

### Seneca Lake Area Partners in 5 Counties

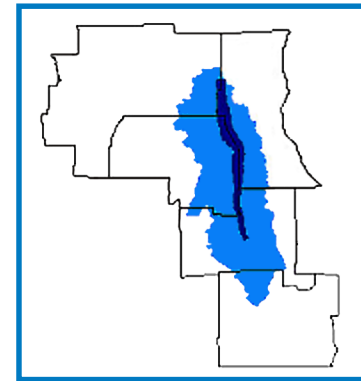
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### Current members include:

Chemung County Soil & Water Cons. District  
 Cornell Coop. Extension of Schuyler County  
 The Finger Lakes Institute at Hobart & William Smith Colleges  
 Genesee/Finger Lakes Regional Planning Council  
 Keuka Watershed Improvement Cooperative  
 Municipal Representatives  
 Ontario County Water Resources Council  
 Ontario County Soil & Water Cons. District  
 Schuyler County Soil & Water Cons. District  
 Schuyler County Watershed Protection Agency  
 Seneca County Soil & Water Cons. District  
 Seneca County Planning and Development  
 Seneca Lake Pure Waters Association  
 Southern Tier Central Regional Planning and Development Board  
 Yates County Soil & Water Cons. District



Spring 2010

# Seneca Lake Area Partners In Five Counties ~ SLAP-5

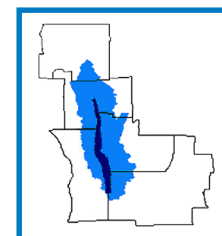
• Chemung • Ontario • Schuyler • Seneca • Yates

Municipalities, citizens and public agencies working together to protect Seneca Lake



There's good news and bad news, as the jokes begin. This issue of the SLAP-5 Newsletter contains both. The good news item is the awarding of grant funding to enable creation of a Watershed Management Plan. Bad news items include information about invasive insect species found in other parts of New York and the North East that threaten forest cover and water quality. Items for consideration include landfills, leachate, and a specific type of landfill: a monofill.

Retirements will change personnel in some key positions within the Seneca Lake Watershed. Marion Balyszak will be remembered for the energy, intellect and dedication she brought to her position as Executive Director of the Finger Lakes Institute at Hobart and William Smith Colleges. Robert Pierce, past Chair of the Ontario County Water Resources Council will be replaced as Watershed Inspector in the Town of Seneca by the services of Tad Gerace, Ontario County SWCD Water Quality Technician. Best wishes and our grateful thanks to both retirees for their excellent work in the protection and preservation of Seneca Lake.



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## Landfills, Leachate and Lakes

Garbage is not a new problem, nor is leachate. However, the character of garbage is changing; it contains ever more toxic materials and non-biodegradable substances. The quantity of garbage stockpiled in local landfills is currently large and keeps growing exponentially as garbage is imported into this area from other states and other regions of New York.

Leachate is landfill juice: fluid that has filtered



through or been released from the contents of landfilled waste. Leachate seeping from modern landfills is collected through a series of perforated pipes installed at the lowest level of the landfill.

Pressurized leachate recycling – collecting fluid and pumping it back through the landfill to encourage decomposition of deposited materials – is a common practice in larger landfills. Leachate must constantly be removed from landfill sites to prevent contamination of groundwater and surface water.

Constant monitoring of pumps and pipes is required to ensure proper operation of recycling and collection of leachate. Siltation of pipes from soil, biological clogging of the pipes because of microorganism growth and chemical precipitation (build up of material due to chemical reactions) may be problems. Pipe breakage from the weight of overburden and equipment loading must be prevented. Pipes must be resistant to chemical deterioration, oxidation and corrosion. As many hundreds of new chemicals are created annually, this is an ongoing challenge.

Locally, most leachate is trucked to municipal wastewater treatment plants, although pipelines to carry the liquid have been proposed in various localities. This is not a small-volume operation. Seneca Meadows sources report sending 10,700,000 gallons of leachate to treatment plants in Canandaigua, The Village of Seneca Falls, The Village Webster, The Town of Webster and The City of Watertown in 2008. Obviously, much of diesel fuel and road time is expended in managing leachate as well as energy used in treatment operations.

Well-managed wastewater treatment plants do an excellent job of removing bacteria and biosolids from sewage water. Nutrients such as nitrogen and phosphorus are reduced before the water is discharged into the receiving water body.

Concerns about leachate are more far-reaching than nutrients and bacteria. Other materials are present in leachate that sewage treatment plants are not designed to remove from the wastewater stream and may adversely impact water quality and human health and well-being.



Heavy metals and hazardous non-degradable organics such as pesticides and herbicides are carried in leachate. Medications, including those containing hormones that have been found to cause feminization of male fish and aquatic reptiles, enter the waste stream and consequently end up in landfill leachate. Chemicals from personal care products: shampoos, hand and body lotions and cosmetics that mimic human hormones have been detected in receiving waters downstream from sewage treatment plants. None of these compounds can be removed from wastewa-

## Asian Longhorned Beetles

These beetles and larvae attack many species of hardwood trees, causing crown die-back and tree mortality. All species of maple, ash, elm, willow, birch, horsechestnut, London planetree, mimosa and poplar trees are at risk of infestation.



It is a serious threat to urban and suburban shade trees as well as forest resources.

Adult beetle activity is most easily detected in the summer and early fall. Females chew 35-90 depressions (oviposition sites) in which to lay a single egg.

Larvae hatch in 10 to 15 days and tunnel through the layers immediately beneath the bark. After several weeks, larvae tunnel deeper into the tree to feed and develop over winter.

Large exit holes in the tree bark are characteristic signs of Asian Longhorn Beetle presence.



## Seneca Lake Watershed Management Plan

The City of Geneva, in partnership with others, will prepare a watershed management plan for the Seneca Lake Watershed, which will serve as a long-term strategy for the protection and restoration of water quality and ensure compatible land use and development. The watershed community has shown strong support for watershed planning; various partnerships and stakeholders have been cooperatively working since the mid-1990's. The watershed planning process will build upon these relationships and previous studies and reports, including *Setting a Course for Seneca Lake, the State of the Seneca Lake Watershed* (1999). The Seneca Lake Watershed Management Plan will establish a consensus among the watershed municipalities, state agencies, and nongovernmental organizations on actions needed to protect the lake's water quality. The plan will identify characteristics of the watershed, sources of impairment, priority projects and necessary actions. The goal is a formal municipal agreement, satisfactory to all watershed communities, to ensure implementation through the years.

The watershed management plan will be overseen by a Project Advisory Committee. SLAP-5 will be the core of the Committee with other stakeholders invited to bring all perspectives to the Committee. The Plan will be prepared by the Genesee/Finger Lakes Regional Planning Council, Southern Tier Central Regional Planning & Development Board, Finger Lakes Institute and Hobart and William Smith Colleges, with assistance from member county agencies, and organizations, and others through subcontracts with the City of Geneva. The three year project will cost \$305,000 with half the funding from the NYS Local Waterfront Revitalization Program (LWRP) and the remaining support provided by in-kind match from member organizations. The project began April 1, 2010 and will end March 31, 2013.

Please contact Tim Hicks, SLAP-5 Chair, to learn more about the project. Check the website for updates: [www.slap5.org](http://www.slap5.org).

### Hemlock Woolly Adelgid



*Adelges tsugae*, the hemlock woolly adelgid, is a fluid-feeding insect attacking hemlock trees throughout eastern North America. The egg sacs of these insects look like the tips of cotton swabs clinging to the undersides of hemlock branches.

Hemlock woolly adelgid was introduced from Asia into the Pacific Northwest in 1924. It was probably introduced into the northeastern US in the 1950s.

Hemlock woolly adelgid has two generations per year. All populations are made up of females that reproduce asexually. In early spring, overwintering females lay between 100 and 300 eggs in the woolly egg sacs beneath the branches. Mobile larvae, known as crawlers, emerge from the eggs in April or May to search for suitable feeding sites.

Wind, birds and mammals often spread crawlers to nearby hemlocks. Once settled at the base of hemlock needles, crawlers become immobile nymphs which feed and mature by early summer.

Mild winters can result in sharp increases in hemlock woolly adelgid populations. Biological controls are being investigated in hope of reducing the impact of adelgids.

### Emerald Ash Borer

Emerald Ash Borer larvae attack ash trees, creating extensive galleries under the bark, causing discoloring of leaves, canopy die-back and tree death.



Galleries are typically S-shaped. Adult exit holes are D-shaped.



Look for main trunk sprouting and larger than normal leaves as the tree tries to recover from the insect damage.



ter, nor are there state or federal requirements for testing to detect these substances.

Tests conducted by scientists active in the Finger Lakes and in other water bodies reveal small amounts of pesticides, hormones, heavy metals and other man-made chemical compounds present in lake water. While the amounts are usually well below the thresholds allowed by EPA, there are still concerns. Studies do not examine the effects more than one chemical acting on an organism at the same time.



Concentrations of some compounds (hormones for example) have been rising as one community's wastewater travels downstream to become another community's drinking water. Lake current movements and flow direction from the outfalls of sewage treatment plants determines concentrations and exposure time at various locations in the water body and in near-shore areas that are critical habitat for fish and recreational swimming areas for people.

Wastewater plants deal with leachate by dilution. Regular sewage entering the wastewater plant is metered, as is the leachate, and flow rates are adjusted to reach recommended dilution levels. The old motto of "The Solution to Pollution is Dilution," is put into practice in this case.

Dilution does reduce the concentrations of unwanted compounds, but little is known about the consequences of repeated exposures, cumulative body loading and interactions of more than one compound within the exposed organisms. Consequences of exposure differ greatly according to the body mass and stage of development of individuals: children are more at risk than adults.

How hazardous are the leachate chemicals passed through wastewater treatment plants? Nobody knows. The Toxic Substances Control Act (TSCA) listed 73,757 chemicals that were reported by manufacturers as being in commercial use as of February 2001. An unknown number of new chemicals are not among this total. Only new organic chemicals - chemicals that contain carbon - are added to the list. New chemicals that are exempt from the official listing process include inorganics, pesticides, food additives, some large polymer molecules, and any chemical produced in low quantities. There are no mandatory pre-market health testing or approval requirements under any federal law for chemicals in cosmetics, toys, clothing, carpets, or construction materials.

Professional toxicologists; some who are employed by the government or universities and many more who are employed by chemical companies, review and critique each other's work. Their results are used to form guidelines for the amount of additives acceptable in foods, the levels of pesticides judged tolerable in air and water, threshold limit values of toxic substances used in manufacturing and related issues. Sometimes they miss. The consequences of thalidomide use by pregnant women and the failure to identify the carcinogenic effects of vinyl chloride stand out as two examples.

Municipalities have the responsibility to educate their citizens and to provide services that expedite recycling and waste reduction. Hazardous waste cleanup days that allow residents to safely surrender unwanted hazardous materials have been successfully organized in many localities. Arrangements to return unused pharmaceuticals should be investigated. Municipal composting of yard waste and other suitable materials could greatly reduce landfill burden. Families and individuals have great a responsibility to reduce the amount of waste they produce. "Reduce, Reuse, Recycle" is a far better action motto for water quality protection in Seneca Lake than looking for a solution through dilution.

## Monofills

A monofill, a landfill containing only one uniform type of waste, is currently proposed for location in the Seneca Lake Watershed to accept waste from an aluminum recycling facility. There are both similarities and differences in siting, structure and operation of monofills and the more usual municipal landfills.

The structure of monofills is similar to that of municipal landfills. An impervious landfill liner at ground level, a leachate collection and removal system, a gas collection and venting system and a barrier layer at the surface are the main components of both. The liner required for an industrial waste monofill in New York is a double composite liner with primary and secondary leachate collection and removal systems.

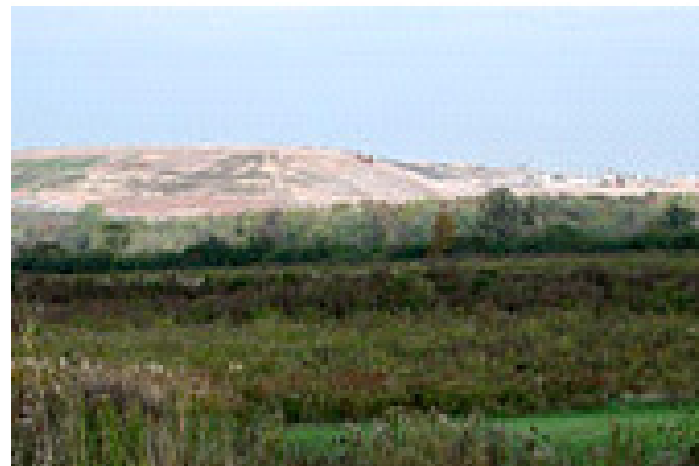
Monofills have some significant differences in usage and management. The waste interred is of a more uniform composition, so a uniform character of landfill gases and leachate is produced. Monitoring of leachate and gases is intensive, as the monofilled substances are usually more problematic in nature than household garbage. However, as there are only known components in industrial waste, monitoring can be narrowly focused on specific environmental threats.

Municipal landfills accept extremely diverse types of waste, which is dumped and compacted heterogeneously. It is impossible to know what substances are present or what reactions among the components may be generated by contact with other garbage or with leachate pumped through or originating within the waste. Monitoring and gas collection focuses on methane produced by decomposition of organic materials.

Siting requirements commonly include these specifications.

- The disposal site should be capable of being characterized, modeled, analyzed, and monitored.
- The disposal site should be selected so that projected population growth will not affect the disposal facility's ability to meet performance objectives.
- Areas having known unique/valuable natural resources should be protected.
- The disposal site should be well drained and provide sufficient depth to the water table.
- The disposal site should not be located where nearby facilities or activities could adversely impact the site's ability to meet performance objectives or ability to be monitored.

Decisions about landfills, monofills and other waste processing facilities are difficult. To date, 100% recycling of industrial or even household waste remains a goal for the future. Economics, employment, tax structure, property values, aesthetics, community character and protection of natural resources are only a few of the considerations that municipal leaders must balance when any kind of landfill construction or expansion is proposed. The best available information, technology and community leadership must be enlisted.



Photograph: Landfill in Seneca County

## Water Quality Connections: Invasive Insects

Forests and water are closely linked. Forests process the water that maintains agriculture, supplies aquifers, and sustains ecosystem functions. Forests and water resources are both managed to achieve multiple objectives and have close physical and biological connections.

Approximately 40% of the Seneca Lake watershed is forested to some degree. This has helped to protect water quality in the tributaries and in the lake.

Disturbances forests can significantly alter hydrologic processes. These changes can affect nearly all components of forest ecosystems. Surface erosion, slope stability, nutrient cycling, channel morphology and aquatic organisms, and the quantity and quality of water can change in response to disturbances in forests.

Forests have an organic surface layer that protects the soil surface and promotes infiltration. In most cases, water moves by subsurface pathways to streams. Because forest soils have high infiltration rates, water rarely flows over the ground surface as runoff. Reductions in leaf area—from fire, harvest, insects, or disease—and differences in leaf area among different forest types and ages, all affect hydrology.

Non-native invasive species that kill trees will change the species composition of forests and in doing so, may alter other aspects of forest habitats. Changing overstory species in a riparian habitat through can alter water quality in the stream below. For instance, hemlock stands help to sustain cool stream temperatures, and this cooling determines the composition of stream communities of aquatic macroinvertebrates and fish.

Woolly adelgid infestations have destroyed stands of hemlock in other North East watershed basins, contributing to water quality impairments in adjacent streams. Warmer water contains less oxygen to support aquatic animals, although many species of algae may flourish.

Although invasions by non-native species began with the European colonization of North America, they have increased at a high rate since 1900. International trade, typically moving from less to more developed nations, has been a source of many of the damaging invasive species.

Shipping crates made of raw wood harbor wood-boring insects such as the pine shoot beetle and the Asian longhorned beetle. Recent introductions of Asian gypsy moths on both the east and west coasts of North America have been attributed to insects clinging to cargo. Domestic movement of firewood from one area to another has spread emerald ash borers.

The primary defense against invasive tree-destroying insect species has been an informed public. Every Asian Longhorned Beetle infested tree discovered (and destroyed to prevent spread of the beetle) in the United States to date has been first identified by a member of the public.

Recognition of invasive pests, reporting of the infestation to the proper authorities: (and prompt response to the problem are the best defense for the watershed.

### To Report:

**Finger Lakes PRISM (Partnership for Regional Invasive Species Management)**  
[gsargis@tnc.org](mailto:gsargis@tnc.org)

**NYS Invasive Species Clearinghouse at Cornell, 585-395-2638**

**US Animal and Plant Health Inspection Service (APHIS) Information Hotline: 202- 720-2791**

*Below: Pine Bark Beetle*

