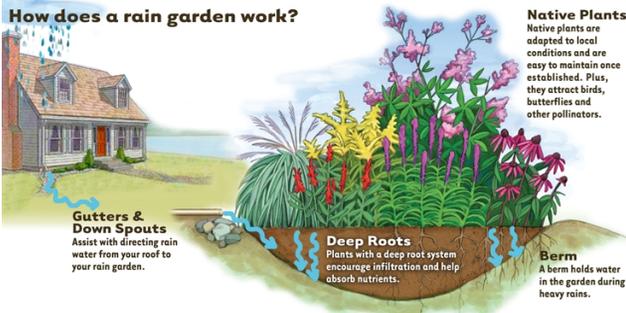

What can you do?

Here are a few tips for you to use that could help improve the water quality of the L.I. Sound.

- Know what are pollutants. The fertilizers and pesticides that are good for your lawn, runoff and make their way to storm drains. Fertilizers have high nitrogen levels which lead to hypoxia levels in the L.I. Sound. Dispose properly of grass and leaves and not down the storm drains.

To reduce and manage runoff, you can:

- Limit impervious surfaces. There are new pavers that have been designed to let water seep through them. Use these instead of an impervious asphalt.
- Plant a rain garden to collect rainwater before it enters into a catch basin. Plant more trees, bushes, etc. on your property. They will help with the natural filtration cycle.
- Report a storm drain that needs maintenance to the town's highway management department.



For more information,
visit the following:

Clean Water Act

<http://www2.epa.gov/laws-regulations/summary-clean-water-act>

CT Department of Energy and Environmental Protection

<http://www.ct.gov/deep/site/default.asp>

Greenwich Stormwater Management

<http://tinyurl.com/n66mx3z>

Long Island Sound Study

<http://longislandsoundstudy.net/about/about-the-study/>

Save The Sound

<http://www.ctenvironment.org>

Town of Greenwich

http://www.greenwichct.org/government/departments/conservation_commission/
Denise Savageau, Conservation Commission
Peter Kurpeawski, Highway Division

Storm Water Runoff and its Impact on the Long Island Sound



If you would like to take my survey, please go to the following link: <http://tinyurl.com/kmj2v88>

By Bennett Hawley

Troop 9 Eagle Scout Project 2015

Introduction

In the Northeast, the Long Island Sound is our crown jewel for millions of people to enjoy activities ranging from sailing, swimming, fishing, shellfishing, tourism, shipping, boating and more. It is a home to 120 different fish species and attracts 21 different seasonal species. Its waters are brackish which are principally fed from three CT fresh water rivers and the Atlantic salt water.

Stormwater runoff is a major problem that deeply affects the NY metro and Western CT/Greenwich area. *It is a common misconception that storm drain water is filtered before they enter L.I. Sound. This is not so.* Pollutants first enter the storm drains, then enter the L.I. Sound, or other bodies of water through outfalls around Greenwich. Once the pollutants enter the water, it can lead to algae blooms and marine life can die. Sometimes high levels of bacteria can lead to human illnesses and closure of beaches. A recent study conducted by the Long Island Sound Study and supported by the EPA, showed that 35% of the L.I. Sound's wetlands have been destroyed due to pollution. This loss in habitat affects thousands. Species of birds, fish, crabs, bugs, grass, snails, etc. have all lost their homes and habitats.

As you might guess, the enormity of the problem is multifaceted. Both groundwater and sanitary water play a role, but studies show that stormwater runoff is the most damaging factor.



What is Pollution?

The pollution that runs to the Long Island Sound is mainly caused by human activity. What is a pollutant? *Anything that is not pure stormwater is considered a pollutant:* oils, chemicals, hazardous chemicals, paints, varnishes, automotive fuels, non hazardous liquid, liquid waste, solid waste, bottles/cans, fertilizer, garbage, pesticides, industrial and medical waste, plastics, food waste, paper. It may be a surprise to learn that *even organic things such as: animal waste, leaves, grass clippings, and branches are also considered pollutants.*

Floatables

Many people consciously or unconsciously drop their garbage into the streets and storm drains.

- Most common pollutant are floatables.
- Floatables: cans, styrofoam, bottles, bags, etc.
- Largest source is from the streets.

Nutrients

- # 2 source of pollution
- Nutrients: Fertilizer, pesticides, etc.
- Lawn Care=major source
- Confused as a good thing, but has a negative effect.

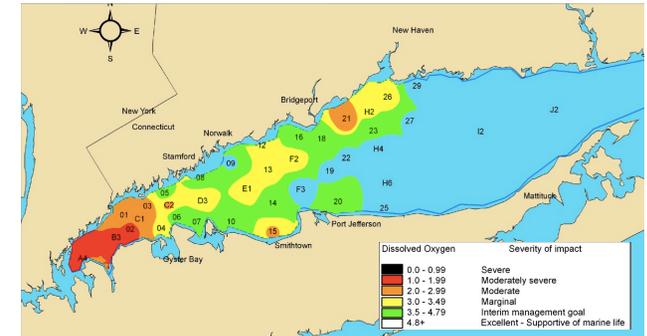
Chemicals

- Major effect
- Nearly 200 different chemicals pollute the Sound
- Chemicals: motor oils and toxic waste.
- 1 gallon of oil, will affect one acre of the Sound

Hypoxia Levels

This image shows the hypoxia levels of the L.I. Sound from 2013. Highly populated and urban areas such as: New York City, Greenwich, Stamford, and Bridgeport are still in the orange to red zone.

Hypoxia is a condition in which oxygen levels decrease to the point where where organisms cannot survive, essentially creating dead spots in the Sound. Greenwich and Westchester, NY is in the orange-red zone because this body of water narrows and most urban with its proximity to New York City.



Source: Long Island Sound 2013 Study

Infrastructure

According to an interview with a Greenwich Town official, *“about half of the harmful nutrients in the L.I. Sound come from NY and CT sewage plants which discharge around a billion gallons of waste a day directly into the L.I. Sound. This is due to out-of-date infrastructure which causes overflow and minimal filtration.”*

Currently, Greenwich has an insert located in the storm drain basins and allows water to fill before leaving the basin through a pipe. This allows the heavier than water materials to sink to the bottom of the basin while the ‘cleaned’ water makes its way to the L.I. Sound. These bins need to be changed out frequently.