

June 2021

Volume 17

Issue 1



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Ted Yerdon, Peter Loewrigkeit,

Torey Donato Tishler,

David Vonderheide

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Rachel Posavetz, PCCD Rep

President's Message - Pat Dawson

- 1 To say that 2020 was an unusual year is an understatement! The Conservancy Board switched its
- 2 in-person meetings to online ones using Zoom. Our August presentation by Dr. Beth Norman
- was also by Zoom and we had a turnout of about 60 people. Please read the newsletter for up-
- dates on our monitoring program which Dr. Norman discussed in detail in her Zoom presenta-
- tion.
- 3 Our annual photo contest was handled by people mailing their photos to our treasurer and Scott
- Rando, our expert photographer, picked up the photos for judging which was done virtually. Gail
- Husson won first place and Erin Howard won second place for the adult category. We are hoping
- for more participation in our photo contest this year and that our annual meeting will be held in
- person at the Walker Lake Landowner Association's clubhouse as well as via Zoom. The club-
- house is located at 100 Walker Lake Road, Shohola, and is open to all. Please send an email to
- president@twcwc.com if you would like to attend virtually and a zoom link will be sent out on
- Friday, September 10th.
- 4 The winner for the Messineo Scholarship for 2020 is John Babbitts. He is attending William and
- Mary, majoring in History and Environmental Science. The 2021 scholarship winner is Laura-
- Margaret Marquez.
- 5 A committee of Peter Wulfhorst (Chair), Chet, Carol & Peter Loewrigkeit was created to revisit
- the sites discussed in the 2003 FX Browne report that studied the watershed. The committee will
- look at a grant from the Pennsylvania Lake Managers Society (PALMS) to address impacted sites
- on the three lakes.
- Updating our TWCWC website has been discussed over the years and, in 2020, Marisa Boehme
- trained Carol Reynolds in a software program to revise our website. Carol has been diligently
- working on the design and updating materials for our new website this year.
- 6 Our probe, we discovered, is on borrowed time because the company will stop servicing it in five
- years. We replaced the pH and Dissolved Oxygen probes and bought a longer tether to measure
- the bottom of Little Twin Lake. Dr. Norman, Director of PLEON, recommended the longer
- length to probe the levels of Oxygen in Little Twin Lake, the deepest lake in our watershed. The
- monitoring program is the costliest item in our budget. So please consider supporting our organi-
- zation with becoming dues paid members! The membership form is on the last page of this news-
- letter.
- 7 Our board meetings are open and free to the public. If you are interested in attending our board
- meetings that are on Zoom, please email president@twcwc.com to register to attend. Dr. Beth
- Norman will discuss the 2020 water quality monitoring report via Zoom at 7 PM on June 11th.
- On August 25th at 7 PM, Peter Wulfhorst from the Penn Extension Service will educate us about
- septic systems. In addition, our annual meeting, September 11th, will be a hybrid: in person and
- via Zoom. All Zoom presentations will require registration. The photo contest will be held on
- Sept. 11th from 10 AM - 11 AM. Please see page 2 for more information about the annual meet-
- ing.

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.

Follow Up to 2003 F. X. Browne Watershed Assessment

Chet Dawson

Early in its infancy, TWCWC contracted with F. X. Browne, Inc. to conduct a scientifically rigorous assessment of our three lakes watershed. This 2003 study has become the baseline for the lake monitoring that we continue today, but it did much more. It helped us better understand our watershed from topography, geology, soils, hydrology, land use, fauna and fish. It also included a detailed analysis of stormwater runoff to the three lakes with recommendations for reducing their impact. This past Fall, TWCWC President, Pat Dawson, established a committee of Twin and Walker Lakes members to determine the status of each of the sites identified by F. X. Browne as imposing varying degrees of risk to the lakes.

We found that many of the recommendations had been implemented and what may be needed was more rigorous maintenance. In some instances, particularly around Walker Lake, where steep slopes carry stormwater to the lake, improvements to the water channels and culverts are needed. The Pennsylvania Lake Management Society (PALMS) is currently offering grants to help with various stormwater issues. We have identified nutrient and sediment loading as a watershed concern that we hope to obtain some funding to help to address these problems. Peter Wulforth has been asked to head a team from Twin and Walker Lakes to identify sites where we can best use the grant money and then write and submit the grant application that is due the end of June 2021.

We hope to have both the F. X. Browne study and the status assessment up on our website by the time this newsletter reaches you.

Annual TWCWC meeting - Pat Dawson

Our annual meeting will be a hybrid format: virtual (Zoom) and in person on Saturday, September 11, 2021 at the Walker Lake Landowners Association's clubhouse at 100 Walker Lake Road, Shohola. The beginning of the meeting will be a quick Conservancy Board meeting and voting on two positions for the Executive Board: Secretary and Treasurer. Our present Secretary, Maryann Muschlitz, and Treasurer, Kevin Dowd, have offered to run for another two-year term. Other members of our Conservancy who are interested in applying for these positions should contact Chet Dawson, Chair of the Nominating Committee. The only requirement for serving on the Conservancy Board or its Executive Board is to be a member of good standing, i.e., have paid dues during their service.

Presently, there is an opening for President-Elect. Anyone interested in this position can email a note to Chet Dawson ([cwg9@cornell.edu](mailto:cwd9@cornell.edu)). The Conservancy Board can vote on a candidate to fill this position. At the annual meeting in 2022, the President-Elect will be a candidate for President, to serve a 2 year-term. At the end of her term, Pat will have served 6 years and Chet 4 years before that. They both will continue to play important roles, but 10 years is enough for the Dawsons and we need someone else to step up. Pat will work closely with whomever assumes the position as Past President.

The annual photo contest will be held after the board meeting, from 10 AM – 11 AM. Scott Rando has agreed to judge the photos and there are 4 categories for entries: children up through 4th grade; 5 -8th grade, high school students and adults. Photos may be mailed to TWCWC, 108 Lakeview Drive, Shohola, PA 18458 between August 1 – September 7th **OR** the pictures may be brought to the Walker Lake Landowners Association clubhouse between 9:30 – 10 AM. The rules for the photo contest are posted on the Conservancy website: <https://www.twcwc.com>. Get your cameras ready!

The Conservancy has been working to overhaul the organization's website. Many thanks to Marisa Boehme who taught Carol Reynolds a new software program used to revamp the website. Carol has spent this last year collecting and making the information on the website up to date. Scott Rando helped with transferring the website to the new domain and Kevin Dowd, our treasurer, figured out the best way to pay for this new site. Check out the new website: <https://www.twcwc.com>!

2020 Water Quality Monitoring Report for Walker Lake, Twin Lake and Little Twin Lake - Chet Dawson & Bob Jones

Twin and Walker Creeks Watershed Conservancy (TWCWC) monitored Big Twin, Little Twin and Walker lakes four times in 2020. Monitoring included profiles of temperature, dissolved oxygen, conductivity, pH and water samples for chlorophyll, total nitrogen and phosphorous concentrations. Phyto and zoo plankton samples were collected by PLEON for the two Twin Lakes. Walker Lakes lake manager collects these for that lake. PLEON also collected samples, in all three lakes, for the Pennsylvania Department of Environmental Protection and the PA Harmful Algae Task Force on August 24, 2020. In addition, PLEON looked at DOC (dissolved organic carbon) for the first time.

Our lakes remain stable although we are seeing some trends that we need to follow. Lakes around the world are warming, and we are seeing a slight warming trend in the two Twin Lakes. We have not seen this in Walker Lake but need to continue to watch for this trend in all three lakes. Walker Lake continues to have the lowest clarity with Little Twin the highest. Nutrient levels, which are the key ingredients for algae growth, have historically been highest for Walker Lake. It also has the highest level of DOC and iron which along with sediment are factors in clarity. Little Twin has historically been the clearest with the lowest level of phosphorous but phosphorous levels have been increasing in the last couple of years and this past year it had the highest level. A corresponding increase in algae growth has also been seen in Little Twin. While we don't know the cause, a leaking septic system is usually the first place you look. While we need to follow these trends, the levels currently for all three lakes are well below any concern. This was the first year we measured DOC which is increasing in lakes around the world and leading to more "Lake Browning." We will need a few more years of testing to determine how it is trending for our lakes.

As we report elsewhere in the newsletter, harmful algae blooms are a concern in all area lakes including the three in our watershed. Cyanobacteria, which has the potential to be toxic, made up a substantial amount of the algae identified for both Twin Lakes and to a lesser extent for Walker Lake. It needs to be pointed out that the algae communities reported pertain only to the sampling date and time. They are very dynamic and the abundance and make up of communities can change rapidly. While none of the algae analyzed this past year was toxic, this can change and we did have a bloom near the shore on Big Twin. See the article, "Harmful Algae Bloom Identification," found elsewhere in this newsletter for information on our new program going forward.

TWCWC is committed to the continued monitoring of our lakes. We are thankful to the volunteers who conduct the sampling. This is our most costly endeavor and this year we will be replacing the pH and oxygen sensors on our probe, purchasing new buffer solutions and a longer cable capable of reaching the lower depths of Little Twin Lake. The cable alone cost \$997.00 and the total was \$1417.00. Our cost for sample analysis, sampling support, expert review and a written report will be \$2669.00 this year. Any financial support is muchly appreciated.

Harmful Algae Bloom Identification - Chet Dawson

As area lakes become warmer and nutrient loading increases, harmful algae blooms (abbreviated as HAB) have become more prevalent even closing some lakes to swimming and fishing for entire summer seasons. While we have not reached that condition at any of our three lakes, we have identified that the potential exists. Members of TWCWC have attended both webinars and in person workshops and presentations about HAB. We currently are partnered with PLEON (Pocono Lake Ecological Observation Network), a subset of the Lacawac Sanctuary. This partnership now extends to helping us identify harmful blooms if we suspect one.

Blooms you may see are not necessarily harmful, but it is important to know if they are or not as quickly as possible. PLEON has established a contract with a lab in Florida where they can send samples of potentially harmful algae. We are now part of that contract. PLEON will provide sample bottles and mailers to both Twin and Walker Lakes. Results will first go to PLEON which will interpret them and provide us with the results and recommendations. TWCWC will initially pay for the testing but does not have the funds to cover this program. The individual Lake Associations will be asked to reimburse us.

Harmful algae are blue green in color and usually but not always float. Blue-green looking paint chips are an example. A bloom is when a large mass appears. Samples should be collected by trained representatives of your lake associations and turned over to TWCWC for mailing. We hope to never have to implement this plan, but we now have a method if needed.

Sneaky Snakes— Scott Rando

When we think of reptiles and amphibians, usually the first things that comes to mind are frogs and toads. Most of us have probably seen (and heard) more frogs and toads than any other reptile or amphibian. During the course of the spring, the sounds of spring peepers, wood frogs, and most recently, American toads have made their presence known by their courtship calls. Of the 17 species of frogs and toads in Pa., many of these are native to our region.

Another sub-order of reptiles is less conspicuous than frogs and toads, however they are stealthy, are frequently under cover and even when out in the open, are hard to spot because they blend in well with their surroundings. These are the snakes, which has 21 species.

Over the course of decades, movie makers have villainized snakes, whether it be cobras or anacondas as big as a barn. In reality, the snakes in our region would much rather have as little human contact as possible. Even the fairly common eastern garter snake will usually try to dart under cover if we see one in our path. Even timber rattlesnakes will retreat if given the chance.

All snakes are carnivorous, and their diet ranges from small insects to mammals such as rats or squirrels. Frogs and salamanders are on the list for some species too. The timber rattlesnake, the only venomous snake in our region, is a mammal specialist. It can detect infrared heat signatures from warm blooded prey. It will lie in wait, strike and envenomate the unsuspecting animal. It then waits for its prey to become incapacitated before consuming it.

The snakes pictured in this week's column are a few of a dozen snakes I found on state forest land in Pike County one day last week. If you would like to learn more about snakes, and other reptiles and amphibians in the region, visit the Pennsylvania Amphibian and Reptile Survey (PARS) at <https://paherpsurvey.org/>



For many people, eastern garter snakes are the most commonly seen. They can be found along trails or maybe in your backyard. The color can vary a little bit, but the lines running the length of the body are characteristic for this species. Garter snakes eat a variety of invertebrates, amphibians, and even small minnows.

Eastern Milk snakes are banded with orange, black, and yellow. Because of this, they can be confused with other species (young ones are mistaken for copperheads, last seen in Pike County around 2000). Milk snakes can grow to over 4', and feed on rodents. An old fable stated that milk snakes were able to milk cows, hence its name. (They were likely doing the barn

cat's job and looking for rodents).



Treasurer's Report - Kevin Dowd

We ended 2020 in good shape. Our expenses of \$3,430 were more than offset by donations of \$4,900 from 38 members. Many thanks to for a generous contribution and matching grant, and to the TLPOA for their large and needed support. We ended FY20 with a net of \$1,600 because we were donated the printing of the newsletter and did not have a paid program due to COVID, so our expenses were reduced by \$1,000.

We look forward to good membership drive response this year, as we have upgraded our testing equipment at an expense of \$1,400 and added services to our PLEON contract, which increased from \$2,290 per year to \$2,670. Also printing costs will be higher than in the past because they will print, fold and get them ready for mailing. This means our expenses this year will be higher, at about \$6,000, compared to \$4,400 in FY19.

We currently have only \$650 in the checking account because I moved \$5,000 to the CD last year, but we can withdraw without penalty if needed. Please donate generously so we can cover this year's expenses!

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 keep oil and grease out of the system, keep harsh chemicals and acids (pesticides, disinfectants, paint thinner, medicines, some cleaners) out of the system, have 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.

To learn more about On-lot Septic Systems, attend a webinar on August 25 from 7-8 pm. Contact the Conservancy at president@twcwc.com if you would like to attend.

Changes in Conservancy Board Members - Pat Dawson

We welcome the following new board members: Bell Smith, Bob Jones, Torey Donata Tishler, David Vonderheide, Ted Yerdon, and Peter Loewrigkeit who is returning to the board after a hiatus of several years. They are all bringing a variety of skills and enthusiasm for protecting our wonderful watershed.

Barbara Whitney has left the board this year after serving since 2016. When Rachel Posavetz arrived at the Pike County Conservation District, Barbara helped fill her in with Twin Lakes history and I learned a lot about that part of our watershed that day! She has promoted the campaign to ask people to clean their boats, paddleboards, kayaks, fishing gear when moving them between different waterways to prevent unwanted "hitchhikers". Last year Barbara and her husband wrote in our newsletter about Edson's experience with ticks. This year I found a tick that had latched onto me so I went back to their article to find out where to send the tick for analysis! We will miss Barbara and wish her well!

We have discovered that Zoom meetings makes it more convenient for folks to meet; some checked in from California and elsewhere! Our August meeting will consist of a presentation by Peter Wulfhorst, Pennsylvania Extension Service. He will discuss how septic systems work and how to maintain them. So many newcomers have arrived in Shohola from cities and suburbs and may not be familiar with septic systems, so we thought this would be an important educational workshop of sorts. Registration for the zoom will be needed and please send an email to president@twcwc.com to do so.

We are looking forward to another terrific summer in our watershed!

Backyard Bird Musings - Torey Donato Tishler

“I found that what I really could not bear was the missing out on the larger narrative unwinding around me” -Dorianne Laux
Since I discovered birds and birdwatching from my late mother-in-law, my world has grown bigger, as the poet Laux suggests. With the right amount of curiosity, which I have had since I was a child, watching birds has felt like a cloud of comfort, a friend on my lonesome hikes, and the notion of otherworldliness. The idea to step out of your reality for a moment and look up into a different world, an escape, especially after the year we have all had, can bring a sense of peace.

David Sibley, an American ornithologist and author of the world’s best field identification birding books, offers seven tips for bird watching. The seven tips are to notice the bird, listen, look at the bill, think about what the bird is doing, watch for patterns, be curious and take notes. The following musings are my experiences bird watching from my backyard during April and May and by taking Sibley’s advice into consideration, I am on a mission to share the larger narrative with you.

Waking up this morning, I pour myself a cup of coffee and put the bird feeders outside onto the deck overlooking Walker Lake. It is misting here, a dream-like quality upon the lake, and the first bird to greet me is the ever cheerful, black-capped chickadee. Surprisingly so quick to the feeder, being the bird feeders have not been outside over winter and the house bare. The black-capped chickadees must be hungry. Of course, here comes Pesky Squirrel. They gobble the seed down fast before more birds arrive. I guess they need to eat too. I let him be as I drink my coffee. An eastern phoebe says hello in a nearby tree and bobs her tail. Spring is truly upon us.

The sun has just shown up to the party with a pair of hairy woodpeckers, inching their way to the feeder. And just like that, the sun hides behind a sky full of clouds. As the birds chatter at the feeder, a white-breasted nuthatch and tufted titmouse join the crowd. Common birds to visit my birdfeeder, they chatter and chirp, keeping me company.

I’m reminded during this week it will be Earth Day. I decide to take a walk and pick up any trash I see around the house, on the road, and near the water. As I step out onto the deck, I see two large birds twisting and turning in flight, almost knocking into one another. Yes, the majestic bald eagles, in perfect adult plumage. It was a minute-long show, and I had front row tickets. I hear a descending, whining scream and chirps, a sound only the large lungs of a raptor can make. I wonder, who else saw them? Was anyone else looking up?

As I pick up pieces of trash, I hear a song sparrow by the garden post. I ask myself, could that have been the sparrow by my feeder earlier that I had trouble identifying? With the bold coarse streaks above the eyebrow and the reddish-brown tail? They all look similar, and I’m still unsure. Lost in my thoughts about the sparrow, I notice the bald eagle has returned, but this time chased by a couple of American crows. The crows are bothered, cawing loudly in the trees above me. I would run inside to grab the peanuts to feed them, but I have run out. As I find my birding journal, I am careful to write as many details as possible from today--not forgetting the colors on the feathers, the patterns, and the bill. Looking at how much detail a tiny bird can have, I’m bewildered.

The next day, I wake to a brilliant, burning sun. I take out my bird feeders because I know better than to keep them outside during the night. My bird feeders have been known to disappear in the middle of the night from Raccoon Bandit. I pour myself some coffee, and since the day calls for rain, I have enough time to take a walk and sit on the dock this morning. Although I am alone, with a pair of binoculars and my curiosity, birding is a companion.

While on the dock, I hear a dog barking. None other than the loyal bark and security of a German shepherd. I look into the water, and I see the otter. The German shepherd perhaps pointed it out to me first. I see the otter swim in a single line far away, but a perfect view with my binoculars. As I am focusing on the otters, I hear something above me. Swirling and circling in the sky again, two bald eagles. One mature with a bright white head and an immature, perhaps a year to his comrade’s beauty. Again, what a sight, another show! How lucky am I for listening, for being curious, and just looking up.

It is now the first of May, and I am excited. Excited because spring migration is in full swing. The weather is warmer and the days longer, and the hummingbirds are starting to arrive. Within a few days of hanging fresh sugar water in my hummingbird feeder, two ruby-throated hummingbirds arrive. I also see a Baltimore oriole, black-and-white warbler, and a Carolina wren and it is only 9 o’clock. I remember to look for patterns. I did notice the Carolina wren with a few twigs in her mouth. She is making a nest, which I am sure must be close by. As I keep an eye on the Carolina wren, I do indeed find the nest. I drink my coffee on the deck overlooking Walker Lake, and with enjoyment and wonderment, I watch the Carolina wren work for hours on her nest, thinking and musing.

The weather and climatology of the Twin Lakes-Walker Lake area

ea - David Vonderbeide, Retired, National Weather Service

On a broad scale, northeast Pennsylvania is classified as a humid continental climate with warm summers and precipitation falling throughout the year. The most popular climate classification scheme is that of Wladimir Köppen. His scheme has the Poconos listed as a Dfb climate (winter snow-fully humid-warm summer).

On a regional scale, Twin Lakes/Walker Lake weather is strongly controlled by the tracks of low and high pressure systems. Low pressure systems tend to track through the lower Great Lakes and then north of Pennsylvania; others track through the central Appalachians and then off the NJ coast. A few times each winter a low will move out of the southern states and intensify into a coastal storm (a “nor’easter”) that can travel along the East Coast and wreak havoc with the Poconos, dumping heavy snow and creating strong winds that can create a blizzard and take out power lines. High pressure systems bring cold air from Canada or warm, moist air from the Gulf of Mexico. Tropical storms and hurricanes sometimes move up the East Coast and then turn into Pennsylvania. These are capable of dropping ten inches or more of rain in just a day or two.

On the local scale climate tends to be controlled more by terrain when the wind dies down and thermal effects become dominant. When this happens we see the formation of microclimates. Each local valley tends to collect the coldest air formed on clear, still nights, with small cold pockets resulting. These are sometimes referred to as frost hollows. One such cold spot is along Little Walker Rd about 800 feet south of Lake Rd. On clear, nearly calm nights chilled air will move slowly down the slopes around Walker Lake, and then down the Walker Lake Creek valley toward the Delaware River, pulled by gravity and channeled by terrain just like water. Similar to a watershed, this effect creates an airshed. Our local high spots will be a tad bit warmer on the same clear nights, with the coldest air draining away from them and leaving behind air that remains relatively warm. When this happens a temperature inversion exists. Sometimes an inversion develops that can extend from the bottom of the Delaware Valley at Shohola up to 2500 feet above sea level directly over our heads. Another local effect is caused by the lakes themselves, with retained heat keeping the air over them warmer on autumn nights. In spring the opposite occurs when retained cold keeps overlying air chilled. These local thermal effects disappear as soon as the wind increases.

Computing long-term averages is an important way to measure climate. Climate variables are averaged, and each decade a set of numbers known as climatic normals is computed. By convention the period used for computing normals is 30 years, although any period of time can be used depending on what purpose these will be used for. The latest set of normal, for the 1990-2020 period, were just released this month (May 2021). What are our climate normals? Normal yearly precipitation is 47.20 inches, typical seasonal snowfall is 51 inches. Thunder is heard on an average of 31 days per year, but that can vary a bit depending on particular weather patterns. Prevailing winds here are from the west-northwest during the cool half of the year and from the west-southwest during the warm half. Departures from the normals occur all the time. In fact weather is rarely “normal”. Normals are just averages. Extreme departures are not unheard of. Matamoras still claims the state record for rainfall in one month, 16.37 inches in October 2005. Occasionally the Northeast experiences drought. Serious drought occurred here in the summers of 1963-1966.

Normal temperature for TWWL is 48°F for the year. Highest average monthly temperature is 70°F in July, and the lowest monthly average is 24°F in January. For the most part, temperatures here stay between 18° and 80°F, rarely getting below 3° F or above 88°F. Our freeze-free period can be anywhere between 120 and 180 days depending on late springs or early autumns. This represents the TWWL growing season. Heating degree days, a quantified measure of energy used in heating buildings, based on 65°, is normally 6700 in TWWL. Cooling degree days, also based on 65°, correlate to energy used in cooling buildings. Our normal CDD number is 510.

I've been measuring and recording weather at my home in the Walker Lake community since December 2017. Daily high and low temperature, rainfall and snowfall, and any other weather occurrence of note are incorporated into a weather log. My precipitation is entered into an online program called CoCoRaHS (Community Collaborative Rain, Hail & Snow Network). CoCoRaHS is a volunteer program that is nationwide in scope, has thousands of participants, and has existed since 1998.

Twin & Walker Creeks
Watershed Conservancy

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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 _____

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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 _____