in good company. Listening to the rain, the kinglets and my thankful musings, all a secret correspondence with my heart.

Write to me your bird musings to my email tdonato122O@ gmail.com.

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 2022. I thank the 36 loyal members who donated this year, but we also had 35 members who did not renew. We did some outreach to them and we hope we see better results this year. Your generous contributions are appreciated. There are also 31 people who receive a direct mail copy of the newsletter that we will encourage to become members.

We collected a record $9,747 in donations and non-cash support. Our regular dues were $3,875 and we received $2,000 from the TLPOA, a wonderful five-times match of $1,750 from the Robert Wood Johnson Foundation. Kirk Mackey guided us to a grant of $1,060 from Morgan Stanley and SONY matched $600.

Our total income of $9,832 covered our expenses of $6,089 and gave us a net income of $3,743 for fiscal 2022, versus a net of $1,858 for 2021. Our expenses were mostly steady except we spent less on new equipment and were able to have a members' program again, and so we gave a honorarium to the Raptor Center. We have reorganized our CDs to take advantage of higher rates and have a large reserve. If you have any fundraising ideas, please send them to me twctreas@gmail.com.

Have a great summer and I hope to see you at our annual meeting.

Twin & Walker Creeks
Watershed Conservancy

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Shohola, PA 18458
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C/O Kevin Dowd, Treasurer, 108 Lakeview Drive, Shohola, PA 18458

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Memberships: (Circle One)

Sparrow $25, Hawk $50, Owl $75, Eagle $100, Lifetime Member $500

Membership: $_____ + Additional Donation: $ _____ = total $_____

Please visit twcwc.com and email Ralph Cozzolino at president@twcwc.com with any suggestions or to volunteer for projects. We value your input!