

Network News



American Landscape at Its Best: the Cayuga Lake Watershed

by Tai Wei Lim

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Cayuga Lake or “Boat Landing” in Indian language is a sprawling lake that is fed by five tributaries at the southern end of the lake. A wide expanse of aqueous space, Cayuga Lake has 95 miles of shoreline, 66 square miles of surface area, and a depth of 435 feet. It is the longest of the Finger Lakes in Central New York. Below are just some of the ways in which the watershed has given variety and entertainment value to my life, on top of being a real-life laboratory to observe the disparate species of flying creatures that soar through the skies.



Canada geese don't seem to mind the low winter water levels that exposed this old dock.

Nature's Sanctuary

Going on trips to spot migratory birds like waterfowls along the Atlantic Flyway is rewarded by the actual sightings of these mysterious creatures that follow their instincts to accomplish their calling in life. These birds are not alone as they are joined by Canada geese, ducks, loons which stopped at Cayuga Lake while searching for warmer weathers during the cold winter season. The transitional pit-stop function of the Lake makes the Watershed a living aviary for bird-watching enthusiasts.

The birds also make an immediate impact on my life as its waters teemed with food serves the needs of seagulls which then fly near my resident. They are a constant reminder of the co-existence of my habitat with other creatures that remains are landmarks on my very doorstep. As I look at these creatures brought here by the promise of an inland Lake's potential for food, I am reminded of Man's place and position in the biodiversity of the world. It is a reminder of how sensitive and fragile the entire system is and that it should not be taken for granted. To immortalize these thoughts, I sketched the outlines of the seagulls and admire the snow white flock that they have with their to the apparent apathy vicissitudes of life.

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WATERSHED STEWARD'S MESSAGE

With our busy lives it's easy to have things that are out of sight be out of mind. So this issue of *Network News* focuses on an unseen resource and an often unseen problem. Groundwater is the drinking water source for about 50 percent of the people who live in this watershed, including almost everyone who lives in rural areas. Understanding what groundwater is and how it moves helps us protect it and better management water resources. There are three articles that work together to explain groundwater and aquifers. This information will provide a good foundation for the focus of our spring issue, flooding. I hope you will only read about flooding this spring and not actually experience it.

According to the Groundwater Foundation "...if groundwater is protected chances are very good that the

rest of the environment will be protected too. Of course, this is good for people and everything else that lives on good old Mother Earth." One way to protect groundwater and our lake and streams is to find and eliminate something known as "illicit discharges". Remember the connection between groundwater and surface water as you read about illegal activities in "Oil and Sewerage and Trash, Oh My!".

On behalf of the staff and Board of the Cayuga Lake Watershed Network, I wish you a healthy and prosperous New Year,

Sharon Anderson



Sustaining Our Precious Water Resources: 2007 Essay Contest Topic

Pick up a pen or sit down at your computer and start drafting your essay for the 7th Annual Essay Contest! This year the topic is "Sustaining Our Precious Water Resources: What can an individual do? What can the government do?"

Essays, due by March 30, 2007, should focus on the Cayuga Lake Watershed and can address a variety of questions. Ideas include how individuals can protect local drinking water sources, steps to enhance fish and wildlife habitat, benefits of measuring water quality, steps for controlling agricultural or storm-water runoff, and the role of government in protecting Cayuga Lake and its surrounds. How about writing a story celebrating what you or someone else has actually done?

If you know students or teachers at the middle through high school level, please encourage them to participate in the Annual Essay Contest as a way for the

whole class to learn about environmental science, writing and communities.

Visit www.cayugalake.org for complete contest rules and an on-line contest entry form. While web-based submissions are strongly encouraged, printed copies and

e-mail submissions are also accepted. Contact the Watershed Network office at 607-532-4104 or manager@cayugalake.org for further information or to request a printed copy of the contest rules.

Original ideas contained in prize-winning essays may inspire others to exercise greater diligence in protecting our Cayuga Lake Watershed. Winning essays will be published on the Cayuga Lake Watershed Network website www.cayugalake.org and excerpts will appear in the *Cayuga Lake Watershed Network News*. Prizes are provided courtesy of Goulds Pumps in Seneca Falls, and the Cayuga Lake Watershed Network. 

Enter in one of three categories for a chance to win cash prizes and to see your words printed here in *Network News* and on our website.

- **Students grades 6-8,** 500-word limit (1st prize \$75, 2nd prize \$30, 3rd prize \$10)
- **Students grades 9-12,** 1000-word limit (1st prize \$150)
- **Adults,** 2000-word limit (1st prize \$250).

Cayuga Lake Watershed Network

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Oil and Sewerage and Trash, Oh My!

By Sharon Anderson, Watershed Steward

Misconnected drain pipes, illegally dumped trash, a failing septic system, and used motor oil dumped on the ground have a lot in common. Grouped together as “illicit discharges”, all of these can send pollution to our waterways. While trash dumped in a roadside ditch is an eye sore as well as a hazard, most illicit discharges are invisible. The Stormwater Coalition of Tompkins County, of which the Watershed Network is a member, has an ambitious plan to bring these problems to light. The aim is to have these often hidden sources of contamination identified and then eliminated. The two companion steps are jointly referred to as Illicit Discharge Detection and Elimination (IDDE).

Whatever gets washed or dumped into a storm drain or road side drainage ditch goes untreated to a nearby waterway. Chemicals, trash, and disease-causing organisms (such as viruses and bacteria) flow directly to a tributary that then flows to Cayuga Lake. These pollutants can enter the food chain harming fish, other aquatic life and people’s health.

Stormwater regulations define an illicit discharge as “any discharge to a municipal separate storm sewer that is not composed entirely of stormwater.” A few discharges such as from fire fighting activities are exempt. So what isn’t exempt? Picture a pipe sticking out of the side of a creek bank dripping with green antifreeze or paint thinner someone dumped into the storm drain on an urban street. Consider a septic tank that has rusted out and allows sewage to seep into the lake. Imagine the floor drain from a business that is piped to a roadside ditch, and the resident who tosses a bag of stinky trash along the side of a rural lane. Think about a leaking municipal sewer line spewing underground near a pipe or ditch that is part of the storm-water drainage system. All of these, and more, are illicit

discharges that need to be eliminated once they are found.

The Stormwater Coalition is working to help municipalities comply with New York State’s stormwater regulations. One portion of the regulations requires an IDDE program. Through the winter and spring, a series of programs will train volunteers, municipal officials and agency staff to ferret out illicit discharges. Other communities working with IDDE have found pipe connections accidentally



“Outfall” is the name given to pipes such as this one that drain directly to a creek.



Credit: WI DNR

Storm drains carry more than water untreated to our waterways

crossed during construction and building

floor drains that are so old no one remembered where they drain to. Often the offenders don’t even know there is a problem and therefore the approach will be focused on education and correction.

You can help by supporting your community’s efforts to control and correct illicit discharges. In the warmer weather, join the Watershed Network on stream and shoreline cleanups. Maintain the septic system, if you have one, and properly dispose of household trash. Hazardous materials such as excess paint, paint thinner, motor oil, antifreeze, pesticides or other common household chemicals should not be poured down storm drains or on the ground. Many should not be dumped down household drains either, even if you are connected to a municipal water treatment facility. For information on disposal, contact your wastewater plant or solid waste hauler to learn what can safely be disposed of in your community. 🐦

Arctic Snow Geese Visit

The noisy flock of snow geese that rested on Cayuga Lake looked like a large floating mass of ice from the distance. Having bred in the arctic tundra, the geese stay in family groups as they head south. Among the white birds you might find a darker form of the same species, commonly called a blue goose. 🐦



Credit: USFWS

Groundwater

Adapted from "Groundwater FlashFact" by US EPA

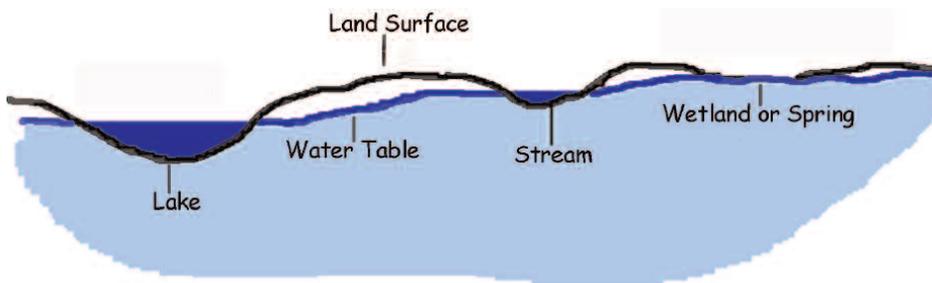
Water, life depends on it. Yet for all its importance, one of the most readily available sources of drinking water, groundwater, remains largely misunderstood. While Cayuga Lake and its tributaries fills the water needs of many watershed residents, more than 50% of population relies on groundwater for municipal, domestic, and agricultural uses.

What is groundwater?

Groundwater is fresh water from rain or melting ice and snow that soaks into the soil and is stored in the tiny spaces between rocks and particles of soil. It can stay underground for hundreds of thousands of years, or it can come to the surface and help fill rivers,

therefore have smaller pore spaces with less room to hold water. Water can even be held in and move through rock that is fractured or riddled with holes, as when groundwater interacts with limestone to form karst topography. The cracks and holes in rock can act as pipelines that groundwater can

order to provide an adequate supply of water. A drinking water well for a private home uses groundwater but it may not be a source bountiful enough to be considered an aquifer. An aquifer may be a few feet to several thousand feet thick and less than a square mile, or hundreds of thousands of square miles in area.



streams, lakes, ponds, and wetlands. Groundwater can also come to the surface as a spring or be pumped from a well. Both of these are common ways we get groundwater to drink.

How does the ground store water?

Groundwater is stored in the tiny open spaces between rock and sand, soil, and gravel. Layers of loosely arranged particles of uniform size (such as sand) tend to hold more water than layers of rock with materials of different sizes. This is because smaller rock materials settle into the spaces between larger rock materials, decreasing the amount of open space that can hold water. How well rock material holds water (porosity) is also affected by the shape of rock particles. Round particles will pack more tightly than particles with sharp edges and

move through relatively rapidly.

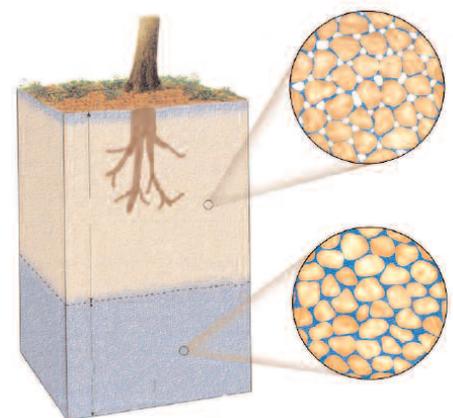
Under the land's surface there are two zones. The soil pores in the unsaturated zone, which is immediately below the land surface, contains air and only small amounts of water, much like a sponge that has been tightly rung out. Below this is the saturated zone where the pores and rock fractures are filled with water. The top of the saturated zone is called the water table. The water table may be just below or hundreds of feet below the land surface.

What is an aquifer?

Where groundwater can move rapidly, such as through gravel and sandy deposits, an aquifer can form. In an aquifer, there is enough groundwater that it can be pumped to the surface and used for drinking water, irrigation, industry, or other uses. Municipal groundwater wells need to be drilled into an aquifer in

Groundwater is connected to streams, lakes and wetlands

Aquifers get replenished by precipitation (rain and snow) that filters through the unsaturated zone. Aquifers can also receive water from surface waters like lakes and rivers. When the aquifer is full, and the water table meets the surface of the ground, groundwater can emerge on the land's surface as a spring or seep. 🐸



Water fills the soil pore spaces in the saturated zone below the water table while above, in the unsaturated zone, the pores contain air and water.

How Does Water Circulate?

Adapted from "Groundwater FlashFact" by US EPA

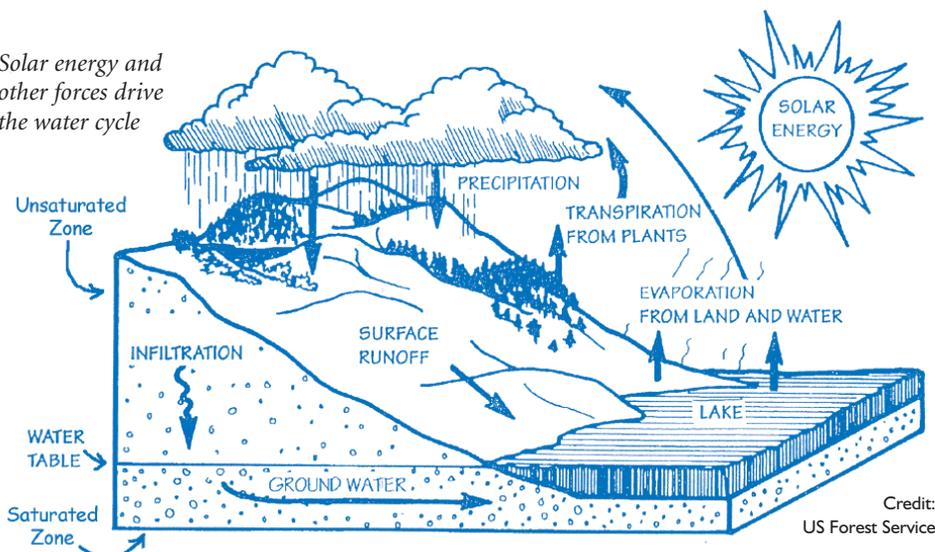
Surface water and groundwater are interconnected. Between rain storms, groundwater provides water to streams. When the water table is low, streams and lakes may replenish groundwater. This movement is part of the hydrologic cycle, the constant

with precipitation.

As rain falls, water begins to filter into the ground. Water infiltrates faster into soils that are mostly sand than into those that are mostly clay or silt. Almost no water filters into paved areas. Rain that cannot be absorbed

zone to the saturated zone, replenishing or recharging the groundwater. As areas of the unsaturated zone become saturated, the water table rises. At the same time, groundwater is moving through the saturated zone to groundwater discharge areas such as springs, seeps, streams and lakes. Water from both runoff and from groundwater discharge moves towards streams and rivers and may eventually reach the ocean.

Solar energy and other forces drive the water cycle



movement of water above, on, and below the earth's surface. The cycle has no beginning and no end, but you can understand it best by tracing it starting

into the ground collects on the surface, forming rivulets of runoff.

Water that enters the soil moves slowly down through the unsaturated

Some of the water will evaporate rather than reaching the ocean. Evaporation occurs when water from such surfaces as oceans, rivers, and ice is converted to vapor. Evaporation, together with transpiration from plants, rises above the Earth's surface. Transpiration is greatest during the warm months of the growing season. The uptake of water by plants is great enough that the water table typically becomes lower in the summer even when there is a similar amount of rain as in the other seasons. The combined water vapor from evaporation and transpiration condenses, and forms clouds. And the cycle begins again. 🐦

Why Should We Care About Groundwater?

While we live in a water-rich area, the water cycle reminds us that water is a finite resource.

Groundwater needs to be recharged if it is to continue to be available for drinking water wells and to feed streams. Optimizing the recharge of groundwater can slow down flooding during storms, a topic that will be explored in the spring issue of *Network News*. In addition to having enough water, we want to keep ground water clean. Once contaminated, groundwater is difficult and expensive to clean.

Here are ten ideas for what you can do to protect the amount and purity of groundwater. More details about these can be found in *Smart Steps of Clean Water*, available free to members, and to non-members for the cost of shipping and handling.

1. Dispose of chemicals properly.
2. Take used motor oil to a recycling center.

3. Limit the amount of fertilizer used on plants.
4. Limit the paved areas on your property so rain water can soak in.
5. Plant a rain garden to handle water as close as possible to where it falls.
6. Protect wetlands, which act as giant sponges that hold and slowly release water.
7. If you have a private drinking water well, test the water annually to make sure it is safe
8. Conserve water.
9. Support your municipality's efforts to protect groundwater
10. Encourage others to learn about groundwater.

These guidelines, though simple, are an effective way for each person to aid in the effort to preserve groundwater.

American Landscape at Its Best *continued from cover*

The Beverage of the Gods

In the aspect of consumer goods, the lake provides scenery, the fresh eco-environment for nurturing delicate wine grapes that are fermented and made into affordable fine wines that Cayuga Lake is known for, of especial importance are the fruits wines with their distinctive ester taste that make the region's wines so well-known. The wineries that dot the periphery of the Lake forms a trail that wine enthusiasts can follow as they search for the wine that most pleases their palates. This has changed my life in the sense that instead of showing guests to kitsch tourist places, the wine trail serves as an off-the-beaten track ready-made experience that gives all guests an undeniable vacation into a fantasy world of tasting beverages of the gods while enjoying a breathtaking scenery of the Lake, the sort of aesthetic pleasures that only poets can possibly conjure.

Angler's Delight.

Cayuga Lake also forms the habitation for numerous fishes to live in, making it possible for hobby fishers and anglers to catch some of the freshest and most beautiful fishes. Although not an avid fisher myself, the calming and therapeutic effects of watching people fish cannot be placed with a value. Bass, bullheads and

carps are just some of the fishes that are caught and, on one occasion, I was given a carp by a kind soul who had a particularly plentiful catch that day. While carps are not usual delicacies in Western culinary traditions, they are an invaluable contribution to Chinese cuisines, especially if steamed in the Teochew (Chaozhou) tradition with ginger and soy sauce. The serenity of anglers at the Lake anchors a sense of serenity and calmness, making an impact on the soulful element of my spiritual life.

Recreational Haven

Other than fishing, the Lake provides the scenic backdrop for picnics, playgrounds and other recreational facilities. Picking the right spot and laying out the picnic mat while enjoying pre-packed sandwiches, Thai noodles, sushi, red wine while enjoying the subtle understated beautiful of the serene Lake are heavenly pleasures. For those interested in taking a closer look at the waters, the boat launch provides this unique opportunity to do so. Kayaking and canoeing

are also possible through four public access points in Tompkins County. The co-existence of Nature with human activities are possible against this backdrop, making Cayuga Lake a unique recreational destination.

Celestial View

Cayuga Lake State Park offers the pinnacle or zenith of view for the Lake. From a bird-eye's perspective, at the top of the gentle slopes emerges the vast expanse of the Lake in full view. The sight so awe-inspiring that it has changed my perception and sensation of the infinite limitless scope of nature, making an immediate impact on the sublime and the sub-conscious. Life in its amorphous subliminal form is reconstructed in this humbling experience of visualizing the Lake in all its glory, especially in the sunrise and sunset.

The four seasons of Ithaca also ensures that the scenery of the Lake changes with temporality and the embrace of the Lake can take the form of a summer moderate warmth or a pure white snowy wintry landscape. All of which carries their own unique and idiosyncratic personality and outlook. The impact on my life is that the seasons make the picturesque manifestation of the Lake



This inviting view of Hibiscus Harbor and MacDonal Point remind us of summer pleasures of boating and swimming.

transitional. That the green leaves in summers can become maple red in the falls is a phenomenon to indicate the ever-changing aspect of life around the Cayuga watershed. The nature of life is mostly demonstrated by the cyclical format that the scenes around the Lake takes and therefore, affects one's life's moods and temperament.

In conclusion, Cayuga Lake watershed is a microcosm of wildlife diversity in North America. It also serves as entertainment and pleasure through its natural endowments that residents here are so fortunate to enjoy. An American heritage, it is symbolic of American natural landscaping and natural endowment at its best. Like all other heritage sites, it requires maintenance, care and good attention to ensure that the Lake remains pristine for the enjoyment of all and at the same time, function as a vital component of the ecosystem in Central New York. 🦋

Editors Note: First published in Urus, Spring 2005. Used with permission.

Lakefest 2006 a Great Success

By Judy Pipher, Outreach Committee

Planning is already underway for Lakefest 2007. The tentative date and location are Sat., August 18 at Cass Park in Ithaca. Save the date so you can enjoy a special performance by Compost Theatre and activities at the Children's Garden. Hope to see you there!

On Saturday, August 26, about 200 participants enjoyed the 9th annual Lakefest, held this year at Frontenac Park in the village of Union Springs. The setting, overlooking Cayuga Lake, was beautiful. First on the agenda was a picnic lunch, provided courtesy of Wells College, Tops Market (Auburn) and Wegmans (Ithaca) with dessert goodies provided by Watershed Network Board and Committee members. As we ate, we enjoyed the mellow tunes of Second Wind. Many door prizes were available – and participants selected the prizes they hoped to win. In the tent adjacent to the eating and performing area (main shelter) there were a number of very interesting and educational displays including two models that illustrated the movement of water. One showed how water moves below the land's surface and how groundwater is connected to lakes and streams (surface water). The other showed how

water pollutants can come from everyday activities on the land and with rain flow into the streams and lake.

In addition, we were delighted to welcome several new groups, including Seneca Meadows Landfill. Kids of all ages enjoyed puppeteer Tom Knight again this year, and the young ones read stories about water while Jack, of the Reading Education Assistance Dogs (R.E.A.D.) program listened. The Cayuga County Dairy Princess, Lindsay Young, and her ambassador, Annie O'Hara provided chocolate milk and cookies as well as coloring books and information on dairy health. Following these events 13 awards to "Lake-friendly Farms" were presented, and the annual Morehouse Award was bestowed to Judy Pipher by Claire Morehouse, in memory of her late husband Dave – a founding member of the Watershed Network, and an activist in promoting good watershed practices. Finally, the



Thirteen farms were recognized for their environmental stewardship

Watershed Network Board held its annual meeting. New members of the Board, Kevin Zippel and Dough Haith were welcomed. 🐾

We Thank All Those Who Donated Door Prizes

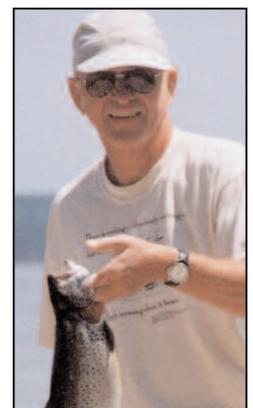
Bass Pro
Bill Shaw
Cayuga Lake Watershed Network
Cornell Bike and Pedestrian
Program
Diane Emmons
Long Point Winery
Second Wind
Sharon Anderson
Sheldrake Point Vineyard and
Café, Ovid
Tom Knight, Puppeteer
Treva Anderson
Trumansburg Village Greenhouse

Meet the Board

We periodically print biographies of members of the Board of Directors so that you can get to know the individuals that the Watershed Network depends on. The public is always welcome at our monthly Board meetings.

Doug Haith and his wife Ellie came to the area nearly forty years ago for Doug to do graduate work at Cornell. They stayed, and with their two sons and several dogs have swum, hiked, camped and fished much of Cayuga Lake and its watershed. They now spend a lot of time in the Ovid area of Seneca County, which Doug has come to appreciate for its great bicycling, fishing and sailing. Ellie loves the area for its dog walking options and farm produce. Doug teaches Environmental Engineering at Cornell, specializing in courses in Solid Waste Management and Environmental Systems. He has spent many years doing research on water resources problems and was the developer of the Generalized Watershed Loading Functions watershed model which has been used in many watersheds to study water quality problems produced by sediment and nutrients. Doug has recently directed his efforts to water

pollution and health hazards from pesticide use on lawns and golf courses. Doug has held positions as hydraulic engineer, project manager and senior engineer in several consulting firms, and has authored or co-authored 4 books, including textbooks on environmental and water resource systems analysis published by John Wiley & Sons and Prentice Hall. He was awarded the American Society of Civil Engineers' Walter L. Huber Civil Engineering Research Prize (1981) and the Wesley W. Horner Award (1988) for his research in environmental engineering. He also received the New York Association of Conservation District's Special Service Award in 1990. 🐾



Doug Haith displays a brown trout

ANNOUNCEMENTS

To register for any of these programs please contact the Watershed Network at manager@cayugalake.org or 607-532-4104.

Is There Reason for Concern? Explanations of a Preliminary Water Quality Study of Selected Finger Lakes

Tues, Feb. 6, 6:30-8:30 pm

Livesay Conference Room, Human Services Building, 320 West State Street, Ithaca

Residents and policy makers are invited to this program on the complex threats facing the Finger Lakes. John Halfman, Professor of Geoscience at Hobart and William Smith Colleges will summarize his preliminary investigation of water quality indicators from the seven central Finger Lakes, Honeoye, Canandaigua, Keuka, Seneca, Cayuga, Owasco, and Skaneateles Lakes, and reveal potential linkages between water quality and water quality protection legislation. All of the Finger Lakes are listed as threatened, stressed, or impaired by New York State Department of Environmental Conservation. Halfman's presentation will be followed up an update on water quality monitoring planned by

local groups including the Tompkins County Water Resources Council and the Watershed Network, the co-sponsors of the event.



Docks and Moorings:

A Forum for Municipalities

Thurs., March 29, 7:00-9:30 pm

New Fire Hall, Route 89, Fayette

Concern is growing about the enclosed buildings and two-story structures being constructed on the water as part of a dock. This program brings together sample ordinances, the experience of towns with ordinances already in place, and information on the legal framework that could allow municipalities to

pass ordinances. Time for discussion will follow the presentations giving officials the opportunity to explore the pros and cons of such ordinances. Co-sponsored by the Watershed Network and the Cayuga Lake Watershed Intermunicipal Organization. Registration required.

Spring Fling: Native Plants for Beauty and More

Wed., April 4, 7:00-8:30 p.m.

Cooperative Extension Tompkins County, 615 Willow Ave. Ithaca

Ephemeral bloodroot, brilliant purple asters, delicate maidenhair ferns and the vibrant fall leaves of chokeberry only give hints as the diversity and beauty of native plants. Dan Segal of the Plantsmen Nursery in Lansing will share the many benefits of incorporating native plants into the home landscape. Learn how to attract birds and butterflies, find the right plants for a rain garden and bring color to your garden. Free thanks to sponsorship of Plantsmen Nursery. Registration is required. 

The Mission... *The Cayuga Lake Watershed Network seeks to protect and improve the ecological health, economic vitality and overall beauty of the watershed through education, communication and leadership.*



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-  Education
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