

Natural Resource Protection News
From the Town of Canandaigua Environmental Conservation Board

The Problem With Plastic

By: ECB member Gary Kochersberger



Plastic waste litters the Canandaigua Lake shoreline in this recent image. Photo courtesy of ECB member Pat Venezia.

Plastic is an incredible material. Composed of molecules (monomers) that bind to each other to create polymers, different plastics can be hard as a rock or light as a feather. It is woven into the majority of fabric we wear and packages virtually everything we buy. It helped advance the industrial revolution to look beyond wood and metal to create new products. Yates County was the birthplace of one of the original inventors of plastic. John Wesley Hyatt, born in 1837 south of Geneva and without formal education developed a process to convert plant material into a substance he called Celluloid. This was the basis for a multitude of early plastic products including billiard balls, made originally from ivory. This plastic substitute doubtlessly helped the survival of elephants in the late 19th century whose tusks were providing balls for the billiard tables of Europe and the Americas.

It is difficult to count the number of times a day that we touch plastic and it is difficult to imagine a life without plastic. One of its many redeeming properties is its sustainability. PVC or its cousin PEX piping will not leak for over 100 years. This is a good thing in a home's plumbing but a long lifespan of plastic used when sustainability is not necessary or desired creates a disposal problem. Wood decays and metal rusts but plastic can last forever. That plastic PVC pipe will not leak for 100 years, but will survive in a landfill for 2000 years.

Plastic is cheap to produce. It is a byproduct of oil and gas refinement and with fracking has come an abundance of access to petroleum reserves. As countries work to mitigate global warming, it is also projected there will be decreased demand for fossil fuel used for energy. These factors have led to the petrochemical industry shifting towards more plastic production to maintain profitability.

So what becomes of all that cheaply produced plastic? For that used in structural components in building and industry, it will likely have a long useful life.

Unfortunately, however, much of plastic ends up in single use products – packaging our food and drink, protecting our online purchases or, until recently in New York State, in bags to carry our purchases when we leave the store.

Trees decorated with plastic bags scattered by the wind



helped lead to New York's plastic bag ban. New York has also been a leader in limiting the use of polystyrene foam (Styrofoam). Some of the plastic that ends up littering our environment is less noticeable but perhaps more of a concern. Although there is ongoing research into the impact of plastic pollution in the oceans, less is known about waste plastic impacts on fresh water rivers and lakes. Waterborne plastic pollution does slowly degrade, but only down to "microplastic" size. Those microparticles can end up in drinking water – fortunately, so far, without identified health concerns. Small plastic particles can, however, be harmful to birds, fish and other aquatic creatures if ingested, particularly when that plastic has absorbed toxic chemicals.

Ontario County coordinates recycling for its municipalities. An excellent job is done by residents and recycling staff where only 1.7% of material collected for recycling was considered “residue” (not deemed appropriate for recycling) in 2019. Recyclable plastics collected by the county are shipped off to markets in Alabama, Georgia and Ohio. Recyclable does not necessarily mean those products are actually recycled into new items. Challenges exist when you cannot intermingle and process plastics



with different chemical composition (the reason for the different recycle numbers printed on containers). A sizable amount ends up in landfills, either by consumers not sorting their waste properly, or by companies which collect recyclable plastics and then cannot find a market for it. China, since the 1990s had been taking in massive quantities of plastic from the US and other countries, but this arrangement halted in the past few years resulting in huge stockpiles of recyclable plastics piling up at large processing centers in the US.

Plastics will always be with us, but their environmental impact clearly needs to be addressed. Since the Yates County native John Hyatt produced the first plastic from plant

material, there has continued to be interest in bioplastics, which have the capacity to degrade and create a “renewable carbon cycle” unlike petrochemical production of plastics, which increases greenhouse gases contributing to climate change. But widespread use of competitively priced plant based plastics to meet our needs is a ways off, and until then it is crucial that we decrease single use plastics as much as possible, enhance recycling capabilities for plastics, and promote research to explore alternatives to our current plastic production and usage.

Reference:

Freinkel, Susan (2011) *Plastic: a toxic love story*. Houghton Mifflin Harcourt, New York, NY

Get Outdoors and Participate in the 24th Annual Great Backyard Bird Count

The Great Backyard Bird Count (GBBC) is a fun event for bird watchers of all ages and abilities, from beginners to experts. The 24th annual GBBC will be held **Friday, February 12, through Monday, February 15, 2021**. Participants are needed! To help, you will need to count birds for at least 15 minutes (or longer if you wish) for one or more days of the four-day event. You can participate from your backyard, or anywhere in the world.

Each checklist submitted during the GBBC helps researchers at the Cornell Lab of Ornithology and the National Audubon Society learn more about how birds are doing and how to protect them. Last year, almost 270,000 people participated in the GBBC. Let's top that number this year! For more information or to submit checklists [visit the GBBC website](#).

