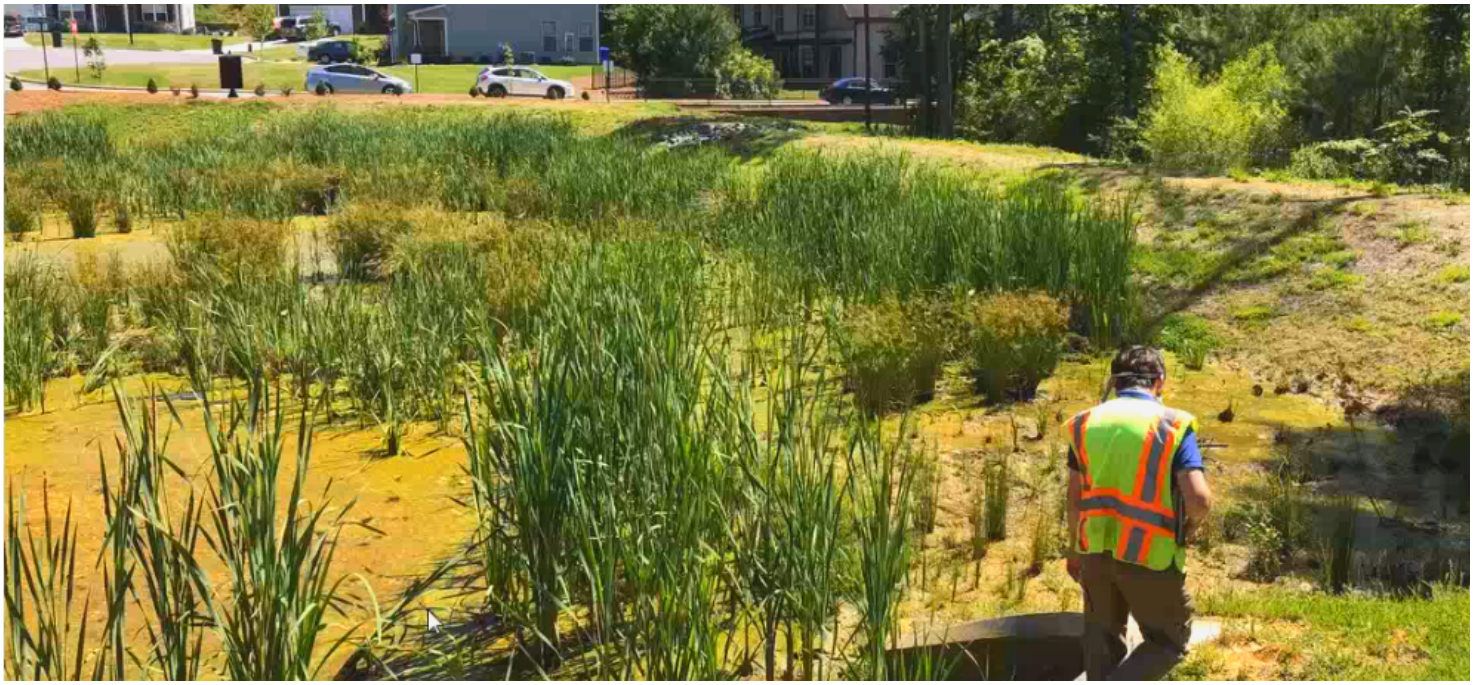
ALGAE IN STORMWATER PONDS AND WETLANDS

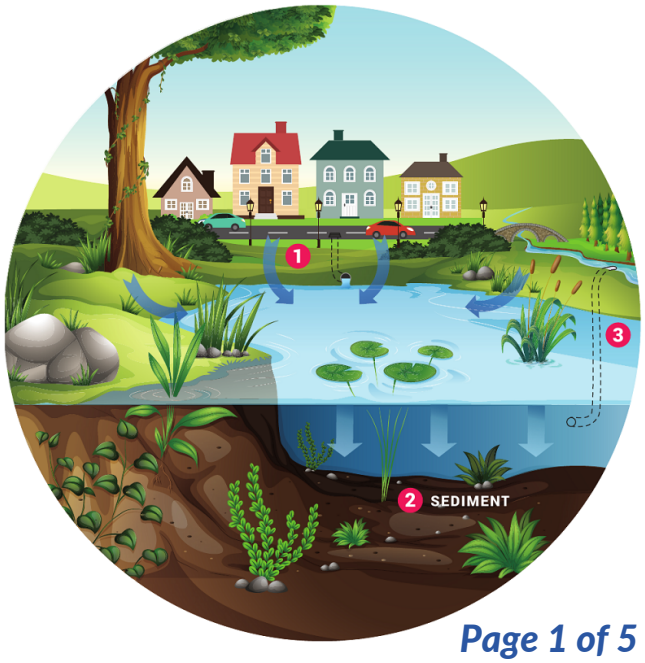


Many hard surfaces like driveways and roads can't absorb rainwater. So where does that rainwater go?

Builders construct a system of drainage ditches, swales, underground storm water pipes, and water collection basins to prevent flooded streets and basements for downstream properties. Your neighborhood stormwater pond or wetlands play a crucial part, too!

How do stormwater ponds treat water pollution?

1. Stormwater runs off of the roads, driveways, sidewalks in your neighborhood collecting dirt, litter and other pollutants before draining into the stormwater pond.
2. Sand, dirt, silt and other sediments that pollutants attach themselves to settle to the bottom of the pond.
3. Cleaner water leaves the stormwater pond and flows into our local streams and eventually Jordan Lake.



Top Photo by Chapel Hill Stormwater
Right Photo by City of Hamilton

LET'S TALK ABOUT ALGAL BLOOMS

Algae are simple plants that form the base of food webs. **Algae need nutrients and sunlight to grow.** In normal amounts, algae are great for local ecosystems because they provide oxygen and food for other plants and animals.

Algal blooms happen when the algae grow out of control. This usually happens when there are excess nutrients like nitrogen and phosphorus flowing into the water from the surrounding land. In other words, algal blooms are signs of nearby water pollution issues. These blooms are more common in early spring when there is less shade on the water and in summer when the water is warm.

Some of these blooms are toxic to people and animals. Others are nontoxic, but eat up all of the oxygen in the water as they decay, clog the gills of fish and invertebrates, or smother submerged aquatic plants. Still others discolor water or form huge, smelly piles in ponds or wetlands. Either way, **algae blooms aren't great for the people and animals who live in your neighborhood.**

Where do the excess nutrients that cause algae blooms come from?

Fertilizer, grass clippings, other yard waste, geese, and pet waste are some sources of these excess nutrients.

How do I get rid of the algae?

Use a seine net. It removes the algae and helps protect your pond from future algae growth.

What tools should I avoid using to remove algae?

Dye treatments, herbicides or algaecides, and peroxide solutions are considered pollutants under the Town's Illicit Discharge Ordinance and may have harmful effects to local water quality and wildlife.

LET'S TALK ABOUT ALGAL BLOOMS

So you want to prevent an algal bloom...

Perimeter plantings around the edge of ponds and wetlands help to improve water quality and prevent algae blooms. These plants add shade and filter out excess nutrients from surrounding landscape before they get into the water. They also help prevent erosion and sediment in your pond, provide wildlife habitat, and can deter nuisance Canadian geese.

Before and After: Currituck County added perimeter plants around a pond at the Cooperative Extension Center, improving stormwater treatment and turning an eyesore into an amenity. (Photos and caption from NC Sea Grant)

What can my household and HOA do to help minimize algae in our neighborhood's pond or wetland?

Prevention is almost always easier and cheaper than treatment. If you want to prevent algae blooms, the three most effective methods are (1) reducing the flow of nutrients into the water, (2) maintaining perimeter plants around the pond or wetland, and (3) shading the pond.

LET'S TALK ABOUT ALGAL BLOOMS

So you want to prevent an algal bloom...

How can my household and HOA reduce nutrients going into the water?

- **Test your soil before fertilizing** to prevent over-fertilizing. NC Agronomic Services provides free and low cost soil testing. Boxes for submitting samples are available from the Cooperative Extension Offices and the NC Botanical Garden. Information on how to soil sample and read a soil test report can be found at the NC Cooperative Exchange website.
- When using fertilizers, sweep/blow any excess off of roads and driveways. That way they don't wash into storm drains or into your pond.
- **Fertilizers cannot be applied to the perimeter sloped areas around a pond or wetland.**
- Keep grass clippings and yard waste out of storm drains, pipes, catch basins, ponds, wetlands, and ditches.
- Throw pet waste in the trash.
- Wash cars on grass instead of on driveways. The soaps break down into fertilizers that wash down storm drains into local waterways.

How can we use plants to reduce algae?"

Allow native, deep-rooted plants to grow at least 3 to 5 feet from the edge of pond shoreline to intercept stormwater runoff. These perimeter plants should not be mowed as is done with typical turfgrass. Perennials and grasses should be mowed only two times per year – once in the spring and once in the fall – to a height of six to eight inches.

Planting vegetation within the pond or wetland helps provide shade and take up nutrients. Another alternative for ponds is "floating wetlands." These are typically large plastic mats that float half above and half below water. Wetland plants, such as rushes, sedges, hibiscus, lizard's tail and pickerelweed, are planted in the mesh and grow by taking up nutrients from the stormwater pond. The plants grow very quickly – nearly to maturity within the first growing season.

RESOURCES

Further Reading

For more detailed information about pond and wetland plants, check out "Stormwater Ponds: Improving Aesthetics, Value, & Function" by NC Sea Grant.

For **a refresher on your maintenance requirements**, go to the "Operations and Maintenance (O&M) Agreements" tab on www.townofchapelhill.org/SCMs and select the Stormwater Control Measure for your neighborhood.

Sources for this Brochure:

- City of Hamilton. “Stormwater management ponds.” July 23, 2018. https://www.hamilton.ca/home-property-and-development/water-sewer/stormwater-management-ponds
- Delaware Division of Fish and Wildlife. “Best management practices for small ponds.” http://www.dnrec.delaware.gov/fw/Fisheries/Documents/Best%20Management%20Practices.pdf
- Goonan, Deborah. “HOA realities – Living next to a retention pond or wetland.” March 16, 2016. https://independentamericancommunities.com/2019/03/16/hoa-realities-living-next-to-a-retention-pond-or-wetland/
- North Carolina Sea Grant. “Stormwater Ponds: Improving Aesthetics, Value, & Function.” Summer 2013. https://ncseagrant.ncsu.edu/ncseagrant_docs/products/2010s/ss_stormwater_pond_guide.pdf
- NOAA. “What is a harmful algal bloom?” April 27, 2016. https://www.noaa.gov/what-is-harmful-algal-bloom
- Platinum Ponds. “Stormwater ponds explained: Retention or detention? Dry or wet?” July 28, 2015. https://www.platinumlakemanagement.com/blog/stormwater-ponds-explained
- Rogers, Sarah. “Pond problems? Vegetated buffers could be a solution.” April 7, 2019. https://scnow.com/lifestyles/columns/pond-problems-vegetative-buffers-could-be-a-solution/article_fa94f942-58b4-11e9-af34-dbc4c20165b2.html
- Tancig, Mark. “Why ponds turn green.” September 18, 2015. http://blogs.ifas.ufl.edu/leonco/2015/09/18/why-ponds-turn-green/