



The South Florida Aquatic Plant Management Society

# The Hydrophyte

Volume 18 Issue 2

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## President's Message



Despite the warm winter weather and the lack of overall rainfall, the waters in South Florida for the first part of 2014 seem to be in better shape than in previous years.

Are the newer EPA-approved products working better? Are our field operations more efficient?

What are your thoughts and comments? We sure would like to hear from you!

Sincerely,

Mark Weinrub  
 President  
 South Florida Aquatic  
 Plant Management Society

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### The Francis E. "Chil" Rossbach Scholarship Fund

Funds from the scholarship are used to help defray costs for students taking classes related to the study of aquatic environmental sciences or related areas. The scholarship is open to anyone, and all are encouraged to apply. Applications will be accepted throughout the year and the scholarship awarded when a suitable candidate is found. Money raised by the Society during the year partially goes to fund this scholarship, the intent of which is to promote the study of aquatics. For an application, please go to [www.sfapms.org](http://www.sfapms.org).

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## What is Mitigation?



*Encyclopedia Britannica defines mitigation as to soften, to cause to become less harsh or hostile or to make less severe or painful.....*

Many homeowners wonder what is the purpose of wetland plantings or natural areas within their developments. Some are drier wooded areas, others are lower wetlands, similar to marshes. Many communities have preserves around the borders of their lakes or combinations of the three.

The benefits of these natural areas are not always understood. When the natural processes and structure of a region are disrupted, additional problems can arise. Mitigation zones act as a buffer and help to ease the “shock” to developed lands. Preserves and wetlands act as natural sponges in times of heavy rains, helping to reduce flooding and filtering the water that feeds into our lakes and aquifers. Plantings around lake perimeters filter fertilizer runoff from surrounding lawns and landscaping that would normally fuel the growth of algae and aquatic weeds. Wooded preserves offer privacy boundaries and noise reduction from nearby roads. Native wildlife species are drawn to these created preserves providing more than just enjoyment for fishermen and birdwatchers. Some species of birds, lizards, and fish act as natural predators on many pest species such as insects and rodents.

These natural or “mitigation” areas are an integral part of the many communities built in South Florida. When developers build on previously undisturbed land, lakes are often dug as a way to collect and retain stormwater. This alleviates flooding and creates a source of water for irrigation and aesthetic appeal. When the land is changed in this way, the various counties and government agencies require

them to set aside or re-plant a certain amount of acreage.

The plants introduced in these areas are species native to Florida and the plan or layout in which the mitigation is to be planted must be approved by the jurisdictional agency. These mitigation preserves then must be maintained to predetermined standards and monitored to ensure compliance. Maintenance of mitigation sites goes far beyond landscaping and typical groundskeeping. The preserves are meant to mimic natural Florida ecosystems. A constant effort is made to inhibit and control the growth of invasive and exotic plants. Many of these have been introduced from other countries and lack the natural controls found in their place of origin. In our naturally-good growing weather these plants spread quicker and are harder to control than common weeds. The terrain of the areas frequently does not allow for the use of regular landscaping equipment, making the task more challenging and time consuming. The density and overall health of the beneficial plants is also crucial. Trimming, pruning, mulching or removing these plants is not allowed, making it very difficult to prevent invasive plants from growing amongst the native flora. Maintenance crews must be meticulous, patient and have attention to detail if the mitigation areas are to be successful.

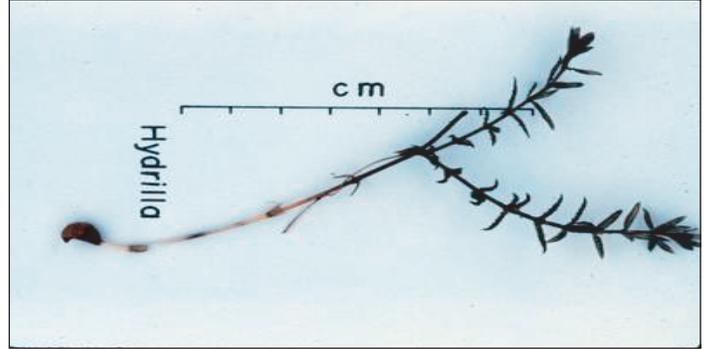
Well-maintained mitigation areas can become a showpiece for a development. They can be used to break up long empty shorelines and continuous rows of houses. These natural areas truly are a beneficial and useful part of residential communities here in South Florida.

*Credit: Stephen Montgomery; Allstate Resource Management, Inc.*



## FLORIDA'S INVASIVE SPECIES

*HYDRILLA (Hydrilla verticillata)*



This submersed plant native to Africa and Southeast Asia is a major aquatic weed throughout most of the world's warmer climates. Hydrilla was introduced into Florida in the early 1950s and by the 1990s occupied more than 140,000 acres of public lakes and rivers. Intensive management efforts have reduced the above ground portions of hydrilla to under 50,000 acres. Once established, hydrilla produces reproductive tubers numbering in the millions per acre in the soils of Florida waterways. These tubers still impact nearly 140,000 acres and represent hydrilla's regrowth potential if not continually managed immediately after sprouting. Researchers have not discovered methods to prevent or minimize tuber formation. Hydrilla can grow an inch or more per day and can be found in water only a few inches deep to the deepest parts of Florida's lakes and rivers. In Florida, hydrilla produces dense canopies covering entire surfaces of waterbodies within one or

two years after it becomes established. Hydrilla disperses quickly throughout a waterway by stem fragments, buds, runners, and tubers.

Hydrilla must be controlled as it blocks waterways, limits boat traffic, recreation, flood control, and wildlife use. Almost 80% of hydrilla's biomass is in the upper 2 feet of the water column producing a dense canopy near the water surface. This exotic pest plant shades out native submersed plant species, reduces oxygen levels, and degrades water quality.

Hydrilla causes environmental damage by lowering dissolved oxygen concentrations which reduces aquatic life. Hydrilla decay can double the amount of sediments that accumulate in a waterbody. Dense hydrilla infestations can restrict water flow resulting in flooding along rivers and canals. Hydrilla canopies produce ideal breeding environments for mosquitoes. Dense hydrilla mass shades out

native submersed vegetation lowering biodiversity. Hydrilla infestations restrict recreational activities such as boating, swimming and fishing.

Because of its aggressive growth rate, it is illegal to transplant hydrilla from waterway to waterway. All boats and trailers, live wells, and diving gear should be cleared of plant material before entering or leaving a waterbody. Possession of hydrilla is unlawful in Florida without a special permit.

The preceding information was taken from the Florida Department of Environmental Protection, Bureau of Invasive Plant Management Weed Alert: Hydrilla circular available from their website <http://dep.state.fl.us> (850) 488-5631

*Credit: Florida Department of Environmental Protection website: [dep.state.fl.us](http://dep.state.fl.us) phone# 850-488-4676*

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## Florida Wildlife Corner

### *Anhinga (Anhinga anhinga)*

The Anhinga is a native waterbird commonly seen in or near waterways throughout South Florida. Unlike most birds that live near water, they do not have oil glands for waterproofing their feathers. This causes their feathers to get wet when they swim which helps when diving and chasing after fish underwater. The bird sometimes swims with only its head and neck showing above the waterline.

Anhingas are often seen on land or in trees drying themselves in the sun by spreading their wings. The sun also helps to maintain body temperature because anhingas lose body heat quickly in the water due to a lack of an insulating layer of feathers.

The adult anhingas have white feathers in the wings and long tail. A female anhinga is easy to spot by her neck and chest feathers that are much lighter in color than the male. They resemble a cross when soaring. Although normally a quiet bird, its vocalizations include clicks, rattles, croaks and grunts.

Although not fast swimmers, anhingas are very effective aquatic predators. They target slow-



moving fish and strike them with their long necks, spearing them with their beaks. Then they bring the prey above water, pulling it off their bill carefully to swallow them head-first. Anhingas feed primarily on fish, but also eat insects, tadpoles, young alligators and water snakes.

Often confused for double-crested cormorant, the anhinga is distinguished by its straight beak that ends in a thin point. The anhinga is able to soar, unlike the cormorant. The cormorant, however, is able to maintain a higher body temperature and able to deal with colder temperatures, explaining their range in colder regions of North America.

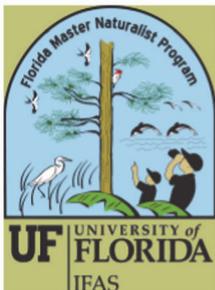
*Credit: Adam Grayson*

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## Managing Stormwater Systems

Counties and local water control districts now require licensing and renewal of the proper permits for the operation and maintenance of surface water management systems. This benefits landowners by preventing flooding and helping to maintain water quality. Stormwater systems consist of combinations of the following components: lakes, canals, retention basins, swales, drainage structures, and stormwater pumping stations. Routine maintenance and certification of proper function as designed ensures that the system operates efficiently. It should be noted that in many regions, failure to renew licenses may result in fines and the requirement of a costly recertification.

Proper operation of a stormwater drainage system includes the following items :

- All catch basin grates, stormwater manhole covers and outfalls are to be free and clear of all obstructions.
- All catch basins are to be substantially free of mud, debris, silt and pollutants.
- There are to be no areas of sunken pavement that are likely to be the result of a drainage system failure.
- There are to be no deteriorated headwalls or broken grates.
- The weirs and internal baffles must be in place, and in proper working condition.
- Swales and retention/detention areas must not have been modified.
- The system must be certified that it has not been modified or expanded.

A final inspection by a certified engineer usually includes, but is not limited to, a visual inspection of all outfalls, grates, stormwater manhole covers, weirs, baffles, manholes, and catch basins. The inspection of underground culvert pipes is normally required only if the engineer concludes that there is evidence of need. With proper budgeting, managers will be able to put necessary maintenance costs for drainage systems into an affordable posture for their clients.

Homeowner Associations, property managers and residents play a vital role in managing the drainage systems in their area. By being familiar with the components in communities, residents and managers can become active in helping to prevent

flooding and pooling water. Drainage systems in your neighborhood should be inspected regularly, checking to see if trash, dead vegetation and sediments are being removed. Keeping records for property managers and jurisdictional agencies is important in anticipating potential problems.

Understanding that we live in a region where seasonal rains fall over flat lands that offer little drainage, it is imperative that ongoing maintenance of drainage systems is performed for flood prevention, and compliance.

Stormwater Program Packages Include inspections to determine the need of care or repair, cleaning, repair and reporting, reports for compliance, certification by a licensed engineer, recordkeeping and account database for

Flood management is a shared responsibility and you can make a difference! Please call us if you would like more information.

Wendy Shaw; Allstate Resource Management



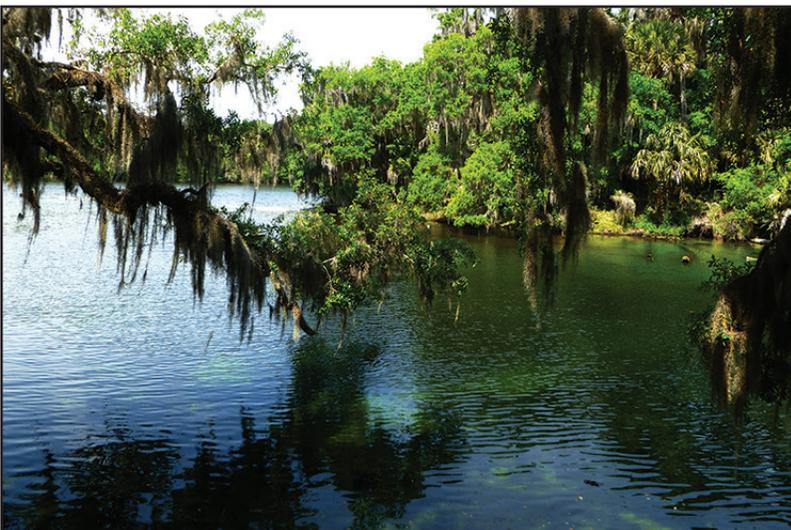
## 2014 Annual Photo Contest Entries

We would like to thank all of our photo contest participants:

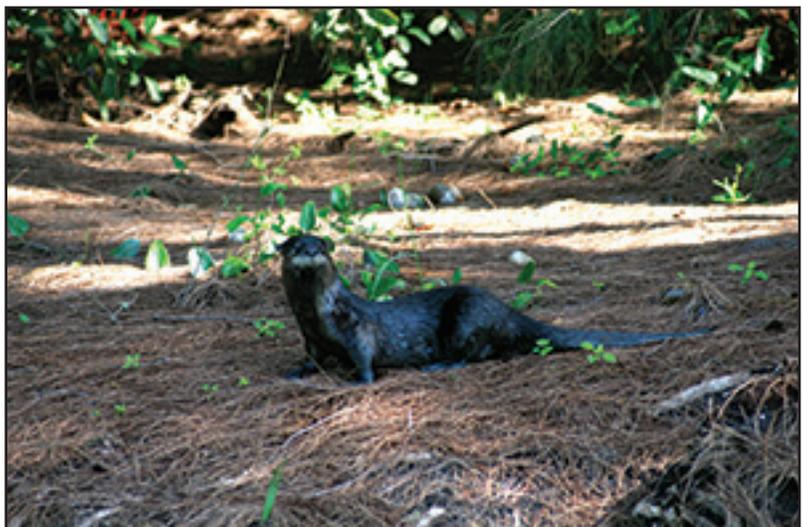
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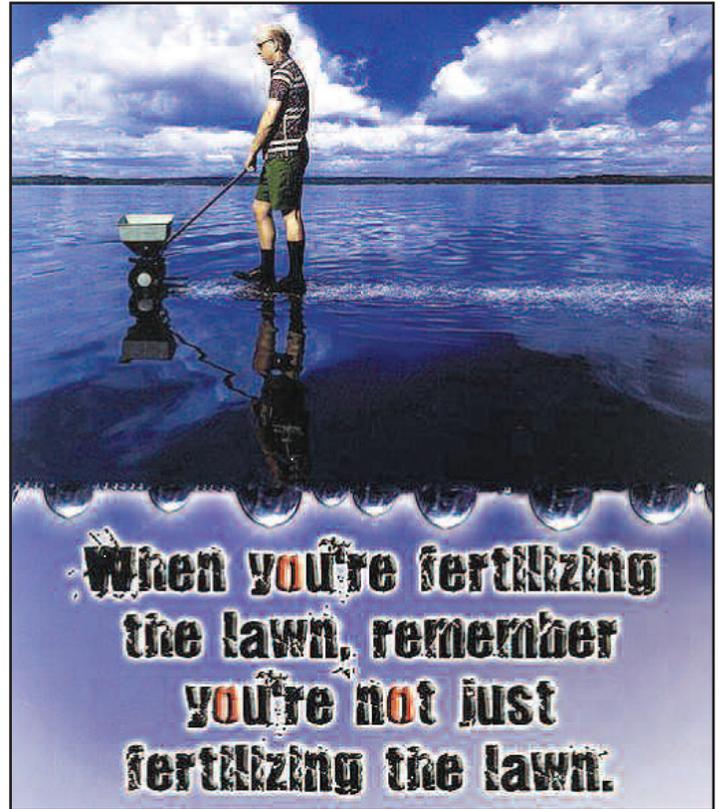
Stephen Montgomery  
Allstate Resource Management



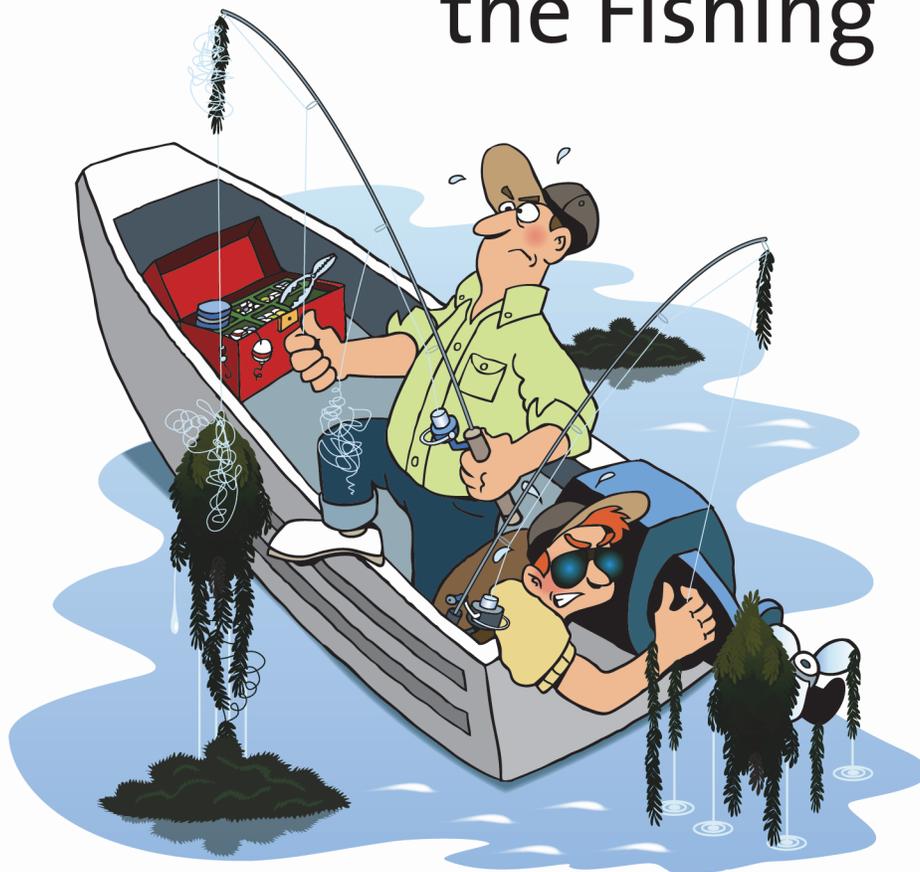
## Best Management Practices

*Using Best Management Practices can help our lakes and canals be healthier!*

- Maintain a ring of responsibility. Keep fertilizers and pesticides at least 10 feet away from water edge. Runoff of fertilizer/pesticides can cause algae.
- Clean up any spills of potentially hazardous materials such as oil, fertilizer and pesticides.
- When mowing near the shoreline, direct the grass clippings away from the water.
- Pick up pet waste. Animal waste contains nutrients and can harbor bacteria and viruses that can be carried by stormwater runoff into nearby water bodies. Excess nutrients can cause algae blooms, fish kills and habitat destruction, while pathogens can pose health risks for humans and wildlife.
- Keep trees and other landscaping properly trimmed to avoid loose palm fronds, coconuts or tree limbs from blocking the flow of water. Do not dispose of trees or branches in lakes or canals.
- Remove all trees/landscaping over drainage pipes.
- Keep storm drains free of leaves and debris.
- Do not use storm drains for the disposal of yard clippings, litter, oils or chemicals.
- Pre-treat street runoff.
- Control any discharge into water bodies through a pollution retardant basin.



# Too Many Weeds Spoil the Fishing



Exotic invasive aquatic plants such as Hydrilla, Eurasian Watermilfoil and Curlyleaf Pondweed, can be detrimental to a healthy fishery in lakes across the country.

These invasive plants when left unmanaged can alter the ecosystem of lakes and reservoirs, cause a decline in the fishery, and interfere with other valued uses of waterbodies.

## The Authoritative Leader in Aquatic Habitat Management

Successful aquatic habitat management is all about achieving a balance in the aquatic ecosystem. United Phosphorus, Inc. offers assistance and a full line of aquatic products for properly managing exotic and invasive plants and algae to achieve and maintain a healthy aquatic environment for native aquatic plants.

\*Refer to the Directions for Use on the specific product labels.

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## THE WATERWAY REPORT: WINTER/SPRING

South Florida residents are fortunate to live in a tropical climate where we are unaffected by the harsh winter weather experienced in many parts of our nation. While we may not have a drastic change in seasons, the “winter” weather has an effect on our environment and many things are still happening in waterway systems.

While it may appear that a lake’s ecosystem has taken a brief respite and many aquatic plants have begun to slow their growth, there is a lot of activity still occurring. Dead plant material at the lake bottom collects and decomposes which will provide a growing substrate for new aquatic plants in the spring. Lake turnover, which usually occurs twice every year - once in the spring and once in the fall, happens at this time. Lake turnover occurs when the air temperature cools, lowering the surface water temperature. Since cool water is denser than

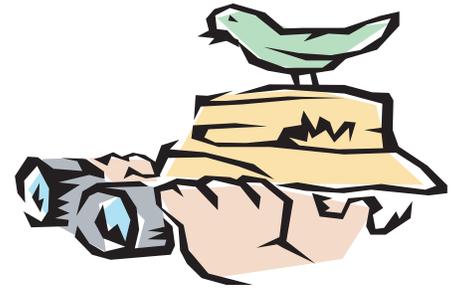
warm water, the cooler water sinks. This causes lake water to mix and disturbs the layered temperature gradient. Also, as the water mixes, phosphorus that may have been released from bottom sediments during the summer becomes re-suspended in the water column. This release of nutrients can sometimes fuel winter algae blooms.

The mixing of lake water also leads to a re-distribution of dissolved oxygen throughout the water column. This replenishes the oxygen supply in the bottom waters, which may have been depleted during the summer stratification. This dissolved oxygen rejuvenation is important for winter survival of fish. Many lakes undergo thermal stratification again during the winter time. Dissolved oxygen levels in the the bottom waters cause the fish during the winter to slowly diminish until the spring turnover. As winter approaches,

fish slow down their metabolism so that their oxygen and food requirements are minimized. It is important to start off the winter with a good dissolved oxygen supply in the bottom waters.

The South Florida winter season is a perfect time to enjoy the outdoors and to take advantage of our temperate climate. Fall migration brings a wide variety of bird species to the area found only at this time of year. We have many great parks in the area allowing us to enjoy watching a variety of wildlife.

*Credit: Steve Weinsier,  
Allstate Resource Management*




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Full Page Ad (4 Issues)	\$800
Business Card Ad (4 Issues)	\$125

### Additional Opportunities

- General Meeting Exhibitor Package - \$250
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6.5" x 4.5" (Horizontal Orientation)

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## **Don't Release Exotics**

### **It is against the law to release any non-native species in Florida**

Please join with us and the Florida Fish and Wildlife Conservation Commission in our efforts to help protect Florida's native fish and wildlife.

Many species of fish and wildlife (mammals, insects, reptiles, amphibians, birds) readily available to the public are not native to Florida. Should these "exotics" escape or be released into the wild, they may survive and eventually establish reproductive populations. These non-native animals can prey on Florida's native species and compete with them for natural resources. Many exotics become agricultural pests or carry parasites that endanger the well-being of our native populations and livestock.

If you currently own or plan to own exotic wildlife please make sure the place where the animal will stay is secure to prevent escape. Take special precautions during feeding or handling to ensure the animal does not get out from its enclosure and ultimately from your home. If you find you can no longer keep the animal, **DO NOT RELEASE IT INTO THE WILD!!** Try to find a suitable home for it, donate the animal back to the place that you purchased it or contact a local wildlife refuge for placement.

Thousands of exotic animals have already been released. Dozens of are now established in the wild. By partnering together, we can raise the awareness of this growing problem and we can preserve Florida's native heritage by preventing the release and spread of exotic fish and wildlife.

If you have questions concerning exotic wildlife licensing or caging requirements, please contact the Florida Fish and Wildlife Conservation Commission at (850) 488-6253 or visit their website at [www.floridaconservation.org](http://www.floridaconservation.org).

*Credit: Jennifer Eckles; Florida Fish and Wildlife Conservation Commission*



## Calendar of Upcoming Events

May 29  
Board of Directors  
Meeting  
[www.sfapms.org](http://www.sfapms.org)

June 26  
SFAPMS General Meeting  
[www.sfapms.org](http://www.sfapms.org)

July 13-16  
APMS Annual  
Conference-joint meeting  
with MidSouth APMS  
Savannah, GA  
[www.apms.org](http://www.apms.org)

July 31  
Board of Directors  
Meeting  
[www.sfapms.org](http://www.sfapms.org)

September 18  
Board of Directors  
Meeting  
[www.sfapms.org](http://www.sfapms.org)

October 13-16  
2014 FAPMS Annual  
Conference  
Daytona Beach, FL  
[www.fapms.org/meeting](http://www.fapms.org/meeting)

October 15-17  
41st Annual Natural Areas  
Conference  
Dayton, OH  
[www.naturalareas.org/conference/2014-natural-areas-conference](http://www.naturalareas.org/conference/2014-natural-areas-conference)

October 23  
SFAPMS General Meeting  
[www.sfapms.org](http://www.sfapms.org)

November 20  
Board of Directors  
Meeting  
[www.sfapms.org](http://www.sfapms.org)

## “TrophyCatch” by Florida Fish and Wildlife Conservation Commission

TrophyCatch is a new angler recognition program hosted by FWC. This program is free and provides valuable rewards to anglers who document and release largemouth bass that weigh in at over eight pounds. As long as the bass is caught legally in the state of Florida it is eligible.

Please remember that you must release these fish. The rewards range in value from \$100-\$1000. The program’s goals include identifying the best bass fish nurseries, decreasing mortality, and promoting ecological values.

For information: [TrophyCatchFlorida.com](http://TrophyCatchFlorida.com)



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Continued from page 9

## Best Management Practices

*Using Best Management Practices can help our lakes and canals be healthier!*

- Maintain the community's stormwater system on a regular basis.
- Recertify stormwater system every five years.
- Get permits for all docks and decks.
- Construct all docks and decks in accordance with the Florida Building Code.

*Credit: South Broward Drainage District*





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## Youth Environmental Alliance (YEA!) participates in Dune Restoration Project at John U. Lloyd Park in Dania Beach.

More than 100 volunteers from different organizations, including Broward County NRPMD, Keep Broward Beautiful, Waste Management, Keep America Beautiful, Florida Park Service, National Wildlife Federation, Sawgrass Springs and Tequesta Trace Middle Schools, Indian Trace Elementary School, Boy Scouts Troop 183, Florida Master Naturalists, Kohl's, Best Buy, and Allstate Resource Management, Inc. joined Y.E.A. to plant Sea Oats and native dune vegetation as well as a Gumbo Limbo tree at State Park as part of an Earth Day Celebration.

Students and community volunteers learned how to restore sand dunes and native coastal habitats to celebrate Earth Day 2014. This dune restoration project was funded by a \$10,000 Waste Management Think Green Grant in affiliation with Keep America Beautiful.

Youth Environmental Alliance (YEA), a non-profit organization dedicated to delivering environmental programs that engage youth and adult volunteers in hands-on learning activities that protect Florida's fragile ecosystems, together with Keep Broward Beautiful through Broward County's Natural Resources Planning and Management partnered in implementing the restoration project.



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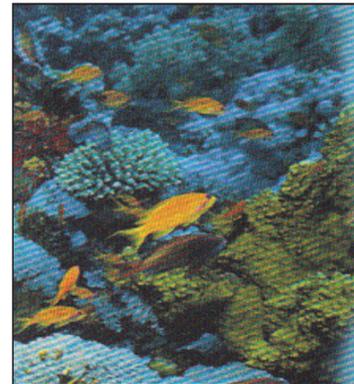


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## The Role of Sulfates in Your Waterbody

Sulfates are chemical compounds that contain the elements sulfur and oxygen. They are widely distributed in nature and can be dissolved into waterbodies in significant amounts. The chemical formula for sulfates is  $\text{SO}_4^{2-}$ .

There are a variety of diverse sources for sulfates in waterbodies. Sulfate concentrations in a waterbody are influenced primarily by natural deposits of minerals and organic matter in its watershed. Sulfate is also widely used in industry and agriculture, and many wastewaters contain high concentrations of sulfate. Acidic rainfall (containing sulfuric acid) is a major source of sulfate in some waterbodies.

The primary source of sulfate in rain in industrialized areas is through atmospheric discharges

from power plants that burn sulfur-containing fuels and from certain industries.

The primary source of sulfate in rain in non-industrialized areas is through atmospherically oxidized hydrogen sulfide (the chemical symbol for hydrogen sulfide is  $\text{H}_2\text{S}$ ) which is produced along coastal regions by anaerobic bacteria. Volcanic emissions also contribute sulfur to the atmosphere.

Sulfate is used by all aquatic organisms for building proteins. Sulfur changes from one form to another (known as "cycling") in quite complex ways. Sulfur cycling can influence the cycles of other nutrients like iron and phosphorus and can also affect the biological productivity and the distribution of organisms in a waterbody.

Bacteria can significantly influence the sulfur cycle in water. For example, under conditions where dissolved oxygen is lacking, certain bacteria can convert sulfate to hydrogen sulfide gas ( $\text{H}_2\text{S}$ ). Hydrogen sulfide gas has a distinctive rotten egg smell. Sulfates pose no known direct threat to human health.

*Credit: Lakewatch Circular*



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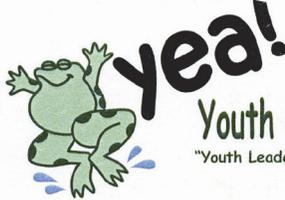


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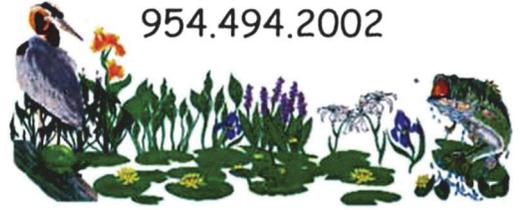
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