May 2014
Issue 14-01

TOBYHANNA CREEK TUNKHANNOCK CREEK
WATERSHED ASSOCIATION
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TCTCWA

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PRESIDENT'S LETTER

by: President Larry Gould

Hello to all loyal, faithful TC/TCWA members! It is that time of the year again, the time where we publish our TC/TCWA newsletter to keep all members up to date on TC/TCWA happenings.

May is Watershed awareness month. As such, we should all do just a little more to make ourselves more aware of the Watershed, and to learn more about it. The more informed, educated and aware that we are, the better it is, for everyone, and the Watershed.

We continue to monitor our streams and waterways, and review and analyze monthly reports on water quality. We continue to "keep an eye on things", make recommendations, and take action when we feel it necessary to do so.

We are a small, volunteer, grass roots organization, and need your help! We are always looking for volunteers, and we do have several opportunities available. You can become a director, stream monitor, and/or volunteer your time to help the Watershed. Ideas, input, and donations are graciously accepted and appreciated.

Recent news and press concerning natural gas, fracking, and rural development remind us that our water and Watershed continues to be threatened. Take some time to learn about how precious our water is, and please get involved. We would love to hear from you.

Sincerely,

Your President

Water and Total Dissolved Solids

By

John Lyman

Both the national and local news have talked about total dissolved solids lately (for example, the spill in West Virginia or the erosion issues with local contractors). We are blessed with clean water in this watershed, but what comprises total dissolved solids and what is the impact on water is worth looking into.

What are Total Dissolved Solids?

Total Dissolved Solids (TDS) are compounds that dissolve in water but stay as compounds. The best example of TDS is the salt in saltwater. Salt is a solid that dissolves in water and once dissolved will not settle out, cannot be filtered out and cannot be removed by a wastewater treatment plant. The most common way of removing salt from water is boiling or reverse osmosis systems. Once the salt is removed, it is a solid again. Saltwater that is boiled will release pure water through steam, and the salt will remain as a white residue. Salt and water have gone through this process of combining and separating since the dawn of time and will continue to do so. Beside salt, TDS is comprised of many other chemicals, including potassium chloride, magnesium chloride, nitrates, phosphates and a host of others.

How much TDS is allowed in drinking water and streams?

TDS is measured in parts per million (ppm). One part per million is a tiny amount of something and is a simple way to show how much TDS is in the water. Typical drinking water will have a TDS of 50 to about 500 ppm. At 500 ppm, very sensitive macroinvertebrates (tiny waterborne bugs) will start to be stressed. 500 ppm is the limit allowed under the Safe Water Drinking Act for drinking water. Most people will tolerate water with a TDS up to about 500 ppm, but at 1000ppm, they will consider the water to taste poor[1].

If we consider freshwater as compared to saltwater, 50 ppm to 500 ppm is considered freshwater, 500 ppm to 15,000 ppm is considered brackish water[2]. Freshwater macro invertebrates will not survive in the higher numbers of this level of TDS. Above 15,000 ppm, the water is considered saltwater. The Pacific Ocean has a TDS of about 33,000 ppm[3].

Bridge at Route 940 overlooking Pocono Lake

Under the new Pennsylvania regulations, 500 ppm is the limit a natural gas company can discharge into a river (drilling for natural gas generates a lot of TDS). Companies that are not involved with natural gas can discharge higher levels, depending on where they are located in Pennsylvania. The Delaware River has unique restrictions, and 1000 ppm is the usual limit most companies can discharge into the streams of the Delaware River Basin. In some sections of northwestern Pennsylvania, the limit is as high as 2000 ppm.

TDS is usually measured with a conductivity meter. Electrical conductivity of water is directly related to the concentration of dissolved ionized solids in the water. Ions from the dissolved solids in water create the ability for that water to conduct an electrical current, which can be measured using a conventional conductivity meter or TDS meter. When correlated with laboratory TDS measurements, conductivity provides an approximate value for the TDS concentration, usually to within 10% accuracy.[4]

500 ppm will start to stress sensitive macro invertebrates, but 1000 ppm will start to stress even the stronger ones. TDS is just one of many variables that impact a stream. Oxygen content, thermal shock, and pH also affect stream quality. A pristine stream that has a TDS of 1000 could be a healthy body of water, but if it also

has low dissolved oxygen and the pH is off, the stream may not be able to support the tiny bugs that support everything else.

What are some of the other issues of TDS?

In stream water, dissolved solids consist of salt, calcium, chlorides, nitrate, phosphorus, iron, sulfur and other ions particles. Sources of total solids include industrial discharges, sewage, fertilizers, road runoff and soil erosion[5]. All of these chemicals have a detrimental effect on both the aquatic life and the people that drink the water. Salt alone is bad enough, but some of the other chemicals that produce TDS particularly nitrates and phosphates, also remove oxygen from the water and produce "dead zones" where no fish can live.

TDS has a direct impact on drinking water, particularly in cities that are downstream of our watershed. Over the last 20 years, people have become more concerned with the "brack-line" down by Philadelphia. The brack line is an imaginary line in the Delaware River where the water has too much TDS to drink. The line has been slowly moving up the Delaware River and getting closer to Philadelphia. If the water by Philadelphia gets too much TDS, Philadelphia will have to find a new water source.

Fortunately, TDS is currently not an issue in the Tobyhanna Creek/Tunkhannock Creek watershed. It is because of groups like the Water Association that there will be efforts to keep the water as pristine as it is now. Towards that end, TC/TCWA is buying new monitoring equipment that will allow the Water Association to look at TDS much more closely than before and maintaining the clean waters that exist in the watershed.

RT 423 over the Tobyhanna Creek

The other thing local citizens can do is support their local environmental groups. TDS is a very political issue and there are a lot of big companies arguing against setting a tight TDS issue. Politicians listen to local groups because of voting power. The more local citizens that get involved with environmental issues, the more power exists to make a positive change.

Footnotes:

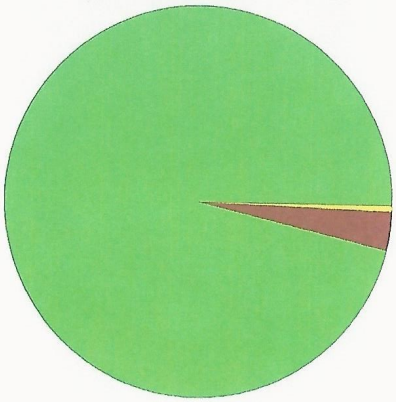
1. Total Salt Dissolved Solids in Drinking Water World Health Organization background document, 2003.
2. Water and Wastewater Digest website http://www.wwdmag.com/desalination/tapping-ocean
3. Water and Wastewater Digest website http://www.wwdmag.com/desalination/tapping-ocean
4. Wikipedia website http://en.wikipedia.org/wiki/Total_dissolved_solids
5. Environmental Protection Agency website http://water.epa.gov/type/rsl/monitoring/vms58.cfm

Changes to the Stream Monitoring Protocols for 2014

In 2014, the TC/TCWA will implement new monitoring protocols and are requesting additional volunteer Stream Watch Monitors to assist with the effort. For many years, our Stream Watchers have recorded pH, water and air temperature, depth, flow, color, odor, clarity, and weather conditions at twenty or more stream sites on a monthly basis. To view the data, visit www.tctcwa.org, and find the link under the Stream Watch tab. This year, the TC/TCWA Board of Directors have decided to adjust the stream monitoring protocols to include measuring conductivity and total dissolved solids (TDS). As described in the previous article, these two parameters offer a better picture of the quality of the water flowing in our streams.

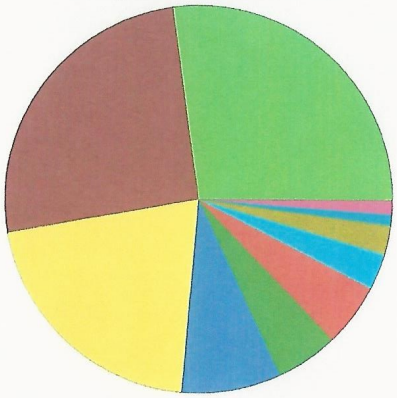
Water is our most precious commodity! Please get involved!

Income Summary
January through December 2013



4000 · Member Dues	$1,865.00
4030 · Contributions Income	63.75
4999 · Interest Income	7.53
Total	$1,936.28

Expense Summary
January through December 2013



6180 · Insurance	$ 637.00
6130 · Sec'y/Bkkp Expense	600.00
6260 · Printing and Reproduction	489.72
6250 · Postage and Delivery	193.30
6300 · Repairs	122.96
6140 · Contributions	122.66
6810 · Web Site	71.88
6340 · Telephone	57.72
6110 · Growing Greener Project	22.40
6670 · Program Expense	15.77
Total	$2,333.41

MACROINVERTE...WHAT??

Once again last summer, on a Saturday morning, a group gathered under the pavilion at the Austin T. Blakeslee Natural Area to observe and learn about the tiny critters which crawl on the bottom of the Tobyhanna Creek and provide food for larger critters, such as fish and birds. Led by the Monroe County Conservation District's Watershed Specialist, Trish Attardo, the program began with a demonstration on techniques for collecting stream "macroinvertebrates." Sorted into containers, the participants passed around and learned about the various adaptations of each organism's body which aid in its survival. One example was the dragonfly nymph (young, aquatic stage of the adult dragonfly), which has a hinged lower jaw to allow it to grasp its prey. The largest invertebrate caught and admired by all was the obviously predaceous, dobsonfly larvae, also known as a hellgrammite. About the size of the spacebar on your keyboard, this critter breathes through feathery gills on the underside of its abdomen and has pincers at the front of its head.

Both young and old were amazed by the variety of species found in our collection. Macroinvertebrates are sorted and counted by scientists to gage the quality of the water in a stream as each type of critter has its own tolerance level for pollution. A high number and variety of macroinvertebrates, expecially of pollution sensitive species, indicates a high quality stream. If you missed the 2012 program, be sure to mark your calendar for the 2013 program planned for July 27th.

MISSION STATEMENT

The purposes of the Tobyhanna Creek/Tunkhannock Creek Watershed Association shall be to promote and preserve the water quality and the environment of the Tobyhanna Creek and Tunkhannock Creek Watershed including surrounding areas of special concern and improve the water quality of the associated creeks and tributaries, promote the natural bounties thereof, provide educational materials on the benefits of and methods to achieve protection and preservation of the natural integrity of the watershed, educate the general public and interested parties in the value of stress controls and land activities, promote and coordinate the conservation of natural resources of the watershed, and protect and preserve terrestrial and aquatic life in the watershed.

VOLUNTEERS NEEDED - NO EXPERIENCE NECESSARY

The TC/TCWA needs your help as a volunteer. There is no experience necessary. Please contact us to become an important part of our organization by volunteering a little of your time. Volunteering is a fun, rewarding experience. Your help is always needed and appreciated. There are many part time volunteering opportunities available. We would also like your thoughts, ideas, and suggestions. Contact us or drop by and visit us at one of our monthly Board meetings which take place on the third Monday of every month 7:00 PM at the Nature Conservancy building in Long Pond.

Please get involved in your watershed. Just ask us how!

BOARD MEMBERS NEEDED

This is an **urgent** call for new Board Members and members in general. We need to replace some existing Board Members due to their moving away and being involved in other projects. Please join us in serving on your esteemed Board of Directors. It is a very nice experience and we meet only once a month at the Nature Conservancy building in Long Pond.

We would also like to boost our membership. Tell a friend or family member to please help support our efforts by becoming a member of the TC/TCWA. You will find a membership insert within this Newsletter. We need you! Please contact us immediately if you are interested in serving on our Board of Directors.

TC\TC WA NEWS

P O BOX 796

POCONO LAKE PA 18347-0796

ADDRESS SERVICE REQUESTED

MAY IS

WATERSHED AWARNESS MONTH

Please consider renewing your

subscription.

We need your help and support.

MARK YOUR CALENDARS FOR UPCOMING EVENTS

HAVE YOU EVER HEARD OF A BIO-BLITZ?

This 24-hour survey of all plant and animal life on a given piece of property will provide a snapshot of what lives there and highlight the biodiversity of one of the county's Open Space properties, the Austin T. Blakeslee Natural Area. Sponsored by the Monroe County Conservation District, this event will run from 3:00 PM on Friday June 20th to 3:00 PM on Saturday, June 21st. Day and night, scientists and their survey teams will comb the property to identify as many species as possible. It is a wonderful opportunity for watershed residents to see samples of and learn about the biota living in their watershed. Come out and be sure to visit the TC/TCWA table between 10:00 AM and 3:00 PM on Saturday, June 21st. For more information on the BioBlitz visit www.mcconservation.org.

Saturday, at 11:00 AM - Annual Road Clean Up - Route 423 - Bags, vests and gloves will be provided.

Saturday, June 21st 10:00 AM to 3:00 PM - Bio-Blitz. See page 2 for details.

Saturday, July 12th - Tobyhanna Township Day

Monday, August 18 at 7:00 PM - TC/TCWA Annual Meeting - Jason Smith will give a presentation on a ***Trout Habitat-Improvement Project - Upper Tunkhannock Creek.***