

Chapter 3

Beyond Basic Pond Management

What can you do?

Taking care of your stormwater pond is up to you and your neighborhood. Look through these activity lists to discover the steps to a better pond environment.

Conserve Water

- Fix drips and leaks.
- Take shorter showers.
- Turn off running water while showering, brushing teeth, washing face, shaving, or washing cars and trucks.
- Operate dishwashers and clothes washers only when fully loaded.
- Install low flow fixtures on shower heads, faucets and toilets.
- Sweep instead of hosing down your driveway or sidewalk.
- Plant drought tolerant vegetation and reduce lawn area. Use drip irrigation.
- Collect roof runoff in cisterns or rainbarrels for irrigation.

Protect Water

- Dispose of hazardous materials properly. Do not dump oils, paints, thinners, antifreeze, motor oil or other hazardous materials down the drain.
- Try reducing the amount of fertilizers and pesticides used on your lawn. Apply only when absolutely necessary.
- Carpool to reduce the amount of cars on the road or use public transportation.
- Wash or rinse vehicles on a porous surface so the water will soak into the ground rather than becoming runoff.
- Volunteer! Get involved in watershed management.

Pond management can be fun! ▼



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Pond management can be fun! ▼



Everyone working together can make a better stormwater pond environment for their neighborhoods. ►



What You Can Do **TODAY**

- Take pond information to neighbors to educate them about how stormwater ponds work.
- Pick up trash.
- Take pictures of your pond; take pictures of good areas as well as ugly areas and any trash. Take them with you when you talk to neighbors about pond improvements and pollution prevention.
- Remind neighbors to fertilize wisely, with slow release nitrogen, 2 times a year.
- Remind neighbors to keep a "fertilizer-free" zone around the pond.
- Remind neighbors to keep grass clippings and leaves out of storm drains.
- Learn to identify the aquatic plants in your pond.
- Ask your neighbors to join you in forming a quarterly pond maintenance group.
- Be sure to include kids in your educational, planning, and work day efforts; they can be a big help, and someday they might have a pond to care for!
- Clean up pet manure to keep excess "nutrients" and disease-causing microorganisms away from your pond.

- Practice organic gardening techniques using non-toxic products.
- Call your local government building department and ask for an aerial photograph of your neighborhood including the pond area. Aerials are usually of one square mile, at a scale of 1:200 feet; sometimes they call them "blue-line aerials." Looking at the aerial, determine how your pond connects with the surrounding area:
 - Does your pond drain to a nearby wetland or creek?
 - Is your pond part of a "greenway" that wildlife depends upon?
 - Does your pond connect to another pond in the neighborhood?
 - Are there any businesses in your pond's drainage basin?
 - The building department should also have records of your neighborhood drainage plan, which will tell you exactly which houses are in your pond's "drainage basin." Request a copy of this plan, and ask for help interpreting the plan.



What You Can

- Ask your neighbors to join you in a pond walk; complete a pond inspection form and pond sketch as you walk around the pond.
- Identify two key nuisance plants in your pond that everyone in your pond group will learn to identify and will remove from the pond area every time they see it growing there.
- Schedule four quarterly work days, and tell everyone in your pond group to mark their calendars now!
- Review your pond inspection form and use your notes to plan the activities for the next pond work day.
- Talk with a local native aquatic plant nursery and ask for prices on these plants:
 - *Saururus cernuus*, lizard's tail
 - *Iris virginica*, blue flag iris
 - *Spartina bakeri*, sand cordgrass
 - *Canna flacida*, golden canna
 - *Sagittaria lancifolia*, duck potato
 - *Sagittaria graminea*
 - *Pontederia* spp., pickerelweed
 - *Juncus effusus*, soft rush
 - *Myrica cerifera*, wax myrtle
 - *Cephalanthus occidentalis*, button bush
 - *Quercus laurifolia*, laurel oak
 - *Acer rubrum*, red maple
 - *Taxodium* spp., cypress
 - *Celtis laevigata*, sugarberry
 - *Ulmus americana*, elm
 - *Liquidambar styraciflua*, sweetgum

Except for the trees and shrubs, ask for bare-root prices; liners are too small, and quarts or gallons leave you with a lot of pots to deal with! It is easy and economical to use bare-root plants when buying aquatic plants.

- Have a meeting with your neighbors to discuss a planting plan: select plants, set a budget, set a pond planting date.
- Get a storm drain marking kit for your neighborhood storm drains. This is a great activity for kids! The markers have pollution prevention messages on them to discourage dumping in the storm drains.

Try these resources to get your kit:

- stormwater department at your city or county government
- local cooperative extension service environmental and horticulture programs
- LAKEWATCH Program at the University of Florida
- local Water Management District (numbers listed in Chapter 6 - Resources & References)

Spray-paint kits used to be popular for storm drain marking, but it is messy and it doesn't last long. Look for a resource that has metal or plastic markers that glue or fasten onto the concrete.

- Ask for door hangers or other printed material to distribute throughout the neighborhood at the time of the storm drain marking. They should explain what the markers are for and how each household can help improve water quality and prevent stormwater pollution.

- If your neighborhood has septic systems, ask a septic expert to speak at a homeowners meeting. Send out notices to the neighborhood outlining appropriate inspection and maintenance procedures for septic systems. Improper leaching can pollute your pond! Contact your local government health department for more information.
- Find out if a "swale and berm" contour is appropriate for the yards around your pond; this type of grading will filter water through a soil berm before it enters your pond. Call your local Water Management District for recommendations.
- Get soil testing kits from your local cooperative extension service. Get your soil tested, and pass out kits to your neighbors for their yards. Use the results to achieve proper fertilizer application levels. Give the recommendations to lawn care services working in the neighborhood so they can adjust their maintenance routine accordingly.
- Order a "Aquatic Plant Identification Deck" from the University of Florida Institute of Food and Agricultural Services: Call (352) 392-1799 or (352) 392-1764 to order.
- Identify all of the birds and other wild life that visit your pond. Keep a record, and share the "wildlife spottings" with your neighbors. Assign group members different times of day to "watch for wildlife." Include kids in this activity. Remember, insects and benthic organisms are wildlife, too!
- Keep a record of monthly water levels for your pond for at least one full year. This will help you know what is "normal" for your pond. This can be a relative measurement taken from a convenient permanent station.
- Make a Secchi disk and measure water clarity on a monthly basis for at least one full year.
- Assign two pond group members each quarter to complete a pond inspection just before your scheduled pond work day. Use the pond inspection form to plan work day activities.
- Replace water-hungry landscaping and sod with Florida native plants. Native plants will require less water, fertilizer, and pesticides.
- Select porous materials such as gravel for walkways and driveways to increase infiltration and decrease surface runoff.
- Keep fertilizer off paved areas, including driveways and sidewalks, to help prevent rainwater from washing the nutrients into the street and storm drains.
- Watch for construction in your pond's drainage basin, and make sure inlets are protected with filter fabric or hay bales. Report muddy water and other discharges to the building department or stormwater department.
- Keep pavement and gutters free of debris and dirt.

What You Can Do IN THE FUTURE

- Send out a one-page newsletter to your neighborhood that highlights your group's efforts to have a cleaner, safer pond environment.
- Look for "volunteer" native aquatic plant species growing in and around your pond. Don't pull out plants unless you know for sure what it is, and you're sure it shouldn't be there!



Stormwater Reuse Management

A good way to solve both a water quality and water quantity problem is to reuse stormwater. Wet detention ponds can be designed so that water which is normally part of the fluctuating pool and some of the permanent pool can be reused thereby reducing stormwater runoff and pollution. The runoff water stored in the pond can be recycled for irrigation, car washing, cooling water makeup, or other beneficial uses. The reuse of pond water also has an economical benefit when compared to the cost of potable water.

The reuse of stormwater is also a good conservation practice. As urbanization increases the hydrologic balance of the region also changes. The increase in watershed discharges decrease the amount of water that had previously infiltrated into the ground or evaporated from the watershed. The stormwater that is re-applied to the land provides greater potential for groundwater replenishment and evapotranspiration. In addition there is a decreased use of pumped well water. Reusing stormwater also recycles the excess nutrients that are concentrated in ponds, thus requiring fewer fertilizer applications on the uplands and less maintenance in the pond

Best Management Practices (BMPs)

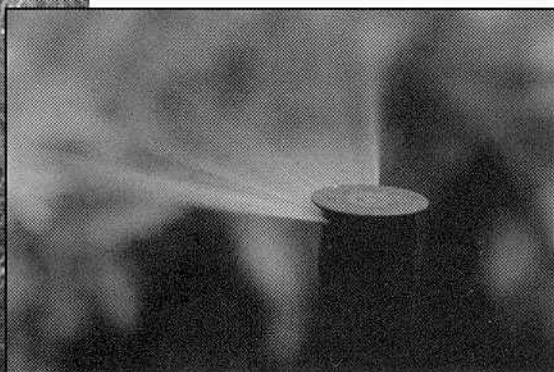
Structural BMPs include the use of porous surfaces, implementation of oil skimmers, construction of grass swales, etc. A comprehensive list of these BMPs and their respective maintenance schedules can be found in Chapter 5.

Practical Maintenance Guidelines

Practical Maintenance Guidelines can be accomplished by home owners, but have not been mentioned yet for our publication.

Remember that the purpose of the stormwater pond is to remove pollutants before they are transported to natural lakes, rivers and streams. They will never be pristine swimming or fishing lakes (i.e., clear of vegetation or phytoplankton) because their purpose is to trap and transform pollutants before water is transported downstream. Some algae and plants that home owners find objectionable help provide this pollution removal function.

Stormwater ponds will have to be cleaned out periodically (about every 25 years) to keep them functioning properly. But things can be done in the pond and the watershed to improve water quality and extend the periods between extensive maintenance efforts. An efficient functioning stormwater system takes as much time and effort as maintaining the rest of the landscaping. In fact highly maintained upland landscaping is a big part of the problem in keeping stormwater systems attractive.



▲ Irrigate only as much and as often as necessary.

Many homeowners do not connect their landscape design and maintenance practices to the problems in their stormwater ponds. Highly maintained lawns and direct discharge of stormwater into ponds cause much of the weedy growth in stormwater ponds. One of the most important steps in having a more attractive stormwater pond is to form a partnership with all the people in the community and then learn as much as possible about your particular pond.

1. Remove debris especially at the inflow and outflow of ponds and give special attention to drains and drop boxes. This will reduce the amount of pollutants that the pond will have to remove.
2. Inspect the entire stormwater system on an annual or semiannual basis and make brief inspection trips after each storm. Cleaning up debris and checking for sinkholes or solution holes especially in swales and sumps is an important part of the inspection. If severe erosion problems occur then professional help may be needed to plug problem holes. Leaves, limbs and other debris should be removed from the conveyance system and grass ground cover kept in good condition. Collect and dispose of grass cuttings off site or use a mulching mower.
3. Keep records of all maintenance needs plus the work done on the pond.

4. Incorporate both a deep (<8 feet) permanent pool and vegetated shallow (< 3 ft.) areas. Make sure there is an open water permanent pool that never goes dry. This helps in sedimentation of pollutants and mosquito control. The permanent pool water should contain adequate amounts of dissolved oxygen. If this is a particular problem then perhaps a fountain or other aeration device can be added. Also, at least one third of the pond should be maintained as a shallow littoral shelf with desirable plant species to remove dissolved pollutants.
5. Removal of algae and nuisance plant species can be accomplished by rakes or hand pulling. If plant removal is part of the plan developed for your lake obtain advice from your water management district and plan work days to get as many people involved and educated as possible.

Stormwater Pond

TIP



Lush green yards contribute to overgrown or green ponds.

Let weeds dry on the pond banks to reduce weight and volume before hauling them away.



Pre-Treatment Alternatives.

If your pond is especially unattractive or weed choked, you may want to enlist the advice of a professional. Some alternatives that can reduce pollution before it reaches the pond can be incorporated using the entire drainage basin.

▼ Sump Basin



1. Sump Basins -

Pre-treatment basins are probably one of the most important maintenance strategies. Large particles will settle out and the basin will be much easier to keep clean and functional than the entire pond. Make it easily accessible by backhoe or other type of equipment. Clean out twice a year and remove debris after every storm.

Swales -

Swales are shallow conveyance systems and an important component for pretreatment. Swales are increasingly more effective the longer the contact time with the vegetation. Check dams or cross blocks and gentle side slopes increase pollution removal. Educate residents

that swales are essential components of stormwater systems and should *never* be used as disposal sites for leaf litter, grass clippings and other types of refuse. In fact this practice could lead to flooding of down stream neighbors and plugging of the stormwater inlet or outlet structures.

2. Grass Filter Strips -

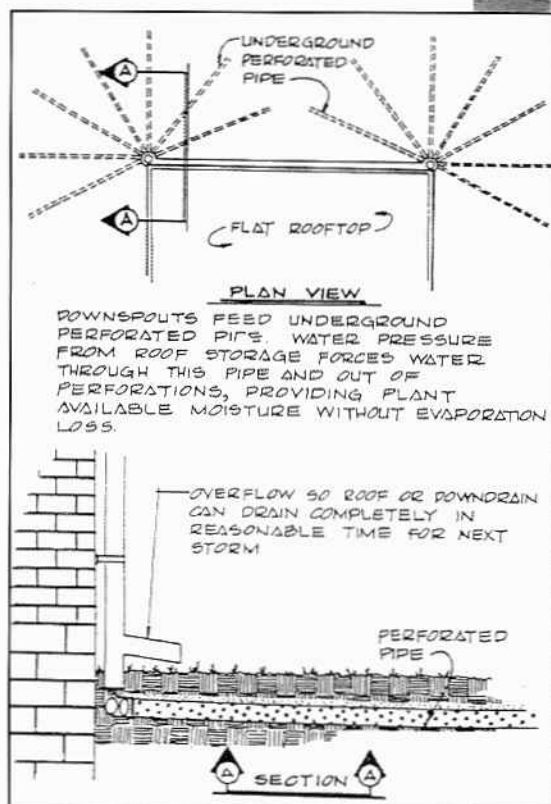
Filter strips are linear areas of vegetation (usually 25 to 30 feet wide) that trap suspended solids and promote sheet flow. Flow must enter the filter strip as low-energy sheet flow. Install flow-spreading devices such as shallow weirs, stilling basins, or perforated pipes across the width of the filter strip. Flow velocity should be no greater than 0.9 feet per second and the depth of flow no more than 0.5 inches.

▼ Grass Filter Strips



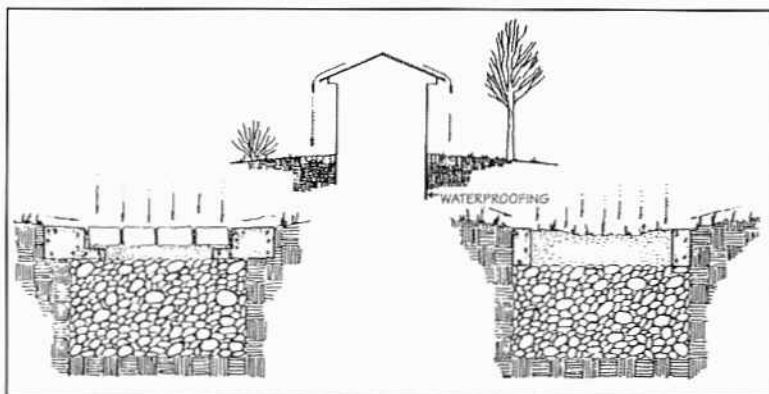
3. Infiltration drainage of roof tops-

Rooftop runoff disposal can reduce runoff to the stormwater pond and provide an opportunity for water to infiltrate into the surficial aquifer. The systems consist of perforated pipe and gravel buried under the ground (Figure A). The routine maintenance requirements are not great, however, getting property owners actually to do it may be difficult. Since trenches are smaller and more inconspicuous than most other BMPs and therefore might be overlooked in a routine maintenance schedule. The underground trenches should be checked periodically and cleaned out when sediment depletes more than 10% of available capacity. This can be done manually or by a vacuum pump. Infiltration trenches are also a good strategy under gutterless roof lines (Figure B).



▲ Figure A. Infiltration Drainage of Rooftop.
Source: Virginia Soil and Water Conservation Commission.

Figure B. Typical Infiltration Trench under gutterless roof. Source: Virginia Soil and Water Conservation Commission.



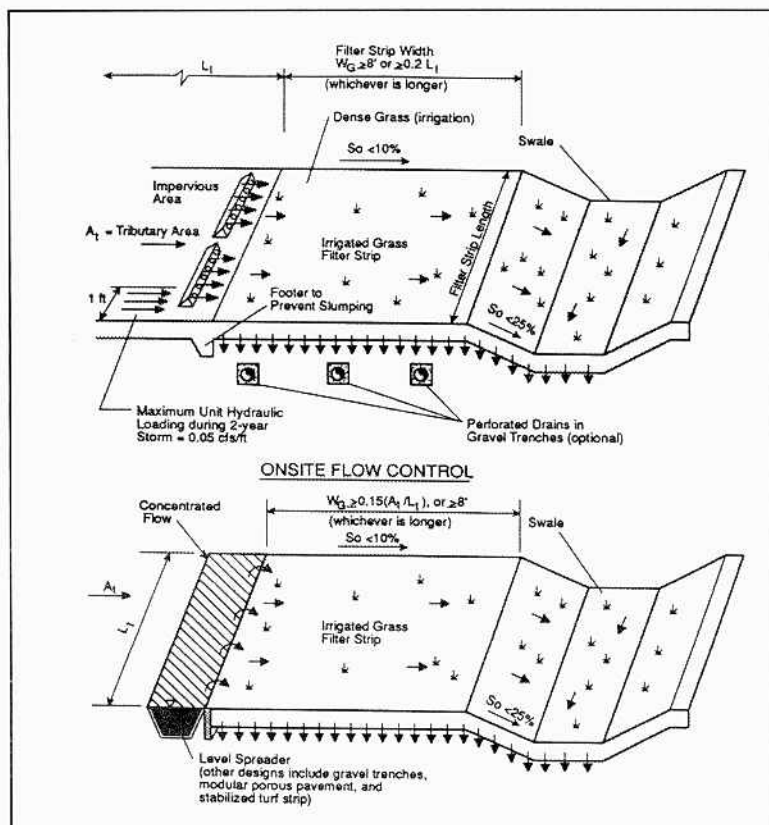
Stormwater Pond

TIP



Begin treating stormwater at every opportunity within the watershed by using grass swales, shallow depressions, and filter strips.

4. Oil and Grease Catch Basins - Frequently open land is not available for vegetated pre-treatment solutions. Oil and grit separators are underground structures that remove floatable and suspended solids from urban runoff (Figure C). Oil and grease catch basins are generally incorporated into the traditional storm sewer conveyance system. Since these inlets are relatively small, they can be placed throughout a drainage system to capture coarse sediments, floating wastes, and accidental spills. They must be cleaned out on a regular basis to be effective for pollution removal.



▲ Figure 3. Onsite and offsite applications of irrigated grass filter strips.

Chapter 4.

A Pond Management Plan Workbook

This workbook has the basic elements of a pond management plan, including work sheets and forms to help you complete events such as pond walks, pond inspections, and planning work days.

How Can A Pond Management Plan Help Me And My Pond?

Your stormwater pond is a water treatment facility, and it performs a very important job for your drainage basin: *it cleans water*. A management plan will make sure that your pond is working at peak performance to keep your water as clean as possible. With a plan for future maintenance of your pond, you and your pond group will avoid spending time and money on "quick fixes" that may degrade water quality and add pollutants.

What should my pond look like? What could my pond look like?

There are certain elements of your pond you cannot change: the shape, the depth, the surroundings, the underlying

soils, the water sources (both groundwater and neighborhood stormwater runoff), and the purpose for which the pond was built. What are the elements of your pond that *can* be changed? You can change the neighborhood's attitude towards the pond, the type of maintenance it receives, the quality of the neighborhood stormwater runoff that enters the pond, the quality of the water as it leaves the pond, the types of plants that grow in and around the pond, and the kinds of wildlife that are attracted to your pond. Your pond can become a neighborhood asset, a place to play with the kids, to teach them about Florida's natural world, and watch the birds. You *can* fool mother nature by making your stormwater pond look like a natural pond, with native flowering plants, trees, and birds. A stormwater pond can have clean clear water, cypress trees, oak trees, iris blooming in the spring, and summer-blooming pickerel weed edging the water.



What Is A Pond Management Plan?

A pond management plan is a description of your pond; the problems associated with the pond and its drainage basin; a listing of people who live and work in the drainage basin; a record of meetings, pond evaluations, water quality data, as well as actions proposed and/or taken by the group. A management plan is written by consensus of the group, and is reviewed by everyone in the pond basin. A plan includes goals for the future and helps you measure your progress in achieving those goals. It helps you make better decisions by providing a record of previous decisions and a written record of the neighborhood's vision for your pond. Any proposed actions that may impede or degrade the neighborhood's goals and vision for the pond should be turned down.

Ponds Are Like Lakes

Ponds and lakes in urban settings share many of the same problems, and so share many management issues. The Florida LAKEWATCH program uses a *fifteen-step process* in helping their volunteers build a lake management plan. Ponds are smaller, with fewer recreational and development issues, so we have shortened the LAKEWATCH process to six steps.



▲ *A busy crew is a happy crew.*

Six Steps To Building Your Pond Management Plan

1. **Form a group** made up of the people living in your pond's drainage basin. It is important to include people who live away from the pond, but in the basin.

2. **List the problems** you are having with your pond. Problems could include nuisance vegetation, clogged storm drains, eroding banks, litter, pet droppings, algae blooms, compost piles, etc.

3. **Collect information** about your pond and the drainage basin, including:

- a copy of the drainage plans for your subdivision
- an aerial photograph of the pond and drainage basin
- names and addresses of everyone in the drainage basin
- locations of drainage structures, pipes, under drains, & connections
- ownership & easements
- deed restrictions and/or homeowner's rules that apply to the pond
- current maintenance procedures such as carp, herbicide, plant removal
- water sample analysis, and Secchi disk measurement
- identify your pond's drainage basin (which streets drain to your pond)

4. **List possible solutions** to the problems you have listed. Solutions could include establishing a buffer of native plantings around the pond, nuisance plant removal, storm drain marking, neighborhood educational meeting, renting a dumpster for a neighborhood pond clean-up, fertilizer-free zones, or door hangers with pollution prevention instructions.

5. **Write a management plan** with all of the information you've collected. Your management plan may have these sections:



Section 1. Pond Background Information and Description

Section 2. Pond Group Members

Section 3. Aquatic Weed Control

Section 4. Algae Control

Section 5. Fish & Wildlife

Section 6. Water Quality Monitoring

Section 7. Drainage Structure Maintenance

Section 8. Pond Group Work Days

Section 9. Stormwater Pollution Prevention Program

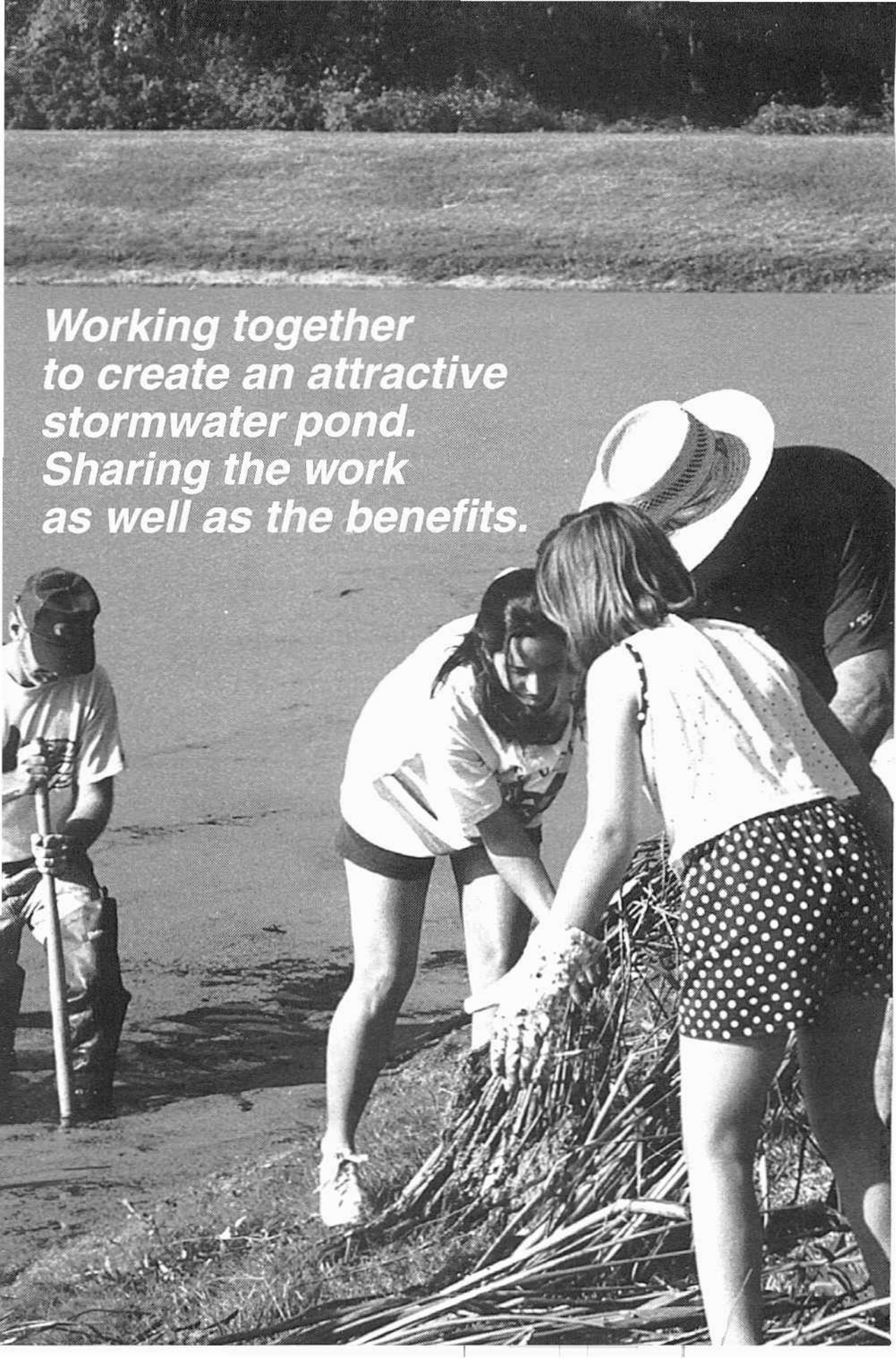
- Environmental Landscape Maintenance
- Storm Drain Marking
- Door Hangers
- Pond Walk
- Educational Meeting With Experts
- Pond Work Days
- Fertilizer-Free Zones
- Pond Plantings

Section 10. Pond Group Goals & Vision For The Future

6. **Implement your plan.** Assign activities to members of your group. Set dates for achieving your goals. Contact local governmental agencies for educational materials, technical guidance, and assistance in managing your pond; ask for speakers to address your pond group members at a meeting or a pond walk.

Use the following pages to help you write *Your Pond Management Plan*.

*Working together
to create an attractive
stormwater pond.
Sharing the work
as well as the benefits.*



A Pond Management Plan Workbook

SUBJECT

5518 Forester
Lake Drive



A guide to
taking care
of your
stormwater
pond.

STEP 1.

Form Your Pond Group

Use the table below to list the people in your neighborhood who are willing to help you plan and implement your pond management goals. You may need to ask people more than once to join your efforts. And, some people may not want to join until they see you've made some progress.

NAME	ADDRESS	PHONE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		
16.		
17.		

STEP 2.

List The Problems

Your first few meetings will probably be spent discussing the problems you are having with your pond. It will be important to listen to people who have made an attempt to manage the pond before. Learn the history of your neighborhood's pond management efforts.

PROBLEM	DESCRIPTION
☐ nuisance vegetation	
☐ clogged storm drains	
☐ eroding banks	
☐ litter	
☐ pet droppings	
☐ algae blooms	
☐ improperly disposed yard waste	
☐ "car droppings" (leaks & drips) on driveways	
☐ over-fertilizing	

STEP 3.

Collect Information

You'll need to make a trip downtown for some of this information. Pick up the phone and call first, to make sure the contact person and the information will be there when you arrive. Also, be sure to ask if there is a fee for print outs, maps, etc.

INFO NEEDED	LOCATION/SOURCE	ASSIGNED TO
☐ subdivision drainage plans	local county office contact & phone:	
☐ aerial photograph	local county office contact & phone:	
☐ names and addresses of everyone in the drainage basin	neighbors, homeowners association, tax roll	
☐ locations of drainage structures, pipes under drains, & connections	drainage plans, or local roads & streets office: contact name & phone:	
☐ pond ownership & easements, recorded plats	local county real estate office contact name & phone:	
☐ deed restrictions and/or homeowner's rules	Homeowners Association President name & phone:	
current maintenance: ☐ carp yes / no ☐ herbicide yes / no ☐ plant removal yes / no	check with neighbors, homeowners association	

STEP 4.

List Possible Solutions

Now that you've discussed problems and gathered information about your pond, you can start to think of some possible solutions. At least, you can think of some goals for each problem area, and then think about how to get there. You may need do more research to know what solutions are available.

A pond group like yours utilizes neighborhood responsibility, neighborhood activism, and stormwater pollution prevention as the basis for pond management. Please don't think that you can improve water quality in your environment by solely relying on chemical treatments and herbicide sprays. These methods may indeed be a small part of your management plan, but cannot be the basis for growing a healthy pond. For more ideas on addressing your pond problems, call someone from the lists that appear in the Chapter 6. Resources & References of this manual.

PROBLEM	SOLUTION	RESOURCE
☐ nuisance vegetation	work day targeting single nuisance species; hand pull or rake out	
☐ clogged storm drains	call service unit	
☐ eroding banks	plants; re-grade; terracing	
☐ litter	educate	
☐ pet droppings	educate	
☐ algae blooms	rake algae; fertilizer-free zones; plant pond	
☐ improperly disposed yard waste	educate; formal compost areas	
☐ "car droppings" (leaks & drips) on driveways	carpet remnants to catch drips	
☐ over-fertilizing	educate; twice yearly fertilizing only	

Section 2.

Pond Group Organization

Your pond group could be the start of a better-defined, friendlier, safer, more caring, and a more *fun* neighborhood. Remember that not everyone is going to join in from the beginning; some people will wait until they see that you've made some progress before they want to participate. If parents don't want to participate, make sure to invite their kids - give neighborhood kids pride and purpose by allowing them to be members and take on responsibilities.

Ask your group to consider these organizational items:
(sample table)

Meetings	i.e., monthly / bi-monthly / quarterly
Committees	i.e., one for each section of the plan
Work Days	i.e., bi-monthly year 1, quarterly year 2
Pond Dues	i.e., \$10 or \$20 (paid quarterly)
Governmental Liaison	could be shared by two group members

Meetings	
Committees	
Work Days	
Pond Dues	
Governmental Liaison	

Section 3.

Aquatic Weed Control

Aquatic weed control will be the most challenging goal your group will face.

For successful aquatic weed maintenance:

- | | |
|--|--|
| ☐ Done
☐ Need to do | 1. Define, identify, and remove <i>only nuisance plants</i> ; for aquatic plant reference materials, contact:
IFAS Publications, University of Florida
PO Box 11011
Gainesville, Florida 32611-0011
1-800-226-1764 or (352) 392-1764
<i>See Chapter 7. Resources & References for full listing of publications.</i> |
| ☐ Done
☐ Need to do | 2. Teach all group members how to identify pond plants.
<i>See Chapter 6. Resources & References for full listing of publications.</i> |
| ☐ Done
☐ Need to do | 3. Choose a short list of nuisance plants targeted for removal, probably 3 or 4 plants. Refer to Chapter 3. of this manual. |
| ☐ Done
☐ Need to do | 4. Strive to achieve a balanced and functioning pond ecosystem. |
| ☐ Done
☐ Need to do | 5. Have a long-term goal of chemical-free maintenance.
Contact your local University of Florida Cooperative Extension Service, or the Florida Department of Environmental Protection, for a list of commercial licensed applicators. |
| ☐ Done
☐ Need to do | 6. Include a combination of several weed control strategies, such as: <ul style="list-style-type: none">• group work days to pull out nuisance plants• limited and selective herbicide applications• triploid grass carp• well-established stands of native plants that can out-compete nuisance plants |
| ☐ Done
☐ Need to do | 7. Include weed removal tools that make group work days easier - for ideas, see: <i>Lake Smarts</i> , Steve McComas, November 1993, Chapter One, Aquatic Weed Control. Available through:
Terrene Institute, 4 Herbert Street,
Alexandra, Virginia 22305. (703) 548-5473. |
| ☐ Done
☐ Need to do | 8. Has a plan for plant debris, i.e., community compost site. |

Ask your pond group about wildlife:

Section 4.

Algae Control

See Chapter 2. for information about algae. Algae is a natural part of any pond ecosystem. But, an extensive algae bloom can be unsightly, alarming, and may result in a fish kill. There are many species of algae, some planktonic and some filamentous. Planktonic algae population can be measured to a certain extent by using a Secchi disk on a monthly basis. Filamentous algae can appear as floating masses and can be raked out of the pond easily.

The most effective algae control is **pollution prevention**. Reduced nutrient loads into your pond will go a long way towards reducing extensive algae blooms. Ask everyone in your pond's basin to observe these guidelines:

- | | |
|--|--|
| ☐ Done
☐ Need to do | 1. Establish fertilizer-free zones around the pond, along the street, and around storm drains; this will reduce direct runoff of fertilizer granules in to the pond. |
| ☐ Done
☐ Need to do | 2. Fertilize no more than twice each year, using Cooperative Extension Service guidelines for slow-release fertilizers; call your local Extension Agent for recommendations. |
| ☐ Done
☐ Need to do | 3. "Replace" algae with other, attractive aquatic plants which also utilize excess nutrients |
| ☐ Done
☐ Need to do | 4. Plant shade trees along the pond; shade will reduce algae productivity. |
| ☐ Done
☐ Need to do | 5. Plant Florida native aquatic plants in and around your pond; they will beautify your pond, provide food and shelter for wildlife, and will help reduce algae growth. They will also improve overall water quality in your pond. |

Section 5.
Fish & Wildlife

Urban ponds can provide much-needed habitat for Florida’s wildlife; your pond may be an important link in a local wildlife “corridor”, as animals move through the area. Fish can be important to weed control, mosquito control, and recreation; your pond management needs may vary depending on which type of fish you want in your pond. Contact these agencies to learn more about animals you’d *like* to see more of, or the ones you *don’t* want visiting your pond:

- Florida Fish and Wildlife Conservation Commission,
Lakeland, (863) 648-3202
- Your local University of Florida Cooperative Extension Service, phone:
University of Florida Fisheries & Aquatic Sciences
(352) 392-9617, extension 249

Ask your pond group about wildlife:

ANIMAL	RESOURCE	HABITAT NEEDS	ASSIGNED

Section 6.

Water Quality Monitoring

Similar to the saying “you are what you eat”, your pond is a function of the water quality your neighborhood “feeds” it. Although you can look at the water and describe how you clean you think it is, regular testing will give your pond group some very real records on water quality trends for your pond. Your pond’s water quality changes with the season: summer brings an influx of pollutants with stormwater runoff, high temperatures encourage algae blooms. A record water quality will help you recognize the seasonal changes in your pond and can give you a place to establish goals for your pond management program.

To learn more about water quality testing, contact:

The Southwest Florida Water Management District 1-800-423-1476

The Florida Department of Environmental Protection 1-813-744-6100

Consider water quality monitoring for your pond:

TEST	FREQUENCY	EQUIPMENT NEEDS	RESOURCE
clarity	monthly	Secchi disk or turbidity tube	
pH	yearly		
nitrogen	monthly		
phosphorous	monthly		

Section 7.

Drainage Structure Maintenance

This work can be dangerous, and when possible, should be left to your local government. It is important to have a contact within the local government to refer problems to. If your pond is not under government maintenance, ask them to at least advise you on any drainage issues you might encounter.

Remember, *it is illegal to alter* the function of a drainage pipe or structure on a stormwater pond.

Our local government contacts for stormwater and drainage are:

DEPARTMENT	CONTACT & PHONE	ASSIGNED TO
Water Management District (permits & exemptions)		
mosquito control	local government office contact & phone:	
Stormwater Investigation road flooding & sink holes	local stormwater utility contact & phone:	
maintenance of structures & pipes emergency flooding reports	local roads & streets department, or local stormwater utility contact & phone:	

Section 8.

Pond Group Work Days

All the planning in the world won't do a bit of good if you can't get together and *do something to make it happen*. On the other hand, if you try to go too quickly, you might wear out your workers really fast and the project will die a swift death. It has probably taken several years for your pond to become a weedy mess, it will take several years to recover. In the meantime, plan some work days and **HAVE SOME FUN DOING IT!**

(sample table)

WORK DAY PLANNING	
DATE / TIME	9 am to noon, Saturday
TASK	remove trash and cattail patch at NE corner
EQUIPMENT NEEDED	trash bags, shovels, wheel barrows
DRINKS COMMITTEE	Sandy & family
BAR-B-Q LUNCH COMMITTEE	Joe, Sally, Fred, Ann
DONATION FOR LUNCH	\$3.00 each
SAFETY PATROL	Rita

WORK DAY PLANNING	
DATE / TIME	
TASK	
EQUIPMENT NEEDED	
DRINKS COMMITTEE	
BAR-B-Q LUNCH COMMITTEE	

A work day activity flier appears on the next page. Make copies of the flier to announce your work day plans to your pond group.

Pond Group Activity Day

*Please join your neighborhood
Pond Group for this event!*

WHAT:

WHEN:

WHERE:

For more info, contact:

Section 9.

Stormwater Pollution Prevention Program

Pollution prevention is one of the most important elements of your pond management plan. You must have pollution prevention in order for your other management tools to be effective. Without pollution prevention you cannot protect or improve water quality, and that is why stormwater ponds were built in the first place!!

ACTIVITY	RESOURCE	ASSIGNED TO
☐ Storm Drain Marking	Center for Marine Conservation 1-813-895-2188	
☐ Door Hangers	Center for Marine Conservation 1-813-895-2188	
☐ Pond Walk	contact a biologist with your local environmental protection agency	
☐ Educational Meeting With Experts	contact your local stormwater utility, or environmental protection agency	
☐ Pond Work Days	Your Pond Work Group	
☐ Fertilizer-Free Zones	Pond Neighborhood	
☐ Pond Plants	Association of Florida Native Nurseries, (352) 931-6908	
☐ Environmental Landscape Maintenance	Your local University of Florida Cooperative Extension Service: <i>Florida Yards & Neighborhoods</i> <i>Urban Horticulturist</i> <i>Backyard Wildlife Habitat</i> <i>Master Gardener</i> <i>Master Composter</i>	

Section 10.

Pond Group Goals & Vision For The Future

Take time to create a vision of what your pond can be in the future.

1. How people and animals will enjoy it.
2. What it could look like, what the plants will look like, and what the water will look like.
3. How your cleaner and healthier pond could affect water quality outside your neighborhood.
4. What the kids in your neighborhood will learn from taking responsibility for cleaner water.

A good way to involve the group in the visioning process is to ask everyone to pretend they are returning to the neighborhood after a long trip. Ask the group to talk about what they would like to see when they look at the pond after having been away for a long time. Your group's vision can become your group's goals for your pond.

Our vision for our pond: