Things People Never Seem to Understand about Pond Management

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Is it a pond... or lake?

• Typically, ponds are manmade, lakes are natural systems
• Many ponds are storm water ponds
• Parts of storm water systems – dry or wet retention
• Primary purpose is to retain storm water
• Filter
• Discharge improved quality water
Stormwater Pond Attributes?

• Should it be attractive and aesthetically pleasing?
• Should it resemble a wading pool?
• Should it function as an outdoor aquarium?
• Increased property value?
• Can we use this surface water supply for turf and ornamental irrigation?
Common Expectations......

- Ponds should be aesthetically pleasing
- Must have big fish and lots of fish
- Must have plants
- Attract birds and other wildlife
- Must be swimmable
- Must be recreational - boats and PWC
- Must provide irrigation
- Must catch and retain storm water
- Must not flood homes
- Water must be clear and in some cases blue...
- Must not stink
- Must be easily maintained
- Must not cost a lot
Common Realities in Storm Water ponds….

- Sediment build up which clogs structures, smothers bottom living aquatic life and increases turbidity
- Increased loads of organic matter that lead to smells and fish kills
- Heavy metal build up which can bio-accumulate in fish rendering them unusable as food
- Oils and greases which are toxic to plants and animals
- Coliform bacteria which can contaminate ponds, lakes, bays, etc.
- Excessive freshwater which can change salinity and alter bay life
Are These Systems Different from Natural Lakes...?

- Not much difference from larger bodies of water as far as invasive plants and other exotic plant species
- Can restrict water-flow and limit water movement
- Shallow water systems favor rapid growth for many reasons; rapid nutrient loading, water temperature and light
- Accelerated aquatic plant growth reduces surface area and oxygenation: thereby accelerating the trophic status over time and reduces water quality and decreases user expectations
- Increases silting, sedimentation and muck formation
- Nuisance species provide breeding sites for mosquitoes and other pests such as midges and biting midges and increase disease vectors
- Increases habitat for other pests, rats, snakes and alligators
- Provide the perfect habitat for non-native waterfowl
- Reduction of aesthetic values of the body of water
Common Assumptions

- Pond management only needs to be done once...like Alka-Seltzer
- Herbicides kill everything in the water
- Water cannot be used ever again for anything
- Pets will grow extra legs swimming in treated water
- Aeration will prevent submerged weeds
Additionally

- Stormwater structures are maintenance free
- Clogged pipes never cause flooding
- Introducing plants and fish are good for the pond
- Twice as much treatment is twice as good
- Nothing happens…1 hour after treatment
What about NPDES?

- Lot’s of uncertainties
- 26 days till implementation?
- Final Draft PGP?
- Endangered Species Act
- HR 872
- 8 States have completed PGP’s
- Possible extension?
NPDES Additionally

- 15 States have no PGP plan in place
- Modified PGP will affect 6 states Oct 31; Alaska, Idaho, Massachusetts, New Hampshire, New Mexico, Oklahoma and six territories, NOI’s due 10/31/2011
- Possible violations of CWA after 10/31
- PGP’s not uniform across states, fees vary, thresholds etc.
- Can be tougher than draft PGP
Nuisance grasses in retention areas

Hydrilla

Torpedo grass in mitigation areas

What Aquatic Plants cause the problems...?
Aquatic Plants that can be Problematic …

- Water Hyacinth – Eichornia crassipies
- Torpedo grass – Panicum repens
- Water Lettuce – Pistia stratoides
- Alligatorweed – Alternanthera philoxeroides
- Salvinia spp. – Salvinia minima
- Frogsbit – Limnobium spongia
- Hydrilla – Hydrilla verticillata Royle
- Hygrophila – Hygrophila polysperma
- Limnophila – Limnophila sessiflora
- Lemna spp. – Duckweeds, watermeal
- Algae
- Others
Algae

- Unsightly appearance
- Clog intake screens on irrigation and fountains
- Create unpleasant odors
- Can contribute to fish kills - rapid die off
- Can affect health
- Restrict recreational activities
Treating Challenges

• Shallow Depths—herb concentrations must be reduced
• Temperature extremes and unstable D.O. cycles
• Decay of treated weed biomass and D.O. demand
• Irrigation pressure and limited restrictions
• Water level fluctuations
Additional Treating Challenges

- Flow into or out of the system
- Chemical trespass
- Pesticide Sensitive persons
- Water quality issues; pH, turbidity, hardness etc.
- Access to the system, steep banks, seawalls
- Fountains and aerial drift
Aquatic Plant Management Strategies....

- Realize multi-user expectations and requirements
- Communicate and educate consumers
- Slowly reduce floating plant and submersed plant populations using approved aquatic herbicides and application techniques
- Manually remove brush and trees...and treat the stumps to reduce re-growth
- Introduce native aquatic plants in improved areas to reduce competition from exotic species
- If practical employ IPM techniques, including aeration and others
- Beware of stormwater misconceptions
Misconception 1

Carts are useful for catching weeds/debris
Misconception 2

More debris means more filtering
Misconception 3

Overflow structures should be hidden from view
Misconception 4

Tilting the structure improves flow and oxygenation
Misconception 5

Structures can be altered to improve flow
Misconception 6

Mud works great for weed control
Misconception 7

Planting vegetation filters water
Misconception 8

Rooftop installation prevents detection
Misconception 9

Paper is a great filtering media
Misconception 10

Plastic chains will stop erosion
Rip Rap stops erosion better than chains
Summary

• Folks have differing opinions on what ponds are used for and what they should look like
• Permitting often dictates functionality and design criteria
• Pond management has many unique challenges, however aquatic plant species the same
• Communication and education are keys to success
• Avoid over-complexity in solving lake and pond problems
• Stick with the fundamentals or go back if you forgot
Just Remember......

If you are drawing a horse......and it looks like a dog.......Make it a dog......!!!!!!

Thank you....