# The Freshwater Chain of Lakes Photo Album



Channel catfish
*(Ictalurus punctatus)*



Bluegill
*(Lepomis macrochirus)*



Speckled perch
*(Pomoxis nigromaculatus)*



Largemouth bass
*(Micropterus salmoides)*

Photo compliments of Joe McDonald



Belted kingfisher
*(Ceryle alcyon)*



Tri-colored heron
*(Egretta tricolor)*



Great blue heron
*(Ardea herodias)*



Osprey
*(Pandion haliaetus)*



Wax myrtle
*(Myrica cerifera)*



Swamp lily
*(Crinum americanum)*



Dahoon holly
*(Ilex cassine)*



Giant leather fern
*(Acrostichum danaeifolium)*



Pond apple
*(Annona glabra)*



Soft rush
*(Juncus effusus)*



Silk Bay
*(Persea borbonia)*



Pickerelweed
*(Pontederia cordata)*

Plant photos compliments of USF & ERM
Fish photos compliments of Nature's Images Inc.
& NYS DEC

## Palm Beach County Freshwater Chain of Lakes

**Pine Lake**
**Lake Clarke**
**Lake Osborne**
**Lake Eden**
**Lake Ida**



Photo compliments of John Lopinot

## Funding Support

**Fisheries enhancement and water quality improvements are funded by a portion of the County's vessel registration fees, fines collected in compensation for environmental damages, and with grants from:**

- **U.S. Army Corps of Engineers**
- **U.S. Environmental Protection Agency (EPA)**
- **South Florida Water Management District (SFWMD)**
- **Florida Department of Environmental Protection (FDEP)**
- **Fish and Wildlife Conservation Commission (FWC)**
- **Other local, state & federal agencies**

## What You Can Do

- **Join or form a lake monitoring group, such as LakeWatch, (800) 525-3928.**
- **Become a proud owner of a "Certified Florida Yard" by contacting the County's Cooperative Extension Service's Horticultural Program at (561) 233-1759.**
- **Encourage your homeowner's association or neighbors to plant native aquatic vegetation along lake shores.**
- **Keep lawn clippings and debris, palm fronds, pesticides, detergents, oils and paints from entering the lake or drainage system.**
- **Treat areas with pesticides only when and where there is a problem.**
- **Use fertilizers sparingly.**
- **Wash your car on the lawn.**
- **Report all illegal dumping in storm drains to the State Warning Point at (800) 320-0519.**



Litter clean-ups using volunteers greatly benefit lake quality


Palm Beach County
Board of County Commissioners

Palm Beach County
Board of County Commissioners
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# The Chain of Lakes

These waterbodies are natural or once-natural freshwater lakes that are located along the western slope of the coastal ridge. The lakes include Pine Lake, Lake Clarke, Lake Osborne, Lake Ida, Lake Eden, and their connecting waters. Information is collected on the physical, chemical, and biological parameters of the lakes. The goal of lake management is to provide for the preservation, maintenance, and restoration of aquatic and wetland resources in the chain-of-lakes system. Management addresses restoration of the aquatic and wetland communities and their habitats, protection and improvement of water quality, control of nuisance plants, maintenance and enhancement of fisheries resources, and enhancement of environmental awareness and community participation in the lake protection process.


## Freshwater lakes are important:

- Process and store stormwater that replenishes our drinking water supply.
- Serve as water supply reservoirs.
- Provide critical habitat for fisheries and wildlife.
- Provide aesthetic appeal.
- Provides recreational opportunities for boaters and anglers.

# Obstacles Our Lakes Face

### *Historical Dredge and Fill Activities:*

To accommodate development, the lakes and their filter marshes were dredged and filled extensively. This interrupted the system's normal water flow and eliminated the cleansing filter marshes.

### *Reduced Water Quality*

Approximately 1,000 miles of canals drain Palm Beach County and wash nutrients and pollutants into our lakes, rivers, and the ocean. Excessive pollutants have caused the water to become turbid, decreasing the amount of available sunlight needed by submerged aquatic vegetation to survive.

### *Nonnative Plant Growth*

Waterbodies can become enriched with mineral and organic nutrients from storm water runoff. Nonnative aquatic plants can take advantage of this condition and grow quickly, often displacing native aquatic vegetation. For example, hydrilla can grow up to one inch per day and form thick mats on or just below the water's surface, reducing available sunlight to the native plants that reside there.

### *Excessive Algae*

When native plants that buffer the shorelines are removed to create "sandy beaches," and invasive plants are sprayed with herbicides and decompose, nutrients enter the water and are used by algae and phytoplankton. Large quantities of nutrients can trigger an "algal bloom" (one-celled or colonial ornanisms that contain chlorophyl, usu. flourishing in aquatic or damp environments, and lacking true roots, stems, or leaves; includes seaweeds, pond scum, and many plankton). These blooms can deplete the dissolved oxygen in the water causing fish kills.

Photo compliments of Adair & Brady (1986)

South lobe of Lake Osborne, 1986. Hydrilla and algal development

Water lettuce
*(Pistia stratiotes)*

Australian pine
*(Casuarina* spp.*)*

Excessive algae blooms

## Problematic Plant Species:

Hydrilla & algae
*(Hydrilla verticillata)*

Water hyacinth
(*Eichhornia crassipes*)

Melaleuca
*(Melaleuca quinquenervia)*

Brazilian pepper
*(Schinus terebinthifolius)*

Earleaf acacia
*(Acacia auriculiformis)*

# State of the Lake Plan

**In 1996, Palm Beach County's Department of Environmental Resources Management (ERM) completed a study of the freshwater lakes and developed the *State of the Lakes* management and enhancement plan. The plan focused on ways to enhance and improve the lakes:**

### *Restore and Protect Wetland Habitats*

Shoreline enhancement projects. Restoration of publicly owned shorelines using native wetland plants that help remove excessive nutrients and create habitat for fish and wildlife.

### *Protect & Improve Water Quality*

Use of retrofitted storm drains to capture pollution before it seeps into the lakes. This upgrade will keep some nutrient-laden muck from entering the lakes.

### *Control Nuisance Plants*

An intergrated nuisance plant control program that reduces the volume of nonnative invasive plants in the lakes will continue, and be expanded using a diverse arsenal of tools.

### *Maintain & Enhance Fisheries*

Expanded or enhanced vegetated shorelines provide more hiding, foraging, and breeding sites for fish and wildlife.

### *Enhance Public Participation & Environmental Awareness*

Public workshops and presentations to communities to generate public participation and understanding of lake enhancement and water quality monitoring projects.

# Freshwater Plants to Complement Your Landscape

### Trees

| | |
|---|---|
| Pond apple | *Annona glabra* |
| Dahoon holly | *Ilex cassine* |
| Swamp bay | *Persea palustris* |
| Red bay | *Persea borbonia* |
| Cypress | *Taxodium* spp. |
| Red maple | *Acer rubrum* |

### Ferns

| | |
|---|---|
| Cinnamon fern | *Osmunda cinnamomea* |
| Leather fern | *Acrostichum danaeifolium* |
| Royal fern | *Osmunda regalis* |
| Shield fern | *Thelypteris* spp. |

### Submerged plants

| | |
|---|---|
| Spadderdock | *Nuphar luteum* |
| Tape-grass | *Vallisneria* spp. |

### Herbaceous plants (flowering)

| | |
|---|---|
| Golden canna | *Canna flaccida* |
| Swamp lily | *Crinum americanum* |
| Pickerelweed | *Pontederia cordata* |
| Arrowhead | *Sagittaria* spp. |
| Lizard's tail | *Saururus cernuus* |
| Fireflag | *Thalia geniculata* |
| Blue flag iris | *Iris hexagona* |
| Alligator flag | *Peltandra virginica* |

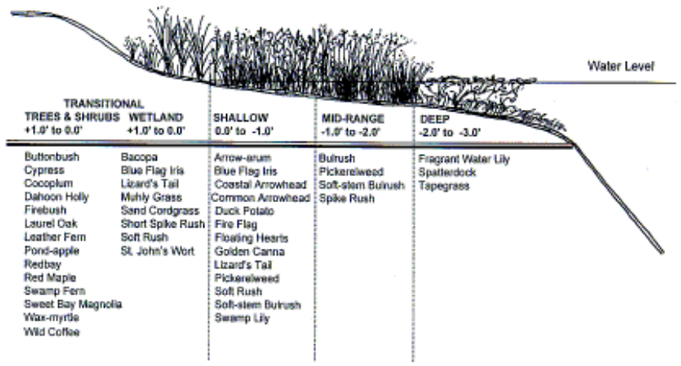
### Other herbaceous plants

| | |
|---|---|
| Spikerush | *Eleocharis* spp. |
| Cordgrass | *Spartina bakeri* |
| Bulrush | *Scirpus* spp. |
| Rush | *Fuirena scirpoidea* |
| Beak rush | *Rynchospora* spp. |
| Soft rush | *Juncus effusus* |

### Shrubs

| | |
|---|---|
| Wax myrtle | *Myrica cerifera* |
| Buttonbush | *Cephalanthus occidentalis* |
| St. John's wort | *Hypericum fasciculatum* |

## LITTORAL SHELF




*Plant on a slope no steeper than 1' vertical to 10' horizonal.*