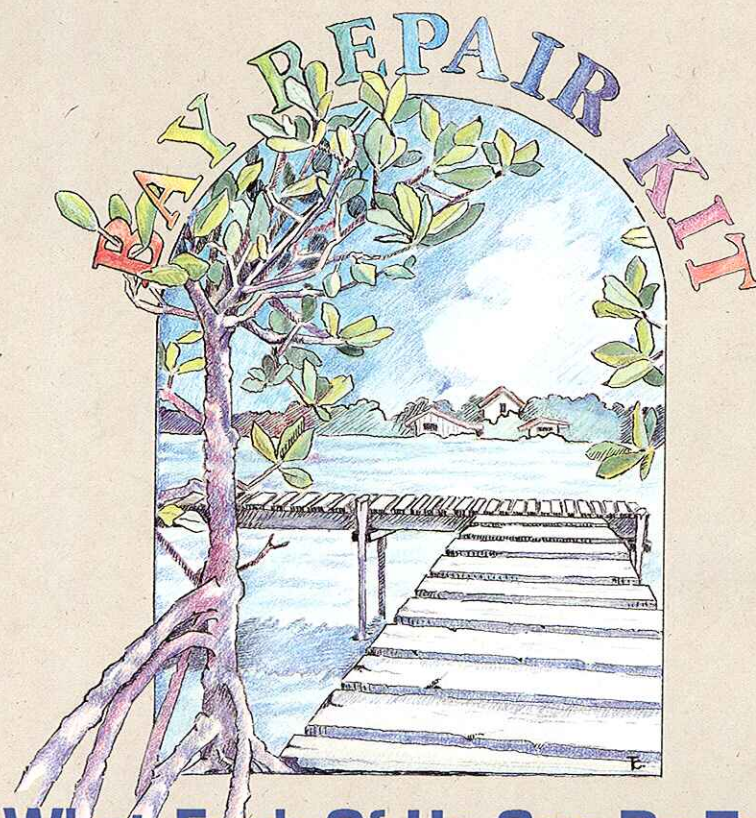




You can do something significant to improve this corner of the planet. Most pollution to our nearby bays and other waterways comes **not** from one or two big dirty industries, but from ...

...each of us.



**What Each Of Us Can Do To
Keep Our Bays Clean**



TABLE OF CONTENTS

1. Limit surface runoff	p.1
--------------------------------------	------------



TABLE OF CONTENTS

1. Limit surface runoff p.1

2. Keep surface runoff clean p.4

- Fertilizers p.4
- Pesticides p.5
- Sediments p.5
- Septic tanks p.6
- Hazardous wastes p.7
- Pets p.9
- Pools p.9
- Cars p.10
- Boats p.11

3. Maintain or restore the native vegetation and natural slope of the shoreline p.12

- County coastal permits and
variances p.14
- Mangroves and Permits..... p.14

4. Agency addresses and phone numbers p.15

5. Summary p.16

by Ruth Folit

illustrated by
Tom Cross

for Sarasota County
Natural Resources Dep't.
Jack Merriam, Director
Sarasota County
Government

for the Sarasota Bay
Project
Mark Alderson, Director
National Estuary
Program

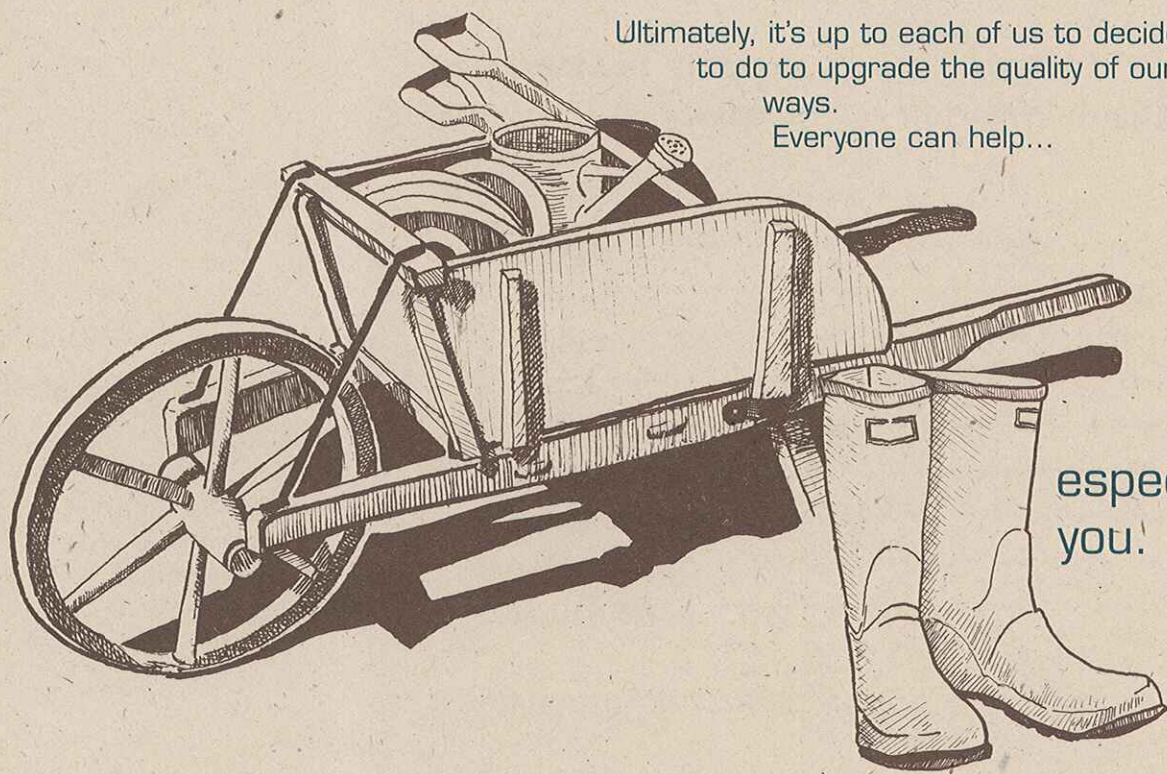
for HRS - Manatee
County
Public Health Unit
Pollution Control
Division
Wm L. Priesmeyer,
Director

Sarasota, Florida
September, 1989

Text © 1989, Ruth Folit
Art © 1989, Tom Cross

Unknowingly, in the daily care of our households, we each may be polluting nearby bays and other waterways. This booklet offers practical steps to reduce that pollution in order to begin repairing our damaged coastal waters. Some suggestions are simple, cost-free, and require only a slight change of routine. Others are more intricate and can be implemented gradually over time. A few suggestions may even inspire you to re-landscape certain areas of your property.

Ultimately, it's up to each of us to decide what to do to upgrade the quality of our waterways.
Everyone can help...



"Nobody ever made a greater mistake than he who did nothing because he thought he could only do a little."

Edmund Burke

Each of us can improve the quality of our bays, creeks, rivers, lakes, and all local waterways by following two simple suggestions:

1. Limit surface runoff.

2. Keep surface runoff clean.

For those on the waterfront there is a third way to help:

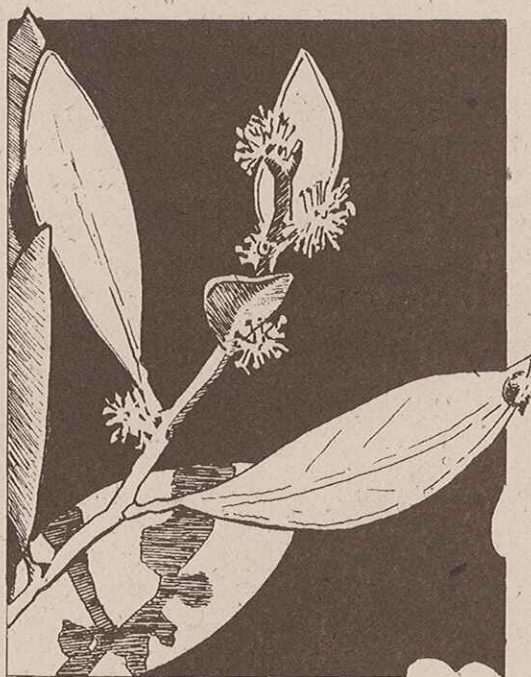
3. Maintain or restore the native vegetation and natural slope of the shoreline.

Surface runoff is water which flows over the land, rather than water which sinks into the soil or evaporates into the air. It often carries with it soil, organic debris, bacteria, fertilizers, pesticides, oils, and other toxic materials. To see how water links your backyard with the bay, turn to the back inside cover.

LIMIT SURFACE RUNOFF

Time • Cost • Appearance

These are the factors most often considered when planning and caring for your yard. Add one more item to the above list —SURFACE RUNOFF— and take a giant step toward improving the quality of our waterways.



There are two general ways to reduce surface runoff:

- *encourage water to sink into the soil rather than to flow over it;*
- *limit the amount of water used for irrigation.*

What You Can Do:

1. Plant vegetation to promote water infiltration into the soil. The leafy canopies of plants soften the impact of rain onto the soil. Fallen leaves, twigs, and other organic matter decay and improve the holding capacity of the soil. Water is also absorbed by the plants' roots.

Create an environmentally sensible landscape by grouping plants by their water needs:

- A zone where native plants thrive with no irrigation. See the chart on drought tolerant plants on page 3.

- A zone where plants occasionally require irrigation but can survive for long periods of time without rainfall or supplemental watering.

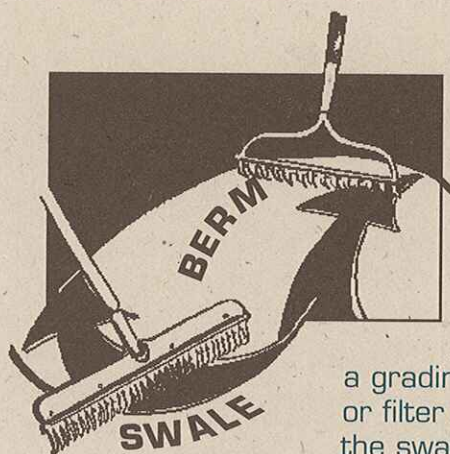
- A zone where plants needing frequent irrigation are clustered in small areas like entryways, or in flower, fruit and vegetable gardens.

Picture-perfect lawns are less ideal than they appear. Low-maintenance natural landscapes featuring trees, shrubs, and other native vegetation absorb many times more rainfall than a mowed lawn.



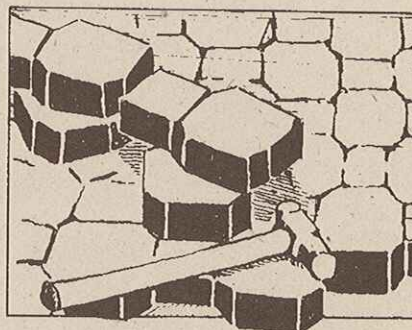
Do you have large paved areas on your land?

You can change drainage patterns by adding vegetation and grading your land so water is not directed onto them.



2. Grade your land with a series of gentle swales (or low areas) and berms (elevated areas) to drain water away from the house, yet allow water to sink into the soil. Such a grading system allows particles to settle or filter out as the water percolates from the swale into the soil.

3. Minimize impervious surfaces like concrete and asphalt which prevent water from seeping into the ground. Choose materials like wood, open-weave concrete, interlocking tiles or bricks, or crushed shell for decks, driveways, sidewalks, and patios.



4 Direct sprinkler heads away from paved surfaces; especially if drainage is directly into the street or drainage ditch.

5. Irrigate in the evening or early morning and never on windy days or when it has rained recently.

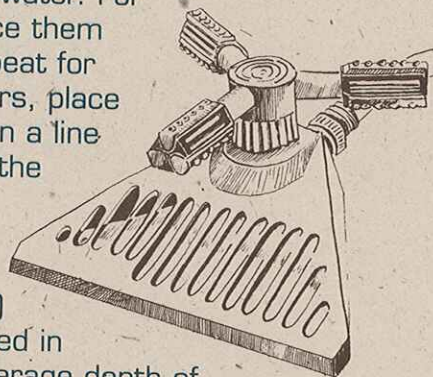


Lawns need watering when they have a bluish cast or when you can see your footprints after walking across them.

6. Irrigate when necessary instead of on a schedule. In the winter, irrigate only about one-third as often as in the summer. apply no more than $3/4$ " of water per irrigation for grass.

To find out how long it takes your sprinkler system to apply $3/4$ " of water, follow this procedure during the same time of day you normally irrigate.

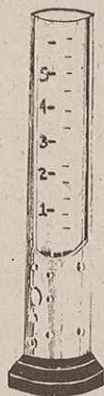
A. Place 5 to 10 straight-sided containers (3"—6" in [diameter]) to catch the irrigation water. For in-ground irrigation systems, place them randomly within one zone and repeat for each zone. For hose-end sprinklers, place the containers at equal intervals in a line from the sprinkler to the edge of the water pattern.



B. Turn on the water for 15 minutes.

C. Measure (to the nearest $1/8$ ") the depth of the water accumulated in each container. Determine the average depth of water (the sum of the water depth divided by the total number of containers). Multiply by four to determine the irrigation rate (amount of water per hour).

D. Use the chart below to find out how long to keep the sprinkler on:



.5"/hr.	1"/hr.	1.5"/hr.	2"/hr.
90 min.	45 min.	30 min.	23 min.

7. Incorporate rain gauges and rain shut-off devices to irrigate even more efficiently. Plants don't need water for several days after a heavy rain.

8. For areas which need more frequent watering, use efficient watering devices such as pop-up sprays, bubblers, drips, micro-sprays, micro-sprinklers, and soaker hoses.

DROUGHT TOLERANT PLANTS

Name	Botanical Name	Ht.	Cold	Salt	Light	Pests	Fert.
------	----------------	-----	------	------	-------	-------	-------

TREES

Camphor tree	Cinnamomum camphora	50'	H	L	S-P	L	M
East Palatka holly*	Ilex X attenuata	35'	H	M	S-P	L-M	L-M
Goldenrain tree	Koeleruteria elegans	40'	H	L	S	L	L
Jacaranda	Jacaranda acutifolia	50'	SH	L	S	L	L-M
Jerusalem thorn	Parkinsonia aculeata	20'	H	M	S	L	None
Laurel oak*	Quercus laurifolia	70'	H	M	S	L	L
Live oak*	Quercus virginiana	60'	H	H	S	L	L
Mango	Mangifera indica	50'	T	M	S	M	L-M
Slash pine*	Pinus elliotii	75'	H	M	S	L	None
Southern red cedar*	Juniperus silicicola	40'	H	H	S-P	L-M	L
Sweetgum*	Liquidambar styraciflua	75'	H	L	S	L	L
Weeping elm	Ulmus parvifolia	35'	H	M	S	L	M
Yellow poinciana	Peltophorum dubium	50'	SH	L	S	L	None

PALMS & CYCADS

Cabbage palm*	Sabal palmetto	50'	H	H	S-P	L	None
Canary Island date	Phoenix canariensis	40'	H	M	S	L	L
Chinese fan palm	Livistona chinensis	25'	H	M	S-P	L	L
European fan palm	Chamaerops humilis	8'	H	H	S-P	L-M	L
Jelly palm	Butia capitata	20'	H	M	S	L	L
King sago	Cycas revoluta	6'	H	M	S-P	M	L
Queen palm	Syagrus romanzoffiana	40'	H	M	S	L	L-M
Queen sago	Cycas circinalis	20'	T	M	S-SH	L	L
Saw palmetto*	Serenoa repens	6'	H	H	S-P	L	None
Senegal date palm	Phoenix reclinata	30'	H	H	S-P	L	L
Washington palm	Washingtonia robusta	70'	H	H	S	L	None

SHRUBS

Carissa	Carissa grandiflora	1-12'	T	H	S-P	L	L
Crape myrtle	Lagerstroemia indica	4-20'	H	L	S	L-M	L
Elaeagnus	Elaeagnus pungens	15'	H	H	S-P	L-M	L
Firecracker plant	Russelia equisetiformis	3'	SH	M	S-P	L	None
India hawthorn	Raphiolepis indica	1-4'	H	H	S-P	L-M	L-M
Ixora	Ixora coccinea	4'	T	M	S-P	L-M	M
Juniper	Juniperus chinensis	3-15'	H	M	S	L-H	L
Lantana*	Lantana camara	4'	SH	H	S	L	L
Oleander	Nerium oleander	5-12'	H	H	S	M-H	L
Orange jasmine	Murraya paniculata	12'	SH	M	S-P	L-M	M
Pampas grass	Cortaderia selloana	8'	H	M	S	L	None
Plumbago	Plumbago auriculata	4'	SH	M	S	L	L-M
Seagrape*	Coccoloba uvifera	18'	T	H	S-P	L-M	None
Spanish bayonet*	Yucca aloifolia	20'	H	H	S-P	L	None
Wax myrtle*	Myrica cerifera	20'	H	H	S-SH	L	None
Yaupon holly*	Ilex vomitoria	3-15'	H	H	S-P	L	L

GROUND COVERS

Asparagus "fern"	Asparagus densiflorus cv. Sprengeri	1-2'	SH	M	S-P	L	L
Aloe	Aloe spp.	1-2'	SH	H	S	L	L
Beach sunflower*	Helianthus debilis	1'	SH	H	S	L	L
Cast iron plant	Aspidistra elatior	2'	H	M	P-SH	L	L
Coontie*	Zamia integrifolia	2'	H	H	S-SH	L-M	None

Dwarf juniper	Juniperus spp.	1'	H	M-H	S	M-H	L
Periwinkle	Catharanthus roseus	1'	SH	H	S-P	L-M	None
Snake plant	Sansevieria trifasciata	3'	T	M	S-SH	L	None
Trailing lantana	Lantana montevidensis	1'	SH	H	S	L-M	L
Wedelia	Wedelia trilobata	1 1/2'	SH	H	S-P	L	L

VINES

Bougainvillea	Bougainvillea spp.	n/a	T	M	S	M	M
Cape honeysuckle	Tecomaria capensis	n/a	SH	M	S	L	L
Carolina yellow-jasmine*	Gelsemium sempervirens	n/a	H	L	S-P	L	L
Confederate jasmine	Trachelospermum jasminoides	n/a	H	M	S-SH	L-M	L
Coral vine	Antigonon leptopus	n/a	T	L	S	L	None

Cast iron plant Coontie*	Aspidistra elatior Zamia integrifolia	2' 2'	H H	M H	P-SH S-SH	L L-M	L None
Dwarf juniper	Juniperus spp.	1'	H	M-H	S	M-H	L
Periwinkle	Catharanthus roseus	1'	SH	H	S-P	L-M	None
Snake plant	Sansevieria trifasciata	3'	T	M	S-SH	L	None
Trailing lantana	Lantana montevidensis	1'	SH	H	S	L-M	L
Wedelia	Wedelia trilobata	1 1/2'	SH	H	S-P	L	L

VINES

Bougainvillea	Bougainvillea spp.	n/a	T	M	S	M	M
Cape honeysuckle	Tecomaria capensis	n/a	SH	M	S	L	L
Carolina yellow-jasmine*	Gelsemium sempervirens	n/a	H	L	S-P	L	L
Confederate jasmine	Trachelospermum jasminoides	n/a	H	M	S-SH	L-M	L
Coral vine	Antigonon leptopus	n/a	T	L	S	L	None
Trumpet vine*	Campsis radicans	n/a	H	L	S-P	L	None

NOTES

* denotes native plant

Height column:

Ht. (in feet) = the average maximum height

Cold column:

H = Hardy (will not be damaged by cold in this area)

SH = Semi-hardy (subject to minor damage from heavy frost or freezes)

T = Tender (may suffer severe damage from frost or freezing temperatures)

Salt column:

L = Low salt tolerance (or none)

M = Moderate salt tolerance

H = High salt tolerance

Light preferences column:

S = Full sun

P = Partial shade

SH = Shade (full shade)

Pests column (susceptibility to attack by pests):

L = Low susceptibility (few problems)

M = Moderate susceptibility

H = High susceptibility (pest problems are likely)

Fertilizer column:

L = Low fertilizer requirement

M = Moderate fertilizer requirement

NOTE: Fertilizer requirements shown are for mature plants. Frequent, light applications of fertilizer are generally recommended for increased growth and vigor of small, young plants.

Chart prepared by Larry Rabinowitz

© 1989, Larry Rabinowitz



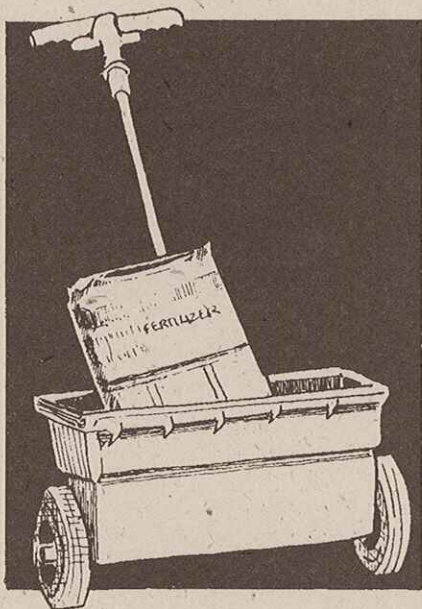
KEEP SURFACE RUNOFF CLEAN

Summertime • Late afternoon • Thunderstorms

Torrents of rain are pouring down onto your yard. It's virtually impossible to stop surface runoff now ...

The second line of defense is to **keep surface runoff clean**. The challenge is to prevent the runoff from picking up an array of contaminants from fertilizers, pesticides, bare ground, pets, pools, waste, cars and boats.

When fertilizing the lawn and landscape plants, remember the trade-off: the more you fertilize on land, the more you may be polluting the water.



Fertilizers

Fertilizers contain nitrogen and phosphorus, two elements which promote the growth of plants in water as well as land. Fertilizer-laden runoff can over-stimulate aquatic plant growth, causing algal blooms and fish kills.

What You Can Do:

1. Choose a fertilizer which has at least one-fourth of the nitrogen in a slow-release, water insoluble form.
2. Fertilize in the dry months — usually October to May.
3. Use the minimal amount of fertilizer necessary and apply it in small, frequent applications. For example, apply two pounds of fertilizer five times per year, rather than five pounds of fertilizer two times per year.
4. Choose plants that generally don't require much fertilization, such as those on the drought tolerant plant chart.
5. Do not apply fertilizer within 50 feet of a water body.
6. Avoid applying fertilizer to paved surfaces. If any fertilizer is inadvertently spread on sidewalks or driveways, sweep it off before watering.
7. Apply the fertilizer when the soil is moist and then water it in lightly. The fertilizer will sink into the root zone where it is available to the plants, rather than stay on top of the soil where it can be blown or washed away.
8. If the lawn is mowed frequently, leave the grass clippings to decompose on the lawn. Annually, this will provide nutrients equivalent to one or two fertilizer applications.

*REMEMBER,
REMOVE GRASS
CLIPPINGS WITHIN
50 FEET OF
WATERWAYS. NEVER
DUMP GRASS CLIP-
PINGS OR OTHER
ORGANIC
MATERIAL INTO A
WATERWAY.*



*Accidental
pesticide spill?
Immediately call:*

*• in Sarasota
County: the
Pollution Control
Division at
378-6128 on work
days between 8 a.m.
and 5 p.m., or the
National
Response Center
Hotline at
1-800-242-8802
after hours. If there
is an immediate
health emergency,
call 911.*

*• in Manatee
County: the
Pollution Control
Division at
748-0666 ext. 1322
on workdays be-
tween 8 a.m. and 5
p.m. After hours call
911.*



Pesticides

Pesticides, by definition, injure and kill certain forms of life. Ideally, these compounds are selective so that only the species targeted are affected. In reality, other animals and plants can be damaged as well.

To reduce pesticide use:

1. Choose vegetation which is resistant to pests, such as those shown on the drought tolerant plant chart.
2. Weakened plants are susceptible to pests. Make sure the blades on your mower are sharp and adjusted to a high setting to reduce the temporary stress to grass caused by mowing.
3. Avoid using pesticides on a "prevention" schedule basis. Learn to identify insects and monitor them. Detect pest problems early by inspecting regularly. Small numbers of pests are tolerable and indeed unavoidable. Often natural predators will limit pest populations if you are patient enough to allow them to do so.
4. If the pests are about to become a big problem, use mechanical, biological, or cultural controls. For example, some bugs like aphids and spider mites can be dislodged merely by forcefully spraying them with a stream of water. Another example is B.t. (*Bacillus thuringiensis*), a safe bacteria that controls caterpillars. It is sold in garden supply stores under the brand name of Dipel or Thuricide.
5. Use chemical pesticides only as a last resort. Choose east-toxic ones, like insecticidal soaps. If you must use synthetic pesticides, be sure to follow the label directions and use them only on affected areas. Apply them only during the appropriate time of year and on windless days. Store pesticide containers safely and dispose of the empty containers properly. (See toxic waste disposal chart on pages 7 and 8.)

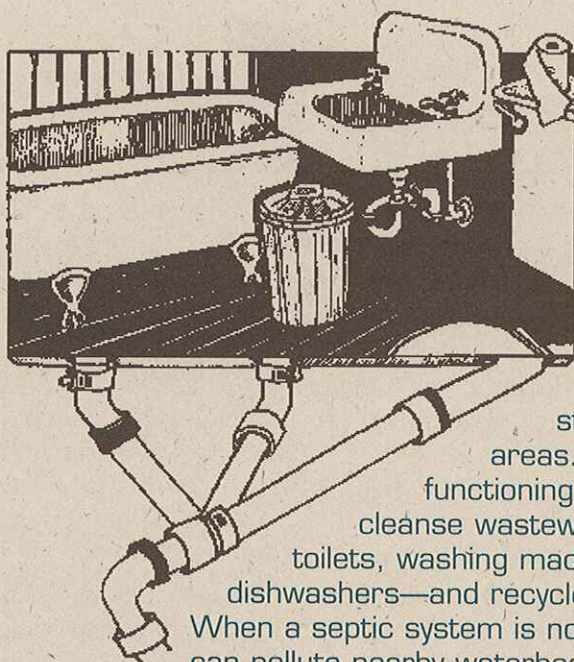
What You Can Do:



Sediments

Sediments from the soil wash into waterways to create problems for aquatic life. Turbidity—cloudy water caused by suspended particles—reduces the amount of sunlight able to reach the submerged plants. Siltation—the settling out of the particles onto the bottom of the water body—destroys oyster bars, submerged grass beds, and other bottom-dwelling plants and animals.

1. Use ground covers to eliminate bare ground. Choose a ground cover which is consistent with your site-specific conditions — light, moisture, salt tolerance, and drainage.
2. Use pine bark, pine needles, or wood chips to mulch the exposed soil in vegetable gardens, flower beds, and high traffic areas.
3. Drip lines under roof eaves and downspouts are areas particularly susceptible to sediment erosion. Place gravel or plant hardy vegetation under roof eaves. Add downspout attachments to slow and spread out the draining water.
4. When landscaping, remodeling, building new structures, or doing any earth moving, cover small mounds of dirt with tarp so that wind and rain don't carry the sediments to nearby waterbodies. Surrounding larger piles of dirt with staked bales of hay or filter cloth fences will minimize erosion.

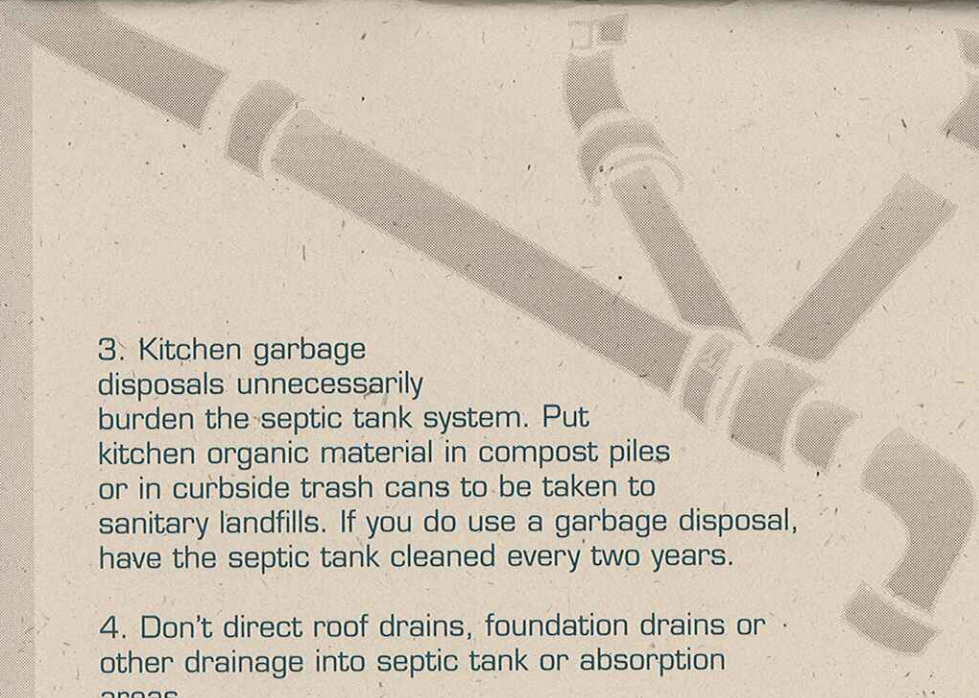


Septic Tanks

Septic tanks and drainage fields are still in use in many areas. When located and functioning properly, septic tanks cleanse wastewater—from sinks, toilets, washing machines and dishwashers—and recycle it to the groundwater. When a septic system is not working correctly it can pollute nearby waterbodies with bacteria and nutrients.

What You Can Do:

1. Know the location and components of your septic system. Use the access manhole to inspect the septic tank annually for accumulation of sludge and surface scum. If the bottom of surface scum is within three inches of the tank's outlet pipe, have the septic tank pumped and properly cleaned. Generally, have the sludge pumped every three to five years.
2. Don't use septic tank cleaning compounds. They may reduce the tank's efficiency and damage the drainage field soil.



3. Kitchen garbage disposals unnecessarily burden the septic tank system. Put kitchen organic material in compost piles or in curbside trash cans to be taken to sanitary landfills. If you do use a garbage disposal, have the septic tank cleaned every two years.

4. Don't direct roof drains, foundation drains or other drainage into septic tank or absorption areas.

5. Don't water the vegetation in the immediate vicinity of the absorption field. These areas already receive all the water they need.

6. Use water reducing devices, such as flow-restricting shower heads and toilet tank inserts to minimize water flow to the septic tank.

7. Keep heavy vehicles away from the septic system because their weight can crush drain fields. Don't plant trees or shrubs near drain lines; roots can clog them.

8. Don't use toilets as trash cans. Dispose of household chemicals, tampon plastic-applicators, condoms, etc. appropriately.

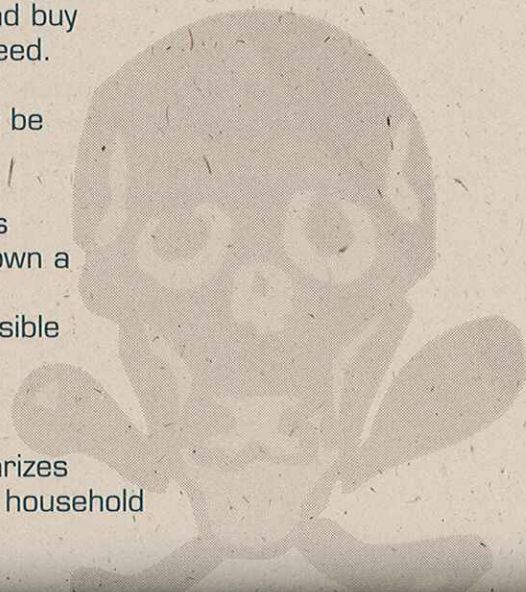
What You Can Do:



Hazardous Wastes

Hazardous waste is being created in ever increasing quantities. How one disposes of such waste is critical to not only the water quality and aquatic creatures, but to all life.

1. Limit the amount of dangerous substances you use and buy only the amount you need. Switch to less toxic alternatives which may be equally effective.
2. Never dump hazardous waste in the street, down a street drain or on the ground. Such irresponsible disposal may poison waterbodies as well as drinking water. The following chart summarizes acceptable disposal of household hazardous waste.



HOUSEHOLD HAZARDOUS WASTE CHART



indicates materials which may be poured down the drain along with plenty of water for dilution. DO NOT pour the substance down the drain if you have a septic tank. Take it to a household where the wastewater is sent to a secondary wastewater treatment plant. DO NOT pour different hazardous materials down the drain one after another. DO NOT use chlorine bleach, drain cleaners, or tile cleaners immediately before or after disposing of hazardous waste down the drain.



indicates materials which can be safely disposed of in a sanitary landfill by placing it in your curbside trash can.



indicates materials which must be disposed of during community-wide hazardous waste collection programs. For information on county hazardous waste programs, call:

- in Sarasota County, the Solid Waste Section at 951-5096.
- in Manatee County, the Hazardous Waste Section at 748-0666 ext. 1337.



indicates materials which may be recycled at Sarasota County's two collection sites:

- 1) Bee Ridge Landfill, 8350 Bee Ridge Road, Sarasota
- 2) Jackson Road Transfer Station, Venice



HOUSEHOLD HAZARDOUS WASTE CHART

☛ Pour with caution ♥ Trash can it ✕ Save for hazardous waste collection ➡ Recycle it

TYPE OF WASTE

KITCHEN

Aerosol cans (empty)

Aluminum cleaners

Ammonia based cleaners

Bug sprays

Drain cleaners

Floor care products

Furniture polish

Metal polish with solvent

Window cleaner

Oven cleaner (lye base)

BATHROOM

Alcohol based lotions (aftershave, perfumes, etc.)

Bathroom cleaners

Depilatories

Disinfectants

Permanent lotions, hair relaxers

Medicine (expired)

Nail polish or remover (solidified)

Toilet, tub, and tile cleaners

GARAGE

Antifreeze

Automatic transmission fluid

Auto body repair products

Battery (lead acid)

Brake fluid

Car wax solvent

Diesel fuel

Fuel oil

Gasoline

Kerosene

Metal polish with solvent

Motor oils

Other oils

Windshield washer solution

WORKSHOP

Paint brush cleaner with solvent

Paint brush cleaner with TSP

Aerosol cans (empty)

Cutting oil

Glue (solvent based)

Glue (water based)

Paint: latex

Metal polish with solvent				x
Motor oils				x
Other oils				x
Windshield washer solution				

WORKSHOP

Paint brush cleaner with solvent				x
Paint brush cleaner with TSP				
Aerosol cans (empty)				
Cutting oil				x
Glue (solvent based)				x
Glue (water based)				
Paint: latex				
Paint: oil based; auto; model				x
Paint thinner or stripper				x
Paint stripper (lye base)				
Primer				x
Rust remover (with phosphoric acid)				
Turpentine or varnish				x
Wood preservative				x

GARDEN

Fertilizer				
Fungicide				x
Herbicide				x
Insecticide				x
Weed killer				x

MISCELLANEOUS

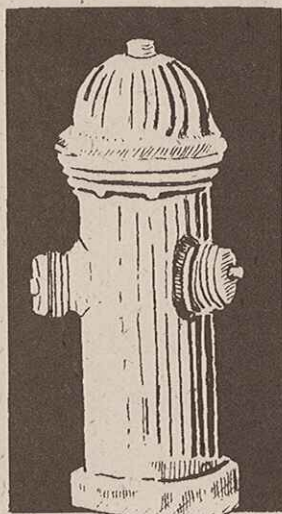
Ammunition				x
Artists' paints, mediums				x
Dry cleaning solvents				x
Fiberglass epoxy				x
Gun cleaning solvents				x
Lighter fluid				x
Mercury batteries				x
Moth balls				x
Old fire alarms				x
Photographic chemicals (unmixed)				x
Photographic chemicals (mixed & properly diluted)				
Shoe polish				
Swimming pool acid				x

Chart reproduced with permission from



the Water Pollution Control Federation

What You Can Do:

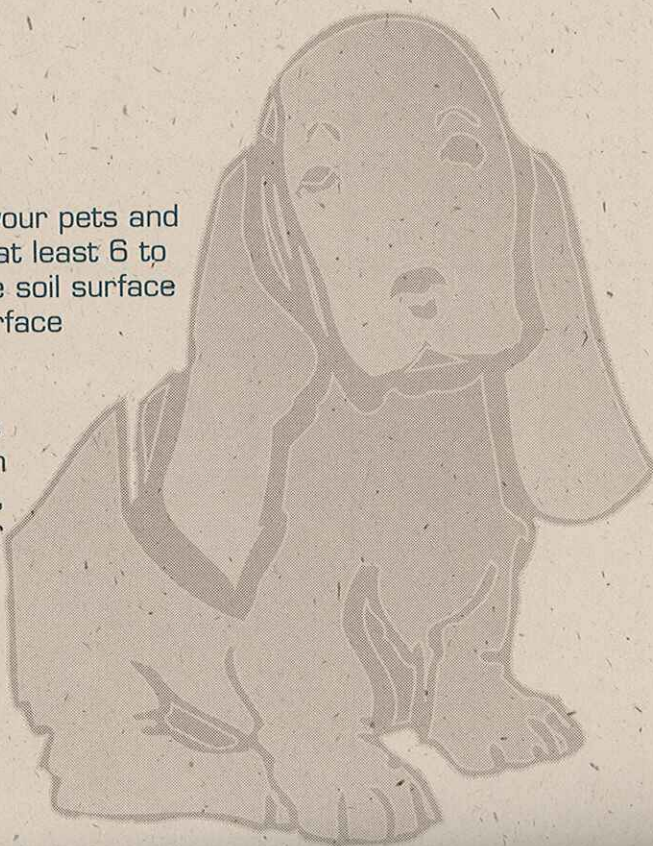


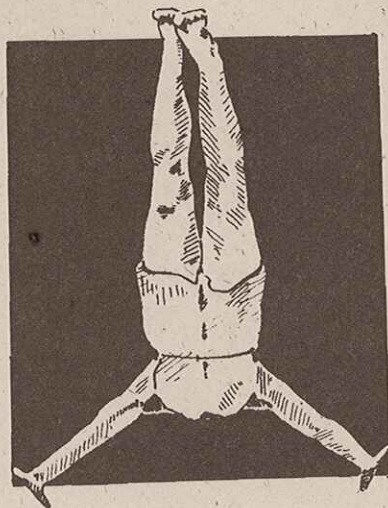
Pets

Animal waste is high in nitrogen and phosphorus. Runoff carrying pet feces not only adds excessive nutrients to the waterbody, it also causes bacterial and viral contamination.

1. Clean up after your pets and bury their wastes at least 6 to 8 inches below the soil surface and away from surface waters.

2. Never allow pet feces to remain on streets, sidewalks, driveways or other impervious surfaces, where they will be washed directly into storm drains and then into a waterbody.





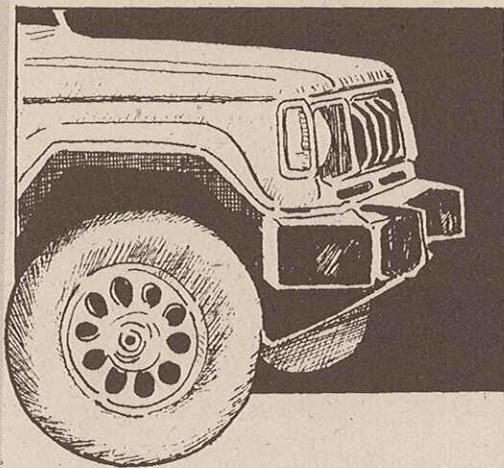
Pools

Pools require large doses of chlorine and other chemicals which should not be dumped directly into a waterbody.

What You Can Do:

1. Drain your pool only when necessary and never during water restriction periods.
2. Do not chlorinate the pool water for several days before draining it.
3. Drain the pool slowly onto a large expanse of lawn to allow the water to slowly filter through the soil. Never drain directly into a waterway or the street.





Cars

Sarasota and Manatee Counties' 364,000 cars carry motor oil, battery acid, gasoline, antifreeze, transmission and brake fluids. Degreasers, rust preventives, radiator flushers, cleaning and waxing compounds are rubbed, buffed, flushed or applied sometime during the life of most of these cars. Each of these automotive products contain toxic chemicals which should not find their way into our waterways.

What You Can Do:

1. Maintain your car. Note any leaks of fluid. Repair oil, transmission fluid, and brake fluid leaks immediately for your safety as well as the life of aquatic plants and animals.




*Take the used fluid
in a closed, sturdy
container to:*

Used oil


- Bee Ridge Landfill,
Sarasota;
- Jackson Road
Transfer Station,
Venice;
- one of the many
service stations that
recycle oil.

Used antifreeze

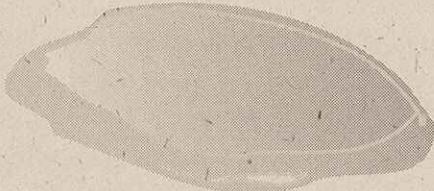
- one of the many
auto radiator
specialists that
accept used
antifreeze.



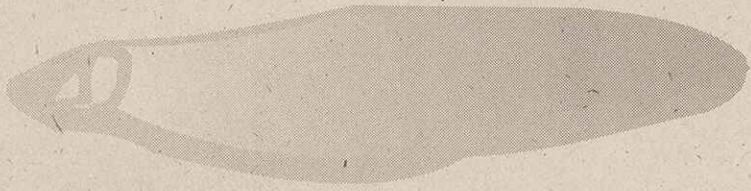
2. If you change your own oil or anti-freeze, never dump these toxic liquids into storm drains, ditches, or onto the soil.



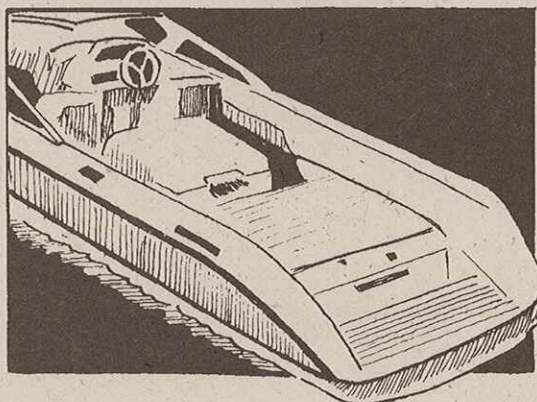
3. When washing your car use a mild biodegradable, low phosphate soap. Use a bucket of water or a hose with a shutoff nozzle, rather than a constant stream of water.



4. Buy only the minimum amount of automotive products you need to maintain your car. Store and dispose of these empty containers properly.



What You Can Do:



Boats

Thirty thousand boats are registered in Sarasota and Manatee Counties. How boaters use and take care of their craft has a large impact on the health of our bays and rivers.

1. When fueling your boat, do not spill fuel or overfill the tank. When filled sufficiently, tighten the fill cap and wipe away any dripped fuel.
2. Discard all trash appropriately. Never toss any litter overboard, especially plastics. Monofilament fishing line and six-pack rings are particularly harmful to aquatic and bird life.
3. Maintain your boat engine to avoid any oil leaks. When changing the engine oil, bring the used oil to a marina that recycles oil. Never dump it into a waterway, storm drain or ditch.
4. Rinse and scrub your boat with a brush, rather than with soap. When soap is necessary, use phosphate-free soap.
5. When removing the paint off boat hulls, catch the scrapings in a drop cloth, or sweep and throw them away into the trash. Bottom paints contain copper or tin which are extremely toxic to aquatic life.

Wakes erode shorelines ! Obey speed marker limits. Do not produce wakes within 150 feet of shore.



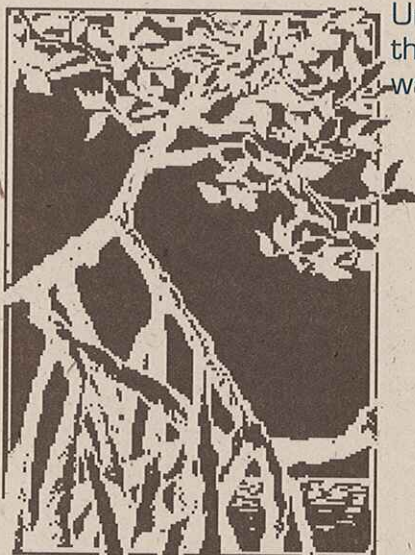
6. Always avoid cutting through seagrass beds with boat propellers. Seagrass meadows, one of the most important habitats of our bay system, are severely scarred by boat propellers and may take up to 15 years to recover.

7. Leave at least twelve inches of clearance between your boat propeller and the bay bottom. Churning up sediments not only causes the water to become cloudy, but also damages communities of bottom-dwelling animals and plants.

8. Use onshore sanitary facilities whenever possible. If you are within three miles of shore the U.S. Coast Guard requires sanitizing gear or an onboard holding tank. Empty the holding tank at a designated pump-out station.

MAINTAIN OR RESTORE THE NATIVE VEGETATION AND NATURAL SLOPE OF THE SHORELINE.

Concrete seawalls • Steep rocky slopes • Dangerous ledges.



Unfortunately, these images reflect the abrupt transition from land to water along much of our shoreline.

With the pleasure of waterfront property comes the responsibility of protecting the adjacent waterbody.

The ideal waterfront invites one to wander down the gentle slope from the yard, through native wetland and aquatic plants, to wade in shallow water. This kind of gradually sloped, vegetated shoreline offers not only an effective defense against erosion but also a rich zone in which plants and animals thrive. Native plants along the shoreline are stabilizers. Their roots, leaves, and stems trap and hold sediment, as well as biologically filter out pollutants carried in runoff. Shore plants also shelter and feed all life stages of birds, and other animals.

What You Can Do:

1. Protect the natural slope and shoreline vegetation, especially mangroves and native shore grasses. It is a less costly and more effective way to stabilize the shoreline than "hardening" it with revetments (also called riprap), retaining walls, or seawalls.

2. Revegetate areas with native plants. Select the appropriate species by considering depth of water, water salinity, water level fluctuations, existing vegetation, and any other site specific constraints.

Ask staff from the Sarasota County Natural Resources, Manatee County Pollution Control or Cooperative Extension for help in choosing the correct species.

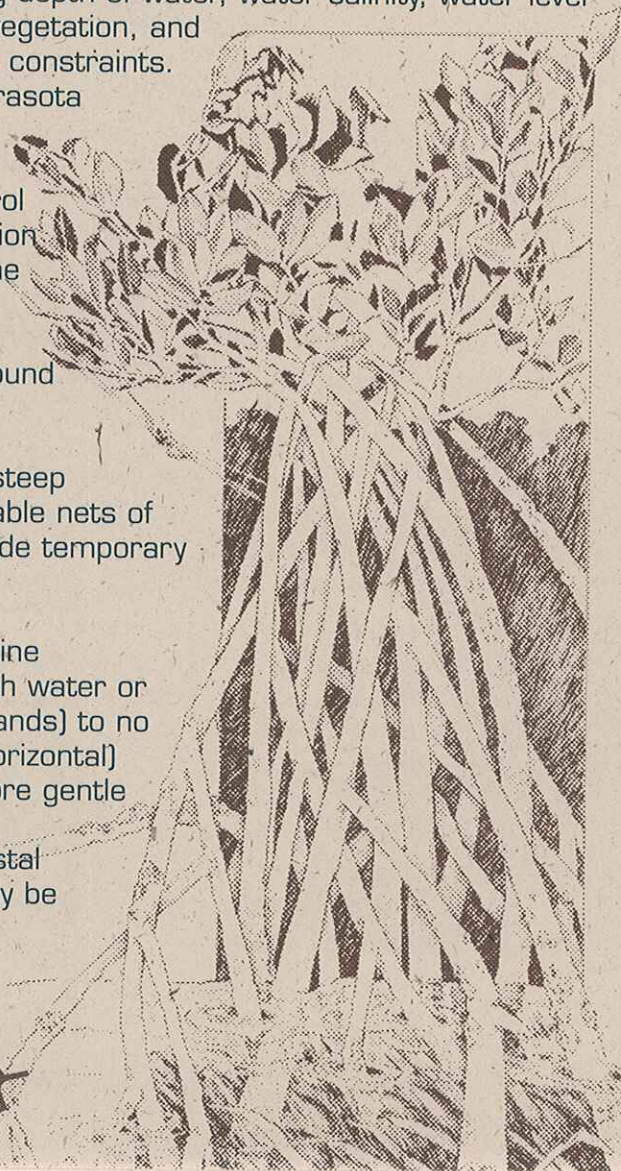
3. Plant from high ground seaward.

4. When planting on steep banks, use biodegradable nets of paper or sisal to provide temporary stabilization.

5. Regrade the shoreline (landward of mean high water or swamp and overflow lands) to no steeper than three (horizontal) to one (vertical). A more gentle slope—six to one—is recommended. A coastal permit or variance may be needed.

*Regrading or
re-planting?*

*Minimize erosion by
only exposing small
areas of soil for as
short a time as
possible.*



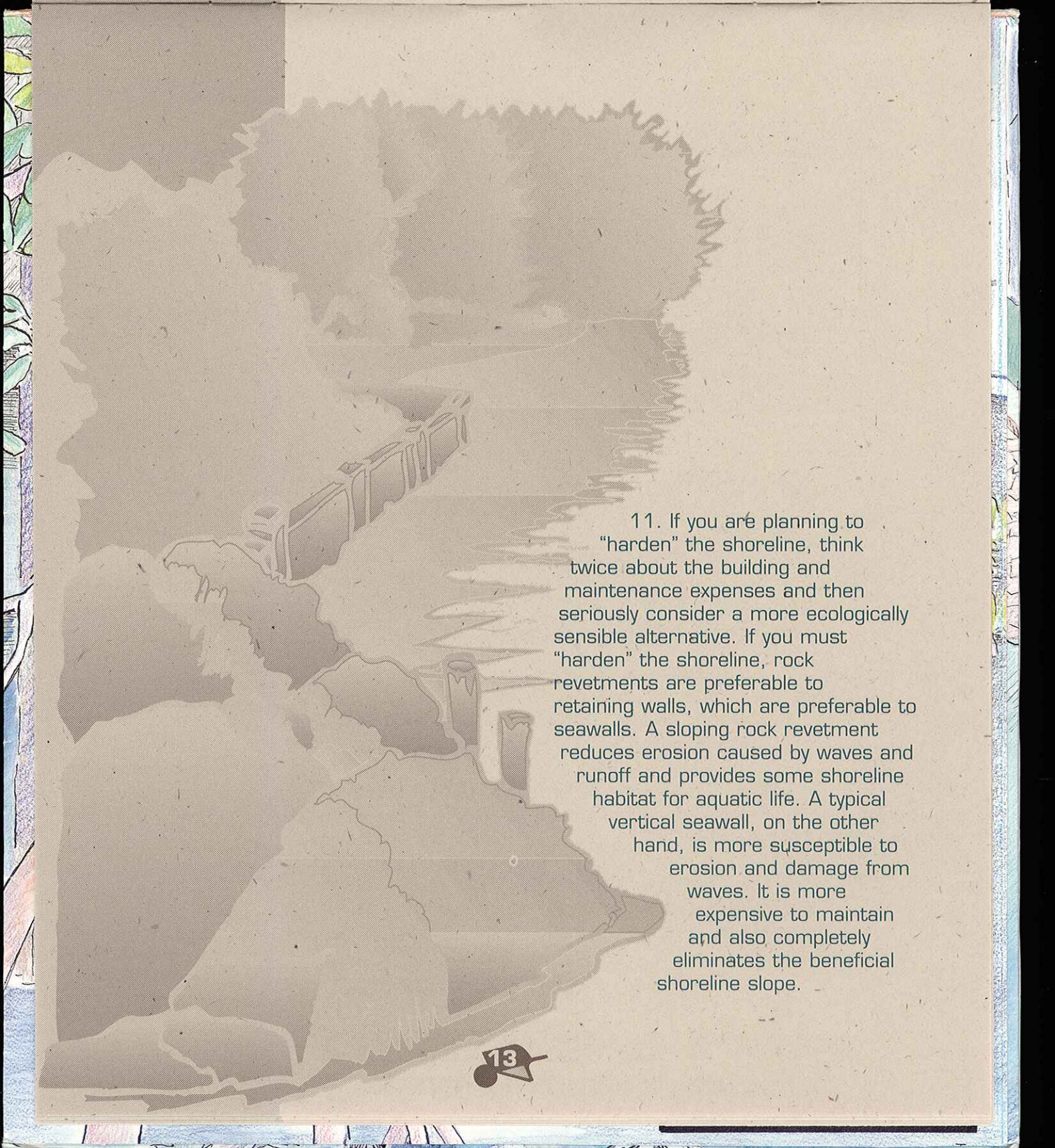


7. Gradually remove Australian pine and Brazilian pepper trees and replace them with native vegetation. Both species are opportunistic and shade out more desirable shoreline stabilizing species.

8. When planning docks, design the access ramp and main platform to take up the smallest possible area. Consult with the Sarasota County Coastal Zone or Manatee County Pollution Control staff to design docks which are permissible and sensitive to environmental concerns.

9. If you already have a "hardened" shoreline, you may be able to plant native vegetation seaward of the structure, if the soil is at mean high tide level or higher.

10. A "hardened" shoreline in need of repair or replacement requires a permit or variance before work is started. Consider obtaining a permit instead for regrading or revegetating the shoreline. You could find it to be very cost effective.



11. If you are planning to "harden" the shoreline, think twice about the building and maintenance expenses and then seriously consider a more ecologically sensible alternative. If you must "harden" the shoreline, rock revetments are preferable to retaining walls, which are preferable to seawalls. A sloping rock revetment reduces erosion caused by waves and runoff and provides some shoreline habitat for aquatic life. A typical vertical seawall, on the other hand, is more susceptible to erosion and damage from waves. It is more expensive to maintain and also completely eliminates the beneficial shoreline slope.

Projects Requiring County Coastal Permits Or Variances

SARASOTA COUNTY

Minor work permits:

- construction and maintenance of docks and piers
- shoreline alterations, including construction of rock revetments, retaining walls, or seawalls
- maintenance dredging
- any building proposal, excavation, or earthmoving in the areas 20 feet landward from mean high water along a waterway, or swamp or overflow lands adjacent to a waterway

Major work permits:

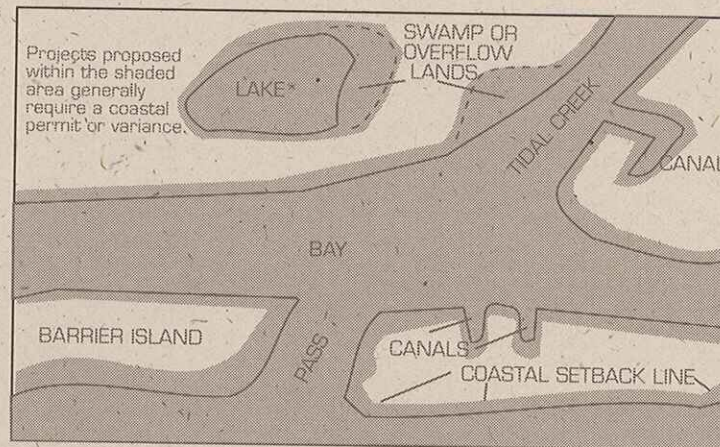
- dredge and fill
- alteration of shoreline configuration
- any other work below mean high water or within swamp or overflow lands which does not require a minor work permit

Coastal variance:

In areas seaward of the county coastal setback line:

- construction or maintenance beyond existing foundation lines
- any excavation or earthmoving
- beach cleaning or grooming involving tractors or heavy equipment or resulting in final changes of ground elevation of more than one foot

If you are considering doing any work within this area, consult the Sarasota County Coastal Zone staff during the early planning stages.



Area where coastal permits or variances are required

Shoreline

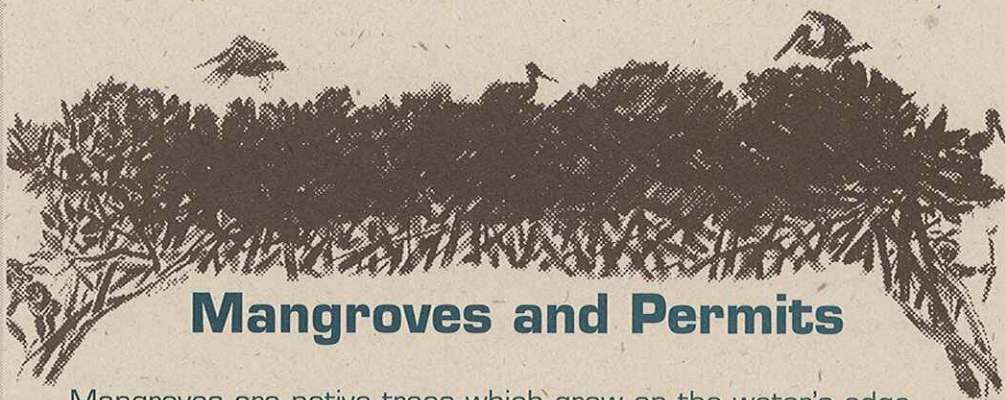
* Lakes greater than one acre or with two or more owners

MANATEE COUNTY

In Manatee County, construction permits are required for:

- construction of docks, retaining walls, and seawalls
- maintenance dredging
- dredge and fill

Construction permits can be obtained from the Manatee County Planning and Development Department.



Mangroves and Permits

In the Sarasota Bay area, there are three mangrove species – red, black and white. If you are not sure if a tree is a mangrove, bring a leaf to either the Sarasota County Department of Natural Resources or the Manatee County Pollution Control Division, or your County Extension Service for positive identification.

Mangroves are native trees which grow on the water's edge. They have special ecological value as shoreline stabilizers, nutrient recyclers, and marine life protectors.

Because mangrove trees are so vital to the health of our bays, an army of regulations protect them. Federal, state, and county governments limit their removal and pruning, and permits must be obtained before work has begun. Be smart — check with the Sarasota County Department of Natural Resources or the Manatee County Pollution Control Division before cutting any mangrove branch.

AGENCY ADDRESSES AND PHONE NUMBERS

Sarasota County Natural Resources Department

Location: 1301 Cattlemen Road, Sarasota

Mailing address: P.O. Box 8, Sarasota, FL 34230

Coastal Zone Division	(813) 378-6113
Forestry Division	(813) 378-6115
South County office	(813) 493-4500
Natural Sciences Division	(813) 378-6113
Pollution Control Division	(813) 378-6128
Ecological Monitoring Division	(813) 378-6142

Sarasota County Solid Waste Management

8350 Bee Ridge Road

Sarasota, Florida 34241 (813) 951-5096

Sarasota County Cooperative Extension Service

2900 Ringling Blvd.

Sarasota, Florida 34237 (813) 951-4240

Sarasota County Environmental Library

7112 Curtiss Avenue

Sarasota, Florida 34231 (813) 924-9677

Manatee County Public Health Unit

410 6th Avenue East

Bradenton, Florida 34231 (813) 748-0666

Pollution Control Division ext. 1326

Environmental Health Division ext. 1340

Manatee County Planning & Development Department

212 6th Avenue East

Bradenton, Florida 34231 (813) 746-3090

Manatee County Cooperative Extension Service

1303 17th Street West

Palmetto, Florida 34208 (813) 722-4524

National Estuary Program - Sarasota Bay Project

1550 City Island Road
Sarasota, Florida 34236

(813) 388-3318

Southwest Florida Water Management District

2379 Broad Street
Brooksville, Florida 34609

(904) 796-7211
OR
1-800-423-1476

Florida Department of Environmental Regulation

Permitting section- Southwest District
4520 Oak Fair Boulevard
Tampa, Florida 33610-7347

(813) 623-5561

Sea Grant Extension Program

1303 17th St. W.
Palmetto, Florida 32408

(813) 722-4524

HOTLINE NUMBERS

Boat Safety Courses

1-800-336-2628

Florida Dept. of Natural Resources Marine Patrol

1-800-342-5367

Florida Game and Freshwater Fish Commission

1-800-282-8002

Manatee Hotline

1-800-342-1821

National Pesticides Telecommunications Network

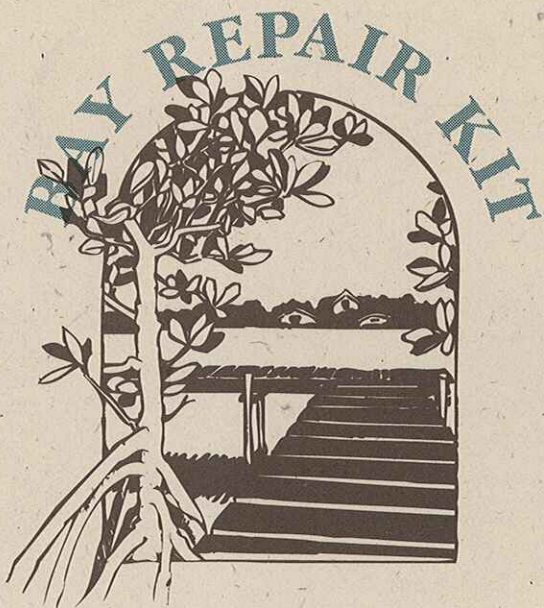
1-800-858-PEST

National Response Center

1-800-242-8802

Toxic Substances Information Center

1-800-424-9300



**What Each Of Us Can Do To
Keep Our Bays Clean**

SUMMARY

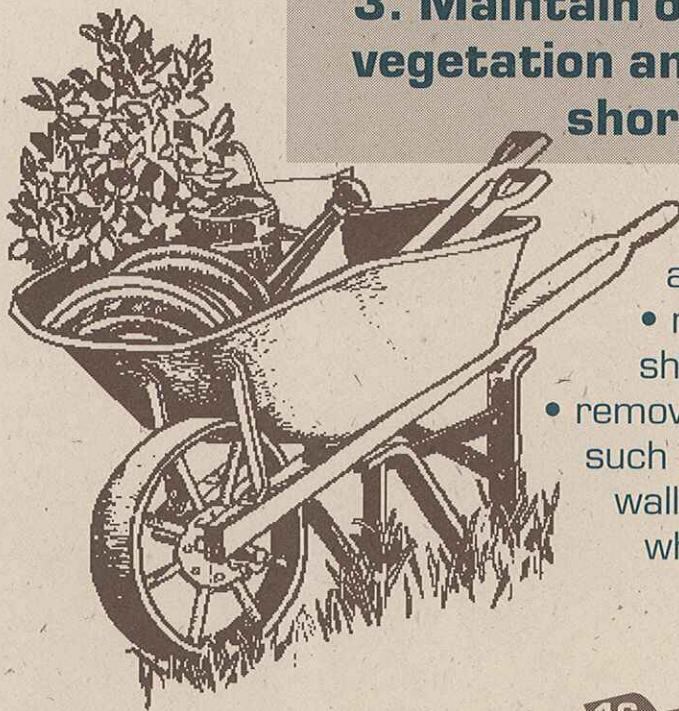
1. Limit surface runoff by:

- encouraging water to sink into the soil.
 - * Use plantings – especially drought tolerant.
 - * Grade the land.
 - * Reduce paved areas.
- irrigating efficiently.
 - * Never water paved areas.
 - * Water only during evening or early morning, on calm days, and not after a recent rain.

2. Keep surface runoff clean by:

- using fertilizers wisely.
- using a minimum of chemical pesticides.
- minimizing the amount of exposed soil.
- using your septic tank efficiently.
- disposing of hazardous wastes properly.
- burying pet feces 6-8 inches down into the soil.
- draining your pool into a large vegetated area rather than into a driveway or street.
- maintaining your car and disposing of auto products properly.
- being sensitive to aquatic plant and animal life while using and maintaining your boat.

3. Maintain or restore the native vegetation and natural slope of the shoreline by:



- protecting the natural slope and shoreline plants.
- revegetating with native shoreline plants.
- removing coastal structures, such as seawalls, retaining walls, and rock revetments where possible.

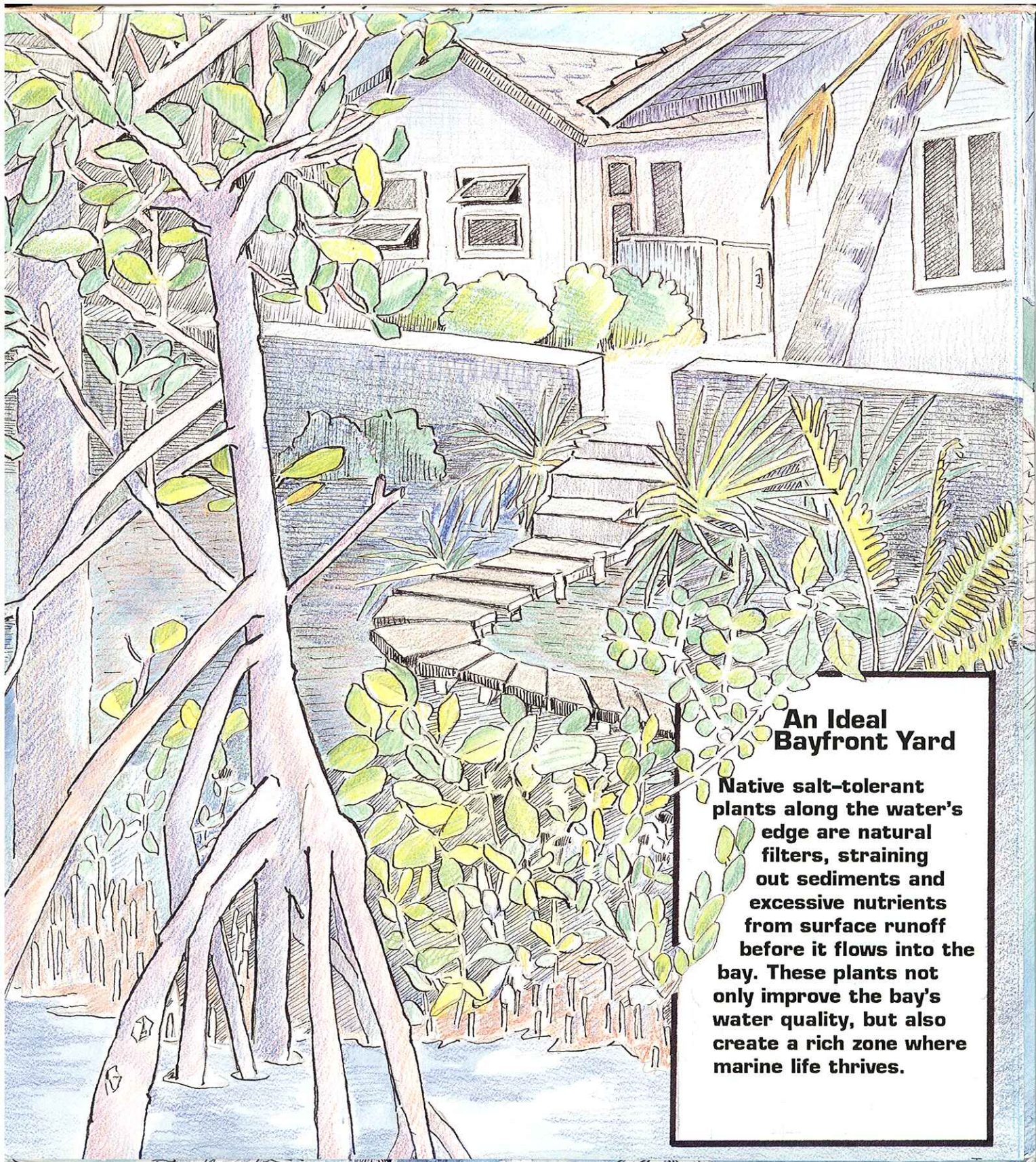
• B A Y R E P A I R K I T •



• WHAT EACH OF US CAN DO TO KEEP OUR BAYS CLEAN •



100 % Recycled Paper

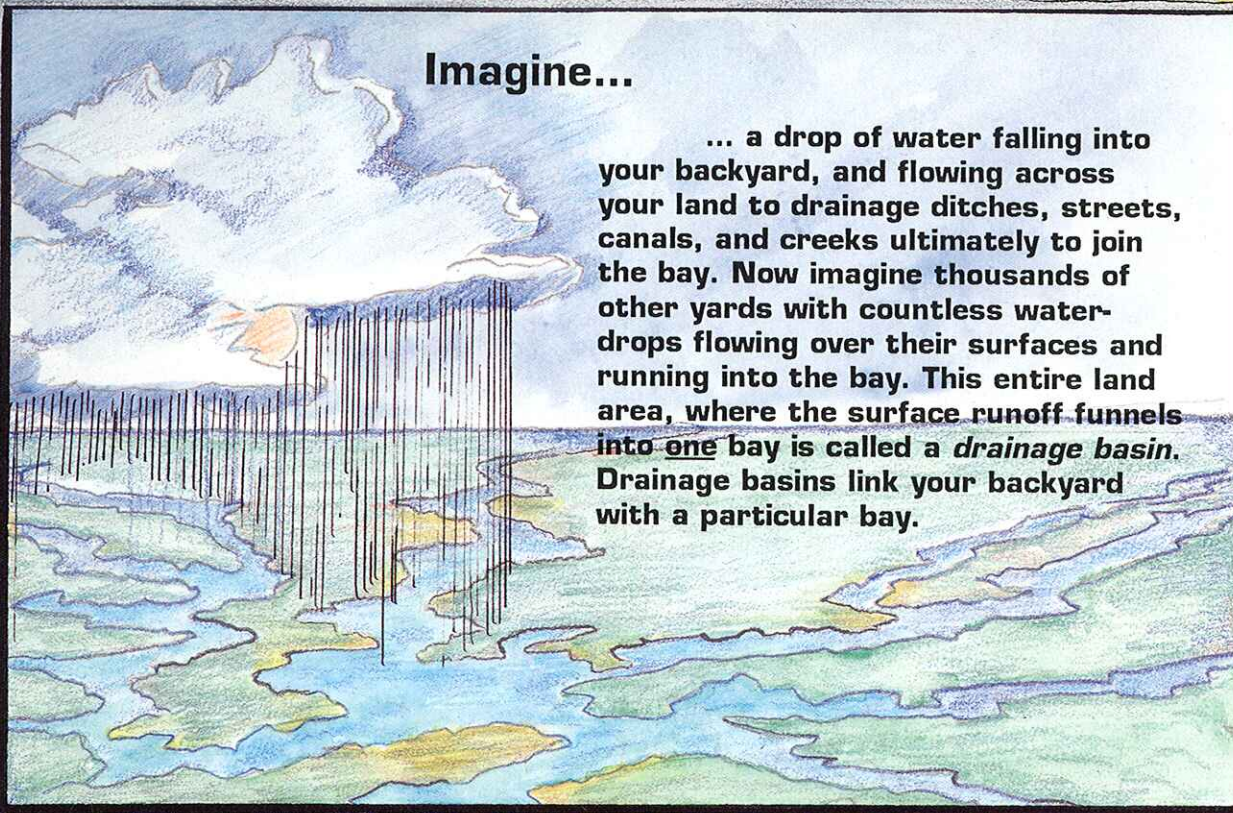


An Ideal Bayfront Yard

Native salt-tolerant plants along the water's edge are natural filters, straining out sediments and excessive nutrients from surface runoff before it flows into the bay. These plants not only improve the bay's water quality, but also create a rich zone where marine life thrives.

Imagine...

... a drop of water falling into your backyard, and flowing across your land to drainage ditches, streets, canals, and creeks ultimately to join the bay. Now imagine thousands of other yards with countless water-drops flowing over their surfaces and running into the bay. This entire land area, where the surface runoff funnels into one bay is called a *drainage basin*. Drainage basins link your backyard with a particular bay.





Anatomy of a Drainage Basin:

"The Funnel Effect"

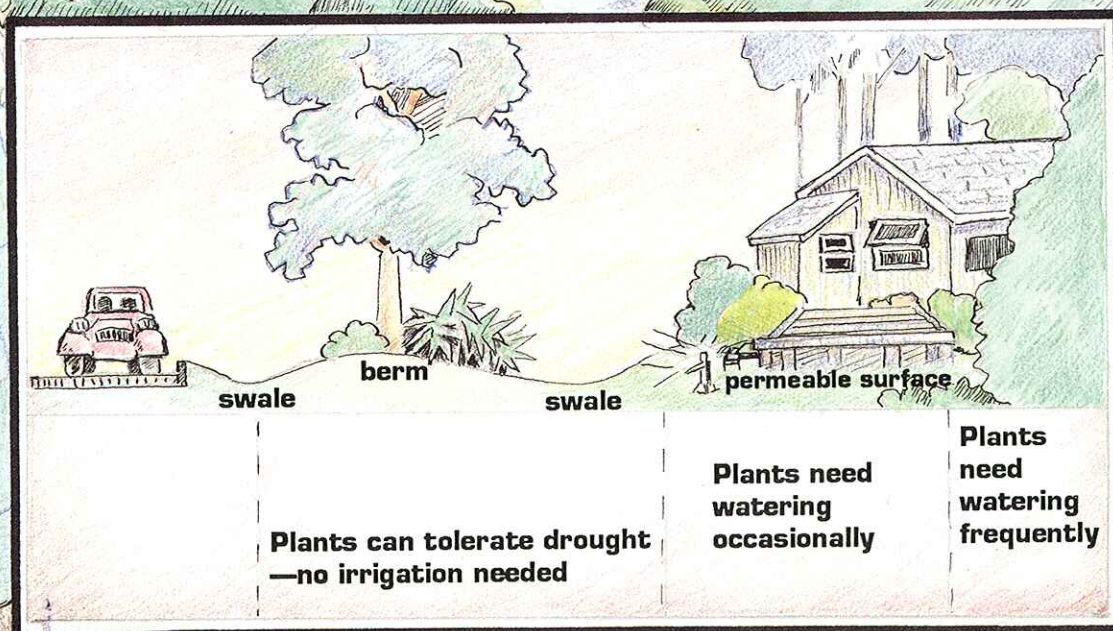
Water flowing across the gently sloping land sweeps up soil, leaves, cigarette butts, oil and whatever else it meets along its journey. This drainage basin "brew" — a mix of natural and man-made ingredients — eventually funnels into a bay. The health of our bays strongly depends on the cleanliness of the surface runoff, especially in the Sarasota Bay area.

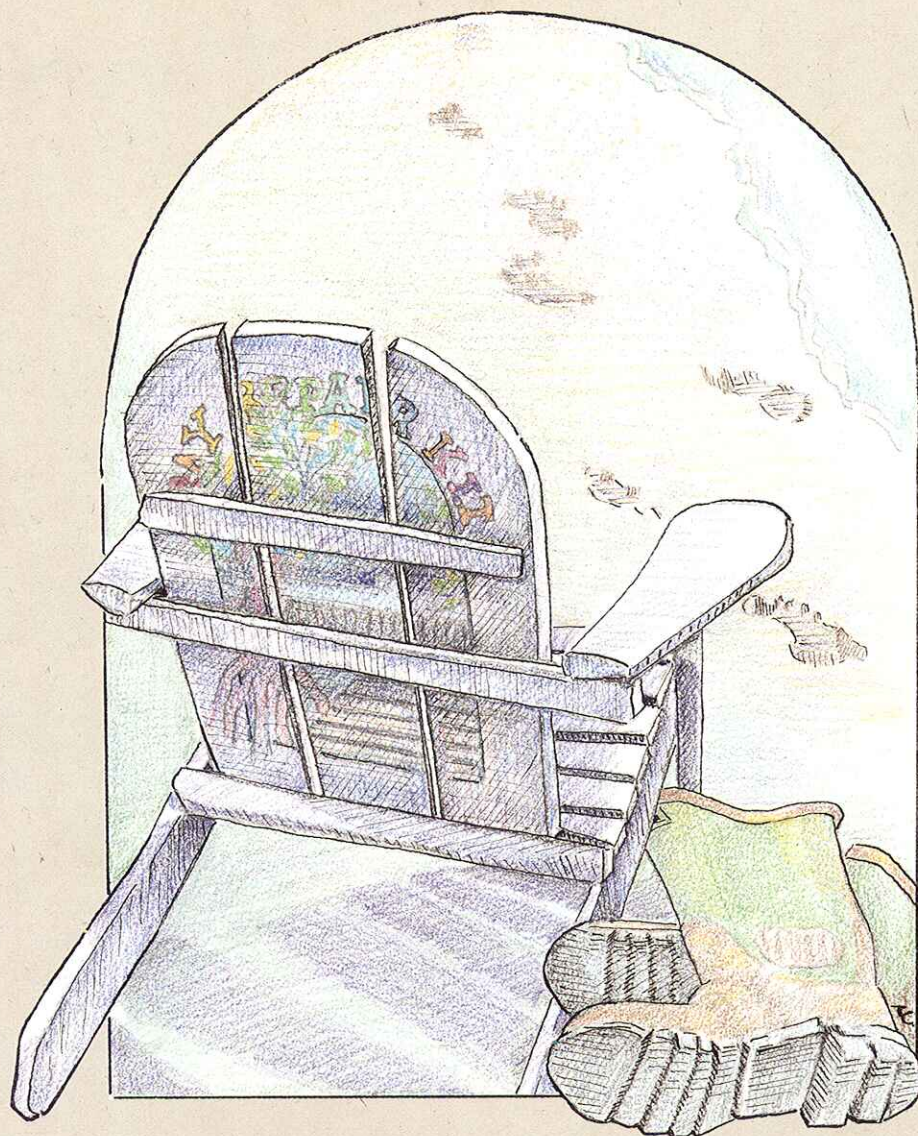
Remember the three ways each of us can help the bay:

1. Limit surface runoff.
2. Keep runoff clean.
3. Maintain native vegetation.

An Ideal Yard

Yards which promote the absorption of water into the soil help keep bays healthy. Landscape techniques — such as grading the land with swales and berms, generously planting with drought-tolerant vegetation, and reducing paved areas — encourage water to sink into the ground.





Sarasota County Board
of County Commissioners



Manatee County
Board of Commissioners