Stormwater Ponds - Frequently Asked Questions

- **Do I live on a lake?**
  - No, all of the "lakes" in Lakewood Ranch are actually stormwater detention ponds. The storm water management system was designed during the planning and construction stages of Lakewood Ranch and permitted by Southwest Florida Water Management District (SWFWMD).

- **What is a stormwater detention pond?**
  - Stormwater ponds are manmade features located in your neighborhood. Detention ponds are often mistaken for lakes; however, these ponds play a unique role in managing our surface water quantity and quality. Stormwater detention ponds are designed and constructed to reduce flooding during high water periods and they play an important role by trapping sediments and other large solids carried by run-off from roads, parking lots and lawns. In addition to sediments, stormwater ponds also collect a number of other pollutants such as bacteria, oils, fertilizers, heavy metals and organic contaminants such as animal wastes, pesticides and herbicides. The stagnant water allows heavier contaminants, such as solids or metals, to sink to the bottom of the pond and eventually become bottom layer sediments. The retained water naturally filters the contaminants and returns clean water to nearby streams or wetlands.

- **What are the effects of stormwater runoff?**
  - Nutrients can seep into the water and provide food for unwanted plants, like algae. Excessive algal growth can lead to decreased oxygen in the water that fish need to breathe, resulting in fish kills. Bacteria and other pathogens from pet waste can create health hazards in ponds.

- **What is a littoral shelf and why does my pond have to have one?**
  - By design, about half the ponds in Lakewood Ranch contain littoral shelves, which are shallow areas within the pond. Regulatory agencies, such as SWFWMD require that littoral shelves be vegetated to a minimum of 85%. These areas are usually about 1-2 feet in depth and occupy approximately 30% of the entire surface area of the pond. Littoral shelves provide emergent aquatic vegetation the appropriate water depth necessary to thrive. This vegetation competes with algae for space, light and nutrients and helps to filter out pollutants such as heavy metals, oils and fertilizers. An unplanted littoral shelf or one that is sparsely covered by vegetation will regularly make algae blooms worse. In the deeper areas of a pond, water depths deprive algae the benefit of full sunlight; but in an area that is just a few feet deep such as a littoral shelf, the algae have the benefit of full, consistent sunlight. In shallow areas such as these, algae can grow very rapidly. The thicker and denser the littoral vegetation, the less sunlight, living space and nutrients will be available for algae growth. If managed properly, ponds and littoral shelves can provide an aesthetically pleasing and healthy habitat for a wide variety of wildlife; including insects, fish, birds and reptiles.
• Can the weeds along the shore be removed?
  o Much of what some people consider to be weeds are actually beneficial plants. It is the policy of all the Districts not to remove any beneficial shoreline plants. The proper plants will prevent shoreline soil erosion and help to prevent flooding by slowing down the flow of stormwater run-off during major rain events. Aquatic plants pump oxygen into the water and create habitats by providing cover and nurseries for fish and other organisms. More importantly, vegetated shorelines improve the water quality by filtering polluted runoff and trapping sediments. Additionally, it assists to control the growth of nuisance vegetation and ultimately helps make the pond visually pleasing. Plants grow well when they are fertilized. When excess fertilizers reach stormwater ponds, they provide nutrients necessary for all plants to grow, which leads to an overabundance of plants in your pond. To reduce the amount of plants around your pond, reduce the amount of fertilizer, pet waste, and grass clippings that get into the pond.

• Why is our pond green and scummy-looking?
  o What you see is probably algae. Excess nutrients in the water combined with warm, sunny weather, will cause algae to grow very rapidly. This can often lead to excessive algal growth which is commonly referred to as an algae bloom.

• Is algae bad for the pond?
  o Many creatures in the pond use algae as food. Algae is natural and does help break down the nutrients in the pond, however, too much algae may cause problems. Plants need sunlight to grow. When algae cover the surface of the pond, it reduces the amount of light that can get to other plants that live in the water or on the bottom of the pond. This can prevent many of our native plants from growing and reduce the viability of the pond ecosystem.

• What is submersed vegetation?
  o Submersed vegetation is various aquatic plants growing below the water’s surface. While these plants will help filter out pollutants and provide a habitat for aquatic life, non-native or nuisance weeds need to be controlled. It is necessary to control submersed vegetation to prevent invasive species from taking over. Additionally, when allowed to reach the surface often mats of algae will develop in these areas causing new problems.

• How are algae blooms and submersed vegetation controlled?
  o We use several different options to help control algae blooms and submersed vegetation. Sometimes it is necessary to use chemicals, such as aquatic herbicides, to treat either of these, for this we contract with a certified lake maintenance contractor. For some ponds we use biological or mechanical methods, such as Triploid Carp, various aeration devices or beneficial bacteria and microbes. However, the best method is educating the community on how to help prevent nutrients, such as fertilizers from ever entering the ponds by following the University of Florida/IFAS Florida Yards and Neighborhoods recommendations for Florida Friendly Yards.
What are the benefits of Triploid Carp and is our pond stocked with them?
- The most effective form of biological control is use of the herbivorous fish, the Triploid Grass Carp. These carp are sterile, meaning they will not reproduce but they do grow rapidly and can live for at least 10 years. Its diet consists almost entirely of aquatic plants including many types of submersed vegetation. However, they are not effective for the control of bulrush, filamentous algae, water lilies or cattails. Grass carp usually take six months to a year to be effective in reducing problem vegetation and will go dormant during the winter when water temps dip below 70 degrees. The Southwest Florida Water Management District (SWFWMD), the agency responsible for managing the area’s storm water system, only permit grass carp in ponds without a littoral shelf, which totals approximately half the ponds in Lakewood Ranch. Triploid Carp have been stocked in all permitted ponds in each District. The four permits that we obtained through SWFWD for the grass carp were the largest they have ever permitted to any one agency.

What are the benefits of an aeration device and why are they not in every pond?
- Aeration exposes water to air, where it absorbs oxygen. In a healthy pond, when plants and fish die off, their remains fall to the bottom, and beneficial bacteria break down the waste. But algae forms when oxygen levels decline, coating the water’s surface and denying plants and fish the oxygen and sunlight needed for survival. Aeration uses the power of water, air or machinery to force both oxygen-depleted water and waste to the pond’s surface, where gases are released and oxygen is absorbed. Thus, allowing beneficial bacteria to thrive, depleting algae’s food source. When algae disappear, fish and plant life can flourish. However, District budget constraints combined with the initial cost to purchase and install these aeration devices limit the number that can be installed each year.

What are beneficial microbes?
- Stormwater pond environments rely on natural processes to maintain natural order. Proper water quality is achieved through the activity of naturally occurring microorganisms. Today, most ponds are bombarded with excess nutrients from multiple sources including stormwater runoff, fertilizers, animal waste and pollution. The Naturally occurring bacteria cannot keep up with this influx of nutrients. The microbial species occur naturally in most ponds. Although specialized, they have trouble maintaining large populations and are easily pushed out by other bacteria that do not perform the same beneficial processes. By supplementing the natural biological processes it is possible to maintain very large populations of microbes that constantly "graze" on excess nutrients and organic sludge.

What happened we have dead fish in our pond is something wrong with the pond?
- A few dead fish floating on the surface is not necessarily cause for alarm. The majority of fish kills that occur are due to a variety of natural causes. Fish can die of starvation, injury, stress, disease, parasites, lack of dissolved oxygen in the water, changes in the pH, and even rapid fluctuations in temperature. Low dissolved oxygen levels are the most common cause of fish kills. The amount of oxygen in a body of water will vary with water temperature, aquatic plant densities and amount of sunlight. During the rainy seasons, stormwater runoff can lead to fish kills. Heavy rains wash organic material, nutrients and
fertilizers into the ponds, accelerating plant growth which can lead to depleted oxygen levels. These same rain events also carry herbicides, pesticides and pet waste into stormwater ponds. Ammonia, which comes from animal waste, is highly toxic to fish.

- **What is the concrete structure in my pond?**
  - The man-made concrete structure that you see is an outfall structure. An outfall structure is the discharge point for the stormwater pond that prevents the pond from overflowing during heavy rain events.

- **The water level is too low, can you refill the pond?**
  - No, you do not fill stormwater ponds. While everyone wants their pond to look aesthetically pleasing, these ponds were designed as part of a storm water system by managing the runoff from rainfall. A stormwater pond is specifically designed to help prevent flooding and remove pollutants from the water. Adding water to a pond can cause flooding by interfering with the pond’s design and ability to hold stormwater runoff.

- **Why does my pond smell?**
  - The bad odor you notice typically comes from one of these three sources: rotting organic matter, water turnover or certain types of algae. Ponds with stagnant, poorly oxygenated water develop into temperature layers. Decaying organic matter settles on the bottom of the pond where there is little oxygen thus slowing the break down process and producing odor. Windy cooler weather or heavy rainstorms can cause a pond to mix, which brings the bad water to the surface. This most commonly occurs right after our first cold front but can also occur throughout the warmer months of summer and fall. Finally, certain kinds of algae such as cyanobacteria or chara algae can emit a musty, earthy odor. The use of an aeration device in the pond helps target the cause of these odors by continually mixing and oxygenating all levels of the water column and promoting the growth of beneficial bacteria.

- **Who is responsible for keeping our pond healthy and looking nice?**
  - The District is responsible for managing and maintaining the stormwater ponds in Lakewood Ranch. The Operations office’s ability to maintain the ponds is based on CDD budgets determined by each district’s Board of Supervisors. Regardless of who has the financial responsibility for maintenance, all of the residents in Lakewood Ranch can help keep ponds clean, healthy and reduce maintenance costs by limiting the amount of nutrients and pollutants in stormwater runoff.

If you have additional questions or concerns please the Lakewood Ranch Operations office at 941-727-0899. Additional information on Florida Friendly Landscaping and stormwater ponds is available at the University of Florida/IFAS’s website, [www.ifas.ufl.edu](http://www.ifas.ufl.edu) or SWFWMD’s website, [www.swfwmd.state.fl.us](http://www.swfwmd.state.fl.us).