NJEC REPORT

Local Environment Matters

SUMMER 2018

Inside:

Ocean and river farming – It's a thing!

Vector-borne illness on the rise

Saving the Cowtown Rodeo
(Yep, it's in NJ!)

Director's Report

Water, water everywhere…

New Jersey has too much water, except when we don't have enough of it, and much of it is too dirty. After four years of varying degrees of drought, the rainy season has descended upon us with vigor. I know that rain isn't fun when it dampens weekend plans, but it has replenished NJ's aquifers and taken us out of drought.

That said, we are now battling flooding problems due to too much water. New Jersey has two compounding problems that lead to severe flooding problems. Primarily, we have a lot of development. Secondly, sea level rise is increasing the frequency and intensity of flooding, even on sunny days.

As the most densely populated state in the nation, New Jersey has a lot of hard surfaces, such as roads, sidewalks, and rooftops. Rather than soaking through, rain and snow melt rushes off those hard surfaces, picking up pollution along the way, and flooding streets, businesses, and basements as it travels toward the nearest stream.

Sea level rise is serving up new challenges to coastal and Delaware Bayshore communities. Even on sunny days, New Jerseyans are combatting full moon high-tide flooding. Some people with homes closest to the water have taken to constructing ramps onto their front porches so that they can park their cars out of harm's way from the intruding salt water.

The good news is that local actions to reduce flooding are working, gaining popularity and support. Green infrastructure is a highly effective, nature-based way of managing floodwaters or stormwater. Green infrastructure collects and retains flood water (tackling the "too much" problem), soaks water back into the ground where it can later be used for drinking (addressing the "not enough problem"), and filters pollutants that stormwater picks up as it travels across hard surfaces on its way to the nearest stream (getting at that pesky "too dirty" issue).

Green infrastructure is really simple. It's plants, preferably native plants. Trees, meadows and shrubs are nature's oldest stormwater management infrastructure.

ANJEC is proud to be working with environmental commissions throughout the state to construct raingardens with native plants that reduce flooding, beautify open spaces, and inspire community volunteerism.

Some of our recent green infrastructure project partners are the municipalities of Vineland, Upper Deerfield, Woodstown, and Pilesgrove. Please let us know if your environmental commission is interested in working with us on a collaborative grant to install green infrastructure – we're happy to talk about funding possibilities and project planning.

Green infrastructure is set to get a boost across the state with the *Clean Water and Flood Reduction Act* that is making its way through the State House in Trenton. The *Act* will authorize municipalities, counties, or other regional entities to voluntarily establish a stormwater utility and clean water and flood reduction fund. The fund will generate income from small fees assessed according to the amount of hard surfaces on properties, which will provide a sustainable funding source for installing and maintaining green infrastructure. If property owners want to

reduce their fee, they can do so by installing green infrastructure elements. Cities in forty states have enacted stormwater utilities legislation, including Philadelphia and New York City.

Garden State cities, including Newark, Hoboken and Jersey City, are actively installing green infrastructure to combat chronic flooding problems, beautify their communities and enhance quality of life for residents and businesses. Newark DIG (Doing Infrastructure Green) has established a winning formula for building positive community engagement and pride through volunteerism as a co-benefit of installing green infrastructure.

If you would like to learn more about green infrastructure or connect with community members who are succeeding at reducing flooding, and ensuring that we have enough clean water to meet all our needs, contact us at *info@anjec.org*, (973) 539-7547, @anjectweets, or ANJEC on Facebook.

Jennifer M. Coffey
Executive Director

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ANJEC REPORT
Local Environment Matters

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565 MUNICIPALITIES ..... ONE ENVIRONMENT

Executive Director ..... Jennifer M. Coffey
Editor ..... Julie Lange Groth

The Association of New Jersey Environmental Commissions is a private, non-profit educational organization serving environmental commission and open space committee members, concerned individuals, non-profits, and local officials. ANJEC's programs aim to promote the public interest in natural resource preservation, sustainable development and reclamation and support environmental commissions and open space committees working with citizens and other non-profit organizations.

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On the cover: *The Pine Barrens Tree Frog could soon be NJ's official state amphibian.*
Photo by Jay Ordeicka

Bounty under the sea

By **Sheila Baker Gujral,** ANJEC Resource Center

The Garden State is home to 130 miles of Atlantic coastline and 1,792 miles of tidal shoreline including the Delaware Bay. New Jersey's bounty does not end at the shore, however. In 2015, fisheries in New Jersey hauled in $166 million worth of commercially caught fish and shellfish. New Jersey fisheries lead the country in catching sea scallops, ocean quahogs (clams), surf clams, and Atlantic Mackerel. New Jersey is also a top recreational fishing market, third after Florida and North Carolina. In 2013 (the most recent data available), there were 59 fish farms with nearly $14 million in aquaculture sales.

I'd like to be under the sea…

The Jersey Shore has more to offer than sun, sand, and seaside. The coastal waters are home to a vibrant aquaculture and fishing industry, which provides sustenance, both alimentary and financial, to a large portion of New Jersey residents. The economic influence reaches even farther, as there is considerable direct employment that results from the seafaring jobs – seafood processing, boat maintenance, transportation and marketing, as well as legal, accounting, consulting, and insurance services.

New Jersey's fishing and aquaculture industries contribute more than $1 billion to the state economy annually, according to the NJ Sea Grant Consortium. The commercial fisheries include a wide variety of finfish and shellfish. Aquaculture is the farming of aquatic life forms such as fish, shellfish, and plants. In New Jersey, the majority of aquaculture farming is shellfish production, such as clams and oysters.

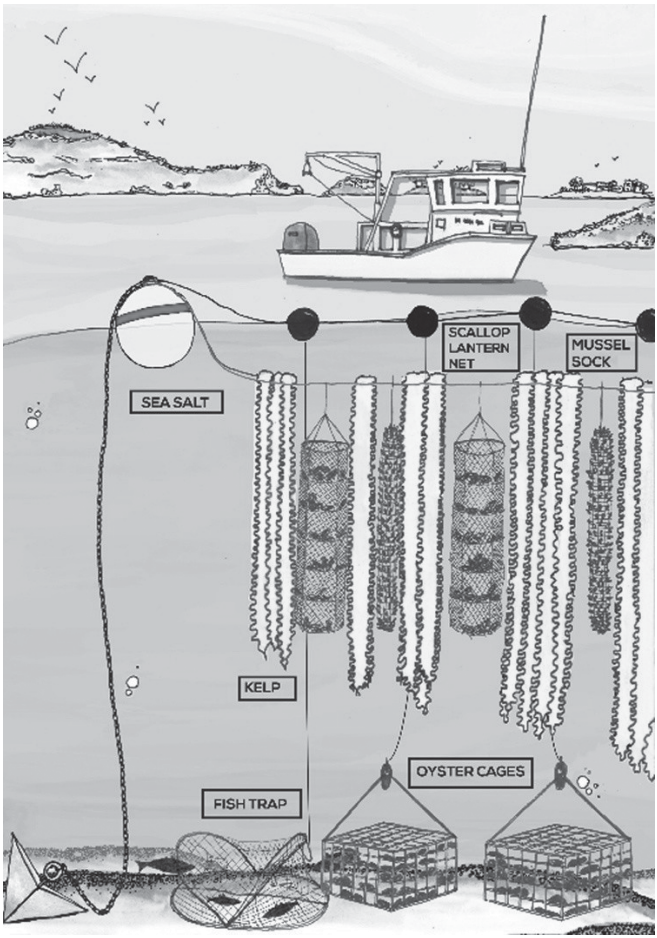
In addition to traditional commercial fishing operations, there are some community supported fishery (CSF) programs (and shellfish co-ops) popping up in New Jersey. CSFs function similarly to CSAs (community supported agriculture); people buy shares of locally harvested, responsibly grown fresh seafood. By having customers purchase their shares ahead of time, fishers are able to receive a fair price for their catch and plan accordingly so they can remain good stewards and not overfish the ocean. Economic stability, environmental stewardship, and strengthened relationships between people and the food they eat are three of the major benefits from this arrangement.

For those who would like to hone their skills and explore opportunities in aquaculture, there are educational opportunities. Haskin Shellfish Research Laboratory of Rutgers offers two college level courses in Aquaculture, High School Students in Aquaculture Techniques (VoTech), and Promoting Oyster Restoration through Schools (PORTS). It also offers research internships for undergraduates. Stockton University and the Rutgers Cooperative Extension also offer courses in aquaculture and commercial fisheries. The New Jersey Aquaculture Innovation Center at Rutgers University cultivates disease resistant seed oysters in its effort to revive the oyster industry in the Delaware Bay. It also supports scientific research and provides entrepreneurs with a business incubator for pilot projects.

In an octopus's garden in the shade…

Ocean farming is not just about growing fish and shellfish. A new trend of kelp farming is transforming the way we look at aquaculture. Seaweed is gaining popularity in the US and has a strong market in Japan, where food vendors are looking for seaweed not raised in proximity to the Fukushima Daiichi nuclear power plant (which was disabled after suffering radiation leaks and permanent damage following an earthquake and tsunami in 2011). The nutritional value of kelp is very high – it's a natural source of vitamins A, B, C, E, essential amino acids, iron and protein. It also has the highest natural concentration of calcium in any food (10 times more than milk). Growing kelp requires no inputs, such as fertilizers or pesticides, and no land needs to be cleared.

According to the World Bank, the result is a negative carbon footprint, meaning it gives back to the environment more than it takes out. Kelp absorbs five times more carbon than land-based plants and pulls nitrogen from the water; it is also a more efficient biofuel source. About half of seaweed's weight is in oil, which can be used to make biodiesel. It is the fastest growing plant in the world (it can grow nine to 12 feet in three months) and can produce over 2,000 gallons of biofuel per acre annually, which is five times as much per acre as corn and almost 30 times more per acre than soybeans.



Vertical farms grow a mix of seaweeds and shellfish.
Illustration by Stephanie Stroud

We would be warm, below the storm…

Some interesting new approaches are being developed to grow food in the water while minimizing the environmental impacts (antibiotics, pesticides, polluted waterways). Nemo's Garden in Noli, Italy, is an experimental underwater project of scuba gear company Ocean Reef Group. It consists of a number of underwater biospheres that allow for underwater cultivation of plants (such as basil and tomatoes) where temperatures are more stable, the biospheres are less subject to weather and there is no need for pesticides or other chemicals. The underwater domes can be monitored in person or remotely (and you can sometimes watch a live feed and lots of cool videos on their website at *nemosgarden.com*.)

At Veta La Palma in Spain, a marshland that

was formerly drained to raise cattle has been re-irrigated with water from the Atlantic Ocean via the Guadalquivir River. The resulting natural filtration process allows for the cultivation of fish in near pristine conditions. A delightful side effect is that it now attracts over 250 species of birds, making it the largest bird refuge in Europe (*www.vetalapalma.es/index.asp?LG=2*).

Here in the US, a new concept is being promulgated in southern New England called 3D Farming. It's a form of integrated multi-trophic agriculture (IMTA), a diverse polycultural approach to ocean farming which consists of vertical farms that grow a mix of seaweeds and shellfish. The farm sits below the surface and the entire column of water is used for food production, with the kelp hanging from the top level, and tiered scallop nets and "mussel socks" hanging from the same rope. At the floor level are oyster cages and fish traps. (See graphic on page 5).

There are no additional inputs required, and the seaweed and shellfish have a positive impact on the environment as they filter carbon and nitrogen from the water. They also help reestablish natural reefs, which provide protection from violent storms while helping increase the resiliency of the shoreline. GreenWave in Connecticut is a nonprofit run by ocean farmers and fishermen that is spreading this ocean farming model and offering support to anyone who wants to start their own 3D vertical farm.

"Our farms are open source: anyone with 20 acres, a boat, and $20,000 can be up and running within one year," says Bren Smith, founder of GreenWave. Their GreenWave Reefs consist of 25 3-D ocean farms, clustered around a seafood hub and hatchery, and surrounded by a ring of institutional buyers and entrepreneurs.

So far GreenWave has supported 20 farms, with eight people in their Farmer-in-Training program, and 10 new farmers starting training in July. The farms are vertical, so the footprint is smaller. "My farm used to be 100 acres," Smith says. "Now it's down to 20 acres, but it produces much more food than before." In 20 acres he produces 117,000 pounds of kelp and 440,000 pounds of shellfish annually. There is no need for agrochemicals and the kelp and shellfish clean the water and sequester carbon. In addition, some of the kelp is being used as an organic plant-based fertilizer on nearby land-based farms. The farm is also exploring kelp as a form of livestock feed, which reduces the methane output of cattle by 90 percent, another greenhouse gas based benefit.

There are lots of opportunities in the realm of aquaculture. Polycultural farms, where different species of plants and animals can be bred together without chemical inputs, offer opportunities for diversification of species farmed, biofuel production, climate mitigation and shoreline resilience. The permitting required for these types of operations overlaps and involves multiple agencies. Two New Jersey bills (A-793 and A-794) passed at the end of 2017 streamline the permitting process for aquaculture, making it easier for these projects to get off the ground and into the ocean.

More information

"NJ Legislation Assisting Oyster Producers Signed Into Law, Promotes Aquaculture" - *https://sebsnjaesnews.rutgers.edu/2017/01/van-drew-bills-aiming-to-help-oyster-producers-become-law/*

Thanks to ANJEC member communities

We are grateful to the thousands of volunteers serving as local officials in more than 260 municipalities and counties that are members of ANJEC. These dedicated people - from municipal and regional environmental commissions and green teams to open space committees, planning boards, governing bodies, shade tree commissions and zoning boards - dedicate their time and efforts to assure a clean environment and high quality of life in their communities throughout our State. Thank you!

Open Space Stewardship Grants for 2018 support local open space projects

By **Elizabeth Ritter,** ANJEC Deputy Director

For the sixth year, ANJEC is providing funding for ANJEC Open Space Stewardship Grants. This round of funding saw 18 environmental commission (EC) projects selected from a pool of over 55 applications. The funded projects include a wide variety of activities such as:

Cape May water tower beautification project ribbon cutting

- a demonstration garden along the Rahway River;
- trail maintenance and improvements;
- community and pollinator gardens; and
- invasive species removal and awareness projects.

No cash match is required for the grants, which range from $500 to $1500. Projects require an in-kind labor contribution of at least 80 hours from the commission and other volunteers. Many times that amount of time is often logged by ECs working alongside community groups and volunteers who help with physical labor or even donate professional skills. The funded projects are often part of larger initiatives that may include funding from additional sources. Receiving a grant can sometimes encourage the community to plan even more activities.

ANJEC remains committed to these worthwhile projects and all the enthusiasm and community goodwill they generate.

The primary objective of the Open Space Stewardship Grant Program is to increase residents' awareness and appreciation of local open space, ultimately increasing public support for open space stewardship. Another objective of the program is calling attention to ECs who accomplish untold amounts of important work in their towns, but often operate under the radar. The grant program requires grantees to include community outreach and promotion/ marketing of their projects through

activities such as press coverage, social media and website postings, event attendance, signage, brochures and other items to bring attention to the projects. It is essential for a commission to continually affirm its value as a community resource, so the town will trust and support the group's efforts and programs.

The 2018 grantees are:

Andover Township – *Trail map & guide*
Buena Vista Township – *Reestablish Michael Debbie Park Nature Trail*
Clinton Town – *DeMott Park native habitat*
Fanwood Borough – *Nature Center boardwalk extension*
Galloway Township – *Invasive species awareness campaign*
Gibbsboro Borough – *Blueberry Hill and Pole Hill Park development*
Hammonton Town – *Invasive species removal and pollinator garden*
Hawthorne Borough – *Gateway to the Passaic River*
Hightstown Borough – *Rock Brook Wetland Learning Center*
Hopewell Township – *Piney Point Trail*
Island Heights Borough – *Children's garden*
Millburn Township – *Native hedge row at Lackawanna Place*
Montgomery Township – *Pathways logo and signs*
Rahway City – *Demonstration garden along Rahway River*
Ridgefield Borough – *Nature center trail cleanup, beautification*
Somerville Borough – *Girl Scout butterfly garden*
Teaneck Township – *Busy Bees Pollinators' Paradise*
Verona Township – *Community center rain garden.*

ANJEC's Open Space Stewardship Grant Program is underwritten by the Sandy Batty Grant Fund, established in 2014 through a fundraising campaign to commemorate 27 years of service by ANJEC's retiring executive director and by generous donors like you.

ANJEC is always looking for additional sources of revenue to support grants for environmental commissions. If your organization would like to hold a fundraiser to support the grant program, or you would like to make a donation, please contact ANJEC at 973-539-7547.

ANJEC's 2018

Environmental Achievement Awards

To be presented at the 45th Annual Environmental Congress on October 12

Mercer County Community College

Deadline: Must be received by September 7, 2018

Email entries to i*nfo@anjec.org*

For categories, application form and additional details go to *www.anjec.org* or call ANJEC at (973) 539-7547

By **S.T. Carroll,** ANJEC Volunteer;
N. Dini Checko, ANJEC Resource Center; and
Jillian Madsen, ANJEC Intern

New life for what's broken

Have you ever thrown away a broken item because you didn't know how to fix it? Or because the cost of repair was greater than the value of the item? Well, you are not alone. All around the world, our landfills and recycling centers are filled with items that can be easily fixed and given a new life.

Last year, a collaboration of South Orange Village and Maplewood (SOMA) started Repair Café to reduce unnecessary waste from discarded items that could be returned to useful service. SOMA joined an international movement of Repair Cafés that bring community members together in a new fun way that's social and productive.

The first Repair Café was organized in Amsterdam in 2009 by Martine Postma, who strives to bring sustainability to the local level. Very quickly, this idea has taken hold and now there are more than 1000 locations worldwide.

SOMA took the concept a step further by enlisting senior citizens to apply their skills and knowledge to repair broken items. In fact, funding to purchase the Repair Café startup kit, which included press release templates, liability contracts and other resources, came through another SOMA initiative called Two Towns for All Ages from the Grotta Fund for Senior Care.

Recognizing the increasing number of residents over 60 and the desire to keep long-term residents in communities, Two Towns for All Ages fosters healthy aging and enables residents to age in place. Repair Café is one of the programs that promote those goals.

Cathy Rowe, coordinator of SOMA, said this inter-generational event brings together people of all ages and levels of expertise together to repair and save beloved items, while also helping to keep things out of landfills. The first event in October 2017 was such a success that they followed up with another event in April 2018. So far, they have repaired 126 items brought to them by the 101 people that attended. Repaired items ranged from lamps to computers.

South Orange Environmental Commission Chair Bill Haskins, seated, at the SOMA Repair Café

Lorraine Graves, South Orange Village Environmental Commission (EC) member, shared the story of a young woman who worked with a local tailor to adjust her dress for a dance that same evening. The fittings happened in real time and all it took was a donation.

Repair Cafés do not take jobs away from professional tradespeople. This is an opportunity to involve community members that may be sidelined and may even inspire younger generations to learn how to fix items themselves. As a society, we are quickly forgetting how to fix things, and those with practical skills need to be appreciated and valued.

Among the things South Orange Village EC Chair Bill Haskins helped to fix was an antique French iron, and he observed that people tended to bring older possessions. He wondered if people assumed that newer products could not be repaired. He recommended exploring what kinds of purchases tend to be thrown away most quickly and whether they can, in fact, be repaired.

Sustainable Princeton also started offering Repair Café/Maker Space workshops last year to fix items such as broken bikes and cracked chair legs or to upcycle old clothing.

Part of the reason people toss out broken things without considering fixing them is that most new items are built for obsolescence and manufacturers often don't provide technical information. New Jersey's *Fair Repair Act (A4934),* introduced in 2017 by State Assemblymen Paul Moriarty and Ralph Caputo, aims to address this problem and help to revitalize repair businesses. It requires manufacturers to provide owners and independent repair businesses with access to service information, diagnostic tools, and affordable replacement parts. Sign on to support this bill at *newjersey.repair.org*.

For more information:
https://repaircafe.org
http://www.somatwotownsforallages.org

– N. Dini Checko

At Dunkin Donuts on the SHU campus, a student signs a pledge to use reusable cups and mugs

Weighing in on food waste

The past year has been one of sustainability for students at Seton Hall University in South Orange. Julie Schneider and Krista Georgalas, both environmental studies majors at the University, partnered with the South Orange Environmental Commission (EC) to put together a public education campaign as a part of their senior capstone project in an effort to reduce food waste on campus.

The first step in their project was to calculate the amount of food waste that is produced on campus. Nancy Oliver, an employee of Gourmet Dining Services, estimated that 4,000 pounds of food is wasted per week. To confirm this data, Schneider and Georgalas performed a food waste audit in the school's cafeteria during dinner time. They collected a sample of 100 plates by scraping the unwanted food off of each plate and weighing the leftovers on a scale.

The next step on the pair's agenda was to create awareness among students and staff about the amount of food waste produced on campus, along with its environmental impact. Schneider and Georgalas achieved this by conducting on-the-spot interviews with students in the cafeteria. In addition to informing them of the major food waste problem on campus, Schneider and Georgalas also asked students why they took food they knew they'd be unable to finish. One of the interviewees stated that she takes three plates each time she goes into the cafeteria because she does not think she will like everything on her plate and prefers to have options. In response, Schneider and Georgalas advised the student to only take one plate at a time with small tasting portions.

Schneider and Georgalas recognize that their efforts to spread awareness about the impact of food waste on the planet need to be implemented on a larger scale in order to improve the state of the environment. The ultimate way to prevent food waste is through source reduction. Producers must reduce the volume of surplus food generated by producing an amount of food that is closer to what is needed. However, this will never be achieved as long as consumers are uninformed about the wasted energy, depletion of freshwater resources, and methane emissions that are associated with the massive amount of food waste produced in the US.

Here are a few ways you can adjust your behaviors in order to lessen the food waste crisis:

- When grocery shopping, buy only what you need.
- Avoid overserving food by dishing out smaller meal portions or using smaller plates.
- Properly store food to prevent spoilage and maximize food lifespan.
- Donate your excess food to your local food bank or charity.
- Start composting food waste.

– Jillian Madsen

Sustainable yard care matters

The Maplewood, Millburn and South Orange Green Teams have jointly initiated the Re:Yard program, a sustainable yard certification project that recognizes best-in-class yard care practices. The program consists of 27 actions; each carries a point value ranging from 1 to 4. The maximum number of possible points is 58. There are different levels of certification: Member status for yards with 0 to 22 points; Bronze level for 23 to 35 points; Silver for 36 to 47 points; and Gold for 48 to 58 points. Participants receive a small lawn sign for their yards.

Points are awarded based on the honor system. Each participant receives a Re:Yard Checklist and adds points to the checklist wherever the yard meets action requirements. The participant submits the checklist and then receives an email from the Green Team about delivery of the lawn sign marking the level of participation.

There are six categories of actions listed in the Guidelines section of the Re:Yard website: Site and Soil; Water Use and Water Quality; Energy and Air; Plants and Animals; Materials and Resources; and Beyond the Yard. The actions range from simple to quite complex. (*www.reyard.org/*). The site provides an abundance of information about each action, how to get points and available resources. One of the simple but significant actions is "Air Quality." Participants can earn:

- one point by not using any equipment (gas-powered leaf blowers, lawn mowers and other powered devices) that produce unfiltered emissions or smoke-forming pollution;
- one point by not using any chemicals or other additives that may become air-borne and have health or environmental impacts.

The "No Above-Ground Irrigation" action is either very simple or quite complex. It's simple to implement if the homeowner elects to do no irrigation of a property, although it requires careful selection of plants that will survive without watering.

The Re:Yard program helps homeowners practice sustainable yard care.

But the alternative approach, drip irrigation, can be quite complex and normally requires professional installation and maintenance. Drip irrigation uses 30 to 50 percent less water than conventional watering methods.

The most comprehensive and probably most difficult Re:Yard action is "Reduce Carbon Footprint with Smarter Yard Care." It addresses the costs and emissions caused by conventional lawn care methods. The four requirements for this action (each worth 1 point) are:

- Do not use gasoline-powered machinery, tools or equipment for regular yard care.
- Replace lawn with native or adaptive plant species that increase the ability of your yard to sequester larger amounts of carbon. (The carbon capture capacity of grass is.46 tons per acre, for trees 2.5 tons, and for shrubs, bushes 1.25 tons).
- Eliminate all synthetic chemicals.
- Eliminate all irrigation from municipal-based systems.

These three actions are just a sample. Re:Yard is a really good program with worthy goals and an effective way to energize and involve a community

– S.T. Carroll

ANJEC'S 45th Annual

Environmental Congress

Friday, October 12, 2018

9:00 am to 4:30 pm
Mercer County Community College,
West Windsor, NJ

Highlights include:

- Exciting workshops on important environmental topics
- Exhibits from New Jersey Nonprofits
- Electric Car Ride & Drive
- New for 2018: FARMER'S MARKET
- 2018 ANJEC Environmental Achievement Award presentation

Enjoy a day jam-packed with
information and resources you can use!

Visit the ANJEC website *(www.anjec.org)* to register.

The *Open Public Meetings Act:* **What ECs need to know**

By **Julie Lange Groth,** *ANJEC Report* Editor

The *Open Public Meetings Act (OPMA)*, commonly referred to as the "Sunshine Law," establishes the right of all citizens to have adequate advance notice of all public meetings and the right to attend meetings at which any business affecting the public is discussed or acted upon. – N.J.S.A. 10:4-6 to 10:4-21. This law applies to any state, county, or municipal body of government that has legal authority to vote on public matters or to spend public funds. This includes environmental commissions (ECs). Sunshine Law rules apply when an EC meeting is:

- open to all the EC's members,
- attended by an effective majority of the members, and
- intended to discuss or act upon public business.

This law applies even when the meeting is conducted by teleconference, email, social media or other electronic communications. The *OPMA* also specifically prohibits the EC from trying to avoid its requirements by not inviting enough of its members to comprise a quorum.

Adequate notice requirements

The law requires that ECs give the public adequate advance notice of all its meetings by either an "annual notice" or a "48-hour notice," which must be:

- prominently posted at the municipal building or other public place reserved for such announcements;
- advertised to two newspapers in time for publication 48-hours before the meeting;
- filed with the Municipality or County; and
- mailed to any person upon request.

The "Annual Notice" containing the time, date, and location of each meeting must be provided within seven days of the town's annual reorganization meeting, or by January 10 if there is no reorganization meeting.

A "48-Hour Notice" is required when an EC wants to convene a meeting that has not been listed on the annual notice of scheduled meetings. It also must contain the time, date, location and, to the extent known, the agenda of the meeting.

Even in the case of emergency meetings, the courts have found that there is very

rarely ever an emergency so dire that a meeting without proper public notice is appropriate.

EC meetings must be open to the public, and while most ECs do welcome public comment, the OPMA does not specifically entitle members of the public to participate in the meetings.

Rules governing closed session

The only way municipal bodies may exclude the public from portions of a meeting is by declaring an ""executive" or "closed session." This practice is more common during council meetings and less so at EC meetings.

Prior to going into executive session, the public body must first adopt a resolution at an open public meeting indicating what matters will be discussed and when these discussions will be disclosed to the public. Recognizing the potential for misuse of closed sessions, the New Jersey courts have strictly construed some exceptions in an effort to further the legislative intent of providing open public meetings. Here are the subjects that can be discussed in closed session:

1. Any matter considered confidential by federal law, state statute, or court rule;
2. Any matter in which the release of information would impair the receipt of federal funds;
3. Any material that would constitute an unwarranted invasion of individual privacy if disclosed;
4. Any discussion of the terms and conditions of a collective bargaining agreement, including negotiations leading up to such an agreement;
5. Any matter involving the purchase, lease or acquisition of real property with public funds, the setting of banking rates or investment of public funds where disclosure of such matter could adversely affect the public interest;
6. Any tactics and techniques used in protecting the safety and property of the public and investigations of possible violations of the law;
7. Any pending or anticipated litigation or contract negotiations in which the public body is or may become a party, and any matter falling within the attorney-client privilege;
8. Personnel matters related to the employment, appointment or termination of current or prospective employees, unless all individuals who could be adversely affected request, in writing, that the matter be discussed at a public meeting; and
9. Any deliberations occurring after a public hearing that may result in the imposition of a fine or the suspension or the loss of a person's license or permit.

Record keeping

The Law requires an EC to keep reasonably comprehensible minutes of all its meetings, showing the time and place, the members present, the subjects considered, the actions taken, the votes of each member and any other information required by law to be recorded by minutes. These minutes are to be made promptly available to the public.

The *Sunshine Law* requires that a statement be made at the beginning of each meeting and entered into the minutes indicating that adequate notice has been provided (specifying the time, date, and manner in which the notice was provided), or that adequate notice was not provided and an explanation for the failure of public body to provide adequate notice.

Failure to comply

There are serious consequences for ignoring *OPMA* requirements. According to Frank Marshall, NJ League of Municipalities Staff Attorney, failure to observe these rules can result in completely voiding the action of the governing body and "such remedies as shall be necessary to insure compliance with the provisions of [OPMA]." (NJSA 10:4-16). One example of "other remedies" being issued by the court is mandating a public body make meeting minutes available no later than 45 days

after the public meeting. (Kean Federation of Teacher v Morell, 448 N.J. Super. 520, cert. granted)

More information

- *Open Public Meetings Act – www.njslom.org/DocumentCenter/View/520/The-Open-Public-Meetings-Act-PDF*
- Public records and email (retention and transparency) – *https://www.njslom.org/DocumentCenter/View/2930/Email-Management-Tips-Traps-Tricks-Carl-Neiderer-PDF*

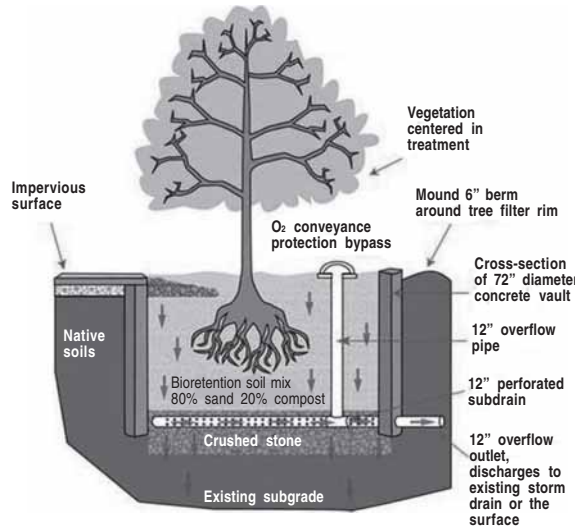
Urban tree health – The Ridgewood experience

By **Andrew Lowry,** Ridgewood Shade Tree Commission

A few years after re-establishing the Ridgewood Shade Tree Commission, members turned their attention to the trees growing in the downtown area. Ridgewood is basically an urban area with trees planted in small tree wells surrounded by concrete sidewalks. We noticed that while some of the trees were thriving, they were in the minority. Many were not prospering.

We questioned why our urban trees would have a lower survival rate and look less healthy than those in much more congested, polluted and stressful cities such as New York or Boston. That led us to explore the subject of urban tree survival.

We are novices at this point. However, we think we have learned a bit. Most of our learning has come from a few excellent articles, professionals (either academic or with hands-on experience) or from the book, *Trees in the Urban Landscape* (by Peter Trowbridge & Nina L. Bassuk, Wiley, 2004), which seems to be the bible on the subject. There is a great deal of information available and accessible.



Tree boxes are a green infrastructure stormwater control measure designed to collect the first flush of stormwater and treat it prior to discharge into the storm sewer system or to the subsoil.
From University of New Hampshire, Stormwater Center

A few important insights

Many factors contribute to the survival and flourishing of urban trees. Location, species planted, light, soil quality, stresses and water availability are all factors. It seems that if you start with a species that is well adapted to an urban environment, then the next most important thing is how much water it gets. This is especially important in the first few years after planting but continues to be a factor throughout the tree's life.

Trees that are not watered at the beginning often die and ones that don't get enough during their life are often stunted or disease-prone. This is directly related to the fact that a typical tree well usually contains about 20 to 25 percent of the cubic feet of soil a large street tree needs to thrive.

Trees in tree wells depend on a very small surface area for the rain to contact the soil. Some trees find ways around the problem by sending roots that tap underground sources such as sewers, water pipes or streams. Others may benefit from nearby residents, landlords or municipal staff who regularly water. Those that rely purely on rainfall that reaches a 5 by 5-foot tree well have a hard time thriving. This is particularly true because the rain that gets to the tree well does not always reach the roots of the tree. Compacted soil, matted mulch, and the soil structure itself may cause the water to run off into the gutter.

Tree well design itself plays a factor. In Ridgewood for example, our wells are surrounded by a ring of mortared bricks that sit above the sidewalk level. Initially designed to contain the soil, they inadvertently prevent any water from running from the sidewalk into the well. This probably makes a bad situation even worse.

There is no single tree well design that has been adopted everywhere. However, certain elements appear to be important, such as having the soil level below the sidewalk grade. In some cities an iron grate is used to maintain an even, non-trip sidewalk level. The grate lets in rain and also reduces soil compaction as people aren't walking on it. Another alternative is to mulch the recessed tree with a porous material that does not compact (gravel, shredded rubber mulch, porous manufactured coverings designed for the purpose or crushed shells). The important thing is that the rain water can get into the well and be absorbed.

Ridgewood's experiment

We have only started the experimentation process. We excavated a tree well to see the conditions below ground. They were pretty bad soil-wise, but there were no problems with utility lines that had been marked out. We have also planted four "test" trees in mostly replaced soil, removed brick water barriers and installed drains that facilitate surface water getting to the roots. The trees will be regularly watered all summer.

Longer term, we are looking at three basic approaches to improving the trees in our downtown. For existing trees that are doing pretty well, there is little that can be done to help them without potentially injuring them. So we look to remove any barriers to water reaching the tree well, making sure the trees are regularly trimmed if needed, and being sure to get them extra water, especially during dry periods.

Where trees have died, we remove the stump, remove water barriers and replace the soil with a much more porous blend suited to the species. If possible, the tree well might be expanded by removing a concrete slab or two if the sidewalk and town budget permit. In that case, we would again remove the soil or at least amend it.

New construction – We have not had any experience with this, but there are many technologies which have been developed to provide space for root growth and rain water absorption and that allow hard surfaces like sidewalks to be fully supported. Structured soil, developed by Cornell University 20 years ago, can be placed under concrete sidewalks to greatly increase the area into which tree roots can grow. Tetra Cells, which are essentially highly engineered plastic open box-like structures, provide the same kind of hard surface support as well as extra room for root growth.

A wealth of information and technologies are available. However, finding the best solution often requires an expert with experience that general landscapers and most municipal employees in smaller cities do not have. To enlighten our own process, we have had a couple lectures from academics and experienced professionals and have done some research. We expect to work with an urban forestry expert this summer and fall.

More information

Rutgers – Green Infrastructure Practices: Tree Boxes, *https://njaes.rutgers.edu/fs1209/*

Vector-borne illness is a growing threat

By **Jody Carrara,** ANJEC Project Director

When my family moved to Cumberland County over 30 years ago, you could tell what month it was by the insects that swarmed you. April was gnats, May was strawberry flies, June was black flies, July was green heads and horseflies...and thankfully dragonflies and birds ate all of the above! Mosquitoes came out at dusk and you had to dress properly when hiking to avoid ticks. There were only a few diseases that could be transmitted to humans by insects, like West Nile virus and Lyme disease, and they were fairly uncommon in New Jersey.

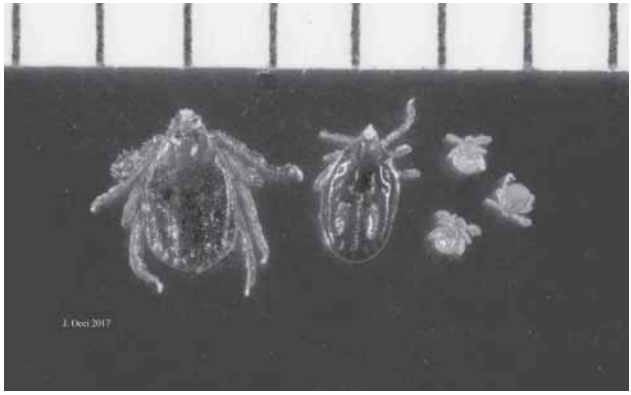
With the steady increase in vector-borne diseases spread by ticks and mosquitoes, the Center for Disease Control (CDC) wants the public to be aware of the numerous illnesses potentially transmitted to humans. They also want local health departments to increase their education about prevention of insect bites and sustain programs that track the illnesses reported. Environmental Commissions can also help educate the public on these matters.

According to the CDC, the number of reported cases of diseases from tick, mosquito and flea bites TRIPLED from 2004 to 2016. Disease cases from ticks alone has doubled in that timeframe, and there are more types of viruses and germs being transmitted.

How did this happen?

The CDC reports that worldwide commerce carries the insects around the world and people who are infected also travel the world and spread diseases. The CDC tabulated the number of vector-borne illnesses reported from 2004 to 2016: New Jersey is in the top twenty percentile of reported mosquito-borne (1,678) and tick-borne (12,856) illnesses. Nationwide, over 640,000 new illnesses were reported from 2004 to 2016 and over 96,000 reported in 2016 alone.[1]

According to the US Global Change Research Program, "Climate change is also likely to have both short- and long-term effects on vector-borne disease transmission and infection patterns, affecting both



The longhorn tick, a new invasive tick species in NJ
Photo by Jim Occi

seasonal risk and broad geographic changes in disease occurrence over decades." For example, research has demonstrated that ticks capable of carrying the bacteria that cause Lyme disease and other pathogens will show earlier seasonal activity and a generally northward expansion in response to increasing temperatures associated with climate change

Likewise, rising temperatures, changing precipitation patterns, and a higher frequency of some extreme weather events associated with climate change will influence the distribution, abundance, and prevalence of infection in the mosquitoes that transmit West Nile virus and other pathogens by altering habitat availability and mosquito and viral reproduction rates.[2]

The CDC believes that the US needs better tools at the state and local levels to help with vector-borne disease prevention and control.[3] Local health departments and vector control organizations must be able to:

- Monitor and track mosquito and tick populations;
- Use disease data to drive local decisions about vector control;
- Have an action plan to kill mosquitoes and ticks at every life stage;
- Control vectors using multiple types of methods; and
- Conduct pesticide-resistance testing.

A listing of the vector-borne diseases is available on the CDC website at *wwwn.cdc.gov/nndss/.*

What can environmental commissions do?

Check with your county health department about their procedures for mosquito control and to find out whether there is a mosquito control commission. Controlling mosquito populations protects residents and visitors from mosquito-borne diseases. Your county most likely follows an Integrated Pest Management (IPM) approach where a variety of strategies, methods and products are used to keep mosquito populations under control while minimizing risks to human health, beneficial and non-target organisms, and the environment.

County mosquito control measures typically focus on killing mosquitoes while they are larvae living in water and responding to requests for service from the public. Sites include ditches, woodland pools, stormwater swales and basins, shallow ponds, unmaintained pools and ornamental ponds, lawns and poorly graded areas holding water.

How to keep from being bitten

The CDC offers some guidelines for protecting yourself when you are likely to come into contact with mosquitoes and ticks. They include:

- Use an EPA-registered insect repellent;
- Wear long-sleeved shirts and long pants;
- Treat items, such as boots, pants, socks, and tents, with permethrin; and
- Control fleas and ticks on your pets.

Here are some other ideas: Some plants are natural "bug repellents." Try planting marigolds, lavender, garlic, mint and rosemary in pots near your outdoor decks. Put up bat boxes and bird houses and rinse your bird baths frequently. Some people even hang lavender scented ribbons from their porch to repel insects. Outdoor fans at gatherings not only cool guests, but also blow away gnats and mosquitoes. Use yellow bug lights outside to avoid attracting insects into your home. And recognize that the time of day when most mosquitoes are active is from dusk to dawn.

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[1] National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) – *www.cdc.gov/vector*

[2] US Global Change Research Program – *https://health2016.globalchange.gov/vectorborne-diseases*

[3] Mosquito Control Capabilities in the US – *http://bit.ly/2FG1OMw*

If evidence of mosquito-borne disease in local mosquitoes is discovered or if there is a human case of infection, adult mosquito control operations may be implemented. These operations reduce the adult mosquito population to stop disease from being spread.

Prior to the application of insecticide, maps of treatment areas and information should be posted online, noticed in the local newspaper and sent to municipal officials, beekeepers and others as required by law. All pesticides must be registered with the US Environmental Protection Agency (EPA) and the New Jersey Department of Environmental Protection, and are recommended in "Insecticides for Mosquito Control in New Jersey," published by the New Jersey Agricultural Experiment Station of Rutgers University.

Environmental Commissions should:

- Educate themselves about any insect spraying that occurs in town.
- Make sure residents know that if there is a nuisance property with standing, stagnant rain water, the county health department may become involved in helping to educate the residents and eradicate the mosquito breeding habitat.
- Find out whether the local health department/mosquito commission can identify tick species for anyone who has been bitten.
- Use the information from the CDC and the county to educate residents and keep them up to date.

There is a world of information on the internet about the new vector-borne diseases we must protect against and techniques for disease prevention. My township had some very good educational material available at the polls on election day. You could also print copies of CDC fact sheets for your local fairs and community days, available at *www.cdc.gov/vitalsigns/vector-borne/index.html*

Perhaps your environmental commission could host a craft-making/education day on natural insect repellents, or you could invite someone from the health department to speak at one of your meetings. With New Jersey's changing insect populations and diseases, the challenge will be to continually update our residents.

Got an idea for the *ANJEC Report*?

The *ANJEC Report* welcomes submissions or suggestions from our readers.

- Is there a topic or issue you'd like us to write about?
- Have you recently completed a project that would be of interest to other local environmentalists?
- Would you like to author an article in your area of expertise?

If so, please let us hear from you. Your input is valuable. Just email the editor at *jlange@anjec.org.*

Cowtown Rodeo – Unique preservation in South Jersey

By **Cheryl Reardon**, ANJEC Project Director

Cowtown Rodeo is a South Jersey tradition. Its huge, red-shirted cowboy with his giant hat and rope standing along Route 40 in Pilesgrove are part of the rural country culture that makes Salem County a unique treasure that feels more like Texas than New Jersey. So many folks, from near and far, have wonderful memories of Saturday nights at the rodeo… the bucking Brahma bulls, fast galloping horses in the arena, real life cowboys roping calves, cowgirls competing in barrel races, the live country bands, the antics of brave colorful clowns rushing in to distract the bulls when necessary…all sights, sounds and smells that fill your senses. While fun and entertaining for folks of all ages, it's so much more. Cowtown Rodeo has been a big part of the local economy since 1929 when the Harris family started it. In fact, it's the longest continually operating rodeo in the country.

Livestock, threatened birds and a family farm legacy

The Harris family has been raising livestock on their land for generations, and have turned down numerous offers from development interests because they want to see the business go to their daughter, her husband and their young son. In a recent land rights deal, they deed restricted the development rights of 374 acres of grassland pasture to New Jersey Conservation Foundation for $2.88 million, permanently protecting the land for future generations. The Harris family still owns the land and will continue their livestock ranching business, but the deal prohibits them or any future owners from developing the land.

This pasture land is especially unique because it also serves as prime habitat for rare birds, including the threatened bobolinks, grasshopper sparrows and savannah sparrows. Bald eagles, northern harriers, and short-eared owls can also be found there. For this reason the preservation easement also protects the land from being tilled for other types of agriculture. It will forever remain grassland pasture.

Why preservation and stewardship matter

The Harris family has been a good steward of the land, keeping it healthy by conscientious management of the wildlife along with grazing cows and horses that share the pasture. The significant habitat importance and healthy quality of the land led the US Department of Agriculture to use the Conservation Easement Program for the first time to fund grassland preservation in New Jersey. Additional funding came from the Open Space Institute's Bayshore Highlands Grant Fund. This preservation is part of the Delaware River Watershed Initiative spearheaded by William Penn

Foundation to protect the land and water resources for future generations.

Ideal harmony in perpetuity

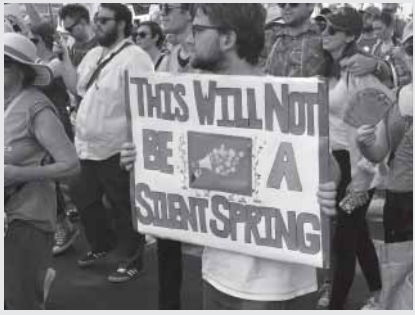
Preservation like this is ideal harmony of several interests... the Harris family will continue their legacy as land and business owners for generations to come and are even intending to purchase adjacent lands. The easement promises carefully managed bird habitat and the land, rodeo and livestock business will continue to support local jobs and agriculture-related businesses. Meanwhile, cowboys, cowgirls and rodeo fans will continue to enjoy bull riding, calf roping and barrel racing... and local residents and visitors will get to appreciate this unique piece of Americana in a beautiful rural landscape.

Local Action Toolkits now available

Has your environmental commission or green team identified some issues you want to work on in the coming year, but don't know how to get started? The ANJEC Resource Center has prepared a set of tools and information that may help you get out of the starting gate with a bang.

Climate Action Toolkit - Includes dozens of helpful resources, such as:

- How to do a community carbon footprint
- Model resolution for a municipal greenhouse gas audit
- Resource paper on siting solar installations in NJ
- Guidance for creating Plug-In Electric Vehicle (PEV) friendly ordinances
- Information on stream corridor protection
- Model water conservation ordinance and how to develop one



2017 Climate March in Washington DC

Plastic Pollution Toolkit - Articles, reports and sample ordinances including:

- Sample municipal ordinances for balloon release ban (Atlantic City) and plastic bag reduction (Longport)
- Lambertville's food waste collection ordinance
- Lots of articles, tips and other information

Templates for basic environmental commission annual reports and budgets

To get these tools, please contact the ANJEC Resource Center at *info@anjec.org* or visit our website at *www.anjec.org*.

PFAS: PFOS and PFOA and TCP in our drinking water?

By **David Peifer,** ANJEC Project Director

In the 1940s organic chemists synthesized a large, complex family of fluorinated organic chemicals called Per-and Polyfluoroalkyl substances. The entire group is referred to by the acronym "PFAS." There are over 3,000 chemicals in this grouping, and several have been found in New Jersey drinking water. The best single source of information about PFAS has been compiled by the Interstate Technology Regulatory Council (ITRC) and can be found at: *https://pfas-1.itrcweb.org/fact-sheets/.*

These chemicals were rapidly adopted to produce a broad array of industrial and commercial products. PFNAs can impart water repellency, oil resistance, stain resistance, resistance to high temperatures and friction reduction. They have been used in some firefighting foams, nonstick cookware, coatings for fabric and paper products, stain resistant carpets, and applications in aerospace, automotive, semiconductors, photographic imaging, construction, electronics and aviation products. Familiar consumer products have included Teflon™ and Scotchgard™.

Around the year 2000, with improved analytical techniques, PFNAS of several kinds began to be detected in water supplies, soil, and air. These substances have also been detected in human blood serum and in wildlife populations.[1]

Three PFAS compounds are encountered most frequently, are often found together, and have been studied the most. These are:

- PFOA (perfluorooctanoic acid)
- PFOS (perfluorooctanesulfonate)
- PFNA (perfluorononanoic acid)

A great deal of confusion continues today concerning naming terminology.[2]

Human health impacts

The environmental and health effects of these chemicals are beginning to be better understood by researchers. Both PFOA and PFOS are considered to be "mobile, persistent, and bioacumulative." These compounds are very stable and pass freely and in an unchanged condition through air, water and soil. They do not bind to soil particles and actually repel water. They also bio-accumulate, beginning with plants and continuing up the food chain.

According to the Centers for Disease Control (CDC) (*www.atsdr.cdc.gov/pfas/health-effects.html*) some, but not all, studies of exposure have shown PFAS to:

- affect growth, learning and behavior of infants and older children;
- lower a woman's chance of getting pregnant;
- interfere with the body's natural hormones;
- increase cholesterol levels;
- affect the immune system;
- increase the risk of cancer.

The CDC concludes, "Scientists are still learning about the health effects of exposures to mixtures of PFAS. For the most part, laboratory animals exposed to high doses of one or more of these PFAS have shown changes in liver, thyroid, and

pancreatic function, as well as some changes in hormone levels. Because animals and humans process these chemicals differently, more research will help scientists fully understand how PFAS affect human health."

Thus, despite the lack of a perfect understanding of human health impacts, the existing research signals that PFAS should be treated with the utmost caution to prevent human health problems.

Major sources – Are any of these in your municipality?

According to ITRC, there are four major sources[3] of PFAS in the environment. These include:

- fire training/fire response sites
- industrial sites
- landfills
- wastewater treatment plants/biosolids

Where in New Jersey have these chemicals been found?

In use since the 1940s, PFAS are widespread in the environment and have been found in the blood serum of 100 percent of the humans tested worldwide and in numerous wildlife species. According to the New Jersey Department of Environmental Protection (NJDEP), "The occurrence of PFOA and other PFCs (perfluoronated chemicals) in public water supplies (PWS) has been evaluated more extensively in New Jersey than in most or all other states. PFOA was the most frequently detected PFC and was found in samples from approximately 60 percent of the 80 NJ PWS tested."

PFOA was detected more than five times more frequently in New Jersey PWS (10.5 percent) than nationally (1.9 percent). PFOA has also been detected in NJ private wells near sources of industrial discharge. These chemicals, particularly PFOA, have been found in public drinking water in the following New Jersey systems:

Atlantic City
Brick
Fairlawn
Garfield
Greenwich (Gloucester)
Hawthorne
Logan
Montclair
Orange
Paulsboro
Pennsgrove
Rahway
Ridgewood
Wallington

Treatment of drinking water

Several familiar water treatment technologies may be used to treat drinking water for these substances. Granular activated carbon (GAC) is made from organic materials such as coal and coconut that are highly porous and provide a large surface area to trap and retain the contaminant. A great deal of practical experience has been gained in the use of GAC and it is the most common treatment method for removing PFNAs down to a billionth of a gram per liter (nanograms per liter).

While both PFOA and PFOS can be readily captured with GAC, some members of the PFAS family, the so-called short chain compounds with five or fewer carbon atoms, break through the filter more quickly, while long chain molecules with six or more carbon atoms, like PFOS and

Another concern – 1,2,3 trichloropropane

Another of the "contaminants of emerging concern" regulated by the NJDEP rule proposal is 1,2,3 Trichloropropane (TCP). This man-made chemical has shown up in numerous communities in California's Central Valley and in Hawaii, where it is believed to have come from pesticides (soil fumigants) called "D-D" and "Telone," manufactured by Dow and Shell. As a result, many communities' drinking water in California's Central Valley are now contaminated. New Jersey's proposed maximum contaminant level is .030 parts per billion.

The Environmental Working Group has reported that in New Jersey, 1,2,3 THC has been detected in 13 public water systems serving 393,898 people. (*www.ewg.org/tapwater/contaminant.php?contamcode=2414#.WyEyRlVKi1s*)

It is a potent carcinogen, is persistent in the environment, and does not attach itself to soil particles. It is heavier than water and thus moves toward the bottom of groundwater aquifers. It evaporates into the air from surface water. Additional testing may reveal more contamination in New Jersey. Treatment: According to the EPA,

"TCP in water can be removed using granular activated carbon (GAC); however, TCP has only a low to moderate adsorption capacity for GAC and may require a larger GAC treatment system, thereby increasing treatment costs (Dombeck and Borg 2005; Molnaa 2003; Tratnyek and others 2008)".

See: *www.epa.gov/sites/production/files/2014-03/documents/ffrrofactsheet_contaminant_tcp_january2014_final.pdf* for more information.

PFOA, are more effectively removed. Anion exchange resins and membrane filtration (reverse osmosis) are also effective.

Science based regulations under development in New Jersey

New Jersey is continuing its national leadership role in developing regulation for chemical substances in drinking water. The NJDEP and the Drinking Water Quality Institute are working regulations for these and other "contaminants of emerging concern" here in New Jersey. See: www.nj.gov/dep/srp/emerging-contaminants/

Unlike the US Environmental Protection Agency, the New Jersey researchers have developed recommendations for several of these chemicals and other dangerous ones that are far more stringent than current federal guidance.

Currently pending adoption are rules limiting PFNA in drinking water under the *Safe Drinking Water Act* rules. Statewide testing requirements for arsenic, gross alpha particle activity and other organic compounds will be added to the requirements under the *Private Well Testing Act*, and laboratory standards will be upgraded to reflect the new regulated substances. To read a copy of the pending rule proposal please see: *www.nj.gov/dep/rules/proposals/20170807b.pdf.*

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1 See: *www.ewg.org/sites/humantoxome/chemicals/chemical.php?chemid=100306* and *www.state.nj.us/dep/dsr/supportdocs/pfna/PFNA%20FINAL%20%20interim%20GW%20criterion%206_26_15.pdf*

2 To better understand how these chemicals are named, see the ITRC Fact Sheet at: *https://pfas-1.itrcweb.org/wp-content/uploads/2018/03/pfas_fact_sheet_ naming_conventions__3_16_18.pdf*

3 For a full discussion of PFAS sources and pathways of contamination see: *https://pfas-1.itrcweb.org/wp-content/uploads/2018/03/pfas_fact_sheet_fate_and_transport__3_16_18.pdf*

Lauren Mayer, winner of the 2018 ANJEC Lechner Scholarship

By **N. Dini Checko,** ANJEC Resource Center

Lauren Mayer of Tinton Falls has won the 2018 ANJEC Lechner Scholarship. She will be entering her junior year majoring in Environmental Science with a concentration in GIS & Planning at Stockton University.

Mayer has been involved with the Tinton Falls Environmental Commission (EC) from the tender age of 13. At that time, her father was a Tinton Falls Borough Councilman and EC liaison. He brought his young daughter to a meeting and it captured her interest and passion for environmental science.

Representing the EC as a junior member, Mayer created a connection with the high school environmental club, of which she became president. One of her favorite projects was the town's Back2Tap program. She helped the EC educate people about the benefits of reusable bottles and sold them at Tinton Falls Community Day. The reusable water bottle profits went towards renovating the Borough's historic Crawford House.

Currently, Mayer and the Tinton Falls EC are working on a Straws by Request campaign. By taking real measurements of how many straws are actually used by local restaurants and using that data to change behavior, the EC is helping the environment and saving local businesses money.

Lauren Mayer, 2018 Lechner Scholarship winner

Mayer is now EC liaison to the Planning Board. Because of this role, she's able to bring real world applications to her classroom studies. Mayer always wants to make a difference and says the "biggest way to effect change is locally," a viewpoint ANJEC shares wholeheartedly!

ANJEC awards this scholarship biannually in memory of Hermia Lechner to honor her commitment to the preservation of open space and natural resources in New Jersey.

Ann Marchioni, environmentalist extraordinaire

By **Lyle Landon,** ANJEC Development Director

Winning the Sustainability Hero Award for May 2018 from Sustainable Jersey was the most recent success in a long list of achievements by Ann Marchioni, co-chair of the Caldwell Environmental Commission (EC), member of the Essex County EC and also a former ANJEC staffer. ANJEC interviewed her to find out more about what drives her and guides her.

What kindled your passion for the environment?

In Pennsylvania I was a teacher certified in environmental studies. When I moved to New Jersey they did not recognize (nor did they have) a certification program, so I enrolled at MSU and got an MA in environmental studies. One professor impressed upon me that it doesn't matter what political party is in power, just find a way to get it done. If it is good for the environment, it is good for everybody.

I landed my dream job in Bloomfield where they built an environmental studies building with the best classroom resources. We even had a pond for habitat instruction! I was able to create my own curriculum and it was a fabulous teaching experience – and the kids loved it.

What experiences made you successful?

Teaching middle school prepared me for everything in life! No matter how carefully and creatively you plan things, you always must be willing to create a Plan B – even on the fly. Don't lose track of the goal because you've fallen in love with your own Plan A pathway. Persevere!

Another galvanizing experience was taking an Outward Bound class for teachers in Colorado. We had wilderness instruction and skills training and then were tested individually and as a team. I had to survive in the woods by myself for three days. It was beautiful and adventurous by day and scary by night, but I pushed myself and did it!

Our team was tasked with climbing to the top of the mountain and coming back down by dusk. Once we climbed to the ridge level, the patrol told us that we could either continue to climb to the top, or wait for those who were still climbing. However,

Ann Marchioni, left, accepting a 2017 ANJEC Environmental Achievement Award from ANJEC Board President Nancy Tindall

there was no way those ascending to the top could let a climber go back down alone if the going got too tough – everyone would have to come back down and our team would fail the test. I chose to wait with some others, but a subgroup did make it to the top, so collectively we passed. Moral: Don't let your own desires or limitations hinder the progress and attainment of the group's goal.

How have you managed to secure grants and win awards?

Because of you guys (ANJEC). That's true! You've provided me with lots of grant writing support. It is critical to make sure one's proposal fits the grant's criteria. A wonderful project idea that doesn't fit the grant's criteria won't win over the selection committee. Also, make sure there are specific commitments for longevity, especially for maintenance. For example, who will care for the pollinator garden year round, or make sure the new trail is repaired after storms?

What has taken time to learn and appreciate, and what advice would you like to give others?

Make the time and effort to establish a good working relationship with the town council, the mayor, DPW, the engineering and legal departments, etc. Be as positive as possible, and always say thank you. No one wants to deal with a "complainer." Try to understand where they are coming from. Give them credit for being part of your "wins."

As for advice, as a teacher I always tried to find the best in my students and build on that, starting them out with an assignment that they were comfortable with. That same strategy works with making assignments in an Environmental Commission – build on members' strengths. Be realistic in setting goals but make sure everyone is shouldering some responsibility.

If I had one wish, it would be that the town had a communications director who could help with press releases and publicity for our projects and events. I'd also recommend meeting with neighboring and county Environmental Commissions. The Essex County Environmental Commission hosts a roundtable once a quarter which is a great way to meet your counterparts and share goals and challenges. By working together more can be accomplished.

Practice water-wise lawn care

By **Julie Lange Groth**, *ANJEC Report* Editor

Clean water is a precious and limited resource around the world, including the United States – 36 out of 50 states anticipate water shortages in the next decade. Of the seven billion gallons of freshwater used every day in the US to irrigate landscapes, as much as 50 percent is wasted from inefficient watering methods and systems.

Here are some tips for water-conserving lawn care from the New Jersey Department of Environmental Protection and Jersey-Friendly Yards.

Water-Conserving Lawn Care Tips

- Over watering is one of the most common mistakes made in lawn care. Once a lawn is established, water it only during very dry periods, giving it only as much water as the soil can absorb.
- When normal rainfall is not enough, deep but infrequent watering is best, since it encourages roots to grow deeper, making the plant stronger and better able to survive periods of drought. Shallow watering can cause shallow rooting, which invites crabgrass invasion and encourages disease.
- Water early in the day; this will reduce the amount of water lost to evaporation and the likelihood of disease.
- To reduce the need for watering your garden, use native plants that are drought tolerant.
- Place plants with similar watering requirements together. This way if you choose plants that have higher watering requirements, you will only need to water a smaller section of the garden.
- Use drip irrigation whenever possible. By applying water slowly and directly to the root zone of plants, drip irrigation reduces runoff and evaporation. It also keeps above-ground plant parts drier, which reduces susceptibility to plant diseases that spread on wet vegetation.
- Maintain your irrigation system and make sure water is directed on planted areas and not on a driveway, sidewalk, or other hard surface.
- Use water-saving technologies to help decrease wasted water by turning off irrigation systems during rainy weather. Soil moisture sensors activate irrigation only when soil moisture levels are too low. Products with the WaterSense label are certified to meet certain EPA specifications for water efficiency.
- Capture Rainwater – Instead of using potable (drinking) water to irrigate your yard, harvest rainwater! Place a rain barrel or other container under a roof gutter downspout to collect a free supply of rainwater for future use.

Additional Resources:

- Jersey-Friendly Yards – *www.jerseyyards.org/*
- New Jersey Water Savers – *http://njwatersavers.rutgers.edu/MunicipalGuideTurfManagement/ForMunicipalities_GuideTurfMgmt_4Water.html*
- Rain barrels – *http://water.rutgers.edu/Stormwater_Management/rainbarrels.html*
- Rutgers Cooperative Extension: Low-maintenance grass species – *https://njaes.rutgers.edu/home-lawn-garden/*

What We're Watching

By **Michele Gaynor,** ANJEC Resource Center

A Plastic Ocean

Director Craig Leeson's original intent to find and film the elusive blue whale turned into a comprehensive documentary spanning the world as he captured not only the whales but the plastic-littered ocean they call home.

With the help of activist Tanya Street, the viewer is taken on an intense visual journey from one end of the planet to the other and into the depths of the oceans to see the devastating global effects of plastic manufacturing and consumption. From microbeads to microplastics, fishing nets and water bottles, scientists fear the estimated five trillion pieces of plastic in the ocean is a major underestimation.

A researcher takes samples of flesh from dolphins and dissects various types of fish to find tiny bits of plastic in them. In the deep trenches hundreds of meters below the Mediterranean Sea, the viewer sees the ocean floor littered with virtually every type of plastic, especially plastic bottles.

On Midway Island, home to immense wildlife diversity, where thousands of albatross seabirds breed, the grim reality is hundreds of dead young birds with their stomachs full of plastic. Adult albatrosses take to the ocean to feed, bringing back whatever they skim off the sea. The photographer captures an adult albatross actually feeding pieces of plastic to its young.

In the US alone we throw out approximately 38 billion plastic water bottles a year. Close to 8 million tons of plastic are dumped into the ocean each year.

Is there hope?

A Plastic Ocean takes you to the Philippines, where residential canals are polluted with multiple layers of plastics (up to 10 feet deep), and where one person's successful mission has been to restore the canals to the point where fish have returned. He hopes to do the same throughout other

plastic choked canals in the Philippines by using phytroremediation and bioremediation.

The viewer will have a look at other means of plastic pollution control such as pyrogenesis, a process that converts waste to a nontoxic form. Cynar is a company that creates energy by recycling plastic into diesel fuel, and a University in the UK developed a new plastic dye to find microplastics in water.

Viewers will learn that Germany became the first country to pass packaging laws making companies responsible for recycling or disposal of any packaging they sell, and that the Plastic Bank is an organization that gives opportunity to those living in poverty to gather and use plastic waste as a currency.

Researchers, scientists and concerned individuals worldwide are working tirelessly to find solutions to plastic pollution. This film thoroughly depicts the global scale of how this problem has infiltrated and negatively impacted our oceans and marine life and why we must seek eco-friendly alternatives to single-use plastic.

A Plastic Ocean should be required viewing for every mayor, council member, and citizen as well as high school students. It's hard to imagine any person not making a conscious effort to minimize their use of plastic after viewing this film.

A Plastic Ocean is available to rent or buy through Amazon,YouTube and Netflix, starting at $3.99. It can also be bought or rented through the film's website at *https://aplasticocean.vhx.tv/buy/a-plastic-ocean.*

ANJEC Film Lending Library

ANJEC has the following films available to lend to your environmental commission, school or green team for public screenings:

- **Bag It! Is Your Life Too Plastic?** – An investigation into plastic and its effect on our waterways
- **Poisoned Waters** – This film shows the kinds of pollution now contaminating America's waterways
- **Highlands Rediscovered** – Explore the history of this heavily-forested NJ region
- **King Corn** – Addresses questions about how we eat and how we farm
- **Groundswell Rising** – An inspiring film about the power of community organizing to protect our children's air & water
- **Flow – How Did a Handful of Corporations Steal Our Water?** – An award-winning documentary
- **Kilowatt Ours – A Plan to Re-Energize America** – Solutions to the great energy problems of our day
- **Turning the Tide** – A documentary about the Hackensack Meadowlands.

Get more details or request a film by contacting ANJEC at *info@anjec.org* or calling 973-539-7547.

ANJEC resource paper Septic Systems, Clean Water and Your Municipality

Our newest resource paper offers 16 pages of helpful information for environmental commissions about caring for septic systems in your town, including:

- Why municipalities should care about septic systems;
- Recognizing the warning signs of septic system failure;
- Taking action: The 5 levels of protection;
- Sample ordinances from NJ towns;
- Septic system owner education references;
- And much more!

This is the only publication available that addresses septic system management for municipalities. It's available for download from the ANJEC website at *www.ANJEC.org/pdfs/SepticSystem-2017.pdf*

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