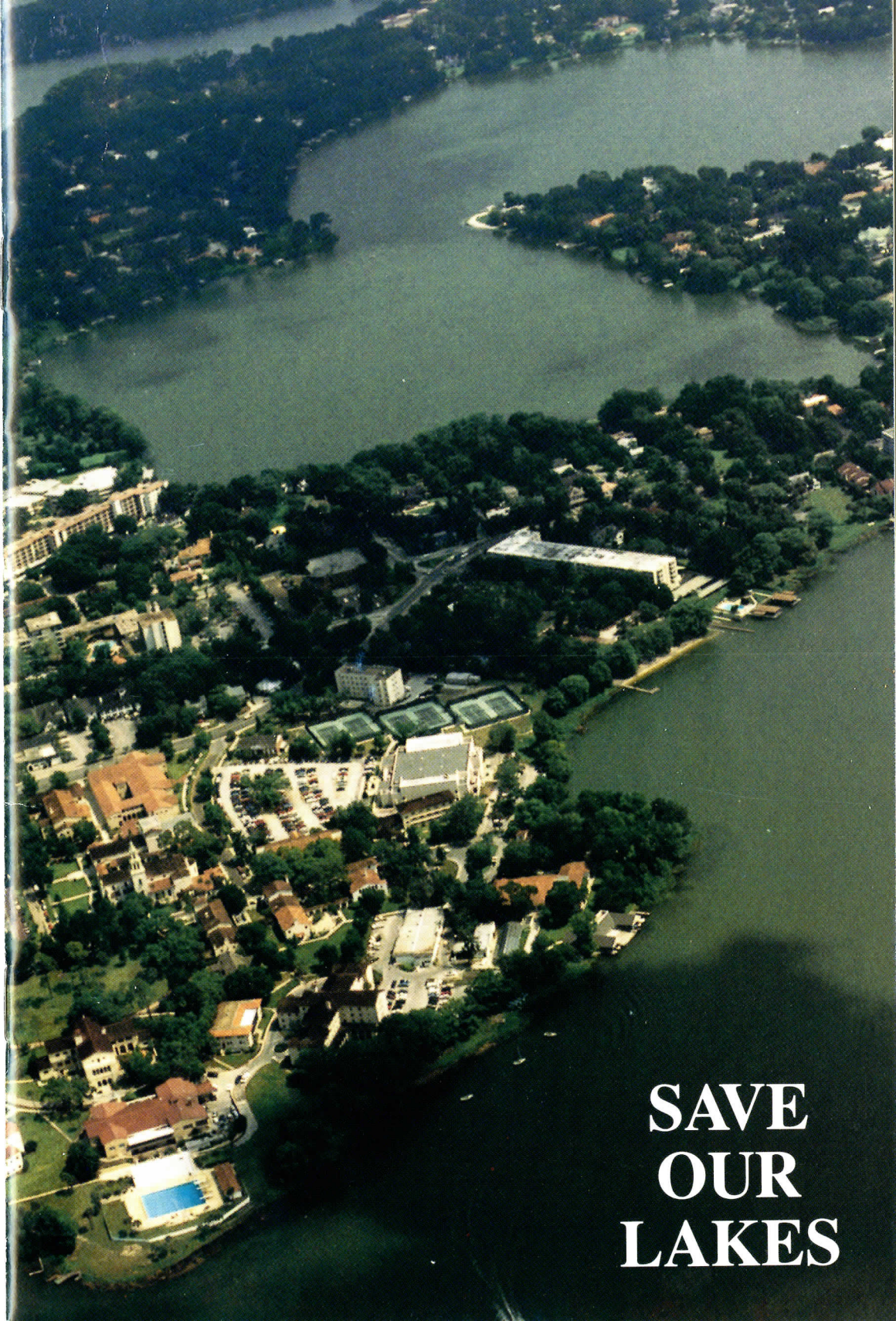
SAVE
OUR
LAKES

This publication has been prepared by the Winter Park Lakes and Waterways Advisory Board as a public service to the residents of Winter Park and adjoining lake front property owners.

The purpose of this guide is to 1) promote a greater public awareness of the causes and effects of water pollution, 2) describe the efforts of the City of Winter Park to improve our lakes' situation, and 3) show how YOU can help.

This project has been funded entirely by private donations.

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Water and Winter Park

The lakes and waterways of Winter Park are one of our community's most valuable natural resources. This area was first settled because of the beauty of its many lakes and streams. We continue to appreciate their charm and significance today as we enjoy the recreation our lakes offer. All of the property values in and around Winter Park have been positively affected by the strong demand brought about, in large part, by the existence of the various lakes in the area. The quality of the water in our lakes impacts our whole environment, including the water we drink and the air we breathe.

Healthy and Unhealthy Lakes

Lakes and rivers go through a natural aging process just like humans. This process is called eutrophication. All lakes will eventually become dry land. This occurs naturally over thousands of years, but the process can be accelerated by development and carelessness. Many of us are familiar with the problems associated with Lake Apopka, which has aged the equivalent of 1,000 years in just the last 50 years.

The aging process occurs as follows: Excess nutrients, in the form of fertilizers, leaves, waste, oil, detergents and yard clippings, enter the water and stimulate the existing plants and especially algae to overproduce. As the plants and algae proliferate and die, available oxygen in the water is greatly reduced. When the oxygen is reduced, desirable and beneficial organisms such as native plants and game fish die. The water eventually becomes murky and foul smelling. This decomposing matter combines with the excess nutrients to form sediment on the bottom of the lake. The sediment eventually fills in the lake.

How Healthy Are Winter Park's Lakes?

There are many ways to measure water quality. Engineers, scientists and environmentalists have developed bacteriological, chemical, nutrient pollution, and turbidity (water clarity) measures. An extensive engineering study recently categorized our Winter Park lakes to be "moderately eutrophic", which means that our lakes have partially deteriorated. Lakes which develop a high degree of eutrophication may experience fish kills, excessive aquatic weed and algal growth, loss of game fish, loss of recreational usage, and other water quality related problems. Winter Park's lakes are not overwhelmed with any one of these problems, but they experience all of them from time to time. The pictures on the opposite page show the situation these water bodies once experienced with hydrilla. Without continuing vigilance our lakes will regress, deteriorate even further and utimately die.

We really do not need extensive studies to know our lakes are dying. Bathers at Dinky Dock on Lake Virginia have known for years that there is a problem - since the beach has been closed for swimming due to bacterial pollution. Lakefront residents and boaters have noticed the algae blooms and murky water. Fishermen have noticed the decline in game fish and an increase in less desirable species.

Hydrilla removal, Lake Virginia 1968.

Hydrilla, Lake Osceola 1968.

Lake Midget, on Denning Drive, before and after revegation and installation of stormwater traps.

What is Winter Park Doing About The Problem?

Stormwater Management

All rainwater runoff from roads, roofs, and yards eventually enters our lakes. Our stormwater drains were designed years ago to drain into our lakes when the thinking was that lakes could rejuvenate themselves with no assistance from the residents. We were wrong.

As rainwater cleanses our driveways and streets, oil, debris and leaves, as well as excess fertilizer from our lawns, enter the lakes. Studies have indicated this runoff to be the major source of nutrient pollution in our Winter Park lakes.

Stormwater runoff from as far away as Colonial Plaza directly enters our lakes, and nutrient problems that begin in Lake Dot near the Orlando Arena eventually flow though our chain. Winter Park, in cooperation with Orlando and Orange County, is trying to cleanse its runoff and attack its pollution problems.

The City of Winter Park has:

1. Established a Lakes and Waterways Division with full-time personnel to maintain and improve the quality of our lakes, canals and waterways.
2. Hired a full-time engineer with extensive experience in stormwater management.
3. Equipped the laboratory at the Utilities Department to regularly analyze water samples from the lakes for bacteria, nutrient loading and water quality.
4. Installed drain traps where many stormwater pipes enter the lakes and placed native aquatic plants around the traps to filter some of the nutrients.
5. Hired a crew to clean and maintain the water outfall traps, as well as install additional ones.
6. Instituted an ambitious and aggressive street sweeping campaign throughout Winter Park to keep leaves and debris from entering the lakes.
7. Enacted legislation which regulates soil erosion during construction and encourages owners to hold and filter their own stormwater runoff.

Specific Projects

Winter Park has undertaken or is planning a number of significant projects to improve the water quality of our lakes, including the following:

Dinky Dock and Beach

The city has identified and removed the major source of bacterial contamination and installed a new dock, boat ramp and retention ponds at the Dinky Dock area.

9th Grade Center

This 2 acre retention pond filters stormwater runoff to an urban wetland and aquatic nursery. Biology students and citizens can use this site as a living aquatic laboratory and viewing garden.

S.M.A.R.T. Project (Stormwater Management and Re-Use Technology)

In conjunction with the University of Central Florida and the Department of Environmental Regulation, stormwater runoff is being directed to a revegetated Lake Mendson. This stormwater runoff is being used to irrigate the grounds at Lake Island Park which will in turn filter the nutrients from the water before it reenters the lake.

Morse Boulevard Alum Treatment

This project filters a significant portion of downtown Winter Park's stormwater by introducing alum which drops nutrients to the lake bottom where they do not pollute the lake water.

Mead Gardens

The Lake Sue/Lake Virginia Canal will be re-routed through existing ponds which will have been revegetated for maximum nutrient filtration.

Lakeshore Protection Ordinance

Winter Park has an ordinance which requires a permit to remove or alter shoreline vegetation. The city has a separate Lakes Division which assesses each permit application for environmental impact and makes recommendations to the waterfront property owner.

Shoreline vegetation prevents erosion, controls pollution, absorbs harmful nutrients, provides a home for native wildlife, and helps to keep the ecosystem in balance. The removal or replacement of native vegetation with non-native plants accelerates the eutrophication of our lakes.

Native aquatic plants appropriate for the drainage characteristics of your yard should be used. Trying to create the special circumstances under which a non-native plant can survive requires extra time, care and money. Moreover, it increases the need for fertilizers and pesticides. These substances contain nutrients and chemicals which degrade the water quality of our lakes.

Hydrilla

Hydrilla is a plant usually found in aquariums. After its accidental introduction in our lakes several decades ago this non-native plant flourished and at one time threatened to completely cover all of the water surface in our lakes. The City has brought the hydrilla plant under control and continues treatments to minimize its existence.

What Can You Do?

Stormwater Runoff

The better we maintain our lawns, drives and streets, the cleaner our lakes will be. Some people improperly use the stormwater drains for the disposal of car oils, pesticides, paints, etc. The effect on our environment is disastrous.

Yard Clippings and Leaves

Grass clippings and leaves should not be blown onto the street, where they often wind up in our lakes. A compost pile will produce mulch and act as a natural fertilizer while preventing this material from filling up our lakes.

Fertilizers, Pesticides, Herbicides, etc.

If you have to use any of these materials, do so with moderation, in accordance with the directions and as far away from the waterbody as possible. Inland owners should fertilize well within their curbs, assuring that they do not spread fertilizer into the streets. Be aware of your rainwater runoff entering the streets, stormwater drains and waterways. Consider using slow-release pelletized fertilizers and natural pesticides which are less harmful to the environment. Avoid any fertilizers containing phosphorus and liquid fertilizers as they enter the lakes and aquifers more rapidly.

Conserve Water

The shortage of drinking water in Florida is a serious problem. Water your lawn when it evaporates least - in the early morning or late evening. Fix leaky plumbing fixtures to avoid wasting this precious resource.

Septic Tanks

If you currently have a septic tank, consider connecting to the city sewage system when possible. At the very least, keep your septic system properly maintained.

Boat Owners

Boat user fees are collected to help finance the lakes police patrol and the Lakes Division programs for lake enhancement.

Proper maintenance of boat motors and special care to avoid oil and gasoline spillage are critical in maintaining water quality.

When cruising near the shoreline, erosion is accelerated by your speed and wake. Moreover, cruising in shallow water causes the nutrients in the lake bottom to become unsettled. This recycles the damaging sediment in addition to clouding the water. Stay outside of the buoys except when docking.

Boat trailers and motors should be checked after each use to remove any aquatic plants. This prevents the introduction of foreign plants should you launch your boat in different waters.

If you are a waterfront property owner:

Remove dead and floating vegetation from the shoreline to keep it from decomposing in the lake, but do not remove your live existing shoreline vegetation. Become familiar with desirable and native vegetation. Consider the planting of native plants such as those found in Appendix B.

Consider irrigating with lake water. It contains nutrients beneficial to your lawn and shrubs. It's also more economical. The removal of the nutrients by your lawn cleanses the water before it returns to the lake.

Terracing or swales and berms in your lawn reduce erosion and stormwater runoff into lakes.

Seawalls

Seawalls are not desirable since they harm the lakes' ecosystem, erode the sand at the shoreline and disturb the natural lake bottom. Where absolutely necessary, however, a rip rap type of angled seawall, constructed of field stones, sand and porous plastic cloth, can be used to prevent severe shore erosion. Required permits and approved options must be obtained in advance from the appropriate governmental authorities.

For more information and a shoreline alteration permit application package, please call the City of Winter Park, Lakes and Waterways Division.

Alligators

Alligators are native to Florida and their peaceful existence in our lakes is not cause for alarm. Alligators are naturally afraid of man and should leave the area if you approach. Do not feed alligators; it is against State and Federal law. Trouble develops when alligators see man and expect food. Stay away from a mother alligator with babies.

If you do have trouble with an aggressive alligator or one that will not leave your property, please call the Florida Game & Freshwater Fish Commission - Alligator Control.

Triploid Grass Carp

There is a lack of unanimity among experts regarding the use of the sterile carp as a method of weed and plant control. For this reason, stocking of self-contained lakes may continue on a very restricted and controlled basis.

APPENDIX A

Local, State and Regional Governmental Agencies

City of Winter Park - 401 Park Avenue, South

Police Department	623-3282
Stormwater Engineer	623-3424
Lakes Division	623-3326
Shoreline Alteration Permits	623-3424

Orange County Environmental Protection Agency

836-7400

Department of Environmental Regulation

894-7555

Department of Natural Resources

Aquatic Plant Biologists	423-6037

St. Johns River Water Management District

Palatka	(904) 328-8321
Local	894-5423

Florida Marine Patrol

Titusville	267-4021

Florida Game & Freshwater Fish Commission

Enforcement (local)	295-9123
Alligators	(800) 342-9620
Kissimmee	847-7293

Stormwater drains before street sweeping and trap installation, Lake Chelton.

Stormwater drain trap with native aquatic plants, Lake Osceola.

Venetian canal between Lake Osceola and Lake Maitland.

APPENDIX B

Suggested Plants

Here are profiles of 9 of the most reliable and easiest to find native wetland plants:

Arrowhead or Duck Potato (Sagittaria lancifolia)

A moderately tall plant with narrowly elliptic - lanceolate shaped leaves. The white flowers often extend 10 inches above the leaves, generally in whorls of three. This plant flowers throughout most of the year.

Bald Cypress (Taxodium distichum)

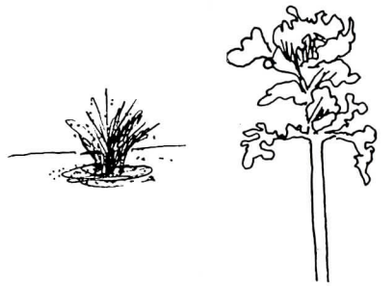
Deciduous, semi-aquatic tree valued for its timber. Identified by its fluted or buttressed trunk and woody "knees" that protrude from the water. The green leaves are arranged in feather-like fashion. Grow in full sun or light shade.

Blue Flag Iris (Iris hexagona)

A perennial with bright green leaves and flowers with six violet-blue sepals and yellow crests. Bloom in spring. Found growing in shady swamps and marshes. The term "flag" in the common name comes from the middle English word for "rush" or "reed."

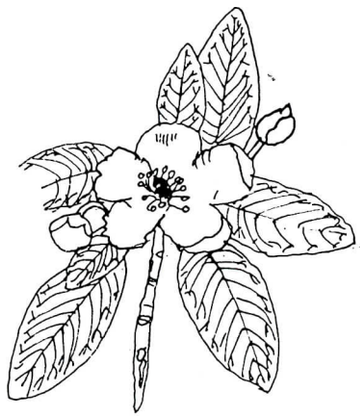
Bulrushes (Scirpus species)

Round to triangular with no leaf blades. The flowers or inflorescences are located at stem tips. The seeds are eaten by waterfowl. Both soft-stem (S.validus) and giant (S.californicus) bulrush are planted in marshy soils. Can attain a height of 10 feet.



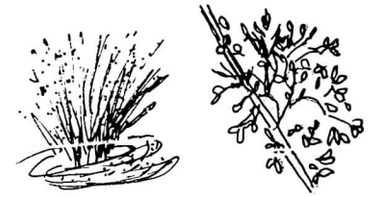
Loblolly Bay (Gordonia lasianthus)

A slender evergreen tree or shrub. Leaves are shiny green and leathery. The large and fragrant showy white flowers appear in summer. The bark was once used locally for tanning leather.



Soft Rush (Juncus effusus)

This widespread native can be found in clumps on wet or dry ground. The cylindrical stems grow to about four feet tall in sun or light shade. Ducks eat the seeds.



Water Canna (Canna flaccida)

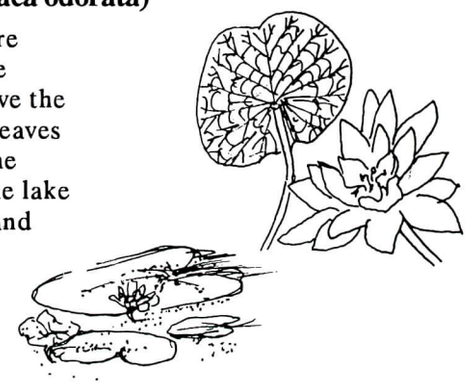
A little known or appreciated native relative of the horticultural canna, the golden canna begins blooming in April and continues through fall with large, bright yellow flowers. Plant in swampy areas or lake shallows in full sun or light shade. Will grow up to 4 feet tall, but usually shorter.

Pickerel Weed (Pontederia cordata)

A perennial aquatic plant with striking violet-blue flowers in spikes born well above the glossy, lance-shaped leaves. Pickerel weed grows in clusters of plants ranging from one to four feet tall. Seeds are eaten by ducks and other waterfowl. Best in full sun.

Fragrant Water-lily (Nymphaea odorata)

The large and fragrant pure white flowers of this native waterlily are held just above the waterline. The shiny, flat leaves float on the surface, but the plant is firmly rooted in the lake shallows. Best in full sun and still water.



APPENDIX C

Troublesome Plants

hydrilla	*Hydrilla verticillata*
water hyacinth	*Eichhornia crassipes*
water lettuce	*Pistia stratiotes*
elephant-ear	*Colocasia esculentum*
water primrose	*Ludwigia peruviana*
water willow	*Salix caroliniana*
alligator weed	*Alternanthera Philoxeroides*

For more information, please contact the Lakes Division at 623-3326.