

# Stormwater Ponds Quick Guide

## Homeowner Association

Stormwater ponds are developed in neighborhoods and subdivisions to collect runoff water and mitigate downstream water impairment by natural treatment processes. Residents should have a clear understanding about the main purpose of stormwater ponds and set realistic expectations to ensure proper care is taken to maintain a functional ecosystem. For instance, stormwater ponds can be stocked with fish, which can provide some biological control for algae and recreational value for residents, but the pond's primary function is to accumulate and treat pollutants washing from roads and lawns in the community. This means there is potential for contaminants to accumulate in the tissues of these fish, and it is not advisable for residents to eat fish harvested from stormwater ponds. To balance this ecosystem, fish need to be harvested, but they could be used to enhance compost materials instead of being consumed. Additionally, homeowners should take sanitary precautions after handling pond water, including activities like kayaking, fishing or playing with dogs in the water. Here are some general tips for HOAs to help promote best practices for stormwater ponds in their community.

### ► Common Problem for Community Stormwater Ponds

*1. Residential fertilizers can lead to high concentrations of nutrients leaching into stormwater ponds, resulting in algae blooms and decreasing water quality.*

Encourage residents to conduct soil tests prior to fertilizing their yards to promote accurate application. Make a point to showcase problematic areas where fertilizer runoff is more likely to occur, like houses on the water with sloped banks. Consider hosting a spring workshop or creating an information flier for proper fertilizer and application rates to use for community grass and landscape areas.

*2. Yard clippings that enter the water will decay causing a reduction of oxygen in ponds. Additionally, there is the chance that clippings can cause clogging of storm drains and pipes.*

Promote sweeping and blowing grass clippings off areas that will run into drains or stormwater ponds. Clippings can be bagged or composted to prevent runoff onto ponds. Develop a composting guide showing materials that can (and can't) be composted. For instance, grass clippings and fish caught in stormwater ponds are great for compost and can help keep stormwater ponds healthy.



**Yard clippings decay and cause low oxygen in ponds**

***3. Excessive grounds-keeping maintenance of stormwater pond banks can reduce natural grass and plants that help with nutrients and debris removal, thereby increasing the chance of water quality impairments.***

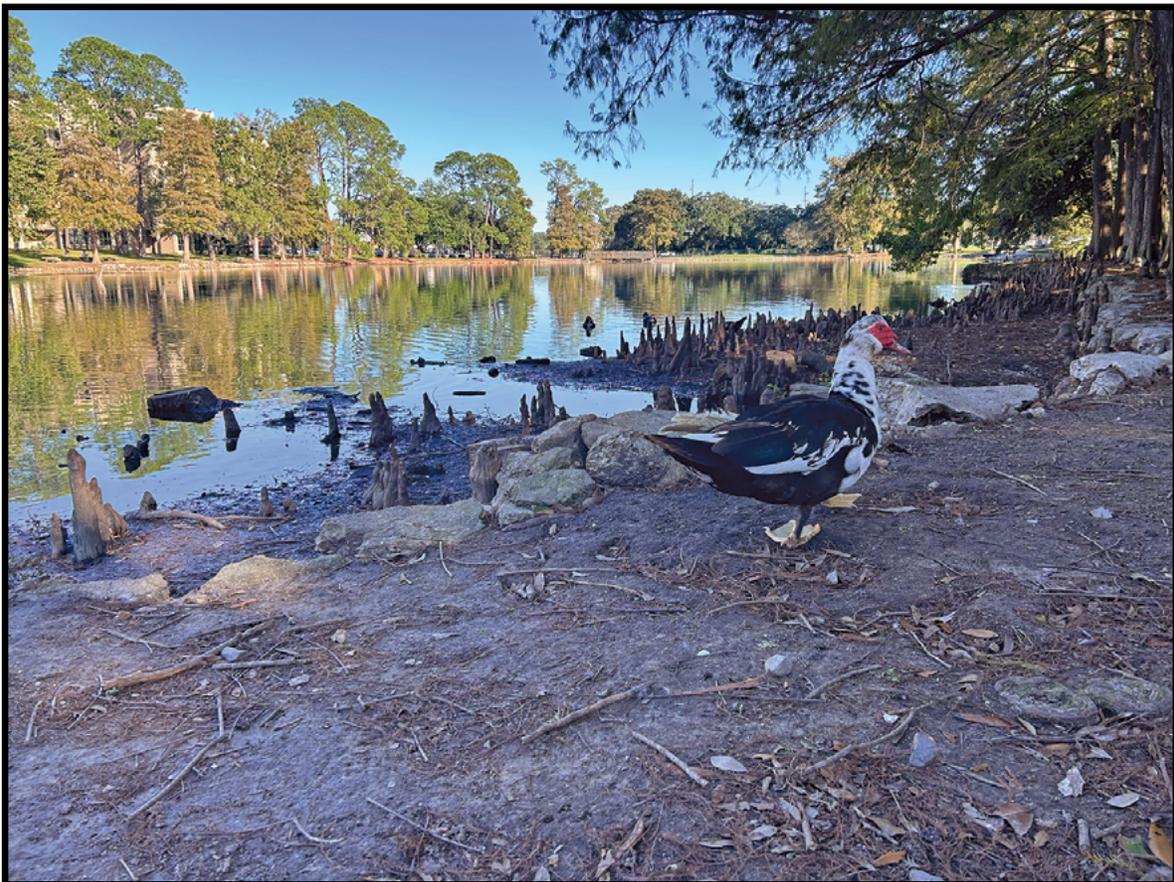
During contract negotiations with lawn maintenance professionals, HOAs should include which sections of the pond's emerging plants are to remain while edge maintenance is taking place. Emerging plants are pivotal to stormwater pond management and should not be cut. Additionally, HOAs should specify areas to fertilize and where clippings should go to ensure the best strategies for healthy ponds.

***4. Pet waste can contribute nutrients and bacteria to stormwater ponds. This not only impacts algae growth but also introduces bacteria that can cause potential health issues.***

Encourage residents living on the pond to not throw pet waste into the water, while also including pet waste stations on walking trails around ponds or throughout the subdivision. This can provide an immediate means of waste disposal for easy clean-up for residents, but regular maintenance for pet stations should be included in management plans to ensure bags are refilled.

***5. Feeding fish, turtles, ducks and geese can cause high concentrations of nutrients from excrement in and around the pond. This creates unnatural dependence for wildlife and excessive nutrient accumulation which may exceed the pond's processing capacity.***

Though many residents enjoy feeding wildlife, this can be detrimental to a stormwater pond ecosystem by adding high levels of nitrogen and phosphorus from wildlife waste. Ducks and geese are one of the main causes of high ammonium and fecal coliform counts in stormwater ponds, especially near main feeding areas. Use other activities to encourage residents to engage with the outdoors without feeding wildlife. This could include labeling plants and habitats with placards around the pond systems for educational opportunities or creating a "scavenger hunt" on the HOA webpage for your community, where families can find and post about the wildlife and plants seen around the community ponds.



**Ducks and geese around pond edge can increase concentrations of fecal matter in water**

*6. Washing houses, sidewalks and cars using certain chemicals can cause an imbalance in stormwater ecosystems. Soaps, and especially bleaches, can harm the aquatic plants and microbial communities that break down nutrients naturally.*

Provide a list on the HOA website of environmentally friendly soaps, including phosphorus-free options. In meetings, educate residents on areas that can lead to chemicals entering stormwater ponds, like driveway slopes and around storm drains. Residents can wash cars on grass or gravel to prevent water runoff in ponds. Additionally, dry car washes are available for detailing with compounds that require minimal water. These can conserve water and prevent chemical runoff.

*7. Shoreline and emergent plants trap debris and absorb nutrients, but if not properly maintained, they can become unsightly and much less efficient.*

Community cleanup days can help bring people together and help preserve stormwater ecosystems. Once a quarter, encourage residents to participate in pond clean-up, removing loose debris and pulling weeds from shoreline beds. These plants act as a first barrier for nutrients and trash in ponds, and the upkeep will keep them thriving. This is a great opportunity to educate residents on the importance of these plants for stormwater pond function and promote best management practices for upkeep.

*8. If stormwater ponds continue to have a nutrient imbalance after best management practices have been exhausted, insufficient dissolved oxygen concentrations may be an issue. Dense plants and aquatic algae can compete for dissolved oxygen and reduce oxygen for other aquatic species.*

Consider the use of a fountain or aeration system to supplement the dissolved oxygen levels in your stormwater pond and circulate the water to prevent surface stagnation. When considering aeration systems, it's critical to consider pond size and get a professional to design the system. A landscape professional will be suited to configure, build and safely install systems to prevent future residential hazards. Additionally, setting up a maintenance contract can ensure long-term performance of the aeration system and plan for unforeseen malfunctions like clogging or power outages. Pond aeration has many benefits for water quality and can also reduce habitat for mosquitoes.

*9. Advanced measures for nutrient reduction can include larger projects like dredging or building floating wetlands.*

Many HOAs are limited in funding for larger capital projects, but building DIY floating gardens can be a great community activity to increase aesthetics and reduce nutrient levels in stormwater ponds. For most floating gardens, supplies are readily available at local hardware stores and can be scaled based on the needs of the community.

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