Keeping Stormwater Ponds Functional, Sustainable and Beautiful

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1. Stormwater Ponds: what they’re doing for us

Your work matters far beyond the neighborhood
Pre-development vs. Development

The original stormwater treatment

Wetlands

Today’s urban stormwater treatment

Man-made ponds
Pre-development vs. Development

**Wetlands**
- Control flooding
- Provide habitat for wildlife
- Improve water quality
- Aesthetic appeal

**Neighborhood ponds**
Hopefully do all the same things
Neighborhood Stormwater Ponds: Simply put, they . . .

- Are tools for managing runoff from rainfall
- Collect rainwater that lands on rooftops, driveways, roads and other impervious surfaces
- Are designed to help prevent flooding
- May treat pollutants before the water flows onward to a stream, lake, or estuary
Neighborhood Stormwater Ponds

- The junction between the built environment and the natural environment
Typical Stormwater Pollutants

- Litter
- Motor oil
- Nutrients
- Grass clippings
- Gasoline
- Pesticides
- Pet waste
Pollutants in the Urban Coastal Watershed

- Lawns
- Stormwater and Stormwater Ponds
- Streams
- Estuary
2. Stormwater Ponds

They’re really important. Let’s keep them functional, sustainable and beautiful
Good Housekeeping in the Neighborhood

• Follow the county fertilizer BMPs
  • Skip fertilizer June 1 to Sept 30
• Have fertilizer free zones around the pond, down street, and around storm drains
• Blow grass clippings and leaves back in the yard
• Plant Florida native aquatic plants around the pond
Nitrogen mobilization to stormwater from urban “lawns”
Reclaimed Water Irrigation-
Buffer zones – at least 10 feet between pond and lawn

Optimal

Poor
Common Problem: Algae and Aquatic Weeds

Planktonic algae

Filamentous algae

Floating plants

Submerged plants
Planktonic algae

- Water doesn’t necessarily have to be crystal clear
- A little green color is an indication that a growing algae population is capturing the nutrients
- But... algal levels can grow to excess (like this picture) and some species are toxic
Planktonic algae: what to do

- Good housekeeping
- Cultural practices in the community that reduce nutrients going into the pond
- 10-ft maintenance free buffer around the shoreline
- Comply with fertilizer ordinance
- Mulch grass clippings and leaf litter
- Take care of pet waste properly
Planktonic algae: what to do

- Inspect infrastructure at least once a year
- Vacuum or clean out inlets and pipes
- Maintain littoral zone plantings
- Aeration to increase oxygenation
  - Also helps control odor, if that’s an issue
  - Promote nitrogen cycling
  - Should be run 24 hr/day
  - Remember that fountain does not necessarily equal aeration
Filamentous algae: what to do

• Colonies of microscopic plants that link together
• Produce oxygen and food for animals that live in the pond
• But...when they begin to cover more than 20% of pond surface, it’s a sign that you have excess nutrients; can lead to decreased oxygen and fish kills
Filamentous algae: what to do

• First and foremost: same advice as for planktonic algae:
• Good housekeeping and reducing nutrient flows into the pond
• Aquatic dyes can be used to suppress growth
• Harvesting (temporary fix)
• Use chemical controls as a last resort
Submerged aquatic vegetation: what to do

• Same story, not all bad, in fact some SAV is good because it helps maintain adequate oxygen levels and provides forage for fish

• But. . .it should be restricted primarily to the littoral zone and not cover more than 20% of pond surface
Submerged aquatic vegetation: what to do

- Stock pond with grass carp
- 2 fish per acre of vegetation
  - May need to restock every 5-10 years
  - Use fish guards to keep them from making their way out of the pond
- Harvesting
- Aquatic dyes
- Good housekeeping!
- Chemical controls as last resort
Common Problem: Erosion and Bank Destabilization

Causes
- wave action
- Fountains near the shore
- Very sandy soils
- Wildlife (ducks!)
- Lack of vegetative protection
Common Problem: Erosion and Bank Destabilization

Solutions

• Fountains in center of pond
• Control nuisance wildlife to extent possible
• Use plants
  • *Not* turf- no extensive root system
  • Yes to wetland plants- deep robust root system
Common Problem: Fish Kills

- Remember that having fish in the pond is a secondary benefit
- A few dead fish is not necessarily cause for alarm
- Low oxygen is the most often cause
- If just the small fish: may be a toxin in the water
- Use pond aeration and circulation to increase oxygen and teach residents about the importance of preventing illicit discharges of toxic materials
Common Question: Wildlife

Wildlife is desirable and an indication of a healthy pond

But...large numbers of waterfowl can become problematic
  • erosion
  • fecal matter
  • pathogens

On average, 2 waterfowl per acre are okay; above that not so much so

Alligators: prefer open areas to bask, so plantings around a pond are a natural deterrent

Image source: Abbey Tyrna
Thank You!

FOR THE

#GATORGOOD

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