Clean Marinas Program
Best Management Practices Guidebook

January 2005

2005 Ohio Clean Marinas Pledge

The Ohio Clean Marinas Program promotes and celebrates voluntary adoption of measures to reduce pollution from marinas and recreational boats. Designated "clean marinas" are recognized as environmentally-responsible businesses.

As the first step toward achieving Clean Marina status and on behalf of

_____

(name of marina or boatyard),

I pledge to do my part to keep Ohio's waterways free of harmful chemicals, excess nutrients, and debris.

I will identify opportunities and implement practices to control pollution associated with:

- Vessel maintenance and repair
- Fuel Management
- Sewage handling
- Solid, liquid and hazardous wastes
- Storm Water runoff
- Facilities management

I commit to actively pursue full standing as an Ohio Clean Marina. Within one year of the date below, I will implement appropriate environmental stewardship practices and will apply to the Ohio Clean Marinas Program for recognition as an Ohio Clean Marina.

_____ _____

Name of Marina Owner Date

_____ _____

Name of Marina Manager Date

Ohio Clean Marinas Program Checklist

Marine Facility Name:_____
Owner/Manager:_____
Address: _____
_____
_____
Phone: _____ e-mail_____

Marine Facility Type
_____ Marina, no boatyard
_____ Marina, w boatyard
_____ Yacht Club
_____ Boat dealer
_____ Other _____

This form is intended to be used by marine facility operators to conduct self assessments of their facilities. It will also be used by a team from the Clean Marinas Program Advisory Board to verify self assessments. The designations in the status column of the table are:

♦ indicates that the reader should refer to the *Guidebook* for specific **regulatory or legal** requirements; these are required.

☻ means that a goal using one or more best management practices (BMPs) in the *Guidebook* is **required by the Program**; in most cases these are goals required for approval of Ohio's Coastal Management Program.

☺ means that a goal using one or more BMPs in the *Guidebook* is **recommended**.

In many cases a goal can be achieved by selecting one or more BMPs from a larger set in that section of the *Guidebook*, in other cases a goal refers to a single BMP. The *Ohio Clean Marinas Program Guidebook* is available from the program coordinator at 614-292-3548 or Hushak.1@osu.edu, or from the Ohio Sea Grant web site http://www.sg.ohio-state.edu.

Ohio Clean Marina awards will be presented to those marine facilities that are in compliance with all applicable laws and regulations (♦), all required goals (☻), and 50 percent of the recommended goals (☺).

The "not applicable" (N/A) option is offered so that items which do not apply to your operation will not be counted against you in the scoring process. For example, if your facility has an underground fuel storage tank, simply mark N/A for the above ground storage tank rule. Chapter 16 applies only to new marinas or those undergoing a significant expansion. In Chapter 17, the legal requirements apply only to new or expanding marinas or to those replacing docks, while the erosion control BMPs are potentially applicable to all marinas.

Chapter 1. Introduction	**Status**	**Yes**	**No**	**N/A**
No checklist				
Chapter 2. Used Chemicals and Wastes	**Status**	**Yes**	**No**	**N/A**
1. You have evaluated your waste stream, determined your hazardous waste generator status and are in compliance with the regulations that apply to your status.	♦			

2. You require that all maintenance work is performed in a work area designed to contain waste materials.	☻			
3. You store hazardous wastes and materials in appropriate and separate containers to minimize spills, leaks or releases.	♦			
4. You winterize only with less toxic propylene glycol antifreeze.	☻			
5. You dispose of antifreeze by approved methods.	♦			
Chapter 3. Air Permits, Painting and Coating Operations	**Status**	**Yes**	**No**	**N/A**
1. Your air permits are up to date and you are in compliance with the terms and conditions of your permits.	♦			
2. You contain and collect all debris/dust from stripping, sanding and painting and dispose of it properly.	♦			
3. You conduct all spray painting on land, in a spray booth or under a tarp; if a spray booth, you have approval of the local fire department and local building code authority.	♦			
4. If you apply TBT paints, you have a limited commercial license from the Ohio Department of Agriculture.	♦			
5. You have a painting policy to minimize environmental impacts of painting operations; you require all stripping and sanding in a designated area (see also Ch. 2).	☺			
Chapter 4. Used Oil and Oil Filters	**Status**	**Yes**	**No**	**N/A**
1. You have appropriate procedures for the collection, storage and recycling or disposal of used oil	♦			
2. You offer spill-proof oil changes.	☺			
3. You store and manage your machinery to prevent oil spills and leaks.	♦			
Chapter 5. Burning Used Oil in Space Heaters	**Status**	**Yes**	**No**	**N/A**
1. You have a permit from Ohio EPA to install and operate a used oil burning space heater or you qualify for the de minimus exempton.	♦			
Chapter 6. Handling Spent Lead Acid Batteries	**Status**	**Yes**	**No**	**N/A**
1. You have appropriate procedures for the collection, storage and disposal of spent lead acid batteries	♦			
Chapter 7. Freon Recovery	**Status**	**Yes**	**No**	**N/A**
1. You use U.S. EPA certified technicians to recover and properly dispose of Freon.	♦			
Chapter 8. Oil Spill Prevention	**Status**	**Yes**	**No**	**N/A**
1. You have a Spill Prevention Control and Countermeasure (SPCC) plan, the required containment area if the storage tank(s) are above ground, and the plan has been certified by a professional engineer.	♦			
2. You maintain enough oil spill response equipment to contain the greatest potential spill at your facility.	☻			
3. Your oil response equipment is stored where it is convenient and accessible to the most likely location of a spill.	☺			
4. You make available and promote the use of oil absorbent materials during oil changes (Ch. 4), fueling (Ch. 10) and in the bilge areas of all boats with inboard engines.	☻			
5. You recycle oil absorbent materials if possible or dispose of them in accordance with petroleum disposal regulations (see also Chs. 4 and 10).	♦			

6. You report oil spills to the National Response Center at 1-800-424-8802 (U.S. Coast Guard), the Ohio EPA at 1-800-282-9378 and your local fire department; and are in compliance with multiple discharge rules.	♦			
Chapter 9. Fuel Management and Storage Tanks	**Status**	**Yes**	**No**	**N/A**
1. You have the necessary permits and meet all the requirements of the fire code for spill prevention and for fuel containment to operate a commercial **Above Ground Storage Tank (AST)** containing flammable or combustible liquids.	♦			
2. You meet the requirements of BUSTR (Bureau of Underground Storage Tank Regulations) and PUSTRCB (Petroleum Underground Storage Tank Release Compensation Board) for monitoring and registration of your commercial **Underground Storage Tank (UST)** containing flammable or combustible liquids.	♦			
Chapter 10. Fuel Dispensing Procedures	**Status**	**Yes**	**No**	**N/A**
1. Your marine service station has an attendant or supervisor on duty whenever the station is open for business.	♦			
2. You do not use holding clips on fuel nozzles.	♦			
3. You have automatic back pressure shut-off nozzles on fuel pump discharge hoses to automatically stop the flow of fuel into a boat's fuel tank when sufficient reverse pressure is created.	☻			
4. Your fuel station attendants are trained in marina fueling procedures which minimize the likelihood of fuel spills.	☺			
5. You post signage for boaters about clean boater fueling practices at your marina	☺			
6. Your fuel station attendants are trained to remind boaters of fueling practices at your marina.	☺			
7. You meet the National Fire Protection Association and State Fire Code standards for fire protection at marinas	♦			
8. You keep a file of Material Safety Data Sheets (MSDS) for all products used at your facility and Inform the SERC, LEPC and fire department what materials you store and if you have a spill	♦			
Chapter 11. Handling Trash, Plastic and Fish Waste	**Status**	**Yes**	**No**	**N/A**
1. You prohibit the dumping of plastic, paper, rags, glass, metal, crockery, dunnage (lining and packing material, nets, lines, etc.), and food into the water.	♦			
2. You provide leakproof solid waste containers with effective covers conveniently throughout the marina for storage of solid waste prior to disposal, and empty and clean them on a timely basis.	♦			
3. You post signs directing people to trash receptacles if they are not in plain view and indicate what may be placed in each receptacle.	☺			
4. You have contacted a waste hauler or your local solid waste recycling coordinator to learn what materials are collected in your area.	☻			
5. You provide collection bins for solid recyclables in convenient locations and encourage patrons to recycle.	☺			

6. You have a posted fish cleaning station and require patrons to clean fish at the station or at home and to dispose of fish waste properly.	☻			
7. You inform boaters about procedures to prevent the spread of zebra and quaga mussels, aquatic plants and other aquatic nuisance species when leaving a body of water.	☺			
Chapter 12. Sewage Handling	**Status**	**Yes**	**No**	**N/A**
1. You have a pumpout or dump station that is appropriate for your facility.	♦			
2. You do not allow waste from your pumpout or dump station to drain into receiving waters	♦			
3. You prohibit discharge of head waste in your marina as a condition of your lease agreements.	☻			
4. You post signs prohibiting the discharge of head waste and directing people to use shoreside restrooms.	☺			
5. You provide clean, functional restrooms 24 hours per day and post signs showing their location.	☻			
6. If your marina uses a septic system, you have developed a policy to maintain the septic system and posted signs about what patrons can and cannot put into the system.	♦			
7. If your marina is located within a No Discharge Zone, at present any waterway other than Lake Erie, the Ohio River or the Muskingum River, you require that boaters secure their Type I and Type II MSDs, e.g., lock the door to the head or disable the seacock.	♦			
Chapter 13. Wastewater Discharges	**Status**	**Yes**	**No**	**N/A**
1. You have Identified all process-related wastewater discharges.	♦			
2. You have obtained an NPDES permit from Ohio EPA and/or permission from the POTW for all of your wastewater related discharges.	♦			
3. You prohibit the discharge or disposal of chemicals, or other wastes into an underground injection well (this includes floor drains that lead to an on-site septic system.	♦			
4. You properly contain and manage waste waters from your pressure washing activities.	♦			
Chapter 14. Storm Water Management	**Status**	**Yes**	**No**	**N/A**
1. You have obtained a storm water permit from Ohio EPA.	♦			
2. You have developed a storm water pollution prevention plan (SWP3) for your site which meets Ohio EPA requirements.	♦			
3. Your storm water management structures are appropriate for your property, are maintained for effective operation and are inspected and cleaned on a systematic schedule.	♦			
4. You have a low-impact system for storm water runoff.	☺			
5. You use vegetated buffers and wetlands to slow storm water runoff and remove pollutants.	☺			
6. You use pervious surfaces for parking lots, sidewalks, etc., or have a plan to reduce the amount of impervious area at your marina as you replace these surfaces.	☺			

Chapter 15. On-site Drinking Water Systems	Status	Yes	No	N/A
1. If you have a public drinking water system, you have obtained approval and operating license for your drinking water system from Ohio EPA.	♦			
2. You monitor your public water system and have samples tested in accordance with Ohio EPA rules.	♦			
3. You maintain the area surrounding your drinking water well to prevent pollution from a septic system, unused wells, etc.	♦			
Chapter 16. Site Selection, New or Expanding Marinas	**Status**	**Yes**	**No**	**N/A**
1. You plan new facilities in previously-developed waterfront sites.	☺			
2. You have complied with all federal and state laws for threatened or endangered species.	♦			
3. You have avoided disturbance or development of Category III (high quality) wetlands, and avoided or mitigated disturbance of Categories I and II wetlands and riparian areas.	♦			
4. You have scheduled construction to avoid critical migration, nesting, and spawning periods of important species of fish and wildlife.	♦			
5. You have designed your marina to facilitate flushing.	☺			
6. You have performed preconstruction inspection, assessment, monitoring and/or modeling for water quality conditions.	☻			
7. You make provision to systematically monitor water quality at your marina during operations.	☻			
8. You do not use asphalt near water surfaces.	☻			
9. You locate buildings, workshops, waste storage facilities, parking, vessel storage, and vessel repair facilities away from the water to the extent possible.	☺			
Chapter 17. Marina Design, Redesign and Maintenance	**Status**	**Yes**	**No**	**N/A**
1. You leave an open gap at the shoreward end of crib docks to facilitate littoral transport of sand and gravel past the structure and prevent stagnant areas. The gap length should be determined site specifically by the project engineer.	♦			
2. You use environmentally neutral materials for pilings and other construction and fill. Cadmium chromium arsenate (CCA) treated lumber or creosote treated lumber and asphalt or other petroleum-based substances are prohibited below the ordinary high-water mark.	♦			
3. You minimize the impacts of dredging by not dredging during critical migration or spawning periods, by avoiding colonial waterbird nesting areas and historic waterfowl staging and concentration areas, and selecting an appropriate disposal site and containment design.	♦			
4. Your shore erosion control measures give preference to non-structural measures, such as beach nourishment, native grasses, marsh creation, and other methods that encourage the preservation of the natural environment.	☻			

5. You minimize the adverse effects of erosion control projects on adjacent properties (*stream banks and shorelines*), navigation, threatened or endangered species, and significant historic or archaeological resources.	☻			
6. If non-structural measures alone are not sufficient to control erosion, structural measures may be used to stabilize and ensure the long-term viability of the non-structural controls.	☺			
7. In areas where existing protection methods are being flanked or are failing, you implement properly designed and constructed shore erosion control methods such as returns or return walls, toe protection, and proper maintenance or total replacement.	☻			
8. You protect sensitive habitat using waterwise landscaping practices such as watering deeply and infrequently, selecting plants requiring less care, mulching, or using gray water and rain water.	☺			
9. You protect sensitive habitat using integrated pest management techniques such as selecting disease and insect resistant plants, mowing lawns and pulling weeds to reduce reliance on herbicides, fostering natural predators, or as a last resort using least toxic chemicals applied at times to minimize leaching into the water.	☺			
10. You protect sensitive habitat by planting and maintaining vegetated buffers, using native plants that require little care, choosing plants that attract birds, small mammals and other wildlife.	☻			
Chapter 18. Marina Management	**Status**	**Yes**	**No**	**N/A**
1. You include language requiring the use of best management practices in all of your contracts: slip holders, liveaboards, transients, charters, workers, contractors, and tenants	☺			
2. You post a sign informing boaters of Ohio's no wake law near marinas.	☻			
3. You post signs informing boaters of marina environmental policies and locations of receptacles, fish cleaning, etc.	☺			
4. You provide information (brochures, fact sheets, workshops, tours) to boaters about your marina and best boating practices.	☺			
5. You offer environmental audits for boaters.	☺			

	Applicable #	Achieved #	Actual %	Required %
Legal Requirements (♦) 43 items				100
Program Requirements (☻) 17 items				100
Recommended Practices (☺) 23 items				50

September 8, 2004

Clean Marinas Program Contributors

The Ohio Sea Grant College Program has developed the Ohio Clean Marinas Program in partnership with local health departments, fire marshals, marina and yacht clubs and the following agencies:

Ohio Department of Natural Resources (ODNR)
Division of Soil and Water Conservation
Office of Coastal Management
Division of Watercraft

Ohio Department of Health
Ohio Environmental Protection Agency
Ohio Department of Commerce, State Fire Marshal Division
U.S. Coast Guard
U.S. Army Corps of Engineers
Lake Erie Marine Trades Association
Greater Cleveland Boating Association

Program Funding

The Ohio Clean Marinas Program is being developed with financial assistance provided by the Coastal Zone Management Act of 1972, as amended, administered by the Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration through the ODNR – Office of Coastal Management and Division of Soil and Water Conservation to Ohio Sea Grant. A grant from the Lake Erie Protection Fund, Ohio Lake Erie Commission has been received to develop a clean boater program as a component of the Clean Marinas Program.

Acknowledgments

We acknowledge valuable assistance from the leaders of other clean marina programs, in particular of Maryland, Florida, Texas, Virginia, Connecticut and Michigan. We especially acknowledge the Maryland Clean Marina Guidebook as the starting point for the Ohio Clean Marinas Program Guidebook. We also thank Margaret Podlich of the Boat U.S. Foundation for timely assistance and advice.

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Clean Marinas Guidebook
Table of Contents

Chapter 1: Introduction: Ohio Clean Marinas Program and Guidebook

The Clean Marinas Program is designed to encourage marinas, yacht clubs, boatyards and boaters to use simple, innovative solutions to keep Ohio's coastal and inland waterways clean. These solutions, called Best Management Practices or BMPs, assist you, the operators, to protect the resources that provide your livelihood—clean water and fresh air. Participation in the program is voluntary; your contribution can help protect the natural resources important to the livelihood of the marina industry. The Clean Marinas Program includes the following:

- A comprehensive guidebook to help make marinas, yacht clubs, boatyards and boaters more aware of environmental laws and regulations. The guidebook identifies federal and state regulations and best management practices (BMPs) that can be used to increase compliance and protect natural resources;

- Education and outreach activities to help further promote environmentally responsible marina and boating practices;

- Recognizing those following best management practices as "Clean Marinas" through a designation and incentive/awards program.

In addition to the marina industry, the support and patronage of boaters is also a key to the success of the Ohio Clean Marinas Program. Because of this the guidebook also includes educational materials to help promote environmentally responsible boating (*Appendix K*).

Please help promote environmental stewardship in the marina industry by taking the Clean Marinas Pledge and becoming an Ohio Clean Marina!

About the Ohio Clean Marinas Guidebook

The management measures in this Ohio Clean Marinas guidebook are intended to control impacts to water quality and habitat from marina operation and maintenance, boat operation and maintenance, and marina siting and construction (of both new and expanding marinas). The guidebook is written with full-service marinas and yacht clubs as the major target audience, but it can be a helpful resource to all types of boating facilities, including independent boatyards and marina contractors

The Ohio Clean Marinas guidebook is a reference document. It outlines best management practices (BMPs) that marina industry professionals can use to protect water and air quality. The Guidebook includes a brief statement of regulations that apply to the marina industry and a comprehensive list of best management practices (BMP), some required and most recommended. The guidebook covers the topics found in the Table of Contents.

It is important to note that this guidebook provides an overview of the major requirements that could apply to your marina or boating business. It may not cover every requirement, however, and should not be used as your only source of information on the regulations. It provides you with a starting point to identify areas where your business might be subject to regulation. You should contact the agencies listed throughout this guidebook for more information and assistance.

The Clean Marinas Program seeks to attract the following facilities and their associated shore-based services that support recreational boats and boats for hire:

- Any facility that contains seven or more slips, piers where seven or more boats may tie up, or any facility where a boat for hire is docked.
- Boat maintenance or repair yards.
- Any federal, state, or local facility that involves recreational boat maintenance or repair.
- Public or commercial boat ramps.
- Any residential or planned community marina with seven or more slips.
- Any mooring field where seven or more boats are moored.

Becoming a Clean Marina

By complying with all the regulations applicable to your marina and adopting the required and recommended BMPs throughout this guidebook, you will be showing your commitment to environmental stewardship. Your marina can be recognized as an Ohio Clean Marina after following the steps outlined in the next section of this guidebook and by demonstrating that you've adopted the required BMPs and a significant proportion of the recommended BMPs.

As an Ohio Clean Marina, you can be proud that you are doing your share to protect the natural resources of Ohio upon which we all depend. In addition, your marina or boatyard will be a safer, healthier place to work. You may be able to save money by reducing your costs for materials and for waste cleanup and disposal. You may increase your income by renting out equipment such as vacuum sanders and by selling recyclable materials such as batteries and reusable oil spill kits. Cleaner, more efficient equipment will increase your staff's productivity. Your liability associated with waste handling may also be reduced, and your facility will be more attractive to those who care about the health of our water, land and air.

What Steps do I Take to Become a Clean Marina?

(1) Learn about the Ohio Clean Marinas Program

Attend a workshop, call the Ohio Clean Marinas office or visit our web page at http://www.sg.ohio-state.edu/ to obtain a copy of the Ohio Clean Marinas Guidebook, the clean marina award checklist, the clean marina pledge and other program information.

(2) Take the Ohio Clean Marina Pledge

By signing the pledge, you commit to "do your part to improve the environmental quality of Ohio waterways, encourage voluntary participation, support the regulatory process, create a strong environmental ethic, and promote individual responsibility through public education," i.e., you commit to become an Ohio Clean Marina.

Send a photocopy of the signed pledge to the Ohio Clean Marinas office. Display the original in a public area so that your customers will be aware of your commitment to clean water. We will prepare a news release acknowledging your participation in the Ohio Clean Marinas Program and will include your facility's name on our web page and in public displays. The pledge expires one year from the date you sign it. If you are unable to achieve the goal of becoming an Ohio Clean Marina in one year, you may apply for an extension of the pledge by contacting the Ohio Clean Marinas office.

(3) Conduct a self-assessment of your property and implement your best management practices.

Assess your own facility using the checklist and the Ohio Clean Marinas guidebook. To achieve clean marina status, all regulations must be met, all required best management practices must be implemented, and a minimum percent of recommended management practices must be adopted for those enterprises engaged in by the marina. If during your self-assessment you find that you do not meet a regulatory requirement, you may be able to use Ohio's Environmental Audit Privilege Bill to bring your facility into compliance without penalty (see *Appendix A*).

(4) Call upon a mentor or Ohio Clean Marina staff to answer any questions.

Do not be discouraged if you initially have difficulty meeting the minimum scores. We want to help you become a Clean Marina. Please call the Ohio Clean Marinas office. If we cannot answer your questions directly, we will put you in touch with one of the marina operators who has helped to develop the Ohio Clean Marinas Program.

(5) Schedule a confirmation visit

Once you are satisfied that your facility meets the designation standard described on the Ohio Clean Marinas Checklist, call the Ohio Clean Marinas office to schedule a confirmation visit. A team of people from the Ohio Clean Marinas Advisory Board will visit your facility, verify the items checked on the checklist, and make a recommendation to the advisory board.

(6) Enjoy your rewards!

As an Ohio Clean Marina, you will be authorized to use the Ohio Clean Marinas logo on your letterhead and in your advertising. You will receive a certificate and a flag to fly from your property. Your facility will also be included in Ohio Clean Marinas publications and public displays. Furthermore, Ohio Clean Marinas staff will help you prepare a news release recognizing your demonstrated commitment to environmental stewardship.

(7) Maintain your Ohio Clean Marina status

Annually, we will ask you to confirm in writing that you continue to meet the designation standards described on the Ohio Clean Marinas Checklist. At least every third year, an Ohio Clean Marinas representative will contact you to set up a meeting at a mutually convenient time to reaffirm your Ohio Clean Marina status.

What Regulations Apply to Marina Activities?

Several federal and state authorities are responsible for oversight of marinas and recreational boating in Ohio. Marinas are subject to a variety of regulations related to land use; pollution control; habitat preservation; and safe and proper use of the state's waterways. The regulatory requirements for marinas are presented in more detail in the appropriate chapters of the guidebook. The final two chapters of the guidebook provide an overview of the laws and regulations that apply to marinas (Chapter 19) and of the regulatory agencies responsible for overseeing these regulations (Chapter 20).

In Ohio, local governments have been constitutionally granted the authority and responsibility to plan for and control the development of specific land uses within their respective jurisdictions. In particular, under **Ohio's Marina Licensing Program**, required annual inspections and marina licenses are issued by the respective local/county board of health. In some counties, the local fire marshal has jurisdiction in some areas. Local requirements vary across counties. Make sure you are familiar with local requirements for your marina.

Education Programs

The Clean Marinas Program Advisory Board stands ready to assist you in becoming an Ohio Clean Marina. If you have questions as you conduct your self-assessment, call the Coordinator for assistance; if the Coordinator cannot answer your questions, a board member who can will be contacted.

The cooperation of boaters who use your facility is critical. To help recreational boaters understand the Clean Marinas Program and to improve their knowledge of good boater practices, funding for a two-year clean boater program has been provided by the Ohio Lake Erie Commission. A Best Boater Practices (BBP) brochure is available for you dissemination. The "Clean Boating Tip Sheets" in *Appendix K* are available for your use. They address four topics: vessel cleaning and maintenance, petroleum control, vessel sewage, and waste containment and disposal. These tip sheets are meant to be photocopied and distributed to boaters, with space on each to include your marina's name and logo.

The Clean Marinas Program will make every effort to integrate its educational program with ongoing educational programs in Ohio. The Division of Watercraft promotes public education on clean boating practices through its **Boating Education Program** and **Boating and The Environment** educational materials. Ohio EPA's **Office of Pollution Prevention** has published a fact sheet entitled "Pollution Prevention for Marinas" that describes pollution prevention and other environmentally sound alternatives for marinas.

Throughout the guidebook you will also find references to additional resources as regulation and best management practices are discussed. In Chapter 20 and in *Appendices I and J* you will find references to agency contacts and web sites.

Environmental Acronyms

Below are some common abbreviations and acronyms used for various divisions, offices and regulations

Ohio EPA Acronyms

CAA……....Clean Air Act
CWA……..Clean Water Act
CFR ……..Code of Federal Regulations
DAPC…….. .Division of Air Pollution Control
DDAGW……Division of Drinking and Ground Waters
DERR……Division of Emergency and Remedial Response
DHWM……..…Division of Hazardous Waste Management
DSIWM……..Division of Solid and Infectious Waste Management
DSW……..Division of Surface Water
EPCRA ……...…Emergency Planning & Community Right to Know
OAC…….. Ohio Administrative Code
OPP …….. Office of Pollution Prevention
ORC ……. Ohio Revised Code
NRC.....National Response Center
PTI……. Permit to Install
PTO……Permit to Operate
RCRA ……Resource Conservation and Recovery Act
SDWA……Safe Drinking Water Act
UIC…….Underground Injection Control

Ohio Department of Natural Resources Acronyms
Coastal Nonpoint Pollution Control Program Plan

BMP……Best Management Practice
CNPCP……Coastal Nonpoint Pollution Control Program Plan
CWA……...Clean Water Act
CZMA…….Coastal Zone Management Act
DSWC……Division of Soil and Water Conservation
NOAA……..National Oceanic and Atmospheric Administration
NPDES……National Pollution Discharge Elimination System
NPS…….Nonpoint Source
OCM……Office of Coastal Management
ODNR…….Ohio Department of Natural Resources

U.S. Army Corps of Engineers Acronyms

USACE……U. S. Army Corps of Engineers

Revised: August 24, 2004

Chapter 2: Vessel Maintenance and Repair: Handling Used Chemicals and Hazardous Wastes

Environmental Concerns

Vessels require a great deal of attention. They must be scraped, painted, and cleaned. Their engines need to be lubricated and otherwise tended. They need to be prepared to withstand winter. Each of these activities has the potential to introduce pollutants into the environment.

Many of the cleaning products used in boat shops are toxic. Many contain caustic or corrosive elements. They may also contain chlorine, phosphates, inorganic salts, and metals. Even non-toxic products are harmful to wildlife. For example, detergents found in many boat cleaning products will destroy the natural oils on fish gills, reducing their ability to breathe.

Antifreeze

There are two types of antifreeze. Antifreeze with ethylene glycol is a greenish-yellow, odorless, sweet-tasting chemical that poses a serious health risk to humans and animals if ingested. Antifreeze with propylene glycol is pinkish and less toxic to humans and animals, and the one recommended for use. Both types of antifreeze can be toxic to aquatic organisms in the water such as fish, bottom-dwelling organisms and plankton. There are limits for the acceptable concentrations of both of these chemicals in Ohio's water quality standards.

Antifreeze drained from engines is considered a waste. Ohio EPA does not regulate used antifreeze as hazardous waste unless it contains high enough levels of certain metals, such as lead, cadmium or chromium. It can also be a hazardous waste if it has been mixed with other wastes such as gasoline or solvents. If you generate antifreeze, you must evaluate it to determine if it is a hazardous waste. You must also properly manage and dispose of spent antifreeze.

You CANNOT dispose of used antifreeze by pouring it into your septic system, into a dry well, on the ground, in the trash, or into any body of water. Also, in most areas of Ohio, you cannot dispose of antifreeze by putting it down floor drains into the sanitary sewer. You can hire a disposal company to dispose of your used antifreeze, but this will usually be the most expensive option.

The best option for handling used antifreeze is to have it recycled. If you recycle, it is important to use only one type of antifreeze. There is no market for mixed antifreeze. There is a larger market for recycled propylene glycol than there is for ethylene glycol. There are three ways you can recycle used antifreeze. You can hire a mobile recycling company to come to your business, recycle the antifreeze and leave the recycled product for you to reuse. You can also hire a company to pick up your used antifreeze and recycle it at a central facility. Or, you can purchase a small antifreeze recycling system to use at your facility. If you recycle your own antifreeze on-site, you must make sure that any wastes from recycling (e.g., sludges, filters) are also evaluated to see if they are hazardous.

If your used antifreeze is a hazardous waste and you do not have it recycled, you must dispose of it at a permitted hazardous waste facility. If you have any residue from recycling antifreeze that is a hazardous waste, this must also be sent to a permitted disposal facility. Prior to sending it off-site for recycling or disposal, the used antifreeze must be managed properly on-site as a hazardous waste (e.g., keeping closed containers, labeling, inspections, etc.).

If you have questions about antifreeze, contact your local Ohio EPA district office, Division of Hazardous Waste Management (DHWM). See *Appendix C* for a list of antifreeze recycling services.

Hazardous Waste

Under Ohio EPA's regulations, all wastes generated from a business must be evaluated to see if they are hazardous or not. If your company generates a hazardous waste, you are required to manage and dispose of that waste according to Ohio's hazardous waste regulations.

If you have a material that can no longer be used, it is considered a waste. There are two ways in which your waste can be classified as a hazardous waste:

Listed hazardous wastes

If your waste appears on any one of the lists published in Ohio's hazardous waste regulations, it is a hazardous waste. These hazardous waste lists are in the Ohio Administrative Code (OAC), rules 3745-51-31 through 3745-51-33.

Hazardous wastes generated by marinas may include:

1. spent solvents
2. solvent contaminated wipers/shop towels
3. waste paints
4. spent fluorescent bulbs (containing mercury)
5. used antifreeze contaminated with metals, solvents or fuels
6. used oil contaminated with metals, solvents or fuels
7. contaminated gasoline/oil
8. lead acid batteries
9. dust/debris from sandblasting or stripping

Characteristic hazardous wastes

If you find that your waste does not appear on any of the lists in Ohio EPA's regulations, your waste may still be regulated if it possesses a hazardous characteristic. Under the regulations there are four characteristics that make a waste hazardous: ignitability, corrosivity, reactivity and toxicity. These characteristics are defined in OAC rule 3745-51-21 through 3745-51-24.

Many small businesses are hazardous waste generators. Even if you generate only a small amount of waste, the waste must still be evaluated and, if it is hazardous, properly managed. To determine if you have a hazardous waste, you must know about ALL the wastes that come from your business. Go through your business and make a list of all your wastes (include even those that you think are not hazardous). Go through the list and carefully evaluate each waste stream.

Keep any information that you use to make your waste evaluation in your files. If you do not have enough information from the process to evaluate a waste, you may need to have the waste sampled and sent to an environmental testing lab for analysis. Keep any lab results you have on your waste in your files. All hazardous waste must be sent off-site to a recycling facility or a permitted hazardous waste disposal facility.

If you would like more information about the hazardous waste regulations, contact your local Ohio EPA district office, Division of Hazardous Waste Management (DHWM).

Handling Solvent Contaminated Wipers

Many small businesses use solvents and wipers (e.g., shop rags, towels) to clean equipment. When disposed of, the solvents used for cleaning often meet the definition of a listed or characteristic hazardous waste under Ohio's regulations. Solvent wipers include both disposable and reusable rags and towels. After use, these wipers are contaminated with solvents.

If you generate solvent wipers, these wipers must be evaluated to see whether they are hazardous or not BEFORE you dispose of them. Under Ohio's regulations, you cannot throw solvent wipers in the trash unless you have information showing the wipers are not hazardous. And, in many cases, solvent wipers are hazardous, even if they seem dry when you dispose of them. There are two ways in which solvent contaminated wipers can be handled. They can either be disposed of or sent off-site to a commercial laundry for recycling.

Any company that sends contaminated wipers for disposal must evaluate those wipers to determine whether they are hazardous before they are disposed of. This includes determining whether the wipers are listed or characteristic hazardous wastes. If you have wipers that are hazardous and you want to dispose of them, you must send them to a permitted hazardous waste disposal facility.

A better option to manage solvent wipers is to send them off-site to a commercial laundry for cleaning. Under this scenario, Ohio EPA has determined solvent wipers that will be cleaned and reused are not subject to the hazardous waste regulations because they are not being discarded.

All wipers are eligible for this exclusion if they contain no free liquids and are sent to a commercial laundry that is subject to regulation under the Clean Water Act or a dry cleaner.

Evaporating Solvent Wipers

Many small business owners ask whether it is acceptable to dry out solvent wipers by leaving drum lids off or evaporating off solvents. Under Ohio's hazardous waste regulations, you CANNOT evaporate solvent contaminated wipers. In many cases, this is considered hazardous waste treatment and is not acceptable without a hazardous waste treatment permit. In addition, evaporating wipers can release air pollutants, a possible violation of Ohio's air pollution control requirements. When collecting wipers, you need to ensure that they are kept in containers that are in good condition. The containers must be kept closed, except when adding or removing wastes.

Burning Solvent Wipers

It is important to know that Ohio's waste and air pollution control regulations also prohibit the burning of solvent contaminated wipers. Therefore, you CANNOT burn wipers (or other wastes from your business) in burn barrels or trash piles.

If you would like more information about solvent contaminated wipers, contact your local Ohio EPA district office, Division of Hazardous Waste Management (DHWM)

Hazardous Waste Generator Regulations

Once you have reviewed all your waste streams and determined if any are hazardous wastes, the next step is to identify your hazardous waste generator category. Doing this involves determining the quantity of hazardous waste the company generates in a calendar month. Under Ohio's hazardous waste regulations, different standards can apply to a business, depending on the generator category they fall under. See *Appendix B* for a summary of the general requirements that apply to each hazardous waste generator category; see *Appendix D* for a list of facilities accepting hazardous waste. For more complete information, refer to Ohio Administrative Code Chapter 3745-52, or contact Ohio EPA's Division of Hazardous Waste Management for help.

Other Regulations

Other programs address the release of harmful substances to surface waters resulting from boat cleaning operations at Ohio's marinas. Ohio's **Marina Licensing Program** requires marina owners and operators to provide for the proper storage and disposal of all wastes generated at the marina, including wastes associated with boat cleaning operations. In addition, leasing conditions established under **ODNR's Submerged Lands Lease Program** can impose design conditions on proposed boat cleaning and hull maintenance activities.

Best Management Practices for Vehicle Maintenance and Repair: Handling Used Chemicals and Hazardous Wastes[a]

BMP Description	Status	Yes (✓) N/A
Evaluating Waste Streams		
Evaluate all wastes generated at the business to find out if they would be classified as hazardous wastes.	♦	
Keep waste evaluation information in-file at your business.	♦	
Determining your Hazardous Waste Generator Status		
Determine the hazardous waste generator status for the business, based on how much hazardous waste is generated in a calendar month.	♦	
Identify and comply with the hazardous waste regulations that apply to your specific generator category. Please refer to *Appendix B* and to Ohio Administrative Code chapter 3745-52.	♦	
Hazardous Waste Management – General		
Collect hazardous waste only in tanks or containers (Hazardous waste generators are not allowed to collect hazardous wastes in pits, piles, lagoons or other land units without a permit from Ohio EPA.)	♦	
Surround hazardous waste tanks with impervious, secondary containment that is capable of holding 110 percent of the volume of each tank.	♦	
Prevent hazardous wastes from being thrown in the trash, dumpster, waste pile or onto the ground.	♦	
Do not discharge hazardous wastes from maintenance activities into surface waters.	♦	
Conduct visual inspections of the business to ensure there are no spills, leaks or discharges of hazardous waste.	♦	
Ensure that hazardous wastes are not dumped into sinks, drains or toilets.	♦	
Send all hazardous wastes off-site to a permitted hazardous waste disposal facility or to a recycling facility.	♦	
Maintenance/Work Areas; design hull maintenance areas to remove suspended solids using one or more of the following practices.		
Perform all major repairs–such as stripping, fiberglassing, and spray painting–in designated areas.	☻	
Collect all maintenance debris. Clean work areas after completing each operation or at the end of the day–whichever comes first. Remove sandings, paint chips, fiberglass, trash, etc. and evaluate to ensure they're not hazardous wastes.	☻	
Locate the maintenance area as far from shore as possible.	☺	
Vessel maintenance areas should have an impervious surface (e.g., asphalt or cement) and, where practical, a roof.	☺	
If asphalt or cement is not practical, perform work over filter fabric or over canvas or plastic tarps.	☺	

[a] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Surround the maintenance area with a berm or retaining wall.	☺	
Prohibit extensive maintenance or repair work outside of the designated maintenance areas.	☺	
Clearly mark the work area with signs, e.g., "Maintenance Area for Stripping, Fiberglassing, and Spray Painting."	☺	
Provide separate containers for different fluids (e.g. oil, antifreeze, and solvents).	☺	
Surround tanks with impervious, secondary containment that is capable of holding 110 percent of the volume of each tank. (See above for hazardous waste accumulation tanks and Chapter 8 for oil/fuel tanks).	☺	
Shelter waste collection tanks from the elements.	☺	
Attach funnels to tanks to reduce chances of spills. Funnels should be large enough to drain portable containers and oil filters.	☺	
Post signs indicating what may and may not be placed in each collection container.	☺	
Do not allow patrons to pour their own gasoline, solvents, paint, varnishes, or pesticides into the oil or antifreeze recycling containers. Consider locking the intake to oil and antifreeze recycling containers to prevent contamination. If you do lock the tanks, instruct your patrons to get the key from the appropriate staff person or to leave their oil or antifreeze next to the collection tank. If you select the second option, assign a member of your staff to inspect the collection site daily for any material that may have been dropped off.	☺	
Post signs throughout the boatyard describing best management practices that boat owners and contractors must follow, e.g., "Use Tarps to Collect Debris."	☺	
Develop procedures for managing requests to use the work space, to move boats to and from the site, and to insure the use of best management practices.	☺	
Store Materials with Care		
If you have more than a couple small cans of solvents or other hazardous materials, store them in fire-safe containers that are UL listed or Factory Mutual approved. Containers must meet U.S. Department of Transportation standards for protecting against the risks to life and property inherent in the transportation of hazardous materials. Approved containers will carry specification markings (e.g., DOT 4B240ET) in an unobstructed area. Refer to 49 CFR 178 for additional packaging specifications.	♦	
Small quantities of solvents may be stored in the containers they were purchased in. Keep the storage area neat.	☺	
Plainly label all stored and containerized material. For hazardous waste, mark the date accumulation begins and the words "Hazardous Waste" on containers.	♦	
To minimize air pollution, cap solvents and paint thinners whenever not in use. Store rags or paper saturated with solvents in tightly closed, clearly labeled containers.	♦	
Separate hazardous chemicals by hazardous class.	♦	

Store containers on pallets in a protected, secure location away from drains and sources of ignition. Inspect routinely for leaks.	☺	
Assign control over hazardous supplies to a limited number of people who have been trained to handle hazardous materials and understand the first-in first-out policy.	☺	
Routinely check the date of materials to prevent them from outlasting their shelf life.	☺	
Call your *local fire official* to schedule a "basic fire inspection." The inspection will determine whether you are meeting the state fire code, including hazardous material storage requirements.	☺	
Handle Solvents Carefully		
Keep containers of waste solvents, rags, and paints closed.	☻	
Direct solvent used to clean spray equipment into containers to prevent evaporation of volatile organic compounds. A closed gun cleaning system will save you money on cleaning materials.	☺	
Use only one cleaning solvent to simplify disposal.	☺	
Use only the minimal amount of solvent (stripper, thinner, etc.) needed for a given job.	☺	
For small jobs, pour the needed solvent into a small container in order not to contaminate a large amount of solvent.	☺	
Use soy-based solvents and other similar products with no or low volatility.	☺	
Schedule your spray painting jobs to minimize coating changes. Fewer changes mean less frequent purging of the spray system. Order your work light to dark.	☺	
Allow solids to settle out of used strippers and thinners so you can reuse solvents.	☺	
Adopt alternatives to solvent-based parts washers such as bioremediating systems that take advantage of microbes to digest petroleum.	☺	
If you use a solvent to clean engine parts, do so in a container or parts washer with a lid to prevent evaporation of volatile organic compounds. Reuse the solvent.	☺	
Repair and Maintain Engines with Care		
Store engines and engine parts under cover on an impervious surface like asphalt or concrete.	☺	
Use dry pre cleaning methods, such as wire brushing.	☺	
Avoid unnecessary parts cleaning.	☺	
Use drip pans when handling any type of liquid. Use separate drip pans for each fluid to avoid mixing. Recycle the collected fluid.	☺	
Use funnels to transfer fluids.	☺	
Drain all parts of fluids prior to disposal.	☺	
Clean engine repair areas regularly using dry cleanup methods, e.g., capture petroleum spills with oil absorbent pads.	☺	
Do not wash engine parts over the bare ground or water.	☺	
Prohibit the practice of hosing down the shop floor.	☺	

Winterize Safely.		
Use the minimum amount of antifreeze necessary for the job.	☺	
Use less toxic propylene glycol antifreeze versus ethylene glycol antifreeze.	☻	
For health reasons, always use less toxic propylene glycol in potable water systems. Ethylene glycol is never to be used; it is highly toxic and cannot be reliably purged come springtime.	☻	
Add stabilizers to fuel to prevent degradation. Stabilizers are available for gasoline and diesel fuels and for crankcase oil. These products protect engines by preventing corrosion and the formation of sludge, gum, and varnish. Also, the problem of disposing of stale fuel in spring is eliminated.	☺	
Be sure fuel tanks are 85-90 percent full to prevent flammable fumes from accumulating and to minimize the possibility of condensation leading to corrosion. Do not fill the tank more than 90% full. The fuel will expand as it warms in the springtime; fuel will spill out the vent line of a full inboard tank.	☺	
Use the highest rated octane recommended by the engine manufacturer; premium fuels are more stable than regular.	☺	
Be sure the gas cap seals tightly.	☺	
Promote reusable canvas or recyclable plastic covers. Some manufacturers will clean and store canvas covers during the boating season.	☺	
Recycle used plastic covers.	☺	
Managing Used Antifreeze		
Do not mix cleaning solvents, degreasers or waste fuel with used antifreeze, because this can result in a hazardous waste mixture.	♦	
Do not dispose of used antifreeze by pouring it into your septic system, into a dry well, on the ground, or in the trash. Dispose into a sanitary sewer only with permission of the municipal sewer facility.	♦	
Processes are in place to avoid discharge of antifreeze into the water.	♦	
Do store used antifreeze in a dedicated container.	☻	
Train employees on the proper way to handle antifreeze.	☻	
Consider either on-site or off-site recycling for your antifreeze.	☺	
Conduct In-Water Maintenance Wisely		
If the impacts of cleaning or maintenance activities (regardless of area involved) cannot be contained or mitigated against, remove the boat from the water. No debris should be allowed to fall into the water.	☺	
Keep containers of cleaning and maintenance products closed.	☺	
Plug scuppers to contain dust and debris.	☺	
Discourage underwater hull cleaning in your facility. Given the concentration of boats, underwater cleaning is dangerous to divers and the heavy metals that are released are harmful to aquatic life. Insurance to cover divers is also expensive.	☺	
Offer incentives, like reduced mid-season haul out rates, so that boaters can have their hulls cleaned on land where contaminants may be contained.	☺	

Reduce, Reuse and Recycle Materials		
Avoid having leftover materials by sizing up a job, evaluating your actual needs, and buying just enough product for the job. Encourage boaters to do the same.	☺	
Encourage boaters to exchange excess (unused) paints, thinners, varnishes, etc. To facilitate this type of activity, provide a bulletin board where boaters can post notices that they are seeking particular materials or have an excess of a substance.	☺	
Post the names of local schools or theater groups that are willing to accept excess, non-toxic paints.	☺	
Minimize Your Use of Hazardous Products		
Avoid using products that are corrosive, reactive, toxic, or ignitable to the greatest extent possible.	☺	
Adopt an inventory control plan to minimize the amount of hazardous material you purchase, store, and dispose of.	☺	
Do not store large amounts of hazardous materials. Purchase hazardous materials in quantities that you will use up quickly.	☺	
Establish a "first-in first-out" policy to reduce storage time. Dispose of excess material every 6 months.	☺	
Track Pollution Incidents	☺	
Develop and use a Pollution Report and Action Log to track pollution incidents and actions taken.	☺	
Post the Log on a clipboard in the maintenance area or another easily accessible location.	☺	
Consult the Pollution Report and Action Log daily.	☺	
Educate Boaters		
Inform boaters of the Clean Boater Program and of Best Boater Practices (BBPs).	☺	
Copy the Vessel Cleaning and Maintenance tip sheet from the back of this book and distribute to your customers. There is room to add your marina's name and logo.	☺	
Develop a policy for hazardous and other waste collection and disposal. Post notices informing your tenants of this policy.	☺	

Revised: August 24, 2004

Chapter 3: Vessel Maintenance and Repair: Air Pollution, Painting and Coating Operations

Environmental Concerns

Sanding, blasting, and pressure washing are meant to remove paint and marine growth. In the process, toxic heavy metals such as copper and tin may be released. If heavy metals find their way into the water, they may be consumed by mussels, worms, and other bottom-dwelling creatures and passed up the food chain to fish, birds, and humans. Heavy metals that are not incorporated into living tissue will remain in the sediments where they will substantially increase the cost of dredge spoil disposal.

Paints, solvents, thinners, and brush cleaners generally are toxic and may cause cancer. If spilled, they may harm aquatic life and water quality. Additionally, the fumes (known as volatile organic compounds or VOCs) released by some paints and solvents contribute to air pollution. Likewise, oil and grease from maintenance areas threaten aquatic life.

Air Pollution Control Permits

Under Ohio's regulations, it is your responsibility to obtain all environmental permits that are needed for your business. Ohio EPA requires air pollution permits for air contaminant sources. An air contaminant source is anything that emits air pollutants, such as particulates, dust, fumes, gases, mist, smoke, vapors or odors. While this definition covers many different processes, there are four rules of thumb that can often help identify an air contaminant source. Does your business:

- Have something with a stack, dust collector or vent?
  Examples: shotblasters, grinders, storage tanks.

- Have a process that uses paints, solvents, adhesives or other chemicals?
  Examples: paint booths, degreasers, solvent cleaning tanks.

- Have a process that burns fuel (e.g., oil, natural gas, coal)?
  Examples: boilers, furnaces, process heaters.

- Have a process that produces visible dust, smoke or odors?
  Examples: unpaved roadways, material handling areas.

Many activities that involve paints and solvents are regulated because these materials contain volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). VOCs contribute to photochemical smog. HAPs are harmful to human health and many are suspected to cause cancer. For these reasons, Ohio EPA requires permits for many operations which use paints and solvents. If you are painting, you will likely need air permits, especially for units such as spray

booths. In addition, you may need air permits if you are doing abrasive blasting or sanding operations, or have storage tanks for chemicals or petroleum liquids.

Not every air contaminant source needs an air permit. There are numerous operations and types of equipment exempted from air pollution permits. These exemptions are listed in OAC rule 3745-31-03. Another exemption option is the "de minimis" rule found in OAC 3745-15-05. An operation can qualify as a de minimis source if it is demonstrated through emission calculations that emissions of air pollutants are less than 10 pounds per day. Usually, the business needs to maintain some type of production or material usage record to substantiate de minimis exemptions. You may contact your local Ohio EPA office to discuss possible exemptions for your business. However, the regulations do not require you to notify the Ohio EPA that you are claiming air permit exemptions.

See Ohio Administrative Code (OAC) 3745-31-03 and/or 3745-15-05 for more information on permit exemptions. Or, visit Ohio EPA's Web site at http://www.epa.state.oh.us/dapc/sba/pande.html.

If an operation or piece of equipment does not meet the permit exemption criteria above, an air permit is required. There are two permits required for an air pollution source: the permit-to-install (PTI) and permit-to-operate (PTO). The permit-to-install is required before installing equipment. The permit-to-operate is needed to operate the equipment after installation. The terms and conditions of your permit will usually have emission limits. In addition, the permit will outline monitoring, operating conditions and record keeping requirements for your company. Once you get the permit, it is very important that you read and understand the terms and conditions contained in it. Please note that if you are already operating your business and discover that you need an air permit, you must still complete and submit PTI and PTO applications.

Most permits will require you to limit air pollutant emissions (e.g., pounds per day or pounds per hour of VOCs). The permit will often require that daily or monthly operating records be kept on site.

Contact your local Ohio EPA district office, Division of Air Pollution Control or Small Business Assistance Program at (614) 644-4830 for more information on the air permitting requirements.

Bottom Paints

Antifouling bottom paints protect hulls from zebra mussels and other types of fouling organisms that can interfere with vessel performance. Pesticides within them also harm fish and other non-target species. Most paints work by slowly releasing a biocide, generally cuprous oxide (Cu2O). Copper-based paints are not used on aluminum hulls; the interaction of copper and aluminum leads to corrosion. Instead, tin-based paints (tributyl tin or TBT) are often used on aluminum-hulled vessels. Because tin is extremely toxic, it must be applied cautiously. Concentrations of TBT as low as a few parts per trillion have caused abnormal development and decreased reproductive success in oysters, clams, and snails (EPA 1993). Tin is easily absorbed by fish through their gills and accumulates to high levels in sediments. For these reasons, Federal law restricts the use of tin-based paints to aluminum vessels, boats larger than 82 feet (25 meters), and outboard motors and lower drive units. Any boatyard operator wishing to apply TBT paints must obtain a limited commercial license (to be called a commercial applicator license after July 1, 2004) from the Ohio Department of Agriculture. Spray cans of TBT paint remain an unregulated substance and may be applied by boaters to outdrives and outboard motors without an applicator license.

Antifouling paints can be separated into three general categories:

Leaching Paints. Water soluble portions of leaching antifouling paints dissolve slowly in water, releasing the pesticide. The insoluble portion of the paint film remains on the hull. The depleted paint film must be removed before the boat is repainted. Most leaching paints are solvent based. Consequently, fumes are a concern.

Ablative Paints. Ablative antifouling paints also leach some toxicant into the water. The major difference is that as the active ingredient is leached out, the underlying film weakens and is polished off as the boat moves through the water. As the depleted film is removed, fresh antifouling paint is exposed. There are several water-based ablative paints on the market that are up to 97% solvent free. As a result, levels of volatile organic compounds are substantially reduced as compared to solvent-based paints. Ease of clean up is another advantage of water-based paints.

Non-toxic Coatings. Teflon, polyurethane, and silicone paints are nontoxic options. All deter fouling with hard, slick surfaces.

Best Management Practices for Air Pollution Control and for Painting and Coating Operations[b]

BMP Description	Status	Yes (✓) N/A
General		
Make sure you've identified all of the potential sources of air pollution at your facility.	♦	
Discuss your air sources with Ohio EPA and ensure you have the proper permits for sources, where needed.	♦	
Make sure your Ohio EPA permits are up-to-date.	♦	
Make sure you are in compliance with the terms and conditions of your permit, including operating requirements and recordkeeping.	♦	
Work Area		
Perform all major repairs–such as stripping and painting–in designated areas.	☺	
Collect all maintenance debris. Clean work areas after completing each operation or at the end of the day–whichever comes first. Remove blast media, paint chips, fiberglass, trash, etc.	☺	
Prohibit stripping and painting outside of the designated maintenance areas.	☺	
Clearly mark the work area with signs, e.g., "Maintenance Area for Painting."	☺	
Contain Dust from Sanding		
Collect debris for proper disposal.	♦	
If debris is hazardous waste, send to a permitted hazardous waste disposal facility.	♦	
Do not let dust fall onto the ground or water or become airborne.	☺	
Invest in vacuum sanders and grinders that collect dust as soon as it is removed from the hull.	☺	
Require tenants and contractors to use vacuum sanders. Rent or loan the equipment to tenants and contractors.	☺	
Post signs indicating the availability of vacuum sanders and grinders.	☺	
Bring vacuum sanders to tenants if you see them working with nonvacuum equipment.	☺	
Conduct shoreside sanding in the hull maintenance area or over a drop cloth.	☺	
Restrict or prohibit sanding on the water to the greatest extent practical.	☺	
When sanding on the water is unavoidable, use a vacuum sander and keep dust out of the water.	☺	
Use a damp cloth to wipe off small amounts of sanding dust.	☺	

[b] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Contain Debris from Blasting		
Collect debris for proper disposal.	♦	
If debris is hazardous waste, send to a permitted hazardous waste disposal facility.	♦	
Prohibit uncontained blasting.	☺	
Perform abrasive blasting in the vessel maintenance area within a structure or under a plastic tarp enclosure. Do not allow debris to escape from the enclosure.	☺	
Investigate alternatives to traditional media blasting such as hydroblasting and mechanical peeling.	☺	
Avoid dust entirely by using a stripper that allows the paint to be peeled off. These products are applied like large bandages, allowed to set, and are then stripped off. When the strips are removed, the paint is lifted from the hull. Dust and toxic fumes are eliminated.	☺	
Invest in a closed, plastic medium blast (PMB) system. These systems blast with small plastic bits. Once the blasting is completed, the spent material and the paint chips are vacuumed into a machine that separates the plastic from the paint dust. The plastic is cleaned and may be reused.	☺	
Paint Applicaton		
Conduct all spray painting on land in a spray booth or under a tarp. Meet the Ohio Fire Code, Chapter 13 (Flammable Finishes) and NFPA 33, Standards for Spray Applications Using Flammable and Combustible Materials. Approval of spray booths is required by the local fire department and the local building code authority.	♦	
Prohibit spray painting on the water.	♦	
Any boatyard operator wishing to apply TBT paints must obtain a limited commercial license (to be called a commercial applicator license after July 1, 2004) from the Ohio Department of Agriculture.	♦	
Develop a policy for the application of TBT paints from spray cans to outdrives and outboard engine intakes.	☺	
Recommend antifouling paints which contain the minimum amount of toxin necessary for the expected conditions to your customers.	☺	
Avoid soft ablative paints.	☺	
Use water-based paints whenever practical. Touch up areas under jack stands with quick-drying, solvent-based paints. Ask your sales representative to recommend compatible paints.	☺	
Stay informed about antifouling products, like Teflon, silicone, polyurethane, and wax, that have limited negative impacts. Pass the information along to your customers.	☺	
Store boats out of the water, where feasible, to eliminate the need for antifouling paints.	☺	
Minimize Impacts of Painting Operations		
Use brushes and rollers whenever possible.	☺	
Reduce paint overspray and solvent emissions by minimizing the use of spray equipment.	☺	

Use spray painting equipment with high transfer efficiency, such as high-volume, low-pressure (HVLP) spray guns.	☺	
Train staff to use spray painting equipment properly in order to reduce overspray and minimize the amount of paint per job.	☺	
Limit in-water painting to small jobs. Any substantial painting should be done on land, in the vessel maintenance area, and/or over a ground cloth.	☺	
If painting with brush or roller on the water, transfer the paint to the vessel in a small (less than one gallon), tightly covered container. Small containers mean small spills.	☺	
Mix only as much paint as is needed for a given job.	☺	
Mix paints, solvents, and reducers in a designated area. It should be indoors or under a shed and should be far from the shore.	☺	
Keep records of paint use to show where too much paint was mixed for a job. Use the information to prevent over mixing in the future.	☺	
Handling Solvents		
Refer to Chapter 2 - Vessel Maintenance and Repair: Handling Used Chemicals and Hazardous Wastes for more information on handling and storing solvent wastes.		

Revised: August 24, 2004

Chapter 4: Vessel Maintenance and Repair: Handling Used Oil and Oil Filters

Used Oil

If you generate used oil from maintenance and repair at your marina, or from maintenance activities of boaters who use your marina, you are subject to Ohio's used oil regulations, found in Ohio Administrative Code (OAC) Chapter 3745-279. Some examples of used oil include engine oil, lubricating oil, brake fluid, transmission fluid and hydraulic fluid. Many of the used oil regulations relate to good housekeeping practices. As a used oil generator, you must:

- Label all storage containers or tanks with the words used oil;
- Store used oil in containers or tanks that are in good condition (not rusting, leaking);
- If there is a leak of used oil: stop the leak, contain it, clean it up and properly manage the cleanup materials.
- Use a transporter with an EPA identification number to ship used oil off site.

As a generator, you must ensure that used oil is properly managed by a recycling or disposal company. The best way to manage used oil is to send it off site to a recycling company. The regulations encourage different recycling options such as reconditioning, refining, reusing or burning for energy recovery.

You should also be aware that under Ohio's used oil regulations, it is also illegal to use used oil as a dust suppressant on roadways, drives or on other areas of your property. For more information on the used oil regulations, contact your local Ohio EPA district office, Division of Hazardous Waste Management (DHWM). See *Appendix E* for a list of commercial used oil recyclers in Ohio.

Used Oil Filters

Under Ohio's used oil regulations, you do not need to handle used oil filters as hazardous waste if the filters are non terne-plated and have been properly drained of used oil. Terne is an alloy of lead and tin. The lead in terne plating can make a used oil filter hazardous. Terne-plated filters are used more commonly with heavy-duty vehicles such as buses and trucks.

Under Ohio's regulations, four different methods are acceptable for "hot-draining" used oil filters. Hot draining means that you remove and drain the filter at close to engine temperature. Note that any oil removed from the filter after draining must be properly managed under the used oil regulations. Acceptable hot-draining methods include:

Gravity Draining

The filter is removed from the engine and placed gasket side down in a drain pan. If the filter has an anti-drain valve, the dome end of the filter is punctured so the oil can flow freely. The filter needs to drain for 12 (minimum) to 24 hours.

Crushing

The filter is crushed by a mechanical, pneumatic, or hydraulic device to squeeze out the used oil. The remaining filter material is compacted.

Disassembly

The filter is separated into its different parts using a mechanical device. Then, metal, rubber and paper can be recycled separately.

Air Pressure

The filter is placed into a device where air pressure forces the used oil out of the filter.

Once you have drained the filters, you can send them to a recycling facility as scrap metal. This is the recommended option for handling filters. If you are not recycling your drained filters and want to dispose of them instead, you must know whether the filters are terne-plated or not. Terne-plated filters, because of their lead content, may be regulated as a hazardous waste. Hazardous waste needs to be properly managed and must be sent to an Ohio EPA-permitted hazardous waste disposal facility. Filters that are not terne-plated can be disposed of with your other nonhazardous solid waste, but they must be drained first.

If you are not going to drain your used oil filters, you must evaluate the filters to see if they are hazardous before disposal. You cannot throw any undrained filters into the trash dumpster unless you have evaluated the filters first and found them to be nonhazardous. Also note that even if the filters are nonhazardous, a solid waste landfill will not accept them if they contain free liquids. Because of this, your best option for handling used oil filters is to drain them and send them to a recycling facility.

For more information on used oil filters, contact your local Ohio EPA district office, Division of Hazardous Waste Management (DHWM). See *Appendix F* for a list of used oil filter recyclers in Ohio.

Best Management Practices for Handling Used Oil[c]

BMP Description	Status	Yes (✓) N/A
General		
Label all storage containers or tanks with the words used oil.	♦	
Store used oil in containers or tanks that are in good condition (not rusting, leaking).	♦	
If there is a leak of used oil: stop the leak, contain it, clean it up and properly manage the cleanup materials.	♦	
Use a transporter with an EPA identification number to ship used oil off site.	♦	
Don't throw your used oil on the ground, down the sewer, into a dry well, in a septic tank or down a floor drain.	♦	
Don't put liquid used oil in the trash dumpster with your solid waste. Solid waste landfills cannot take liquids.	♦	
Don't use used oil as a dust suppressant on your property.	♦	
Inspect your used oil areas for leaks or spills and take quick action if clean-up is needed.	♦	
Train employees on the correct methods for handling used oil.	♦	
Look for ways to recycle used oil. If the used oil can't be recycled, it must be properly disposed of.	♦	
Make sure you are properly handling and draining used oil filters before disposal. Recycle the collected oil. Recycle the metal canister if possible.	♦	
Use Oil Absorbent Materials		
Make available pads, pillows, or booms to your customers.	☺	
Require tenants to use and properly dispose of oil absorbent materials as part of your lease agreement.	☺	
Offer Spill-Proof Oil Changes		
Purchase a non-spill pump system to draw crankcase oils out through the dipstick tube. Use the system in the boat shop and rent it to boaters who perform their own oil changes.	☺	
Encourage the use of spill-proof oil change equipment as a condition of your slip rental agreement.	☺	
Prevent Spills and Leaks from Machinery (♦, i.e., this is a regulation)		
Use non-water-soluble grease on travelifts, fork lifts, cranes, and winches.	☺	
Keep forklifts well-tuned to prevent grease or oil from dripping onto staging areas or into the water.	☺	
Place containment berms around fixed pieces of machinery that use oil and gas.	☺	
Place machinery on an impervious pad.	☺	

[c] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Design containment areas with spigots to drain collected materials. Dispose of all collected material appropriately.	☺	
Cover machinery with a roof to prevent rainwater from filling the containment area.	☺	
Place leak-proof drip pans beneath machinery. Empty the pans regularly, being conscientious to dispose of the material properly (uncontaminated oil and antifreeze may be recycled).	☺	
Place oil-absorbent pads under machinery.	☺	

Revised: August 26, 2004

Chapter 5: Vessel Maintenance and Repair: Burning Used Oil in Space Heaters

During colder months, some service centers may be heating their shops by burning used oil in space heaters. It's important these businesses are aware of Ohio EPA's used oil and air pollution requirements. The used oil regulations state that used oil may be burned in a space heater if the following conditions are met:

1) The space heater is only used to burn oil that is generated at the business or received from a do-it-yourself oil changer who generated it as a household waste;

2) The space heater does not exceed a capacity of 500,000 (.5 million) British Thermal Units (BTUs) per hour; and

3) Combustion gases from the unit are vented to the outside.

It's also important to know that burning used oil in space heaters causes air pollution. The level of air pollution released depends on the amount and type of oil burned. Space heaters that have a burner rating of less than 500,000 BTUs per hour may qualify for the "de minimis exemption" under OAC Rule 3745-15-05.

Qualifying for the de minimis exemption means an air permit from Ohio EPA is not required to install or operate the space heater. If the space heater qualifies for this exemption, you need to keep a monthly record of the amount burned and the origin of the used oil (either generated on-site or received from a do-it-yourself oil changer who generated it at a household). Records of any lab testing performed on the oil should also be kept in file.

The burner rating (BTU capacity) is usually found on the space heater or in the manufacturer's literature. Many space heaters on the market are rated less than 500,000 BTU per hour. If the heater rating is unknown, you can contact the manufacturer for this information.

Contact the DAPC Small Business Assistance Program at (614) 644-4830 to get a copy of the de minimis exemption, or for additional information on the air pollution requirements for space heaters. For more information on the used oil rules, contact your local Ohio EPA district office, Division of Hazardous Waste Management.

Best Management Practices for Burning Used Oil in Space Heaters[d]

BMP Description	**Status**	**Yes (✓) N/A**
You have a permit from Ohio EPA to install and operate a used oil burning space heater or you qualify for the de minimus exempton.	♦	

Revised: August 24, 2004

[d] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Chapter 6: Vessel Maintenance and Repair: Handling Lead Acid Batteries

If you or boaters who use your marina remove lead acid batteries from vessels, you need to be aware of Ohio's hazardous waste regulations that apply to this activity. If lead acid batteries are handled improperly, they can pose environmental and health hazards. Battery components are toxic and corrosive. Lead and sulfuric acid can contaminate the air, soil and water.

Companies that generate spent lead acid batteries are encouraged to send them to a recycling facility. Through recycling, both the lead and sulfuric acid can be recovered from batteries. If you are removing lead acid batteries from vessels and sending them to a recycling facility, they are not subject to the full scope of Ohio's hazardous waste rules. For batteries that will be recycled, you can manage them under Ohio's existing lead acid battery rules in OAC 3745-58-70. Or, you can manage them under Ohio's hazardous waste regulations as a "universal waste." The universal waste regulations are found in OAC Chapter 3745-273. Both regulations have reduced standards for batteries that will be recycled.

If you are not recycling lead acid batteries, you must evaluate them before they are disposed of to determine if they are hazardous. Because of the lead and acid contained in these batteries, they will likely be a characteristic hazardous waste. And, if not recycled, these must be sent to a permitted hazardous waste disposal facility.

You should also be aware that if you are reclaiming batteries yourself on-site by opening batteries and removing acid and/or lead, you are subject to additional hazardous waste regulations. There may also be surface water and air pollution regulations that apply to these activities.

If you need more information about handling lead acid batteries, contact your local Ohio EPA district office, Division of Hazardous Waste Management (DHWM)

Best Management Practices for Handling Spent Lead Acid Batteries[e]

BMP Description	**Status**	**Yes (✓) N/A**
Do not open, handle or store batteries in a way that could rupture the battery case or cause it to leak.	♦	
Never store batteries directly on the ground where fluids could leak into soils.	♦	
Separate batteries from other wastes like paper, rags, garbage and flammable or hazardous chemicals.	☺	
Use a dike or other form of secondary containment to help prevent spills, reactions or fires. If storing batteries outside, protect them from the elements and place them on an impervious surface to prevent discharges.	☺	
Monitor your battery storage area for leaks or deterioration.	☺	
Take quick action to address any spills or leaks.	☺	
Make sure employees know how to safely handle batteries.	♦	
Don't reclaim battery components yourself, unless you are sure that you are in compliance with the hazardous waste regulations that apply to this activity.	♦	

Revised: May 17, 2004

[e] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Chapter 7: Vessel Maintenance and Repair: Freon Recovery

U.S. EPA regulates how freon is handled from vehicle (which includes boats) air conditioners. The rules also set standards for freon recovery and disposal.

Technician Training

Technicians who recover freon from motor vehicles must be trained and certified by a U.S. EPA-approved organization. Training must include instruction on the proper use of equipment, regulatory requirements, importance of refrigerant recovery and the effects of ozone depletion. To be certified, technicians must pass a test demonstrating their knowledge in these areas. A list of approved testing programs is available from the U.S. EPA ozone hotline and Web site.

Approved Equipment

Technicians who service motor vehicles must use U.S. EPA-approved equipment for refrigerant recovery and recycling. Recover/recycle equipment cleans the refrigerant so that contaminants like oil, air and moisture reach acceptably low levels. A list of approved recovery and recycling equipment is available from U.S. EPA's ozone hotline and Web site. Service shops performing recovery/recycle operations must certify to U.S. EPA that they own approved equipment.

Disposal and Recordkeeping

Freon recovered from vehicles must either be sent off-site to a reclamation facility or recycled on-site. For any recycling done on-site, there are specific procedures in the regulations that you must follow. For refrigerants sent to a reclamation facility, you must keep records, including the name and address of the reclaimer.

Prohibition on Venting Refrigerants

The Clean Air Act prohibits venting freon into the atmosphere.

U.S. EPA's Ozone Protection Program
Hotline: 800-296-1996
www.epa.gov/ozone/index.html

Best Management Practices for Freon Recovery[f]

BMP Description	**Status**	**Yes (✓) N/A**
You use U.S. EPA certified technicians to recover and properly dispose of Freon.	♦	

Revised: August 24, 2004

[f] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Chapter 8: Oil Spill Prevention

Oil is harmful and sometimes fatal to aquatic plants and wildlife, including fish, birds and invertebrates. Oil can enter water intakes and affect drinking water. A gasoline spill poses a significant fire and explosion hazard. Gasoline and oil may also contain carcinogens, including benzene and PCBs. In addition, spilled oil is unsightly and can stain the shoreline.

Federal and Ohio Laws

The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977, and the Oil Pollution Act of 1990 prohibit the discharge of oil of any kind into or upon the navigable waters of the United States. This includes any discharge that causes a film, sheen, discoloration, sludge, or emulsion on or beneath the surface of the water. Any such discharge may result in a civil penalty.

The United States Coast Guard must be notified any time there is a spill of petroleum or oil that results in a sheen. Call the National Response Center (NRC) at 1-800-424-8802. Failure to report or clean up a spill is a violation of the law.

In addition, the Ohio Revised Code and release reporting rules state that a sheen or a "**release to the environment**" must be reported within 30 minutes to the Ohio EPA at 1-800-282-9378 and the emergency coordinator of the Local Emergency Planning Committee (LEPC). Transportation (vessels) sources of spills may call 911. A **release to the environment** (outside secondary containment) is defined as 25 gallons of oil (this includes vegetable, animal and mineral oils). A listing of the release reporting requirements and Ohio's LEPC emergency contacts may be found at: http://www.epa.state.oh.us/dapc/serc/LEPC_List.pdf

The use of dispersants, such as soaps or emulsifiers, is prohibited on the Great Lakes (40CFR110.4). Some dispersants can cause petroleum to sink in the water column and mix with sediments where they will remain for years. Persons observing unauthorized use of dispersants and/or intentional or unreported discharges should call the NRC. –

All vessels 26 feet in length and over are required to display a placard that is at least 5 inches by 8 inches, made of durable material, and fixed in a conspicuous place in the machinery spaces or at the bilge pump control station. The placard must read:

Discharge of Oil Prohibited

The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of $5,000.

The Clean Water Act requires that the U.S. Coast Guard be notified anytime a spill produces a sheen on the water. Failure to report a spill may result in civil penalties. Report spills to (800) 424-8802.

Spill Prevention Plan

If you handle oil or oil products at your facility, you could be subject to the Spill Prevention Control and Countermeasure (SPCC) regulations. These regulations require that companies prevent and contain discharges of oil or petroleum products. If you have any of the following oil storage capacities, you are subject to the SPCC regulations:

- Total aboveground storage capacity greater than 1,320 gallons; or

- More than 42,000 gallons underground storage capacity. [This excludes tanks regulated by the State Fire Marshal's Office, Bureau of Underground Storage Tanks.]

In determining whether these regulations apply, you must consider the capacity of your tanks or containers and not the actual amount of oil stored. If you are storing oil in containers that are less than 55 gallons in size, you do not need to include these in calculating your SPCC storage capacity.

You should also be aware that, under these regulations, the definition of oil is very broad and includes animal, vegetable and soluble oils. Other common oil and petroleum products that are regulated include heating oil, crude oil, mineral oil, gasoline and diesel fuel.

If you are subject to the SPCC, rules you must provide secondary containment for oil or petroleum product storage units to contain any releases. You must also prepare a written SPCC plan.

Secondary containment must be sufficient to contain precipitation and the volume of the largest tank or container in each storage area. To meet these criteria, containment systems are typically designed to hold 110 percent of the volume of the largest tank or container in the area. Transfer areas where spills may occur must also be included. Secondary containment for the largest compartment being transferred to or from must be provided.

You must also have a written SPCC plan that describes all measures taken at your facility to prevent and control a release of oil or petroleum products in the event that your secondary containment fails. The SPCC plan must be prepared and implemented before you begin to store oil and it must be updated every five years, or whenever significant changes in oil storage occur. You must also train employees who handle oil on the contents of the plan. The SPCC plan must be signed by your management and certified by a professional engineer. Your management must review and sign the plan every three years, even when there are no changes. The SPCC plan must be kept on-site and be available for review.

Contact your local Ohio EPA district office, Division of Emergency and Remedial Response for more information on the SPCC requirements. Additional information is available at www.epa.gov/oilspill/

Oil Absorbent Materials

Oil absorbent pads, booms, and pillows absorb hydrocarbons and repel water. Depending upon the type, they may hold up to 25 times their weight in oil. These types of products are useful for capturing spurts at the fuel dock, cleansing bilge water, and wiping up spills in engine maintenance areas.

There are a number of new twists on basic oil absorbent materials. One variety of oil absorbent boom captures oil from the bilge and solidifies into a hard rubber bumper.

Yet another type of oil absorbent product is a boom constructed out of oil absorbent polypropylene fabric and filled with dehydrated microbes. These booms hold the petroleum in the fabric until it is digested by microbes. Threats associated with free floating petroleum are thereby minimized.

The broadcast use of any chemical, oil-solidifying substance, or straight uncontained microbes on navigable waters or any water that leads to navigable waters needs to be approved by the regional response team on a case by case basis. The Federal On Scene Coordinator may deem the use necessary to protect life and health. The use of these chemicals is definitely not preauthorized on the Great Lakes. However, if the materials are 100% contained and there is no chance of the chemicals or microbes entering the water, and they are disposed of properly, then it is legitimate. The use of any product in the bilge that gets pumped into the environment is illegal.

Disposing of Absorbents Containing Oil

If you clean up an oil spill with absorbents, there can be regulations that apply to how these materials are handled.

- If possible, consider wringing out absorbents over oil recycling bins and capturing the oil for reuse.

  If you've cleaned up a spill of used oil, the oil removed from the absorbent can be managed under Ohio EPA's used oil regulations (Ohio Administrative Code chapter 3745-279). The used oil regulations encourage recycling either on-site or through a used oil recycling company (e.g., burned for energy recovery or re-processing).

  If you've cleaned up a spill of virgin oil, the oil removed from the absorbent is not regulated as a waste under Ohio EPA's rules <u>if it is being recycled</u> (e.g., burned for energy recovery).

  If the oil you've collected (either used or virgin) won't be recycled, then you must determine whether the oil is hazardous waste or not and ship it off-site for proper disposal. Refer to Chapter 2 for more information on how to determine whether your waste is hazardous.

- For absorbents containing used oil: Talk with an oil recycler to see if there's a possibility to recycle absorbents. If absorbents are recycled (e.g. burned for energy recovery), they can be managed under the used oil regulations and are not considered a waste.

  For absorbents containing virgin oil: Recycling is also encouraged where possible. If a recycler burns this material for energy recovery, absorbents are not considered a waste.

  For absorbent materials that won't be recycled: Absorbent materials (containing either used or virgin oil) can usually be thrown in the dumpster if they contain only oil and the oil has been drained or removed to the extent where there are no visible signs of free-flowing liquid remaining in or on the material. Although it is unlikely absorbents would be considered hazardous waste, it is your responsibility to make sure they are non-hazardous before throwing anything in the dumpster. In some situations, absorbents may be hazardous if they've been contaminated with heavy metals or if they've been used to clean up chemicals other than oil (e.g. solvents or gasoline).

If you are using absorbents to clean up spills of other materials such as solvents or other chemicals, the used absorbents may be considered a hazardous waste. Please refer to Chapter 2 about handling used chemicals and hazardous wastes for more information on how to evaluate these wastes and the requirements for proper disposal.

Best Management Practices for Oil Spill Prevention[g]

BMP Description	**Status**	**Yes (✓) N/A**
Develop an SPCC Plan		
You must develop an SPCC plan if your marina has aggregate above ground storage capacity greater than 1,320 gallons, or an underground storage tank of greater than 42,000 gallons capacity that is not regulated by the State Fire Marshal's Office, Bureau of Undergrounds Storage Tanks.	♦	
The SPCC plan addresses the following elements • Operating procedures to prevent oil spills; • Control measures installed to prevent a spill from entering navigable waters or adjoining shorelines, and • Countermeasures to contain, cleanup, and mitigate the effects of an oil spill that impacts navigable waters or adjoining shorelines.	♦	
Develop secondary containment to hold 110 percent of the volume of the largest tank in the area.	♦	
The SPCC plan is certified by a professional engineer and kept onsite for EPA review.	♦	
The SPCC plan is reviewed by the marina owner or manager at least every five years (or whenever a change in storage capacity occurs)	♦	

[g] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

If a single spill of greater than 1,000 gallons occurs or two discharges of 42 gallons or more occur within one year, a copy of the SPCC plan must be submitted to EPA Region V and your Ohio EPA district office Emergency Response Unit.	♦	
Employees have been trained on the contents of the SPCC plan	♦	
Maintain Oil Spill Response Equipment		
Maintain enough oil spill response equipment to contain the greatest potential spill at your facility.	☻	
Store enough booms to encircle the largest vessel in your facility. Vessel length x 3 = required length of boom.	☻	
Store Oil Spill Response Equipment Smartly		
Store the equipment where the greatest threat of an oil spill exists: fuel receiving and fuel dispensing areas.	☺	
Store materials in an enclosed container or bin that is accessible to all staff, especially those who handle the fueling operations.	☺	
Mark the storage site with a sign reading "Oil Spill Response Kit." Include instructions for deploying pads and booms and spill notification	☺	
Consider leaving the storage container unlocked so that it is available to patrons, as well as to staff. If leaving the bin unlocked at all times is not possible, try leaving it unlocked just on weekends and holidays when both activity and risk are greatest.	☺	
If the bin is left unlocked, check the inventory regularly.	☺	
Oil Absorbent Materials		
Promote the use of oil absorbent materials in the bilge areas of all boats with inboard engines.	☻	
Recycle oil absorbent materials if possible or dispose of in accordance with petroleum disposal regulations.	♦	
Accidental Discharge of Oil or Hazardous Substances		
In the event of an oil spill, the discharger must notify the National Response Center at 1-800-424-8802 (U.S. Coast Guard), the Ohio EPA at 1-800-282-9378 and your local fire department.	♦	
Facilities which have more than one anticipated discharge per year of the same hazardous substance or oil in an amount equal to or in excess of a reportable quantity (See 40 CFR 117 or 40 CFR 302)~~,~~ must report the release to Ohio EPA and identify measures to prevent or minimize such releases.	♦	
The storm water pollution prevention plan required as a condition of the general permit must be modified within 14 days to include a description of the release and to identify measures to prevent and respond to a recurrence. See Chapter 14: Storm Water Management.	♦	

Revised: October 6, 2004

Chapter 9: Fuel Management and Storage Tanks

Federal and Ohio Laws

Review of fueling station design of new and expanding marinas in Ohio is included as part of the agency review process invoked under ODNR's **Submerged Lands Lease Program.** Leasing conditions established under the **Submerged Lands Lease Program** can impose fueling system features designed to prevent releases during fueling operations. ODNR has authority under the **Submerged Lands Lease Program** to deny an application for a submerged land lease if the proposed project will have negative environmental impacts on water quality. Without the required submerged land lease, a property owner cannot by law place any material into Lake Erie.

Commercial marine fuel station design is governed under the **Ohio Fire Code,** adopted standard NFPA 30-A of the National Fire Protection Association. Commercial marine fuel station design is also regulated by the industrial activity storm water NPDES general permit. Table 5.1 provides a summary of these programs in Ohio that implement the provisions of petroleum control. In addition, Ohio EPA's air regulations require some gasoline dispensing operations to obtain permits.

The Emergency Planning and Community Right-to-Know Act (EPCRA) requires those marinas not regulated by BUSTR with 10,000 pounds or more of petroleum (approximately 1,250 gallons) file "Tier Two" forms with emergency response agencies by March 1 of each year. The facility ID form, the "Tier II Submit" and a facility map must be submitted to Ohio EPA, your local Emergency Planning Committee (LEPC), and your local fire department. Forms and contact information for LEPCs is available from Ohio EPA.

Air Permits for Gasoline Dispensing Facilities

Gasoline dispensing facilities (GDFs) are subject to Ohio's air pollution control requirements since volatile organic compounds (VOC) are emitted to the atmosphere from storage tanks and fuel pumping activities. GDFs include retail service stations or private facilities where gasoline and other motor fuels such as diesel fuel are dispensed into fuel tanks.

The Ohio EPA requires air permits for some GDFs, while exemptions exist for others. Based on OAC 3745-31-03, a GDF is exempt from permitting if either:

> The maximum annual throughput of gasoline is less than 6000 gallons per year, (located in any county), or
>
> The GDF is equipped with Stage I vapor control* and **is not located** in Ashtabula, Butler, Clark, Clermont, Cuyahoga, Delaware, Franklin, Geauga, Greene, Hamilton, Lake, Licking, Lorain, Lucas, Mahoning, Medina, Miami, Montgomery, Portage, Stark, Summit, Trumbull, Warren or Wood counties.

*Stage I vapor control most commonly consists of a number of single or concentric hoses which route the vapors displaced from storage tanks back to the delivery truck so they are not emitted to the atmosphere. Contact your local Ohio EPA office for information on acceptable Stage I vapor control systems.

If the GDF is located in a county not listed above, or is in one of the above counties but does not have Stage I vapor control, an air permit is required. The permitting process consists of two permits: the permit-to-install (PTI) and permit-to-operate (PTO). The permit-to-install is required before installing a GDF. The permit-to-operate is needed to operate the GDF after installation. Please note that if you are already operating your business and discover that you need an air permit, you must still complete and submit PTI and PTO applications.

Typically, the Ohio EPA requires Stage I vapor controls on GDFs which have an annual throughput of more than 120,000 gallons of gasoline. If the annual throughput of your GDF is less, contact your local Ohio EPA office for more information on any type of vapor controls you may need. The air permit will specify that you properly maintain all vapor control equipment and maintain monthly records of gasoline throughput.

Contact your local Ohio EPA district office, Division of Air Pollution Control or Small Business Assistance Program at (614) 644-4830 for more information on the air pollution control and permitting requirements for GDFs.

Above Ground Fuel Storage Tanks

Dispensing of fuel to the public from above ground storage tanks is, in general, not allowed in Ohio. Marina's are an exception to this rule if rock formations or high water tables make underground tanks impractical.

Marina operators are required to obtain a permit from the Ohio Fire Marshal, Code Enforcement Bureau (after confirming that the local fire department does not have a local ordinance or permit program) for storage of any more than 60 gallons of a flammable or combustible liquid. The maximum amount allowed to be stored in one tank at any marina is 12,000 gallons.

When approved by the code official, tanks supplying marine service stations may be located above ground in special enclosures or vaults in accordance with NFPA 30A listed in rule 1301:7-7-44 of the Administrative Code, where documentation submitted with the permit application evidences that rock formations or high water tables make underground tanks impractical.

A permit application form can be accessed at the Dept. of Commerce web page: www.com.state.oh.us or by calling 614-728-5460.

Preventing Spills from Above Ground Fuel Tanks

Fuel storage tanks at marinas typically hold from 1,000 to 10,000 gallons of fuel, and shall not exceed 12,000 gallons (45,420L). If a tank was to rupture or develop a leak, the consequences could be devastating. To prevent leaks and spills, above-ground fuel tanks must be properly installed. Under the Fire Code, you are required to install above ground fuel tanks that meet the following specifications:

Also, refer to NFPA 30A Automotive and Marine Service Station Code. **Currently the 1996 edition is referenced from the Ohio Fire Code. The 2000 edition of NFPA 30 & 30A will be referenced in the new code estimated to become effective in late 2004. NFPA 303 (*Marina's and Boatyards)* is also an OFC referenced standard that must be complied with for AST's at Marinas.**

Aboveground Storage Tanks Requirements and Best Management Practices[h]

BMP Description	**Status**	**Yes (✓) N/A**
General		
State Fire Marshal's permit application is required when the local fire department does not issue the permits.	♦	
All above ground storage tanks containing flammable or combustible liquids must meet the requirements of Chapter 28 (New chapter in draft proposed OFC) of The Ohio Fire Code and NFPA 30A, Automotive and Marine Service Station Code.	♦	
Call the State *Fire Marshal's Office at* 614-728-5460 to schedule an initial inspection of any aboveground tank installation once a permit is approved. The inspection will determine whether you are meeting Chapter 28 of the State Fire Code, including hazardous material storage requirements.	♦	
Preventing Spills from ASTs		
The capacity of the tank shall not exceed 12,000 gallons or 45,420 liters.	♦	
The tank must be a protected double-walled tank and properly installed.	♦	
All piping connections to the tank shall be made above the normal maximum liquid level.	♦	
Means shall be provided to prevent the release of liquid from the tank by siphon flow.	♦	
Means shall be provided for determining the level of the liquid in the tank. This means shall be accessible to the delivery operator.	♦	

[h] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Means shall be provided to prevent overfilling by sounding an alarm when the liquid level in the tank reaches 90 percent of capacity and by automatically stopping delivery of liquid to the tank when the liquid level in the tank reaches 95 percent of capacity. In no case shall these provisions restrict or interfere with the proper functioning of the normal or emergency vent.	♦	
Spacing between adjacent tanks shall be not less than 3 ft. (0.9 m).	♦	
The tank shall be capable of resisting the damage from impact of a motor vehicle or suitable collision barriers shall be provided.	♦	
Where the interstitial space is enclosed, it shall be provided with emergency venting.	♦	
Above ground tanks containment system		
Locate above ground fuel tanks within a dike or over an impervious storage area with containment volumes equal to 1.1 times the capacity of the storage tank(s).	♦	
Design containment areas with spigots to drain collected materials. If possible, cover the tank with a roof to prevent rainwater from filling the containment area.	♦	
The control of any storm water that collects in the diked area must be addressed as a condition of your *General Permit for Discharges from Marinas.*	♦	

Underground Storage Tanks

It is estimated that there have been about 1.1 million underground storage tanks (USTs) buried at over 400,000 sites nationwide. And, until the mid-1980s, most USTs were made of bare steel, which is likely to corrode and allow UST contents to leak into the environment over time. Faulty installation or inadequate operation/maintenance can also cause USTs to leak. Potential hazards from leaking USTs include soil and groundwater contamination, fire and explosion. For these reasons, U.S. EPA established the UST regulations in the mid-1980s.

Companies in Ohio that have USTs for storage of petroleum or hazardous substances are regulated by the Division of State Fire Marshal, Bureau of Underground Storage Tanks (BUSTR). A UST is a tank and any underground piping connected to the tank that has at least 10 percent of its combined volume underground. The UST regulations apply only to underground tanks and piping that store either petroleum or certain hazardous substances.

If you are using an underground tank for storage of petroleum or hazardous substances, you could be subject to these regulations. Some tanks are exempt from the regulations, including certain farm/residential units, small tanks (storing 110 gallons or less) and some process-related tanks. Specific information on these exemptions is included in Ohio's UST rules.

A company subject to the UST rules must ensure that underground tanks meet certain technical specifications. The technical regulations for USTs are designed to reduce the chance of releases. To meet the requirements, owners were required to upgrade, replace, or close existing UST systems by 1998. Tanks remaining in operation and any newly installed tanks are now required to have leak detection systems.

UST owners and operators are responsible for reporting and cleaning up any releases. UST systems must be registered with the State Fire Marshal's Office. Financial assurance is also required for UST operators to ensure that adequate funds are set aside to cover the costs associated with a leak or cleanup. In addition, a certified tank installer must oversee any installation, removal or repair of an underground tank. A permit from BUSTR is also required for any installation, upgrade, major repair or closure of an underground tank. There are also closure guidelines for tanks that are taken out of service, removed or closed.

For more information about the UST requirements, contact the Department of Commerce, State Fire Marshal's Office, Bureau of Underground Storage Tank Regulation (BUSTR) at (614) 752-7938.

Underground Storage Tanks Requirements and Best Management Practices[i]

BMP Description	Status	Yes (✓) N/A
General		
All underground storage tanks containing flammable or combustible liquids must meet the requirements of the Bureau of Underground Storage Tank Regulations (BUSTR) in accordance with Ohio Underground Storage Tank Rules 1301:7-9-01 to 1301:7-9-17 and Chapter 28 (New chapter in draft proposed OFC) of The Ohio Fire Code.	♦	
All motor fuel UST's must meet Ohio Financial Responsibility requirements (i.e., insurance) for environmental pollution liability and be in the Fund. Ohio -- Petroleum Underground Storage Tank Release Compensation Board (PUSTRCB)	♦	
Daily Monitoring and Recordkeeping		
Measure Inventory - record the amount of fuel dispensed and the amount remaining in your tanks.	♦	
Record Deliveries - Do a daily reading of the amount of fuel delivered and pumped.	♦	
Monthly Monitoring and Inspection		
Tank Release Detection System: Inspect for proper operation. Have current test results available.	♦	
Piping Release Detection System: For pressure piping, make sure electronic line leak detectors are working every month.	♦	
Overfill Devices/Alarm: Inspect for proper operation. Be sure that a delivery person can hear or see the alarm when it goes active**.**	♦	
Record Keeping: Be sure that the BUSTR Registration and PUSTRCB Certificate are current and available for inspection.	♦	
Shut-off Valve: Check the readily accessible shut-off valve on shore to halt, when necessary, the flow of fuel through a pipeline from the oil storage facility to a wharf, pier, or dock.	☺	
Spill Containment Manhole: Be sure that they are clean and empty. Remove any debris. Inspect Drop Tubes and make sure they are in place. A drop tube is a metal pipe that runs from the surface fill to within six inches of the bottom of the tank and is intended to prevent static build up.	☺	
Fill and Monitoring Ports: Make sure all covers and caps are tightly secured.	☺	
Piping and Pump Sumps: Inspect all visible piping, fittings, and couplings for any sign of a leak. If any water or product is present, remove it and dispose of it properly. Remove any debris from the sump.	☺	

[i] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Dispenser and Dispenser Sumps: Open each dispenser and inspect all visible piping, fittings, and couplings for any sign of a leak. If any water or product is present, remove it and dispose of it properly. Remove any debris from the sump.	☺	
Dispenser Hoses, Nozzles, and Breakaways: Inspect for loose fittings, deterioration, obvious signs of leakage, and improper functioning.	☺	
Spill and Overfill Response Supplies: Inventory and inspect the emergency spill supplies.	☻	
Bi-Monthly Monitoring and Inspection		
Impressed Current System (if applicable): Inspect for proper operation.	♦	
Annual Requirements		
BUSTR Registration: Sign your BUSTR registration renewal and pay tank fees by July 1st of each year.	♦	
Fund Registration: Pay your fund assurance fees each year.	♦	
Financial Responsibility: Maintain a mechanism to cover fund deductible for the life of the tank and throughout any necessary clean-up process.	♦	
Test Line Leak Detectors: Test mechanical line leak detectors at least once each year. Check electronic leak detectors using the manufacturer's recommendations.	♦	
Precision Test Pressure Piping: You must make sure your pressure piping passes a yearly precision test or other approved method.	♦	

SPECIAL ADDITIONAL REQUIREMENTS FOR UST SYSTEMS IN SENSITIVE AREAS[j]

Sensitive Areas are identified in the Ohio Underground Storage Tank Rule Chapter 1301:7-9-09 and requirements are listed in Chapter 1301:7-9-10. For example, USTs located within two hundred horizontal feet of a lake, including Lake Erie, or reservoir qualify as being in a sensitive area.

BMP Description	**Status**	**Yes (✓) N/A**
General		
Monitor metal components according to modern cathodic protection requirements.	♦	
Have secondary containment for both tanks and piping.	♦	
Perform a monthly check for a release on secondary containment for both tanks and piping.	♦	
Do not use other methods such as automatic tank gauging, groundwater monitoring, or vapor monitoring in place of interstitial monitoring.	♦	
Install an automatic line leak detector on piping under pressure**.** You may use interstitial monitoring if you get BUSTR Bureau Chief approval.	♦	
Systems Installed Prior To September 1, 1992 In Sensitive Areas		
Monitor your tanks using an approved method of leak detection.	♦	
Equip piping under pressure with an automatic line leak detector that shuts off the flow of fuel, triggers an alarm, and allows for only one reset.	♦	
Check automatic line leak detectors at least once each year. Pressure lines must undergo an annual precision test (monthly monitoring by an alternative leak detection method is not allowed).	♦	
Arrange an annual precision test for piping under suction.	♦	
In some cases, you must monitor piping under suction with an approved method of release detection.	♦	
Systems Installed Prior To December 22, 1988 In Sensitive Areas		
Comply with all requirements that apply to systems installed prior to September 1, 1992.	♦	
Metal components must have cathodic protection.	♦	
Tank lining is not allowed.	♦	

Revised: August 24, 2004

[j] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Chapter 10: Fuel Management: Fuel Dispensing Procedures and Policies

Federal and Ohio Laws

The development of systematic fueling procedures and policies is important for legal dispensing of fuel and to minimize the likelihood of a fuel spill. Best management practices for fueling boats are similar for marinas with underground and aboveground storage tanks. However, they differ with respect to what the boater is allowed to do.

Only “fully attended” dispensing from UST's and AST’s is allowable at marinas in Ohio. Under NFPA 30A 10-4.7: "Each marine service station shall have an attendant or supervisor on duty whenever the station is open for business. The attendant's primary function shall be to supervise, observe, and control the dispensing of liquids." This rule is interpreted to allow 'fully attended self service', i.e., the marina attendant may hand the boater the fuel nozzle and allow the boater to pump fuel into the boat. Also refer to NFPA 30A 9-3&4.

In the event of a fuel spill, procedures detailed in Chapter 8 and summarized in the box below are to be followed.

Handling a Fuel Spill

What do you do when oil, gas, or diesel is spilled on the water?

1. Stop the flow.
2. Call the U.S. Coast Guard’s National Response Center at (800) 424-8802, the Ohio EPA at 1-800-282-9378, the emergency coordinator of the LEPC and your local fire department.
3. Contain diesel and oil spills; Do not contain gasoline spills. Do not use dispersants.

Failure to report spills may result in civil penalties.

If the spill is less than 25 gallons and has no potential of reaching a waterway, it is not a **release to the environment** (see Chapter 8) and does not have to be reported to Ohio EPA. However, it should be reported to the NRC, and you should take prompt action to clean it up. Small spills on land may cause soil or ground water contamination, eventually leaching into the adjoining waterway.

Call the NRC, Ohio EPA, the LEPC and local fire department if a slick floats into your marina from an unknown source. The Coast Guard will clean up the spill with their own resources if practical. They will also investigate and try to eliminate the source of the spill. You will not be held liable for a slick that did not originate at your facility.

Best Management Practices for Fuel Management and Storage[k]

BMP Description	Status	Yes (✓) N/A
Fueling		
Each marine service station shall have an attendant or supervisor on duty whenever the station is open for business. The attendant's primary function shall be to supervise, observe, and control the dispensing of liquids. Fully attended self service, i.e., the boater may pump fuel with an attendant present, is allowed.	♦	
Train employees to make available to boaters oil absorbent pads, donuts, drip trays, etc. with the fuel nozzle.	☺	
Train employees to request that boaters use these aids to capture backsplash and vent line overflow.	☺	
Train employees to clarify what the boater is asking for. For example, as your employee passes the fuel nozzle to the boater, have them say, "This is gasoline. You asked for gasoline."	☺	
Train dock staff to carefully observe fueling practices; make sure fuel is not accidentally put into the holding or water tank.	☺	
Avoid Waves and Wakes		
Locate fuel docks in areas protected from wave action and boat wakes when constructing new or upgrading existing facilities.	☺	
For safety reasons, all fueling stations are to be accessible by boat without entering or passing through the main berthing area.	☺	
Provide a stable platform for fueling personal watercraft (PWC).	☺	
Maintain Fuel Transfer Equipment		
Inspect transfer equipment daily during the operating period and fix all leaks immediately.	☺	
Maintain transfer equipment and hoses in good working order. Replace hoses, pipes, and tanks before they leak.	☺	
Install hard connect delivery nozzles.	☺	
Hang nozzles vertically when not in use so that fuel remaining in hoses does not drain out.	☺	
Install Environmental Controls at the Pumps		
Do not install holding clips.	♦	
Install automatic back pressure shut-off nozzles on fuel pump discharge hoses to automatically stop the flow of fuel into a boat's fuel tank when sufficient reverse pressure is created.	☻	
Install fuel nozzles that redirect blow-back into vessels' fuel tanks or vapor control nozzles to capture fumes.	☺	
Train fuel dock personnel to listen to filler pipes to anticipate when tanks are nearly full.	☺	

[k] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Maintain a supply of oil absorbent pads and pillows at the fuel dock to mop up spills on the dock and on the water.	☺	
Place plastic or nonferrous drip trays lined with oil absorbent material beneath fuel connections at the dock to prevent fuel leakage from reaching the water.	☺	
Post instructions at the fuel dock directing staff and patrons to immediately remove spilled fuel from the dock and water with oil absorbent material. Indicate the location of the absorbents. (Any spillage should be cleaned up immediately; all spill debris should be removed within 72 hours.)	☺	
Place small gas cans in oil absorbent-lined drip pans when filling.	☺	
Secure oil-absorbent material at the waterline of fuel docks to quickly capture small spills.	☺	
Offer your services to install fuel/air separators on boats.	☺	
Environmental Recommendations		
Post signage for boaters about clean boater fueling practices at your marina.	☺	
Remind boaters to listen to filler pipes to anticipate when tanks are nearly full.	☺	
Encourage boaters to fill their fuel tanks just before leaving on a trip to reduce spillage due to thermal expansion and rocking, i.e., if the fuel is used before it warms up, it cannot spill overboard.	☺	
If boaters prefer to refuel upon their return to port, encourage them to fill their tanks to no more than 90 percent of capacity.	☺	
Encourage attendants and boaters to slow down at the beginning and end of fueling.	☺	
Encourage boaters to stay with their craft during fueling.	☺	
Encourage boaters to use oil absorbent pads in their boats	☺	
Dispose of absorbent pads according to state and local regulations.	☻	
Fueling Safety Recommendations		
Remind boaters that gasoline vapors are heavier than air; they will settle in a boat's lower areas.	☺	
Request all passengers to get off gasoline powered vessels before fueling.	☺	
Instruct boaters and dock staff to: -Stop all engines and auxiliaries. -Shut off all electricity, open flames, and heat sources. -Extinguish all cigarettes, cigars, and pipes. -Close all doors, hatches, and ports. -Maintain nozzle contact with the fill pipe to prevent static spark. -Inspect bilge after fueling for leakage or fuel odors. -Ventilate all compartments after fueling until fumes are gone.	☺	

Be Prepared for a Fire		
Meet the National Fire Protection Association's standards for marinas: NFPA 303, Fire Protection Standards for Marinas and Boatyards; NFPA 302, Fire Protection Standards for Pleasure and Commercial Motor Craft; NFPA 30A, Automotive and Marine Service Station Code; NFPA 307, Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves, and Chapter 28 of the State Fire Code.	♦	
Be sure hydrants are available to allow for fighting fires throughout your facility.	☺	
Install smoke detectors.	☺	
Provide and maintain adequate, readily accessible, and clearly marked fire extinguishers throughout the marina, especially near fueling stations.	☺	
Inspect and test all fire fighting equipment and systems regularly. Test fire extinguishers annually.	☺	
Train personnel on fire safety and response: who to call, location of hydrants, use of portable extinguisher, etc.	☺	
Provide ready access to all piers, floats, and wharves for municipal fire fighting equipment.	☺	
Invite the local fire marshal to visit your marina annually to train employees. These annual visits will also help the fire department to become familiar with your facility.	☺	
Maintain Material Safety Data Sheets		
Keep a file of Material Safety Data Sheets (MSDS) for all products used at your facility, as required by the Occupational Safety and Health Act of 1970 (29 USC Sec. 657). Store the file in an office away from material storage areas. Keep in mind during an emergency that this file will not tell you what quantity is on site or even whether all the materials listed are present.	♦	
Inform the SERC, LEPC and fire department what materials you store and if you have a spill.	♦	

Revised: May 18, 2004

Chapter 11: Handling Trash, Plastic and Fish Waste

Environmental Concerns

All marinas generate waste, including waste that could threaten human health, be hazardous to wildlife, and be costly to coastal communities. Plastics are of particular concern, because there are many well documented instances of marine mammals, fish, turtles, and seabirds entangled in or eating plastic debris. Plastics also represent a hazard to navigation as they can snare propellers and clog engine intake systems. Divers are, likewise, susceptible to entanglement. Furthermore, solid waste that washes up on shore is unattractive and may be costly to remove.

In addition to solid waste, marina operators must be concerned about the proper collection and disposal of liquid wastes and of corrosive, reactive, toxic, and/or ignitable materials, i.e., hazardous wastes. See Chapter 6 on handling used chemicals and hazardous waste.

Federal and Ohio Laws

Ohio's **Marina Licensing Program** requires marina owners and operators to provide for the proper storage and disposal of all wastes generated at the marina. In addition, leasing conditions established under **ODNR's Submerged Lands Lease Program** can be imposed to require the proper storage and disposal of solid wastes produced by marina operations.

Ohio EPA is responsible for the Resource Conservation and Recovery Act (**RCRA)** and regulates the management of solid and hazardous wastes. The Division of Wildlife uses its authority under the **Stream Litter Law** to prevent stream litter or other discharges that kill or endanger wild animals and stream life. Boating operations are subject to the Division of Watercraft's **Boating Laws and Regulations**

The Division of Watercraft also promotes public education on clean boating through its **Boating Education Program** and **Boating and The Environment** educational materials.

Marine Plastic Pollution Research and Control Act (MPPRCA)

The Marine Plastic Pollution Research and Control Act (MPPRCA) is the U.S. law that implements an international pollution prevention treaty known as MARPOL. The MPPRCA of 1987 (Title II of Public Law 100-220) restricts the overboard discharge of garbage. Its primary emphasis is on plastics; it is illegal to dispose of plastic materials into the water anywhere. Within **all** waters of Ohio, to include Lake Erie, the Muskingum River and the Ohio River, it is illegal to dump plastic, paper, rags, glass, metal, crockery, dunnage (lining and packing material, nets, lines, etc.), and food, i.e., any type of garbage.

All vessels greater than 26 feet must display a MARPOL placard outlining the garbage dumping restrictions. All vessels over 40 feet must also have a written waste management plan on board.

Resource Conservation and Recovery Act and Solid Waste

The Resource Conservation and Recovery Act (RCRA) of 1976 was established to improve the collection, transportation, separation, recovery, and disposal of solid and hazardous waste. Under Ohio's RCRA program, there are regulations for wastes such as trash, compost waste, scrap tires and construction/demolition debris. Ohio EPA's Division of Solid and Infectious Waste Management is responsible for Ohio EPA's solid waste program (See Chapter 18).

Best Management Practices for Trash, Plastic and Fish Waste[1]

BMP Description	Status	Yes (✓) N/A
No Dumping		
Within **all** waters of Ohio, to include Lake Erie, the Muskingum River and the Ohio River, it is illegal to dump plastic, paper, rags, glass, metal, crockery, dunnage (lining and packing material, nets, lines, etc.), and food, i.e., any type of garbage.	♦	
Reduce Solid Waste		
Minimize office waste: make double-sided copies, use scrap paper for notes and messages, purchase recycled office paper, and reuse polystyrene peanuts or give them to companies that will reuse them, e.g., small scale packing and shipping companies.	☺	
Request alternative packing material from vendors, e.g., paper, potato starch peanuts, popcorn, etc.	☺	
Discourage the use of plastic and styrofoam cups, food containers, utensils, and other non-biodegradable products.	☺	
Manage Trash		
Provide leakproof solid waste containers with effective covers conveniently throughout the marina for storage of solid waste prior to disposal. Containers shall be emptied and cleaned at least twice weekly or more frequently if necessary to prevent a nuisance (Ohio Administrative Code 3701-35-05-Sec B). Select high traffic areas such as at the landside foot of the dock, near bathrooms and showers, alongside vending machines, adjacent to the marina office, or on the path to the parking lot.	♦	
Develop your waste management strategy based on the number of patrons, the types of waste generated, the layout of your marina, and the amount of staff time you can devote. Ask boaters specifically what their needs are.	☺	
Promote your image as a responsible business by providing adequate and reasonably attractive trash receptacles, e.g., cans, bins, dumpsters.	☺	
Locate trash receptacles in convenient locations. Select high traffic areas such as at the landside foot of the dock, near bathrooms and showers, alongside vending machines, adjacent to the marina office, or on the path to the parking lot.	☺	
Do not place trash containers on docks as waste may inadvertently be tossed or blown into the water.	☺	

[1] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Select containers that are large enough to hold the expected volume of trash. On average, 4 to 6 gallons of reception capacity is needed per person per vessel per day. A cubic yard of dumpster space holds 216 gallons of trash.	☺	
Provide lids or some other means to trap the waste inside and to prevent animals and rainwater from getting in.	☺	
Post signs indicating what may not be placed in the dumpster: engine oil, antifreeze, paints, solvents, varnishes, pesticides, lead batteries, transmission fluid, distress flares, and polystyrene peanuts (loose peanuts tend to blow away).	☺	
Require all employees to be involved in policing the facility for trash and vessel maintenance wastes. Do not allow litter to mar your grounds or near-shore areas.	☺	
Use a pool skimmer or crab net to collect floating debris that collects along bulkheads or elsewhere within your marina.	☺	
Post signs directing people to trash receptacles if they are not in plain view.	☺	
Provide lights around trash receptacles so that they are easy to find and safe.	☺	
Plant or construct a windscreen around the dumpster to make the area more attractive and to prevent trash from blowing away.	☺	
Recycle Divert reusable materials out of the waste stream. A recycling program is an easy, highly visible means to demonstrate environmental stewardship. In fact, many are likely to already be in the habit of recycling at home and may expect to see recycling bins. The added cost of providing recycling facilities may be offset by income derived from the sale of some high quality recyclable items such as lead batteries, office paper, aluminum, and cardboard. Also, you may realize cost savings due to less frequent tipping of your dumpster(s) because of the reduced volume of trash.		
Contact a waste hauler or your local solid waste recycling coordinator (each county has a recycling coordinator) to learn what materials are collected in your area.	☻	
Post information about local recycling services if you are not able to provide all of the desired services at your facility.	☺	
Provide containers to collect, at a minimum, plastic, glass, and aluminum.	☺	
Clearly mark each container so people know what may and may not be put in it.	☺	
Provide lids or some type of restricted opening to prevent the collected material from being lifted out by the wind and to prevent rainwater from collecting inside.	☺	
Place the collection bins for solid recyclables in convenient locations. High traffic areas near trash receptacles are best.	☺	
Make the recycling bins look different from the standard trash cans, e.g., use a different color or material.	☺	

Control the Disposal of Fish Waste When large amounts of fish scraps are deposited in an enclosed area, the resultant, unsightly mess can produce foul odors and a decrease in levels of dissolved oxygen.		
Establish fish cleaning areas.	☻	
Adopt one of the following methods to dispose of the waste. • Provide a stainless steel sink equipped with a garbage disposal that is connected to a sanitary sewer. • Compost fish waste. Proper composting will control the odor and, over time, will produce an excellent soil conditioner that can be used for your landscaping needs. *Contact Minnesota Sea Grant for a copy of Composting Fish Waste by Thomas Halbach and Dale Baker.* This booklet provides instructions for composting 25 five-gallon buckets of fish waste per week using sphagnum peat moss and wood chips. • Instruct boaters to place fish scraps in plastic bags and dispose in dumpster or at home.	☻	
Prohibit fish cleaning outside of designated areas.	☻	
Post signs directing people to clean their fish at a fish cleaning station or at home.	☻	
Educate Boaters		
Inform boaters of the Clean Boater Program and of Best Boater Practices (BBPs).	☺	
Inform boaters about procedures to prevent the spread of zebra and quaga mussels, aquatic plants and other aquatic nuisance species when leaving a body of water by • Drain, wash and inspect boats, trailers, personal watercraft and gear. • Remove all aquatic plants and animals from boats, trailers, personal watercraft, and gear. • Do not release live bait or fish into any water area. • For more information contact www.protectyourwaters.net .	☺	
Photocopy the Waste Containment and Disposal tip sheet from the back of this book and distribute it to your customers. There is room to add your marina's name and logo.	☺	
Post information about county Household Hazardous Waste Collection events and recycling centers.	☺	

Revised: August 24, 2004

Chapter 12: Sewage Handling

Environmental Concerns

Raw or poorly treated boat sewage is harmful to human health and water quality. Typhoid, hepatitis, cholera, gastroenteritis, and other waterborne diseases may be passed directly to people who swim in contaminated waters. People may also become infected by eating seafood contaminated with viruses and other microorganisms contained in sewage discharge.

Sewage is also harmful to water quality. Because the microorganisms within sewage need oxygen, any effluent discharged to waterways reduces the amount of oxygen available to fish and other forms of aquatic life. Furthermore, the heavy nutrient load in sewage promotes excessive algal growth. As the algae multiply, they prevent life-giving sunlight from reaching subsurface vegetation. When the algae die they create another problem: the algae are decomposed by bacteria that further reduce levels of dissolved oxygen.

Federal and Ohio Laws

Efforts to promote the installation, maintenance, and usage of adequate sewage facilities to reduce the release of sewage into marina waters are carried out in Ohio through programs administered by both ODH and ODNR. New marinas providing boat dockage for seven or more watercraft and existing marinas that expand substantially are subject to licensing requirements in Ohio under state law. Ohio's **Marina Licensing Program,** administered by the ODH, regulates marina construction, operation, and maintenance. The regulations assure that such marinas will provide adequate sanitary facilities for the watercraft and they will be constructed, located, maintained, and operated in a proper manner so as not to create a nuisance or cause a health hazard. For example, maintenance of sewage pumpout facilities at Ohio's marinas is regulated through ODH's **Marina Licensing Program.** The licensing regulations require marina license holders to maintain and operate their marina's sewage disposal system in accordance with applicable standards of the Ohio EPA. Leasing conditions established under **ODNR's Coastal Management Program, Submerged Lands Lease Program** can also impose sewage system design and maintenance standards on new and expanding marina operations. In addition, Ohio has received financial assistance under the **Clean Vessel Act.** With this funding, ODNR's Division of Watercraft has established a plan to promote the installation and usage of adequate sewage facilities at all of Ohio's Lake Erie marinas. Efforts are currently underway to update the Lake Erie comprehensive survey of existing facilities to determine the number and location of all pumpout facilities and dump stations along Lake Erie's coastline, and to determine the need for installing new facilities or upgrading existing facilities.

Marine Sanitation Devices

It is illegal to discharge raw sewage from a vessel within the State of Ohio. The Federal Clean Water Act requires that any vessel on Lake Erie, the Ohio River or the Muskingum River with an installed toilet be equipped with a certified Type I, Type II, or Type III marine sanitation device (MSD); on any other Ohio waterway, it must be a certified Type III MSD.

Vessel Sanitary Systems (ORC 1547.33)

Except on Lake Erie, the Muskingum River and the Ohio River, no person shall launch, moor, dock, operate or permit to be operated any vessel with a sink, toilet, or sanitary system capable of discharging urine, fecal matter, contents of a chemical commode, kitchen wastes, laundry wastes, slop sink drainage, or other household wastes into the waters in this state. Such a sink, toilet, or sanitary system shall be removed, sealed or made to drain into a tank or reservoir that can be carried or pumped ashore for disposal in an approved sewage treatment works.

On Lake Erie, the Muskingum River and the Ohio River all recreational vessels with installed toilet facilities must have an operable MSD on board. Vessels 65 feet and under may use a U.S. Coast Guard certified Type I, II or III MSD. Vessels over 65 feet must install a U.S. Coast Guard certified Type II or III MSD (33CFR 159). Coast Guard certified devices are so labeled except for some holding tanks, which are certified by definition under federal regulations.

It is legal to discharge treated sewage from Type I and Type II MSDs in the Great Lakes and all interconnected waterways, the Ohio River and the Muskingum River.

- Type I systems mechanically cut solids, disinfect the waste with a chemical additive or with chlorine, and discharge the treated sewage overboard. The fecal coliform bacteria count of the effluent may be no greater than 1,000 per 100 milliliters and may not contain any floating solids.

- Type II systems are similar to Type I systems except that the Type IIs treat the sewage to a higher standard; effluent fecal coliform bacteria levels may not exceed 200 per 100 milliliters and total suspended solids may not be greater than 150 milligrams per liter. Type IIs also require more space and have greater operating energy requirements.

  Types I and II MSDs with "Y" valves that direct the waste overboard must be secured so that the valve cannot be opened to discharge raw sewage into the water. This can be done by placing a lock or non-usable seal on the "Y" valve or by taking the handle off the "Y" valve.

- Type III systems do not allow sewage to be discharged. The most common form of a Type III system is a holding tank. Other forms include recirculating and incinerating systems. Type III MSDs have the least impact on the environment since the waste is to be discharged on shore into a local sewage treatment facility.

MSD requirements do not apply to vessels with portable toilets. Portable toilets are to be properly emptied on shore. It is illegal to discharge raw sewage to any State waterway. Most pumpout facilities have wand attachments to empty portable toilets. Some marinas have portable toilet dump stations.

No Discharge Zones

A No Discharge Zone (NDZ) is an area of water that requires greater environmental protection and where even treated sewage may not be discharged from a boat. When operating in a NDZ, sewage treatment systems must be secured to prevent discharge.

All freshwater lakes, reservoirs, and rivers not capable of interstate vessel traffic are defined by the Federal Clean Water Act as No Discharge Zones. States, with the approval of the U.S. Environmental Protection Agency, may establish NDZs in other State waters (40 CFR 140.4). Within the State of Ohio, Lake Erie, the Muskingum River and the Ohio River are not designated as **No Discharge Zones** at the present time.

Pumpout Stations

Ohio law requires that any marina that docks boats with holding tanks, i.e., Type III MSDs, must provide a pump out station or get a variance from the **Ohio Department of Health**. Be sure to obtain approval of your plans for a pumpout system from the **Ohio Department of Health** prior to purchasing and installing any pumpout system.

Why a Pumpout System? Help boaters to meet the requirements of the law by providing a convenient, reliable marine sewage disposal facility, i.e., a pumpout station. You, as a marina operator, may benefit from the installation of a pumpout in several ways. The presence of the pumpout facility promotes a public perception that you are environmentally responsible. More tangibly, the need for holding tanks to be pumped out regularly will draw a steady stream of customers to your dock. Each arriving vessel represents an opportunity to sell fuel, hardware, repair services, etc.

Any public or private marina in Ohio is eligible to apply for grant funds to cover the full costs of a pumpout or dump station. To apply for a **Clean Vessel Act Grant**, contact the **Ohio Department of Natural Resources, Division of Watercraft (ODNR)** for an application. You must pay for the equipment and installation up front. The Department will then reimburse you for pre-approved expenses.

In exchange for grant funding, marina owners agree to maintain pumpout systems in operating condition for a minimum of 10 years and agree not to charge more than $5 per pumpout. The pumpout system must be available to the general public during reasonable business hours.

Select a Pumpout System. There are several types of pumpout systems available:

- systems permanently fixed to a dock,
- mobile systems mounted on a golf cart or hand truck,
- direct slipside connections,
- pumpout boats, and
- if you dock only boats with portable toilets, a dump station is acceptable.

Select a system that best meets the needs of your clients and that can move the expected volume of sewage over the required distance. Ask the manufacturer for a written assurance that their system will operate effectively given the specific conditions at your marina.

Consider where the pumpout will be placed (if you select a fixed system). It must accommodate the types of boats that frequent your marina. Fuel docks are often good locations. Try to locate the pumpout system such that a vessel being pumped out does not prevent another boat from fueling.

For health reasons, train employees to take precautions to avoid coming into direct contact with sewage. Require that employees wear rubber gloves and respirators when maintaining or repairing MSDs. The best option for disposing of the collected waste is to connect directly to a public sewer line. If sewer is not available in your area, you will need a holding tank. The contents of the tank must be pumped periodically and trucked to a treatment plant. Holding tank size and location is generally determined by the local health department.

It is a good idea to have an attendant operate the pumpout. Consider installing a buzzer or paging system so that boaters at the pumpout station can easily locate the attendant. If the station is unattended, be sure that clear instructions for use are posted. If a fee is charged, how much will it be? Will tenants and liveaboards be charged? Or just transients? Remember, no more than $5 may be charged if grant funds were accepted for the purchase and/or installation of the system. If the pumpout system is not regularly staffed, you will have to make arrangements to collect the fee.

Post signs to provide information about use and cost of the pumpout station, hours of operation, and where to call for service if the system is out of order. Also, post signs that are visible from the channel so that passing boaters are aware of the facility. If you do not have a pumpout system, post directions to the closest public pumpout.

Inspect the system regularly and keep a log of your observations. Contact the pumpout manufacturer for specific maintenance and winterization recommendations. During the boating season, test the efficiency of the pump weekly by measuring the length of time required for the system to empty a 5-gallon bucket of water. In order to quickly address any malfunctions, establish a maintenance agreement with a contractor qualified to service and repair pumpout facilities.

Prohibit Discharge from Type I and Type II MSDs at the Slip or Mooring.
Effluent from legal Type I and Type II systems contains nutrients and possibly toxic chemicals. It probably contains pathogens as well. While many pass-through systems are capable of treating sewage to much higher levels, recall that the standard for Type I systems is a fecal coliform bacteria count of 1,000 per 100 milliliters. Advisories are posted at bathing beaches when fecal coliform bacteria counts reach 200 per 1,000 milliliters. Thus, discharges from Type I and Type II systems in crowded, protected areas–such as marinas–pose a real threat to human health and water quality. Prohibit discharge within your facility.

Design and Maintain Septic Systems to Protect Water Quality and Public Health. If you have a septic system, be alert for signs of trouble: wet areas or standing water above the absorption field, toilets that run slowly or back up, and odor. Septic failures can contaminate drinking water and fish. The following tips will help you to avoid the health risks and nuisance associated with an overburdened system (Miller and Eubanks 1992).

Provide Facilities for Liveaboards. Boaters who make their homes aboard vessels, including those who live onboard their recreational vessels for extended periods of time, pose a tricky problem. It is not reasonable to expect that they will regularly untie in order to use a fixed pumpout facility. It is also unwise to assume that people living on their boats will always use shoreside restrooms. Furthermore, it is undesirable to allow a resident population to discharge Type I or II systems; as an Ohio Clean Marina you are required to prohibit discharge of head waste in your marina as a condition of your lease agreements. Your obligation as marina owner/manager is to provide a convenient sewage disposal system for liveaboards while maintaining good water quality. Consider the following options to meet this challenge. Keep in mind that most liveaboards expect and are willing to pay a premium for extra service and more convenient slips.

Best Management Practices to Control Sewage[m]

BMP Description	Status	Yes (✓) N/A
Install a Pumpout System or Dump Station as appropriate		
Select an appropriate system.	♦	
Choose an accessible location.	☺	
Dispose of collected waste.	☺	
Train employees to handle collected waste with care.	☺	
Decide if the pumpout will be staffed.	☺	
Decide whether a fee will be charged. No more than $5 may be charged if grant funds were accepted for the purchase and/or installation of the system.	☺	
Post signs about the use and cost of the system.	☺	
Maintain the pumpout system, e.g., with regular inspections, maintenance contracts, and a dedicated response fund.	☺	
Do not allow waste to drain into receiving waters. Do not allow rinse water or residual waste in the hoses to drain into receiving waters. Keep the pump running until it has been re-primed with clean water.	♦	
Prohibit Discharge from Type I and Type II MSDs at the Slip or Mooring.		
If your marina is located within a No Discharge Zone, at present any waterway other than Lake Erie, the Ohio River or the Muskingum River, boaters must secure their Type I and Type II MSDs, e.g., lock the door to the head or disable the seacock.	♦	
Prohibit discharge of head waste in your marina as a condition of your lease agreements.	☻	
Post signs prohibiting the discharge of head waste and directing people to use shoreside restrooms.	☺	
Prohibit discharge of gray water in your marina as a condition of your lease agreements.	☺	
Post signs prohibiting the discharge of gray water.	☺	
Provide Shoreside Restrooms.		
Provide clean, functional restrooms to encourage people not to use their heads while in port.	☻	
Make restrooms available 24 hours a day.	☻	
Post signs showing location of restrooms.	☻	
Install a security system on restroom doors so people will feel safe using them, particularly late at night.	☺	
Provide air conditioning and heating.	☺	

[m] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Design and Maintain Septic Systems to Protect Water Quality and Public Health.		
Do not dump solvents such as paint thinner or pesticides down the drain; post signs prohibiting customers from doing the same.	♦	
Post signs in the restrooms informing patrons not to place paper towels, tissues, cigarette butts, disposable diapers, sanitary napkins or tampons in the toilets. These items can clog the septic system.	☺	
Post signs in the laundry room encouraging patrons to use minimal amounts of detergents and bleaches.	☺	
Do not pour fats and oils down drains.	☺	
Do not use a garbage disposal. Disposals increase the amount of solids entering the system. Capacity is reached more quickly. As a result, more frequent pumping is necessary.	☺	
Use small amounts of drain cleaners, household cleaners, and other similar products.	☺	
Do not use "starter enzyme" or yeast. These products can damage the system by causing the infiltration bed to become clogged with solids that have been flushed from the septic tank.	☺	
Direct downspouts and runoff away from the septic field in order to avoid saturating the area with excess water. For stormwater management reasons, do not direct the flow toward paved areas.	☺	
Do not compact the soil by driving or parking over the infiltration area.	☺	
Hire a licensed professional to pump the tank every 2-5 years.	☺	
Provide Facilities for Liveaboards.		
Provide a portable pumpout system or require that liveaboards contract with a mobile pumpout service.	☺	
Reserve slips closest to shoreside restrooms for liveaboards. Be sure that the dock and route to the bath house are well lit at night.	☺	
Stipulate in the lease agreement that vessels used as homes may not discharge any sewage.	☺	
Offer to board vessels and demonstrate the proper way to secure the "Y" valve.	☺	
As a condition of the lease agreement, require that liveaboards place dye tablets in holding tanks to make any discharge clearly visible.	☺	
Install direct sewer hookups for liveaboards.	☺	
Offer MSD Inspections.		
Service patrons' MSDs annually to ensure that their Type I and II systems are functioning properly.	☺	
Encourage boaters to run dye tablets through their Type I or Type II systems outside of the marina. If a system is operating properly, no dye will be visible. Maintenance is required if dye can be seen in the discharge.	☺	

Encourage Compliance.		
Include information about MSD requirements and sewage laws in contracts for slips rentals, transients, and liveaboards.	☺	
State that failure to comply with the MSD laws and marina policy will result in expulsion from the marina and forfeiture of fees.	☺	
If a customer fails to observe the law or honor your contract: 1) discuss the matter with him or her, 2) mail a written notice asking that the offending practice stop immediately and keep a copy for your records, and 3) evict the boater.	☺	
If a tenant is discharging raw sewage, report him or her to the ODNR, Division of Watercraft or local health department. Provide as much information as possible: name of owner, vessel, location, etc.	☺	
Educate Boaters. As the generators and conveyors of sewage, boaters need to be educated about the impacts of sewage and its proper disposal. They must also be encouraged to properly maintain their MSDs and to purchase environmentally-friendly treatment products for their heads and holding tanks.		
Inform boaters of the Clean Boater Program and of Best Boater Practices (BBPs).	☺	
Photocopy the Sewage Handling tip sheet from the back of this book and distribute it to your customers. There is room to add your marina's name and logo.	☺	

Revised: August 26, 2004

Chapter 13: Wastewater Discharges from Marinas

A marina may generate process-related wastewater from equipment cleaning, boat washing, paint spray booths or other sources. Under Ohio EPA's regulations, options for handling process wastewater include direct and indirect discharges.

Industrial Wastewater: Direct Discharges

Any discharge of industrial wastewater to surface "waters of the state" will require a discharge permit (NPDES permit) from Ohio EPA's Division of Surface Water. Examples of surface waters of the state include: streams, rivers, lakes, ponds, marshes, watercourses and waterways. Wastewater discharges entering a conveyance system (like a ditch or storm sewer) that leads to a surface water of the state also require a NPDES permit. Wastewater may include boat and equipment washing water, bilge water, and sanitary wastewater.

You may also be required to treat wastewater to remove harmful contaminants (e.g., metals, chemicals, oils or grease) before it is discharged. If treatment is required to meet the limits in the NPDES permit, a separate permit called a permit-to-install (or PTI) is needed to construct wastewater treatment units. The PTI application is reviewed by Ohio EPA's Division of Surface Water.

Industrial Wastewater: Indirect Discharges

Often, the local wastewater treatment plants (POTWs) are responsible for regulating the businesses that discharge wastewater to them. A large POTW may be able to handle the wastewater from your business. However, even large wastewater treatment plants are not generally designed to handle industrial wastes like chemicals, metals, oils, etc. They are designed to handle sewage related wastes and wastewater. Because of this, the treatment plant may require you to conduct "pretreatment" (e.g., remove of metals, oil or grease, etc.) before discharging your wastewater to them. If you want to discharge process-related wastewater to a local POTW, you need to discuss these activities with the treatment plant directly.

Permission to discharge to the POTW and/or obtaining a permit may be necessary. If you are required to construct wastewater treatment or storage units, this activity requires a permit to install (or PTI) from Ohio EPA.

***** IMPORTANT NOTE *****

If you discharge wastewater to waters of the state, you MUST have a NPDES permit for this activity.

Contact the Division of Surface Water at your local Ohio EPA district office for more information on the wastewater discharge and permitting requirements.

Floor Drains

Floor drains are found at many small businesses. A common floor drain system can include a concrete trench that runs down the center of a shop floor. The trench is designed to capture water, cleaners, oil, dirt or other materials. Some shops have small rectangular or round floor drains connected to underground piping. Some floor drains are necessary for day-to-day operations. Others are used for emergency purposes only. And, some floor drains don't seem to have any apparent use. *Do you know where the floor drains in your business go? Are you discharging wastewater or other fluids into your floor drains?*

It is very important that you know where all your floor drains lead, and are aware of Ohio EPA's regulations that apply to your discharge activities. If you do not know where your drains lead, or if you are using floor drains improperly, you could be contaminating nearby surface waters or drinking waters.

Some floor drains lead into a sanitary sewer, where wastewater goes directly to a public wastewater treatment plant (POTW). Other floor drains lead to an on-site sewage treatment system like a septic tank. Sometimes floor drains lead directly to an underground holding tank or discharge to a waterway or to the ground outside. Ohio EPA's water pollution control regulations apply to all of these activities. Any company that wants to discharge an industrial wastewater to surface waters of the state needs to get a permit (NPDES permit) from Ohio EPA.

***** NOTE *****

It is illegal to discharge process wastewater outside your business onto the ground! Make sure your floor drains don't lead outside where wastewater could end up on the ground.

Discharges to Injection Well Systems

***** IMPORTANT NOTE *****

Ohio EPA's regulations prohibit the discharge of process wastewater from vessel service activities into injection wells. Examples of injection wells include dry wells, drain fields and cesspools. In addition a septic tank, mound system or leaching line is defined as an injection well system.

Under Ohio EPA's regulations, a company CANNOT discharge industrial wastewater into an injection well from vehicle maintenance activities. Examples of injection wells include dry wells, drain fields and cesspools. In addition a septic tank, mound system or leaching line is defined as an injection well system. Discharging to any injection well is strictly prohibited and the construction of any new vehicle maintenance disposal wells was banned as of April 5, 2000. Under these regulations, all existing wells used to dispose of vehicle maintenance-related wastes must be closed by January 1, 2005.

If you have a floor drain which leads to an injection well, you are subject to Ohio's underground injection control (UIC) regulations. The UIC regulations are in place to protect underground drinking water sources from becoming contaminated. If you are discharging industrial wastewater to a floor drain that leads to a septic system or other injection well system, this could likely be in violation of Ohio's water pollution control laws, and the discharged materials (chemicals, solids, oil, etc.) could be damaging your on-site system.

If you have any questions about floor drains and Ohio's water pollution control requirements, contact your local Ohio EPA district office, Division of Surface Water (DSW) for assistance.

You can contact Ohio EPA's Division of Drinking and Ground Water, UIC Program at (614) 644-2752 for more information about injection wells.

What if I have an existing disposal well?

Under Ohio EPA's regulations, all Class V injection wells that receive, or have the potential to receive wastes or waste-waters through floor drains or shop sinks at any type of motor vehicle service or maintenance facilities including marinas must be permanently closed before January 1, 2005.

If you do have an existing well, contact Ohio EPA's Division of Drinking and Ground Waters, UIC Program, for more information on how to close your system. A summary of the general requirements is provided below.

Before permanently closing a well, the owner or operator of any Class V well must notify the Ohio EPA director of the existence of any injection well under the owner or operator's control by submitting the following inventory information:

- Facility name, postal address of the well location, -and location of each well given by latitude and longitude to the nearest second;
- Name and address of legal contact;
- Identification of the owner and/or operator of the well;
- Nature and type of injection well;
- Operating status of injection well;
- Date of completion of each well;
- Total depth of each well;
- Construction narrative;
- Nature of the injected fluid;
- Maintenance and inspection schedule; and
- Average and maximum injection rate.

Additionally, the owner or operator of a Class V well must notify the director of the intent to close the Class V well at least thirty days prior to closure of the well by submitting a closure plan. The submitted plan must be followed during closure of the well. The plan must include:

- A copy of the inventory information required;
- Procedures for the removal of any solids and sludges from the Class V well being closed; and
- Procedures for plugging the Class V well. This procedure shall be consistent with any applicable federal, state or local regulations and requirements

Best Management Practices for Managing Wastewater[n]

BMP Description	Status	Yes (✓) N/A
Identifying Discharges and Obtaining Permits		
Identify all your process-related wastewater discharges.	♦	
Be sure that you have obtained an NPDES permit and/or permission from the POTW for all of your discharges.	♦	
Prohibit the practice of hosing down the shop floor.	☺	
Floor Drains		
Check all your floor drains and make sure you know where they drain to.	♦	
If you are using floor drains to discharge industrial wastewater into a septic system or onto the ground, you need to stop these discharge activities immediately. You must find another way to manage your wastewater.	♦	
If you have an existing injection well system which is being used for motor vehicle maintenance waste disposal, you must cease these activities and close the well according to Ohio EPA's regulations.	♦	
If you are using floor drains to discharge industrial wastewater to a water of the state, and you do not have an NPDES permit, you must stop these discharge activities immediately. You must either obtain a permit or find another way to manage wastewater.	♦	
If you are using floor drains to discharge wastewater to a local wastewater treatment plant, make sure the treatment plant knows about this activity. You may be required to conduct treatment on the wastewater before discharging it. You may also need to get a permit for the discharge.	♦	
DO NOT put other fluids like oil, solvents, paints or chemicals into a floor drain.	♦	
Install an emergency shut-off on the drain pipes to prevent accidental spills from entering the sewer.	☺	
If you have floor drains at your company that you are not using, have them capped or plugged.	☺	
Minimize Impacts of Pressure Washing		
You properly contain and manage waste waters from your pressure washing activities.	♦	
Consider a power washing recycle system which will allow you to reuse wash water from pressure washing.	☺	
Pressure wash over a bermed, impermeable surface that allows the waste-water to be contained.	☺	
When pressure washing ablative paint, use the least amount of pressure necessary to remove the growth but leave the paint intact. Where practical, use a regular garden-type hose and a soft cloth.	☺	

Revised: August 24, 2004

[n] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Chapter 14: Storm Water Management

Environmental Concerns

Storm water runoff is precipitation that has not been absorbed by the ground, rather it washes over the surface of the land. Uncontrolled storm water runoff can wash away large amounts of exposed dirt from construction sites. In addition, storm water runoff -can pick up pollutants such as petroleum products, litter, pet wastes, and residues of chemicals from industrial activities. All of these pollutants are carried with the runoff into surface waters where they can adversely impact water quality. Storm water can severely degrade receiving water bodies, accelerate erosion, increase the volume and frequency of flooding, and destroy plants, animal life, and habitat.

Pollutants carried by storm water impair water quality by increasing levels of nitrogen, phosphorous, suspended solids, pathogens, biological oxygen demand, and chemical oxygen demand in the receiving water body. The result is that nearshore areas are less able to support wildlife like young fish. Drinking water intakes may be placed at risk, or the cost of potable water can increase due to the need for additional water treatment. Also, using the water for human recreation becomes less desirable.

The volume of storm water runoff increases as natural forests and fields are replaced with hard surfaces such as buildings, parking lots, driveways, and roads. Also, without any plants to disrupt the flow and with the installation of conveyances such as catch basins, ditches and storm sewers, storm water moves across the land more quickly than it did under predevelopment conditions.

Federal and State Laws

In 1987 the Clean Water Act was amended to include requirements for controlling storm water discharges at certain industrial and construction sites. Under the storm water regulations, businesses are required to obtain a permit and develop a Storm Water Pollution Prevention Plan (SWP3). The permit is called a National Pollution Discharge Elimination System (NPDES) permit and is issued through Ohio EPA's Division of Surface Water.

Municipalities, townships, and counties also have authority to regulate storm water and land development through local ordinances. Contact your local Soil and Water Conservation District, or Drainage Authority i.e. City Engineer, for information on local requirements

NPDES Storm Water Permit for Marinas-

There are two different types of NPDES permits that may be required by a marina for storm water management. The first permit is based on the marina's Standard Industrial Classification (SIC) code[o]. Under the regulations, businesses with certain SIC codes need to get an industrial storm water permit. The second permit addresses construction activities that will disturb greater than one acre. Storm water permits usually include record keeping, spill reporting and monitoring requirements.

Industrial Storm Water Permit

Marinas that are classified by the Standard Industrial Classification (SIC) code 4493 with maintenance activities or equipment cleaning operations are required to get an industrial storm water permit. Typical activities at these marinas that might have an impact on storm water include boat maintenance, vehicle rehabilitation, mechanical repairs, painting, fueling, lubrication, equipment maintenance and pressure washing.

Many facilities are eligible for coverage under Ohio EPA's general storm water permit for industrial activities. To obtain industrial general permit coverage, a facility submits a Notice of Intent (NOI) application form to Ohio EPA.

If your marina discharges to a water body that Ohio has designated as a *state resource water* or a *superior high quality water*, you may not be eligible for coverage under a general permit. Lake Erie and some of its tributaries are considered to be state resources or superior high quality waters. Marinas in these areas are required to obtain an individual NPDES permit for industrial storm water activities. For individual permits, a company must complete an NPDES permit application form. Check with your Ohio EPA District Office to find out the classification of the water body where your marina is located.

As a condition of storm water permit, marina operators must develop a Storm Water Pollution Prevention Plan (SWP3) and implement best management practices (BMPs) to ensure that storm water leaving the marina property will not harm the quality of the surrounding waters.

Some businesses may be exempt from the industrial storm water permitting requirements if they are designed to prevent storm water contamination at their site. The exemption allows facilities that have processes that do not come into contact with storm water to opt out of obtaining a permit. This exemption is sometimes referred to as the "no exposure" exemption and can be discussed with Ohio EPA's Division of Surface Water.

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[o] SIC code numbers may be found in the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget. This text may be found in a public library or may be ordered from the US Government Printing Office, 200 North High Street, Columbus, Ohio 43215, (614) 469-6955. Another source is the following website provided by the Occupational Health and Safety Administration: http://www.osha.gov/oshstats/sicser.html

Construction Storm Water Permit

A storm water permit is also required for any construction activity disturbing one or more acres of land. To get a construction storm water permit, you need to submit an application form called a Notice of Intent (NOI) and NOI fee to Ohio EPA. The NOI must be submitted at least 21 days before initiating ground disturbing activities. You must also develop a storm water pollution prevention plan (SWP3) that outlines the measures you'll take to prevent storm water from becoming contaminated during construction activities.

For more information about the storm water permitting requirements, contact your local Ohio EPA district office, Division of Surface Water. To get an NOI form, contact your local district office, or visit the Division of Surface Water Web site at http://www.epa.state.oh.us/dsw/permits/gpfact.html.

Storm Water Pollution Prevention Plan (SWP3)

In addition to obtaining a permit for either industrial or construction activities, the storm water regulations require that businesses develop a storm water pollution prevention plan (SWP3). In the plan, you must identify potential activities at your business that may contaminate storm water. In addition, the plan must outline the practices that you will use to help prevent storm water from becoming contaminated and running off into surface waters.

For additional guidance in developing a SWP3, refer to "Storm Water Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices" and an EPA-published summary document on the same subject. Both are available for a fee from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161, telephone (800) 553-6847. Or, you can find these materials on U.S. EPA's Web site at http://cfpub.epa.gov/npdes.

You are not required to send the SWP3 to Ohio EPA with your permit application, but must have it completed at that time and keep a copy of the plan at your business. If requested, the SWP3 must be submitted to Ohio EPA. If you are notified that the plan does not meet minimum requirements, you must amend the plan and submit a written certification to Ohio EPA that the requested changes have been made, or submit the amended plan directly to the agency.

You must amend the plan whenever there is a change in design or operation that will have a significant effect on the potential for pollutants to be discharged to state waters. You must also amend the plan if it is ineffective in achieving the general objectives of controlling pollutants in storm water discharges associated with the site.

Table 14.1. Contents of a Storm Water Pollution Prevention Plan

- Pollution prevention team
- Description of potential pollutant sources
- Site map indicating drainage, maintenance/cleaning, and material storage and loading/unloadings areas
- Inventory of materials exposed to precipitation
- List of significant spills and leaks that occurred in the 3 years prior to the effective date of the permit
- Sampling data describing pollutants in storm water discharges from the facility
- Summary of potential pollutant sources and identification of associated risks
- Description of storm water management controls addressing
  a. Good housekeeping
  b. Preventative maintenance
  c. Spill prevention and response procedures
  d. Inspections
- Employee training
- Record keeping and internal reporting procedures
- Testing and evaluation for Non-storm water discharges
- Sediment and erosion control
- A comprehensive site compliance evaluation
- Enclosure of covering of salt storage facilities
- Special requirements for storm water discharges associated with industrial activity from facilities subject to SARA Title III, Section 313 requirements

Storm Water Management

ODNR's Division of Soil and Water Conservation, Ohio EPA, and the federal Natural Resource Conservation Service (NRCS) have defined recommended practices for stormwater management, land development, and urban stream protection for the State of Ohio which are set forth in the ***Rainwater and Land Development Manual.*** **(Contact ODNR, Division of Soil and Water Conservation for a copy).** For post-construction storm water runoff control, recommended practices aimed at maintaining post-development runoff rates and loadings similar to pre-development rates and loadings include cluster development, minimizing impervious areas, preserving existing natural drainage features, the establishment of forested buffer strips, grass filter strips, infiltration trenches, and water quality ponds. Planning and design criteria to assist the site designer and plan reviewer in tailoring runoff control practices to fit specific site conditions are provided in *Appendix G* for landscaping with native plants and in *Appendix H* and for practices such as pond systems, wetland systems, infiltration systems and filter systems.

Storm Water Regulations and Best Management Practices[p]

BMP Description	**Status**	**Yes (✓) N/A**
Storm Water Permit and Pollution Prevention Plan		
Obtain a storm water permit from Ohio EPA	♦	
Develop a storm water pollution prevention plan (SWP3) for your site which meets Ohio EPA's requirements	♦	
In the event of a spill or release, the storm water pollution prevention plan must be modified within 14 days to include a description of the release and to identify measures to prevent and respond to a recurrence.	♦	
Storm Water Management Structures		
Ensure that all storm water management structures are maintained to operate effectively.	♦	
Select a storm water management structure that is appropriate for your property.	♦	
Establish a schedule for inspecting and cleaning storm water systems.	♦	
Accidental Discharge of Oil or Hazardous Substances into Storm Drains.		
See Chapter 8, Oil Spill Prevention.		

[p] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Low Impact Development The goal of low impact development is to develop a site without altering the existing hydrology. The approach takes advantage of a site's natural features–including vegetation–to minimize the need to build expensive storm water control devices.		
Capture and treat storm water on site.	☺	
Control storm water runoff from dry-stack areas as well as from any expanded parking areas.	☺	
Cultivate Vegetated Areas. Healthy soil and vegetation capture, treat, and slowly release storm water. The water is cleaned through a combination of microbial action in the soil, vegetative uptake, evaporation, and transpiration.		
Plant environmentally-sensitive landscapes at the edge of parking lots and within islands in parking lots, see *Appendix G*.	☺	
Plant vegetated buffers between your upland property and the water's edge.	☺	
Position downspouts so that they drain to vegetated areas–avoid draining to concrete or asphalt.	☺	
Construct wetlands to remove pollutants, protect the shore from storms, and provide habitat for aquatic species and birds, see *Appendix H*.	☺	
Use grassed swales to direct storm water on your property. Grassed swales are low gradient conveyance channels planted with erosion-resistant vegetation. They improve water quality by filtering out particulates, taking up nutrients, and promoting infiltration. Also, water generally moves more slowly over a grassed swale than it would in a pipe. Grassed swales are not practical on very flat land, on steep slopes, or in wet or poorly drained soils.	☺	
Minimize the Amount of Impervious Area		
Pave only those areas that are absolutely necessary.	☺	
Minimize the length of new roadway required to serve new or expanding marinas.	☺	
Plan roads so they do not cross sensitive areas such as wetlands.	☺	
Consider alternatives to asphalt for parking lots and vessel storage areas, e.g., gravel, engineered porous pavement and other pervious paving materials, see *Appendix H*.	☺	
Maintenance/Work Areas		
See Chapter 2, Vehicle Maintenance and Repair: Handling Used Chemicals and Hazardous Wastes.		
Stencil Storm Drains		
Stencil storm drains with the words "Don't Dump" and "Lake Erie Drainage" (if appropriate). Stencils and instructions are available from the Ohio Sea Grant College Program. Be sure to get permission from the county or city department that maintains storm drains in your community. Generally, it is the Department of Public Works.	☺	

Revised: August 24, 2004

Chapter 15: On-Site Drinking Water Systems

The Safe Drinking Water Act (SDWA) of 1974 was passed to protect our sources of drinking water. These include sources currently in use and those that have the potential to be used for drinking water in the future. The law covers both above and underground sources of drinking water. Under the law, EPA is authorized to establish water quality standards to ensure that drinking water is free from harmful contaminants like organic, heavy metal, radioactive and biological contaminants. Other standards set to control contaminants like suspended solids, chlorides, iron and pH, help improve the quality of drinking water as well.

Public water systems are subject to water quality monitoring and operating requirements under the SDWA. There are also standards that apply to the construction/installation of new public water systems. A transient public water system is a water system where at least 25 people (not necessarily the same people) are present and have access to the water any 60 days out of the year. This includes water used for drinking, food preparation, bathing, showering, tooth brushing or dishwashing. Major compliance requirements for transient water systems include:

1. *Total Coliform Bacteria Monitoring*
   All public water systems are required to monitor for total coliform bacteria to determine compliance with the maximum contaminant level (MCL). No more than one sample during a month may be total coliform positive. Transient public water systems serving less than 100 people each day are required to monitor for total coliform bacteria at least every calendar quarter.

2. *Nitrate and Nitrite Monitoring*
   All public water systems are required to monitor for nitrate and nitrite according to a schedule issued by Ohio EPA. Transient public water systems are required to monitor for nitrate at least annually and nitrite at least one time every nine years.

3. *License to Operate*
   Public water systems are required to obtain a license to operate a public water system from Ohio EPA. Churches, church-owned campgrounds, schools and public water systems that purchase their water are exempt from this requirement.

4. *Class A Certified Operator*
   Transient public water systems which serve a population over 250 and use a ground water source are classified as Class A water systems, and are required to be under the responsible charge of a properly certified operator.

5. *Detail Plans*
   Detail plans must be submitted for review and approval by Ohio EPA before installing or any making any substantial change to a public water system.

Ohio EPA's Division of Drinking and Ground Waters is responsible for enforcing the Safe Drinking Water Act regulations. Contact your local Ohio EPA district office, Division of Drinking and Ground Waters before beginning construction or installation of any water source. For more information, you can also obtain Ohio EPA's publication "Transient Public Water System's Guide" from the Division of Drinking and Ground Water or at www.epa.state.oh.us/ddagw/Documents/2003TNCguide_singlepages.pdf.

Private water systems are those that have fewer than 15 service connections and do not regularly serve an average of at least 25 people daily at least 60 days per year. Private water systems are subject to the rules in Chapter 3701-28 of the Ohio Administrative Code. For information regarding private water systems contact your local board of health.

Best Management Practices for Public Water Systems[q]

BMP Description	Status	Yes (✓) N/A
Plans and Licenses		
Before installing a new public water system or making changes to an existing well, submit detailed plans to Ohio EPA for review and approval.	♦	
For your transient public water system, obtain a license to operate on an annual basis from Ohio EPA.	♦	
Monitoring		
Monitor your public water system for total coliform bacteria to determine compliance with the maximum contaminant level (MCL) as required by Ohio EPA's drinking water regulations.	♦	
Monitor your public water system for nitrate and nitrite to determine compliance with the maximum contaminant levels as required by Ohio EPA's drinking water regulations. All transient public water systems are required to monitor for nitrate at least annually and nitrite at least one time.	♦	
Monitor in accordance with schedules provided by Ohio EPA.	♦	
Use a laboratory that is certified by Ohio EPA for water testing.	♦	
Keep a copy of all drinking water test results.	♦	
If lab testing indicates positive for total coliform, or if drinking water exceeds the MCL for nitrate, contact Ohio EPA immediately and follow procedures for retesting and public notification.	♦	
Well Design and Installation		
Provide a secure and intact well cap with a screened vent (locking well cap is recommended).	☺	
Extend well casing at least 12 inches above grade.	☺	
Slope soil surface away from the well to drain surface runoff away from well.	☺	
Well must have at least 25 feet of casing unless specific conditions are met.	♦	

[q] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Inspect well routinely for problems such as: cracked, corroded or damaged well casing, broken or missing well cap, settling and cracking of surface seals.	☺	
Protect well from potential vehicle damage.	☺	
Disinfect drinking water wells after repairs or modifications.	☺	
Keep accurate records of any well maintenance, such as disinfection or sediment removal, that may require the use of chemicals in the well.	☺	
Hire a professional well driller for any new well construction, modification, or abandonment and closure.	☺	
Preventing Contamination		
Properly abandon unused wells	♦	
Do not allow storing, mixing or using pesticides, fertilizers, herbicides, de-greasers, fuels, and other pollutants within the specified well isolation radius.	☺	
Do not dispose of wastes in wells.	♦	
Pump and inspect septic systems as often as recommended by your local health department	♦	
Never dispose of hazardous materials in a septic system	♦	
Maintain water treatment units as recommended by manufacturer (replace filter cartridges, regenerate with salt, etc.)	♦	
Remove plumbing dead-ends	☺	
Eliminate cross-connections and install backflow prevention devices	♦	

Revised: May 20, 2004

Chapter 16: Siting Considerations for New and Expanding Marinas

The natural plant and animal communities of coastal areas serve multiple functions. Wetlands, for example, provide habitat for fish and fowl. They form a natural buffer against incoming storms and act as a filter to purify storm water runoff from the land. Wetlands also minimize erosion and support tourism, hunting, and fishing. It is important that shoreside development be done in a way that does not diminish the ecological, economic, recreational and aesthetic qualities of coastal resources.

When selecting a site for a new or expanding marina, you must avoid or minimize your impact upon the following:

- submerged aquatic vegetation (SAV)
- wetlands and mudflats
- rare, threatened, or endangered species
- spawning, nursery, or propagation areas for fish
- shallow water habitat
- coastal sand and gravel resources
- colonial waterfowl nesting sites
- existing riparian forests
- forests with interior dwelling bird species
- natural heritage areas
- tributary streams
- waterfowl staging areas
- stream buffers
- wildlife corridors
- wild and scenic rivers
- navigational safety
- fish habitat, including barriers to migration.
- circulation or mixing patterns in the marina

The Site Selection Guidelines included in this chapter will help you identify areas to address if you are considering building a new marina, or if you are expanding your existing business.

Siting Guidelines and Regulations

State and federal regulations contain siting guidelines for new and expanding marinas. New and expanding marinas must be located to avoid and minimize impacts to wetlands, mudflats, open water, streams and other aquatic resources.

Marina owners and operators are required to comply with numerous federal and state statutes relating to erosion control and environmental impacts on important habitat areas associated with the construction or expansion of marinas in Ohio's coastal zone management area. An assessment of the impacts of proposed marina projects on important aquatic habitat areas may be required under the **Archaeological Resources Preservation Act,** the **Endangered Species Act,** and the **Fish and Wildlife Conservation Act.** Also, marina developers must submit plans to the U.S. Army Corps of Engineers for approval under **Section 10 of the Rivers and Harbors Act of 1899** for construction, excavation or deposition of materials in or affecting U.S. navigable waters, and under **Section 404, Clean Water Act** for projects affecting wetland areas.

Existing state programs that support the implementation of this management measure include ODNR's **Submerged Lands Lease Program, Shore Structures and Coastal Erosion Programs** and the Ohio EPA's **Clean Water Act Section 401 Water Quality Certification Program**. ODNR's Division of Real Estate and Land Management (REALM) will evaluate proposals that are not in the Lake Erie coastal management area. Expansions that include extension of sewer or water lines will require a permit to install (PTI) from Ohio EPA. Constructions sites of one acre or more will require an NPDES storm water construction site permit from Ohio EPA (see Chapter 14). Finally, under the Ohio Revised Code, plans for new, altered or expanding marinas must be submitted to and approved by the Ohio Department of Health at least sixty days prior to construction to ensure adequacy of sanitary facilities.
If you are planning a new marina or to expand an existing marina, please contact the following agencies before you make any decisions or invest money:

Ohio EPA, Division of Surface Water
Tel: 614-644-2001
www.epa.state.oh.us/dsw/index.html

Ohio Department of Natural Resources (ODNR)
Office of Coastal Management
Tel: 419-626-7980
http://www.dnr.state.oh.us/coastal/ (delete bold)

Ohio Department of Health (ODH)
Bureau of Environmental Health
Tel: 614-466-1390
http://www.odh.state.oh.us/

Site Selection Guidelines Checklist[r]

BMP Description	Status	Yes (✓) N/A
Redevelop Existing Sites		
Place new facilities in previously-developed waterfront sites.	☺	
Threatened or Endangered Species		
Threatened and endangered species may not be disturbed (Federal Endangered Species Act, Natural Resources Article §4-2A-01 et seq., and Natural Resources Article §10-2A-01 et seq.).	♦	
All proposed development sites must be assessed by the U.S. Fish and Wildlife Service (USFWS) and ODNR for endangered and threatened species and habitat protection areas.	♦	
If protected species are identified, you must implement an approved protection plan prior to project approval.	♦	
Create new habitat for threatened or endangered species.	☺	
Submerged Aquatic Vegetation (SAV)		
Avoid or mitigate any disturbances of SAV	☺	
Create habitat for native SAV	☺	
Site new or expanded marinas so navigation over SAV beds is not necessary	☺	
Wetlands		
Avoid disturbance or development of Category III (high quality) wetlands.	♦	
Avoid or mitigate disturbance of Category I (low quality) or II (medium quality) wetlands and indigenous vegetation in riparian areas.	♦	
Create new habitat for functional wetlands with native vegetation.	☺	
Migration, Nesting and Spawning Periods		
Schedule construction to avoid critical migration, nesting, and spawning periods of important species of fish and wildlife. (Contact ODNR about Lake Erie construction windows).	♦	
Avoid areas that will adversely impact historic waterfowl staging areas.	☺	
Marina Flushing		
Locate your marina in an area with good circulation.	☺	
Design new or expanding marinas with as few obstructions as possible to promote circulation within the basin.	☺	
Avoid canals, irregular pockets, and areas that are deeper than adjacent channels.	☺	
Avoid tight corners and dead-end channels in marina basins to the greatest extent possible.	☺	
Align entrance channels with natural channels to increase flushing.	☺	

[r] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BM

Design boat lanes to progressively widen toward open water and narrow toward the inland end to allow water to flow freely and maintain its velocity within the marina.	☺	
Avoid locating the entrance channel perpendicular to the natural channel as shoaling (and, therefore, dredging) is a potential problem.	☺	
Water Quality		
Perform preconstruction inspection, assessment, monitoring and/or modeling for water quality conditions.	☻	
Designate one or more employees to implement water quality assessment protocol	☺	
Contract with Citizen Lake Awareness and Monitoring (CLAM) or other volunteer programs to implement the water quality assessment protocol.	☺	
Minimize Impervious Areas.		
Do not use asphalt near water surfaces.	☻	
Keep paved areas to an absolute minimum, e.g., just designated work areas and roadways for heavy equipment.	☺	
Minimize the amount of unvegetated land adjacent to the waterway.	☺	
Upland and Inland Areas		
Locate buildings, workshops, and waste storage facilities in upland areas, away from fragile shoreside ecosystems, to the greatest extent possible. Upland areas also provide a measure of protection against floods.	☺	
Locate parking and vessel storage areas away from the water where feasible.	☺	
Consider inland areas for boat repair activities and winter storage. Use hydraulic trailers to quickly and easily move boats to inland storage locations.	☺	
Expand Upward		
Rather than adding wet slips, expand storage capacity by adding drystack storage.	☺	
Conserve Sensitive Land		
Sell or donate the land (or the development rights to the land) to a local land trust or a non-profit organization such as The Nature Conservancy. Income, estate, and property tax benefits may be available.	☺	

Revised: August 24, 2004

Chapter 17: Marina Design and Maintenance

Environmental Concerns

Land management decisions, operating procedures, and structural improvements all contribute to the quality of the land and water surrounding your marina. Roads and parking areas may convey polluted storm water directly into adjacent waterways. Dredging may resuspend toxic compounds such as heavy metals, hydrocarbons, and synthetic chemicals. Hazardous chemicals may be leached into the water from piers and other similar structures. Broken or degraded floats may release buoyant debris which birds and fish mistake for food. Finally, the location and installation of shoreside and in-water structures may lead to accelerated coastal erosion and sedimentation. Sedimentation can bury bottom dwelling organisms, block sunlight, reduce the feeding efficiency of visual feeders and clog fish gills.

Maintaining water quality within a marina basin is very important. Good water quality depends primarily on water circulation within the basin. If a marina is not properly designed, pollutants will build up in the water or sediments. Dredging to create deeper water can slow flows and diminish re-oxygenation of waters in the marina basin.

In non-tidal coastal waters, such as Lake Erie, wind drives water circulation, producing cells that can have a flushing effect within a marina. Several hours of consistent wind are required for full development of wind-driven currents. In many situations wind-driven currents will provide adequate flushing of marina basins. Variations in winds, water current, precipitation, and water levels create substantial variability in the condition of sheltered waters that are poorly flushed. Generally, the summer months bring conditions of low precipitation and the smallest number of significant water level and current changes. This contributes to poor flushing of all sheltered areas along Lake Erie, Sandusky Bay, Put-in-Bay, and all harbors and small estuaries. Degraded water quality has been measured in such areas during these months of peak recreational boating usage.

Federal and Ohio Laws

Consideration of erosion control, marina flushing and sensitive areas in the siting and design of new marinas in Ohio is included as part of the agency review process under ODNR's **Submerged Lands Lease Program** and the Ohio EPA's Clean Water Act, **Section 401 Water Quality Certification Program**. ODNR has authority under the Submerged Lands Lease Program to deny an application for a submerged land lease if the proposed project will have negative environmental impacts upon water quality. Without the required submerged land lease, a property owner cannot by law place any material into Lake Erie. In addition, applicants for an Ohio EPA water quality certification seeking to site a marina in waters of the state must demonstrate that the creation of the marina will not prevent or interfere with the attainment or maintenance of applicable water quality standards for those waters affected. Projects requiring a Section 401 Water Quality Certification are subject to a water quality antidegradation review by Ohio EPA as part of the certification process.

Best Management Practices for Marina Design and Maintenance[s]

BMP Description	Status	Yes (✓) N/A
Marina Flushing And Erosion Control		
Water Circulation		
Select an open design for new or expanding marinas (no fabricated or natural barriers to restrict the exchange of lake water and water within the marina area).	☺	
Install wave attenuators to reduce the force of incoming water, if protection is necessary.	☺	
Use a mechanical aerator system to aerate areas with poor circulation	☺	
Leave an open gap at the shoreward end of crib docks to facilitate littoral transport of sand and gravel past the structure and prevent stagnant areas. The gap length should be determined site specifically by the project engineer.	♦	
Environmentally Neutral Materials		
For new pilings and other structures that are in or above the water, use materials that will not leach hazardous chemicals into the water.	☺	
Fill will consist of either rock or clean concrete without exposed rebar. Size the rock or concrete and the crib openings to encourage fish access.	♦	
Cadmium chromium arsenate (CCA) treated lumber or creosote treated lumber can not be used.	♦	
No asphalt or other petroleum-based substance will be authorized below the Ordinary High Water Mark of 573.4 ft.	♦	
Contain shavings when field cutting plastic pilings and timbers.	☺	
Use naturally durable timbers conservatively.	☺	
Purchase floatable foams that have been coated or encapsulated in plastic or wood.	☺	
Do not use treated wood where it may come in direct or indirect contact with public drinking water.	☺	
Minimize Need for Dredging		
Design marinas for historic water levels and impact of seiche events.	☺	
A continuous, gradual downward slope from the berthing area into deeper water is ideal.	☺	
Extend piers and docks into naturally deep waters. Use open-pile or floating docks where possible.	☺	
Locate slips for deep draft boats in naturally deep water.	☺	
Dredge channels to follow the course of the natural channel.	☺	
Provide dry storage for smaller boats.	☺	
Avoid long winding channels connecting marinas to open water.	☺	

[s] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BM

Where possible, establish two openings at opposite ends of the marina to promote flow-through currents.	☺	
Support and/or participate in local watershed planning.	☺	
Minimize Impacts of Dredging		
Do not dredge during critical migration or spawning periods of important species of fish or wildlife. (Contact ODNR about construction windows for Lake Erie and other bodies of water).	♦	
Avoid colonial waterbird nesting areas and historic waterfowl staging and concentration areas.	♦	
Be certain that your dredging contractor selects an appropriate disposal site and containment design. The disposal site must have minimal impact on public safety, adjacent properties, and the environment. Dredge material must be disposed in accordance with Section 401 and 404 permit requirements.	♦	
Use dredging methods that minimize environmental impacts. Choose between mechanical dredging or hydraulic dredging based on type of sediment and location of disposal of sediments. Call Ohio EPA, ODNR or ODH for guidance.	☺	
Use turbidity curtains to contain suspended sediments.	☺	
Shore Erosion Control		
Non-structural measures, such as beach nourishment, native grasses, marsh creation, and other methods that encourage the preservation of the natural environment are the preferred methods of shore erosion control.	☻	
Minimize the adverse effects of erosion control projects on adjacent properties (*stream banks and shorelines*), navigation, threatened or endangered species, and significant historic or archaeological resources.	☻	
If non-structural measures alone are not sufficient to control erosion, structural measures may be used to stabilize and ensure the long-term viability of the non-structural controls.	☺	
In areas where existing protection methods are being flanked or are failing, implement properly designed and constructed shore erosion control methods such as returns or return walls, toe protection, and proper maintenance or total replacement.	☻	
Marina Operation		
Conserve Water		
Equip all freshwater hoses with automatic shutoff nozzles.	☺	
Fix leaks and drips.	☺	
Install “low-flow” faucets, toilets, and shower heads.	☺	
Use lake water whenever possible, e.g., washing boats, watering landscape	☺	
Maintain Structures Using Clean Marina Practices		
Scrape, sand, and paint in-water and land-side structures according to the same management principles as for vessels (refer to the Vessel Maintenance and Repair chapter).	☺	
If feasible, move floating structures to shore for scraping, painting, and major repairs	☺	

Protecting Sensitive Areas and Habitat		
Waterwise Landscaping		
Eliminate unnecessary watering of grass and shrubbery, and watering during mid-day hours when evaporation is highest.	☺	
Select plants that are suited to the existing conditions (i.e., soil, moisture, and sunlight) so that they will require little care in terms of water, fertilizer, and pesticides. Refer to *Appendix G* for a sampling of beneficial plants.	☺	
Water deeply and infrequently rather than lightly and often. Deep watering promotes stronger root systems which enable plants to draw on subsurface water during hot spells and droughts.	☺	
Select equipment that delivers water prudently. Sprinklers work well for lawns. Soaker hoses or drip irrigation systems deliver water directly to the roots of shrubs, flowers, and vegetables with minimal loss to evaporation. (For best results, water grass to a depth of 1". Refer to *Appendix G* to learn how to calculate the time needed for proper water application.)	☺	
Place mulch (wood chips, bark, grass clippings, nut shells, etc.) to a depth of 3-4" around plants to keep water in the soil, prevent weeds, and reduce the amount of sediment picked up by stormwater. Planting groundcover at the base of trees serves the same function.	☺	
Group plants with similar water needs together. This practice will ease your maintenance burden, conserve water, and benefit the plants.	☺	
Replace lawn areas with wildflowers, groundcover, shrubs, and trees.	☺	
Recycle "gray water." Gray water is water that has been used once–maybe for dishwashing or in a washing machine–but is not overly contaminated. It can be filtered and used to water landscaped areas. Because regulations vary, be sure to check local ordinances for permit requirements and written approval before pursuing this option	☺	
Collect rainwater by directing downspouts into covered containers. Use the collected water on your landscaped areas.	☺	
Integrated Pest Management		
Select plants that are disease and insect resistant, that will out-compete common weeds, and that can thrive on your property. Refer to the list of native plants (*Appendix G*) and consider the degree of sun exposure, slope, drainage, amount of shade, wind, volume of foot traffic, soil type, temperature variations, and other environmental factors.	☺	
Mow lawn areas properly to suppress weeds. Recommended mowing heights for varieties of grass that grow better in cooler weather are no less than 2.5 inches, and for grasses that grow better in warm weather are no less than 1.5 inches.	☺	
Pull weeds by hand to reduce reliance on herbicides	☺	
Boost your own tolerance for weeds and other pests. If it is not actually harming anything, leave it alone.	☺	
Foster natural predators such as spiders, praying mantis, dragonflies, lacewings, soldier beetles, birds, bats, frogs, lizards, and certain snakes and toads.	☺	

Use natural agents such as milky spore disease for grubs and Japanese beetles, Bacillus thuringiensis (BT) to control mosquito and small moth larvae, and sabadilla for chinch bugs.	☺	
Use pesticides only after all other options have been exhausted. Use organic alternatives to chemical pesticides. Also, rather than broadcasting pesticides, apply them directly to problem areas.	☺	
Treat only serious or threatening intolerable pest infestations.	☺	
Purchase the least toxic chemical in the smallest amount practical.	☺	
Do not use pesticides or herbicides just before a rainfall or on a windy day.	☺	
Apply insecticides during the evening when honeybees and other beneficial insects are less active.	☺	
Do not apply pesticides or herbicides near water, e.g., shore, wells, streams, ponds, bird baths, swimming pools, etc.	☺	
Maintain and/or Develop Vegetated Areas		
Maintain vegetated buffers (*grassy or wooded*) between all impervious areas (e.g., parking lots, boat storage areas) and the water. Direct drainage away from bluffs and banks.	☻	
Plant vegetated areas with "beneficial" plants: those plants that require minimal care in terms of trimming, watering, and applications of fertilizer and pesticides. Native, or indigenous, plants demand little care since they are adapted to the local climate and soil types. Also, many horticultural varieties and imported plants may be considered beneficial if they have few maintenance requirements and if they do not displace naturally occurring vegetation (that is, if they are not invasive). Refer to *Appendix G*.	☺	
Select perennial plants instead of annuals. Perennial plants need only be planted once, tend to shade out most weeds, and few require additional water or maintenance.	☺	
Choose plants that bear flowers, fruit, nuts, and seeds to attract birds, small mammals, and other wildlife.	☺	
Annually, submit a soil sample to Ohio State University Extension to determine fertility, pH, and application rates for soil amendments.	☺	
Foster beneficial critters, for example, earthworms move through the soil feeding on microorganisms. In the process, they aerate the soil, improving the flow of water and air to plant roots.	☺	
Compost leaves, branches, grass trimmings, and other organic matter but don't pile it where is might be washed into the water. Use the mature compost to nourish your soil. Alternatively, chip branches and leaves and use as mulch to discourage weeds and to conserve moisture. More complete information on composting is available from Ohio State University Extension.	☺	

Revised: September 8, 2004

Chapter 18: Working with Boaters, Contractors, and Other Patrons

Once you have complied with all the regulations and adopted some of the best management practices outlined in this Guidebook, tell people about it! Train your staff so that they will routinely minimize pollution. Let contractors know that you expect them to work within the practices you have committed to as an Ohio Clean Marina. Inform boaters how their actions can affect water quality. And let the public know that you are doing your part to protect the environment.

Education Programs

Use this Ohio Clean Marinas Program Guidebook to show others, as appropriate, your commitment as a clean marina. Use the clean boater program educational materials as part of your educational program for recreational boaters who dock at or use your marina. The Best Boater Practices brochure is available to you for distribution. The Clean Boating Tip Sheets, *Appendix K*, are designed for your use; add your marina logo and circulate to boaters. Other boater organizations, such as the Power Squadron and Coast Guard Auxiliary, also have recreational boater educational materials which you can use.

The Division of Watercraft promotes public education on environmentally safe boating practices through its **Boating Education Program** and its **Boating and The Environment** educational materials. With funding provided through the **Clean Vessel Act,** the Division has developed an education plan designed to educate and inform the boating community about water quality issues related to marine sanitary waste, the benefits of proper sanitary waste disposal, location of existing facilities, proper use of pumpout and dump stations, and Ohio's initiatives to improve the health of Lake Erie. The Division of Watercraft also conducts boating education courses to promote safe boating practices. In addition, the Division conducts boating seminars throughout the state aimed at educating the public and promoting the preservation of Ohio's water quality.

The Ohio EPA **Office of Pollution Prevention** has also joined the effort to educate boaters on environmentally sound boating practices through the publication of a fact sheet entitled "Pollution Prevention for Marinas." This publication provides strategies for marina owners and operators, as well as boaters, to reduce pollution generated by boating activities on Ohio's waterways.

Procedures

Inform boaters, contractors and other patrons of management practices and procedures you expect them to follow at your marina. Write these procedures into your contracts, such as contracts with boaters who dock at your marina and with contractors who do work at your marina (see *Appendix L* for sample contract language). Post signs as appropriate throughout your marina about marina policies, vessel maintenance areas, use of you pumpout station, where to dispose of waste materials for recycling and other procedures (see *Appendix M* for examples of signs used by clean marinas in other states).

News Releases

Use news releases at appropriate times to inform the public about your status as an Ohio Clean Marina and your environmental accomplishments. News releases can also be used to publicize best boater practices your boaters have adopted as part of your commitment to be a clean marina.

Writing a News Release.

1. Start news releases with a contact person's name and phone number, the date, and a headline.

2. The first paragraph contains vital information: who, what, when, and where.

3. Complete the news release with secondary information and support data.

4. Conclude with a "call to action" (e.g., visit the marina for a demonstration of the new plastic media blasting system).

5. Double-space the text.

6. One page is best, and definitely no longer than two pages.

7. Refer to the Associated Press Style Book for additional formatting information.

Best Management Practices for Managing a Marina[t]

BMP Description	Status	Yes (✓) N/A
Incorporate Best Management Practices into Contracts. In addition to being a legal document, contracts are very effective educational tools. Use the contract to inform boaters and contractors how to minimize their environmental impacts.		
Include language requiring the use of best management practices in all of your contracts: slip holders, liveaboards, transients, charters, workers, contractors, and tenants.	☺	
Include language specifying the consequences for not using best management practices, e.g., failure to use best management practices will result in expulsion from the marina and forfeiture of rental fees.	☺	
Include information about requirements for Marine Sanitation Devices.	☺	
See *Appendix L* for sample contract language.	☺	
Post Signs Detailing Best Management Practices.		
Post a sign informing boaters of Ohio's no wake law near marinas.	☻	
Post signs at fuel docks and pumpout stations, along piers, in vessel maintenance areas, and at dumpsters and recycling stations. See samples below.	☺	
Be sure the signs are visible.	☺	
Signs must be durable, eye catching, and appropriately sized.	☺	
Post your facility's environmental policy in a conspicuous location.	☺	
See *Appendix M* for sample signs	☺	
Distribute Literature to Patrons.		
Inform boaters of the Clean Boater Program and of Best Boater Practices (BBPs) using the Clean Boater Program Brochure or using brochures from other organizations such as the Power Squadron or Coast Guard Auxiliary.	☺	
Copy and distribute the Clean Boating Tip Sheets in *Appendix K* or create your own. Boater tip sheets on Engine Maintenance, Vessel Cleaning, Sanding and Painting, Petroleum Control, Waste Containment and Disposal and Boat Sewage are in *Appendix K*.	☺	
Send the tip sheets with monthly mailings or place in dock boxes or on vessels. Be cautious that they do not end up in the water.	☺	
Include articles about best management practices in your newsletter.	☺	
Contact the United States Coast Guard for publications summarizing Federal boating requirements.	☺	

[t] ♦ = Law or Regulation, ☻ = Required BMP, ☺ = Recommended BMP

Host a Workshop.		
Include a walking tour of the facility to demonstrate best management practices.	☺	
Try to schedule the workshop to coincide with an existing marina function that is traditionally well attended.	☺	
Offer incentives to attendees: door prizes, discounts, product samples, food.	☺	
Make Use of Informal Communication Mechanisms.		
Pass along pollution prevention information in conversations with patrons and contractors.	☺	
Post information about best management practices on the marina bulletin board.	☺	
Recognize Boaters.		
Publicly recognize boaters who are making an effort to control pollution.	☺	
Include a feature in your newsletter, post a flyer with the boater's picture on a public bulletin board, give an award, etc.	☺	
Public Relations		
Publicize Your Good Deeds.		
Seek free publicity with local press, magazines, television, and radio outlets.	☺	
Prepare news releases to highlight your innovative practices, new equipment or services, available literature, or a workshop you are sponsoring.	☺	
Plan news releases to coincide with seasonal activities, e.g., helpful tips for winterization.	☺	
Learn media deadlines and send releases in time to meet them.	☺	
When submitting a news release, be sure you have the name of the correct editor and that it is spelled accurately.	☺	
Get press kits from manufacturers of environmentally-sensitive products. Use their photographs and product information.	☺	
Become an Ohio Clean Marina.		
Apply to the Ohio Clean Marinas Program for recognition as an Ohio Clean Marina. Once you have satisfied the selection criteria, you may use the Ohio Clean Marina logo in your advertising and correspondence, fly a Clean Marina flag, and enjoy promotion by the Clean Marina Initiative in publications, on the World Wide Web, and at public events.	☺	
Use your selection into the program as an opportunity to prepare a press release.	☺	
Business Practices		
Offer Environmental Audits for Boaters.		
Expand your business by offering environmental audits.	☺	
Inspect engines, bilges, fuel systems, and marine sanitation devices.	☺	
Sell oil absorbent pads, air/fuel separators, etc.	☺	

Consider Environmental Surcharges.		
Charge for tangible items such as tarps, vacuum sanders, and protective clothing or establish a flat "environmental surcharge" on all jobs.	☺	
Consider donating a portion of rental fees (e.g., for vacuum sanders) to an environmental organization. The boater can feel good about controlling pollution and about the fact that a portion of his or her money is going to help conserve nature.	☺	
Prevent Pollution		
Be Diligent.		
Be absolutely diligent in containing pollution; your own and that created by your staff. Boaters will notice and follow your example.	☺	
Approach Polluters.		
Determine who will address boaters and contractors who are polluting. Generally speaking, this is a job for the manager. Provide clear instructions to your staff about whether they are to handle polluters directly or report pollution incidents to the manager.	☺	
Politely inform boaters and contractors why what they are doing is harmful. Describe a more environmentally sensitive method and ask the boater or contractor to stop work until it can be done with less environmental impact. It will be easier to get cooperation if you require boaters and contractors to practice pollution prevention as a condition of their contracts.	☺	
If the problem persists, take these additional steps: a) Talk to the boater or contractor again. b) Mail a written notice asking that the harmful practice stop. Keep a record of the mailing. c) Remove the problem from the dock. Charge the boater or contractor for the cost of removal and clean-up. d) Ask the tenant or contractor to leave your marina.	☺	
Be Watchful. Involve all employees in policing your marina for waste. Encourage your staff to look for and immediately halt the following activities.		
Colored plumes in the water where a hull is being cleaned.	☺	
Bilge water discharge with a sheen.	☺	
Uncontained sanding, painting, varnishing, or cleaning.	☺	
Maintenance debris being washed into the water.	☺	
Sewage discharges within the marina.	☺	
The use of environmentally harmful cleaning products.	☺	

Revised: May 24, 2004

Chapter 19: Laws and Regulations

Several federal and state authorities are responsible for oversight of recreational boating and marinas in Ohio. Marinas are subject to a variety of regulations related to land use; pollution control; habitat preservation; and safe and proper use of the state's waterways.

It is important to note that this guidebook is intended to be a tool to assist you in reviewing and improving compliance with regulations. It does not include a comprehensive listing of all regulations applicable to your business. A comprehensive listing would be dependent on many case and business- specific factors which are beyond the scope of this guidebook. The guidebook identifies general areas of regulation and further research beyond this guide by you, may be necessary. If you need additional information on any of the regulations or laws outlined in this guidebook, contact the appropriate regulatory agency for more information.

Archaeological Resources Protection Act

The purpose of the Archaeological Resources Protection Act is to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before the date of the enactment of this Act. The Act requires that marina developers apply for a permit to remove any archaeological resource(s) located on public lands where a marina is to be developed or expanded.

Clean Air Act

The Federal Clean Air Act (CAA) regulates sources of air pollution. Under the law, the U.S. EPA set National Ambient Air Quality Standards for protection of public health and the environment. Some examples of regulated air pollutants include: volatile organic compounds, nitrogen dioxide, sulfur dioxide, heavy metals, carbon monoxide and toxic chemicals. The Clean Air Act has been amended several times, most recently in 1990
to include several new requirements that apply directly to smaller sources of air pollution, often small businesses. Businesses are required to get permits for sources/activities that discharge pollutants to the air. Permits are required to install ("permit to install") and to operate ("permit to operate") sources of air pollution. A small business, such as a marina, would be regulated under the Clean Air Act and may need to get a permit if it is operating a unit that discharges air pollutants.

Ohio EPA's Division of Air Pollution Control is responsible for Clean Air Act programs. In addition, some areas of the state have air pollution control agencies with responsibilities related to air regulations.

Clean Vessel Act (CVA)

The purpose of the Clean Vessel Act of 1992 is to maintain and improve the water quality in boating waters throughout the United States. The goal of the Act was to evaluate existing conditions for sewage disposal from recreational boats and to implement improvements where needed. Under the Clean Vessel Act, the U.S. Fish and Wildlife Service (USFWS) is authorized to make grants to coastal states for the construction, renovation, operation, and maintenance of pumpout and dump stations for the disposal of sewage discharged by recreational boaters. ODNR administers the Clean Vessel Act federal financial assistance in Ohio and works in conjunction with ODH to accomplish the goals of this program.

Coastal Zone Act Reauthorization Amendments of 1990 (CZARA)

The Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) provided the impetus for the Ohio Clean Marinas Program. Section 6217 of the Amendments requires that nonpoint source pollution from marinas be contained. Through the Clean Marinas Program, Ohio is promoting voluntary adoption of best management practices to minimize the impact of marinas on surrounding land and water.

Emergency Planning and Community Right-to-Know Laws and Regulations

In 1986, the Superfund Amendments and Reauthorization Act (SARA) was signed into law. Title III of SARA is also known as the Emergency Planning and Community Right-to-Know Act (EPCRA). EPCRA requires companies to report information about the chemicals they have on their property. Reporting and other requirements of EPCRA for businesses are covered under these major sections:

1. Community Right-to-Know Reporting Requirements (Sections 311-312)

2. Emergency Release Notification (Section 304)

3. Toxic Chemical Release Inventory Reporting (Section 313)

Ohio EPA's Division of Air Pollution Control is responsible for the EPCRA program and requirements.

Endangered Species Act

The purpose of the Endangered Species Act, passed in 1973, is to protect the ecosystems upon which endangered species and threatened species depend. The act, administered by ODNR, Division of Wildlife, requires completion of a biological assessment to determine the presence of endangered species before construction activities may commence.

Fish and Wildlife Conservation Act

The purpose of the Fish and Wildlife Conservation Act is to provide financial and technical assistance to the states for the development, revision and implementation of conservation plans and programs for nongame fish and wildlife, and to encourage federal agencies to utilize their statutory and administrative authority to conserve and to promote the conservation of nongame fish and wildlife and their habitats. Marina developers may be required to consult with the U.S. Fish and Wildlife Service (USFWS) or NOAA to ensure that a project will not adversely impact fish and wildlife resources.

Ohio Marina Licensing Program

Marinas providing boat dockage for seven or more watercraft are licensable facilities in Ohio under state law, and are subject to rules established in the Ohio Administrative Code. The marina licensing program in Ohio was established in the mid-1970s. Administered by the Ohio Department of Health, the program regulates marina construction, operation, and maintenance and ensures the adequacy of sanitary facilities at a marina.

In Ohio, local governments have the authority and responsibility to plan for and control the development of specific land uses within their respective jurisdictions. In particular, under **Ohio's Marina Licensing Program**, marina licenses are issued and annual inspections are conducted by the respective local/county board of health. Local requirements vary across counties.

Ohio Department of Natural Resources (ODNR) Programs

The Submerged Lands Lease Program provides ODNR authority to protect the public trust ownership of Lake Erie's waters and the lands underneath, is another means by which environmental impacts of marina construction can be controlled.

ODNR's Division of Watercraft oversees operations through regulations that are enforceable by state and local law enforcement jurisdictions. The Division of Watercraft also promotes public education through its Boating Education Program and Boating and The Environment educational materials.

Organotin Antifoulant Paint Control Act (OAPC) of 1988

The Organotin Antifoulant Paint Control Act restricts the use of organotin antifouling paints, including tributyl tin-based paints. Tributyl tin (TBT) paints may be used only on aluminum-hulled vessels, on boats larger than 82 feet (25 meters), and on outboard motors and lower drive units. Any boatyard operator wishing to apply TBT paints must obtain a limited commercial license (to be called a commercial applicator license after July 1, 2004) from the Ohio Department of Agriculture. It is illegal for anybody without a license to distribute, sell, use, or possess antifoulants containing tributyl tin. The only exception is for private use of spray cans that are 16 ounces or less and which do not exceed the release rate of less than or equal to 5.0

micrograms per square centimeter per day. These spray cans of TBT paint remain an unregulated substance and may be applied by boaters without an applicator license.

Refuse Act of 1899

The Refuse Act of 1899 prohibits throwing, discharging, or depositing any refuse matter of any kind (including trash, garbage, oil, and other liquid pollutants) into waters of the United States. The U.S. Coast Guard shares authority of this law with the U. S. Army Corps of Engineers.

Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) of 1976 provided EPA the authority to regulate the management of wastes. Ohio EPA's Division of Solid and Infectious Waste Management is responsible for wastes such as trash, compost waste, scrap tires and construction/demolition debris. Waste haulers, composting facilities, transfer facilities and landfills are some of the handlers that need to meet specific requirements. State regulations have also been established for facilities that handle infectious/medical wastes.

Ohio EPA's Division of Hazardous Waste Management is responsible for enforcing hazardous waste regulations. Subtitle C of RCRA sets management standards for how hazardous wastes need to be managed from point of generation to final disposal (called "cradle-to-grave" regulation). The hazardous waste regulations apply to anyone who generates, transports, treats, stores or disposes of hazardous waste. Besides on-site management standards, there are also paperwork and tracking requirements for hazardous waste handlers under these rules.

Rivers and Harbors Act of 1899

The Rivers and Harbors Act of 1899 prohibits the construction of any bridge, dam, dike or causeway over or in navigable waterways of the U.S. without Congressional approval. Under the Rivers and Harbors Act, the U.S. Army Corps of Engineers (USACE) is authorized to regulate the construction of any structure or work within navigable waters under sections 9 and 10 of the Rivers and Harbors Act. Marina developers must submit plans to the USACE for approval of construction, excavation, or deposition of materials in or affecting U.S. navigable waters.

Ohio Litter Laws

Ohio Revised Code Chapter 1529 (Wildlife Regulations) and 1547 (Watercraft Regulations) contains sections prohibiting littering on Ohio's waterways. The Wildlife regulations prohibit any litter, garbage, etc. from being disposed of in any ditch, stream, river, lake, pond, or other watercourse that forms a juncture with natural surface or underground water within the State of Ohio. The Watercraft regulations prohibit anyone from throwing, dropping, discarding, or depositing litter, regardless of intent, from a boat into the water within the State of Ohio. Administered by the ODNR Division of Wildlife, these regulations help prevent stream litter or other discharges that kill or endanger wild animals and stream life.

Safe Drinking Water Act

The Safe Drinking Water Act (SDWA) of 1974 was passed to protect our sources of drinking water. These include sources currently in use and those that have the potential to be used for drinking water in the future. The law covers both above and underground sources of drinking water. Under the law, EPA is authorized to establish water quality standards to ensure that drinking water is free from harmful contaminants like organic, heavy metal, radioactive and biological contaminants. Other standards, set to control contaminants like suspended solids, chlorides, iron and pH, help improve the quality of drinking water as well.

Ohio EPA's Division of Drinking and Ground Waters is responsible for enforcing the Safe Drinking Water Act regulations.

Spill Prevention Control and Countermeasure (SPCC) Regulations

The Spill Prevention Control and Countermeasure (SPCC) regulations (40 CFR, Part 112) were put into effect in 1974. These regulations establish spill prevention and spill control requirements for facilities storing certain quantities of "oil." The definition of "oil" is very broad, including, but not limited to, fuel oils, mineral and vegetable oils, animal oils, lubricating oils, greases, and oil mixed with waste.

The Oil Pollution Act of 1990 revised portions of the SPCC regulation. Any facility considered to pose a "significant and substantial harm" to the environment, based on the amount of oil stored (a million gallons), or location (within a certain distance from sensitive environments or a facility which conducts fuel transfers over water), must prepare a Facility Response Plan (FRP). This document is a very comprehensive spill response plan, and must be submitted to and approved by U.S. EPA. Typically, only very large facilities or facilities located directly on a waterway would be subject to this requirement.

The Ohio EPA's Division of Emergency and Remedial Response is responsible for the SPCC program. U.S. EPA is responsible for the approval of FRPs.

Federal Water Pollution Control Act

The Federal Water Pollution Control Act (FWPCA) passed in 1972. The law prohibited the discharge of oil and hazardous substances in harmful quantities into the navigable waterways of the United States. Discharge was defined as any emission of oil or designated hazardous substances into the environment, regardless if the discharge was intentional or unintentional. The law contained provisions that obligated the spiller to respond to a spill and it also established civil and criminal penalties for discharges. The enforcement authority for this law was delegated to the U.S. Coast Guard and the U.S. Environmental Protection Agency. Since the law was enacted, it has undergone two major revisions.

Clean Water Act

The Clean Water Act (CWA) was passed in 1977 and amended the FWPCA. The law increased the enforcement and response authority for the federal government. In addition, the CWA established a revolving pollution fund for spill clean up and defined harmful quantity of oil and reportable quantity for designated hazardous substances. The Act prohibits the use of chemical agents like soaps, detergents, surfactants, or emulsifying agents to disperse fuel, oil, or other chemicals without the permission of the Regional Response Team.

Under the CWA regulations, a business that discharges wastewater directly to any surface water needs to obtain a National Pollutant Discharge Elimination System (NPDES) permit from Ohio EPA. The NPDES permit helps to maintain the quality of our surface waters by controlling the quantity and types of pollutants that can be discharged. The permit typically contains discharge ("effluent") limitations, monitoring and reporting requirements.

The Clean Water Act also includes regulations for companies that discharge wastewater to a local wastewater/sewage treatment plant (also called a "publicly owned treatment works" or POTW). These companies (called "indirect dischargers") are subject to pretreatment regulations under the CWA. If a company is discharging wastewater to a public treatment system, obtaining a permit and/or permission from the treatment facility for the discharge may be necessary.

Storm water runoff from certain industrial sites can also carry pollutants directly to surface waters. In 1987 the CWA was amended to include regulations for controlling storm water runoff from certain industrial sites. Companies subject to these regulations must obtain a storm water permit and develop a storm water management plan.

Under the Clean Water Act, anyone who wishes to discharge dredged or fill material into waters of the United States must obtain a Section 404 permit from the U.S. Army Corp of Engineers and a water quality certification (called a Section 401 certification) from Ohio EPA. Activities that may be regulated include: construction or clearing in a wetland area, erosion protection, dredging, ditching or altering a stream.

Many different agencies administer the CWA including the U.S. Coast Guard and U.S. EPA. Ohio EPA's Division of Surface Water is responsible for the Clean Water Act programs in Ohio. The U.S. Army Corp of Engineers is responsible for Section 404 permits for dredged/fill material activities.

Oil Pollution Act of 1990

The Oil Pollution Act of 1990 (OPA 90) was passed in 1990 and amended the FWPCA and CWA. This law increased the spiller’s liabilities and responsibilities and increased penalties for a violation of the Act.

Revised August 26, 2004

Chapter 20: Regulatory Agencies and Their Jurisdictions

This chapter outlines the various federal and state agencies that you may interact with on marina-related compliance requirements. An overview of each agency and their main responsibilities is provided. In addition, contact information for each agency, including addresses and Web sites is also provided.

Federal Agencies

U.S. Environmental Protection Agency (U.S. EPA)

The U.S. EPA is responsible for ensuring that environmental protections are considered in U.S. policies concerning economic growth, energy, transportation, agriculture, industry, international trade, and natural resources; ensuring national efforts to reduce environmental risk are based on the best available scientific information; and providing access to information on ways business, state and local governments, communities, and citizens can prevent pollution and protect human health and the environment.

Contact Information:

U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460
(202) 272-0167
http://www.epa.gov

U.S. Environmental Protection Agency
Region 5
77 W. Jackson Blvd.
Chicago, IL 60604
(312)353-2000
http://www.epa.gov

National Oceanic and Atmospheric Administration (NOAA)

The mission of the NOAA, an agency within the U.S. Department of Commerce, is to describe and predict changes in the earth's environment and to conserve and wisely manage the nation's coastal and marine resources to ensure sustainable economic opportunities. NOAA provides a wide range of observational, assessment, research, and predictive services for estuarine and coastal ocean regions. NOAA has developed an array of programs to address national-scale estuarine issues and specific problems affecting individual estuarine and coastal ocean systems. In partnership with EPA, NOAA implements the Coastal Zone Act Reauthorization Amendments of 1990.

Contact Information: National Oceanic and Atmospheric Administration
14th Street & Constitution Avenue, NW
Washington, D.C. 20230
Phone: (202) 482-6090
Fax: (202) 482-3154
http://www.noaa.gov

United States Army Corps of Engineers (USACE)

The USACE is responsible for ensuring adequate flood control, hydropower production, navigation, water supply storage, recreation, and fish and wildlife habitat. The USACE contracts and regulates coastal engineering projects, particularly harbor dredging and beach renourishment projects. They also review and permit coastal development and artificial reef projects.

The majority of marina development and expansion projects, including dredging, will require a permit from the USACE. Section 10 of the Rivers and Harbors Act of 1899 gives the USACE authority to regulate all work and structures in navigable waters of the United States. Section 404 of the Federal Water Pollution Control Act (a.k.a. Clean Water Act) regulates discharges of dredged or fill materials into navigable waters, including wetlands.

If a USACE Section 404 permit is required, the Ohio EPA must investigate the site prior to construction. Ohio EPA will document and evaluate water quality and the potential for pollution and adverse effects to living resources caused by marina siting and construction. The purpose of the Water Quality Certification process is to certify that federally permitted activities will not violate Ohio's water quality standards. The Water Quality certification issued by Ohio EPA is then incorporated into the federal permit.

Contact Information: U.S. Army Corp of Engineers, Headquarters
441 G. Street, NW
Washington, DC 20314
202-761-0008
http://www.hq.usace.army.mil/hqhome/

For the USACE, the Buffalo District covers all of Lake Erie.

Contact Information: U.S. Army Corps of Engineers
Buffalo District
1776 Niagara St.
Buffalo, NY 14027
(716)879-4104
http://www.lrb.usace.army.mil/

Regulatory Program
Home Page: http://www.lrb.usace.army.mil/orgs/reg/index.htm

United States Coast Guard

The U.S. Coast Guard enforces all federal pollution regulations in the coastal zone of the United States. In addition, the Coast Guard protects life and property on the navigable waters of the United States and provides both homeland and maritime security. They promote maritime safety and enforce maritime law, tend all Federal navigation aids, and regulate and monitor recreational and commercial vessels and waterfront facilities.

Contact Information:

Coast Guard Headquarters
Commandant, U.S. Coast Guard,
2100 Second Street, SW,
Washington, DC 20593
General Information
Telephone: 202-267-2229
http://www.uscg.mil/USCG.shtm

For the Coast Guard, the Ninth District of the Coast Guard has it's headquarters in Cleveland and covers all of the Great Lakes.

USCG MSO Cleveland
1055 East Ninth Street
Cleveland, OH 44114
Telephone: 216-937-0111
http://www.uscg.mil/d9/uscgd9.html

State Agencies

Ohio Department of Natural Resources (ODNR)

The mission of the ODNR is "to ensure a balance between wise use and protection of our natural resources for the benefit of all." A department of incredible diversity, ODNR owns and manages more than 470,000 acres of land including 74 state parks, 20 state forests, 123 state nature preserves, and 96 wildlife areas. The department also has jurisdiction over more than 120,000 acres of inland waters; 7,000 miles of streams; 481 miles of Ohio River; and 2-1/4 million acres of Lake Erie.

In addition, ODNR licenses all hunting, fishing, and watercraft in the state and is responsible for overseeing and permitting all mineral extraction, monitoring dam safety, managing water resources, coordinating the activity of Ohio's 88 county soil and water conservation districts, mapping the state's major geologic structures and mineral resources, and promoting recycling and litter prevention through grant programs in local communities. In particular, the Division of Watercraft administers the federal Clean Vessel Act Pumpout Grant Program to provide funding for the construction and/or renovation of marine pumpout and dump station facilities.

Contact Information: Ohio Department of Natural Resources
Fountain Square
Columbus, Ohio 43224
http://www.dnr.state.oh.us/

Coastal Management: Coastal NPS Coordinator
Division of Soil and Water Conservation
105 West Shoreline Drive
Sandusky, Ohio 44870
(419) 609-4102 phone
(419) 609-4158 fax
http://www.dnr.state.oh.us/coastal/

Ohio Department of Health (ODH)

Marinas in Ohio are regulated by their local boards of health under the authority of the Ohio Department of Health. A marina is defined as a boat basin that has docks or moorings for seven or more watercraft. The rules apply uniformly, throughout the state, affecting the location, development, operation, and maintenance of marinas to assure that such marinas provide adequate sanitary facilities for the watercraft using them and do not cause a nuisance or health hazard.

Contact Information: Ohio Department of Health
246 North High Street
Columbus, OH 43215 (614)
466-1390
http://www.odh.state.oh.us/

Ohio Environmental Protection Agency (Ohio EPA)

The mission of Ohio EPA is to protect the environment and public health by ensuring compliance with environmental laws and demonstrating leadership in environmental stewardship. The role of the Ohio EPA is to protect human health and the environment by establishing and enforcing standards for air quality, drinking water and stream water quality, wastewater treatment, and solid and hazardous waste disposal, and to provide comprehensive environmental education.

These roles are carried out through: issuing permits to install and operate facilities; providing oversight through inspections and sampling; monitoring and reporting on environmental quality; providing environmental education and technical assistance to industry and the general public; providing assistance in pollution prevention; and taking enforcement actions against violators. Loans and grants are provided for nonpoint source water pollution control and for some environmental infrastructure, such as sewage and drinking water treatment plants.

Contact Information: Ohio Environmental Protection Agency
122 S. Front Street
Columbus, Ohio 43215
(614) 644-3020
http://www.epa.state.oh.us

Ohio Department of Commerce:

Ohio State Fire Marshal (SFM) Code Enforcement Bureau

The State Fire Marshal's mission is as follows: "Division activities focus on education, research, regular enforcement in the area of fire safety and fire prevention. The Code Enforcement Bureau's mission is to inspect all buildings, structures and other places, the condition of which is or may be dangerous from a fire safety standpoint to life or property. The Code Enforcement Bureau is responsible for enforcement of the Ohio Fire Code which includes flammable and combustible liquid storage tanks The storage of Flammable and Combustible liquids (AST's and those underground tanks exempt from OAC 1301:7-9 *Bureau of Underground Storage Tank Regulations)* is regulated by Chapter 28 of the Ohio Fire Code.

These roles are carried out through: issuing permits and providing oversight through inspections during these permit related endeavors and by providing fire safety education and technical assistance to the industry and the general public; and by taking enforcement actions against code violators.

Service stations with AST's at marinas in Ohio are regulated by the Ohio Fire Code, Chapter 28 and referenced standards NFPA 30 and NFPA 30A. Permits are required to be applied for through the Code Enforcement Bureau, if the local fire jurisdiction does not issue permits for installation, removal and alteration of AST's.

Contact Information: State Fire Marshal
Code Enforcement Bureau
6606 Tussing Rd.
Reynoldsburg, Ohio 43068
Contact: Lynn French
(614) 728-5460
www.com.state.oh.us

Ohio State Fire Marshal (SFM) Bureau of Underground Storage Tank Regs.

The mission of the Bureau of Underground Storage Tank Regulations (BUSTR) is to "effectively regulate the safe operation of underground storage tanks (USTs) and to ensure the appropriate investigation and cleanup of releases from USTs for the purpose of protecting human health and the environmental for the citizens of Ohio." BUSTR regulates most USTs containing petroleum and hazardous substances, though there are some USTs, such as heating oil tanks, that are deferred from the BUSTR program. BUSTR derives its authority and carries out its responsibilities through 40 CFR Part 280, Ohio Revised Code 3737.88 and Ohio Administrative Code 1301:7-9.

BUSTR came into existence in 1987 and currently oversees a tank universe of approximately 24,900 USTs located at 8,700 facilities state wide. BUSTR views most marina environments as "sensitive areas" and requires USTs in these areas to have additional measures of protection such as double walled containment systems and more elaborate leak detection systems. In the event of a release from an UST in a sensitive area, owners must abide by clean up standards that are more stringent than is required in other areas.

Contact Information:

State Fire Marshal
Bureau of Underground Storage Tank Regulations
8895 East Main Street
P.O. Box 687
Reynoldsburg, Ohio 43068
(614) 752-7938
www.com.state.oh.us

Revised: March 9, 2004

Selected References

California Coastal Commission, "Boating Clean and Green Campaign," web site: http://www.coastal.ca.gov/ccbn/ccbndx.html .

Clean Texas Marina Advisory Board, "Clean Texas Marina Program," web page: http://www.cleanmarinas.org/ .

Connecticut Department of Environmental Protection, "Connecticut's Clean Marina Program," web site: http://dep.state.ct.us/olisp/cleanmarina/index.htm .

Delaware Department of Natural Resources and Environmental Control, "Delaware Clean Marina Program," web page: http://www.dnrec.state.de.us/dnrec2000/divisions/soil/dcmp/ipcleanmarina.htm .

Florida Department of Environmental Protection, "Clean Marina Program," web page: http://www.dep.state.fl.us/law/Grants/CMP/default.htm .

Maryland Department of Natural Resources, "Maryland Clean Marina Guidebook," web site: http://www.dnr.state.md.us/boating/ .

New Hampshire Department of Environmental Services, "Pollutions Prevention Program," web site: http://www.des.state.nh.us/nhppp/marinas.htm .

Office of Ocean and Coastal Resource Management, "Clean Marina Initiative," National Oceanic and Atmospheric Administration, U.S. Department of Commerce, web site with links to other clean marina program: http://cleanmarinas.noaa.gov/ .

United States Environmental Protection Agency, "Landscaping with Native Plants," web site: http://www.epa.gov/greenacres/ .

Virginia Coastal Program, Department of Environmental Quality, "Virginia Clean Marina Program," web site: http://www.deq.state.va.us/vacleanmarina/ .

APPENDIX

MATERIALS

APPENDIX A
Ohio's Environmental Audit Privilege Law

If during your self audit you discover that you are in violation of one or more environmental state statutes or regulations at your marina, you may be able to use the Ohio Environmental Audit Privilege Law to bring your marina into compliance without penalty.

The Ohio Environmental Audit Privilege Law was passed in 1997. The goal of the law is to enhance protection of human health and the environment by encouraging regulated entities to voluntarily discover, promptly disclose and expeditiously correct violations of environmental laws.

Under the terms of the law the owner or operator of a facility can perform a voluntary self-evaluation ("audit") to improve operations and identify areas of noncompliance with environmental laws. The current audit privilege can be found in Ohio Revised Code chapters 3745.70 through 3745.73.

To be eligible for the audit privilege, the company must disclose information promptly after the audit is completed. The information must be submitted to the director of the state agency that has jurisdiction over the violation. The specific information that must be in the disclosure includes:

1) The name, address, and telephone number of the owner or operator making the disclosure;

2) The name, title, address, and telephone number of one or more persons associate with the owner or operator who may be contacted regarding the disclosure;

3) A brief summary of the alleged violation which includes the nature, date and location of the violation; and

4) A statement that the information is part of an environmental audit report and is being disclosed under Section 3745.72 of the Revised Code.

In addition, the company must make a good faith effort to achieve compliance as quickly as practical after the violations are discovered.

The privilege allows a company to perform an audit without fear that the information will later be used in a suit against them. If the audit is properly performed in accordance with the law, the company will receive immunity from civil penalties for violations disclosed. However, immunity from civil penalties does not apply to any economic benefit derived as a result of the company's noncompliance.

A company is not eligible for the audit privilege if the audit is required to be conducted by law, prior litigation or an order by a court or a government agency. If a government agency has already commenced an investigation or enforcement action that concerns a violation of environmental laws, the company's self disclosure is not eligible for the audit privilege. In addition, if a company has committed significant environmental violations or has a pattern of continuous or repeated violations within a three-year period prior to disclosure, it is not eligible for the audit privilege.

See Attachments A and B for example disclosure letters.

Attachment A
Example
Audit Disclosure Letter

<Date>

Christopher Jones, Director
Ohio Environmental Protection Agency
Lazarus Government Center
122 South Front Street
Columbus, Ohio 43215

RE: Disclosure of Environmental Audit Information

Dear Director Jones:

Pursuant to Ohio Revised Code 3745.72, I am writing to disclose information discovered by the ABC Company during a voluntary environmental audit of the facility, located at 123 Main Street, Anytown, Ohio 43333.

Specifically, ABC Company has determined that it failed to submit an annual hazardous waste generator report to Ohio EPA as required by Ohio Administrative Code Chapter 3745-52. ABC Company has failed to complete this annual report from 1999 to present. Prior to 1999, the company was not operating as a large quantity generator and, therefore, these reports were not required.

It is our intent to achieve compliance as quickly as possible. We will be submitting annual reports for these years to Ohio EPA within the next 15 days.

The information contained in this letter was the result of an environmental audit and is being disclosed in order to obtain immunity from civil penalties under Ohio Revised Code 3745.72. As required by ORC 3745.72, I am also supplying you with the following information:

(1) The name, address, and telephone number of the owner or operator making the disclosure:

John Smith
ABC Company
123 Main Street
Anytown, Ohio 43333
333-333-3333

(2) The name, title, address, and telephone number of one or more persons associate with the owner or operator who may be contacted regarding the disclosure:

Bruce Brown (co-owner)
ABC Company
123 Main Street
Anytown, Ohio 43333
Tel: 333-333-3333

If you have any questions or require additional information, please feel free to contact me by mail or phone at 333-333-3333.

Sincerely,

John Smith
ABC Company

Attachment B
Example Letter
Environmental Audit Disclosure

<Date>

Christopher Jones, Director
Ohio Environmental Protection Agency
Lazarus Government Center
122 South Front Street
Columbus, Ohio 43215

RE: Disclosure of Environmental Audit Information

Dear Director Jones:

On behalf of ABC Company, this letter serves to promptly and voluntarily disclose ABC Company's noncompliance with certain environmental laws. This disclosure is being made as a result of an environmental audit of ABC Company, conducted on January 1, 2004 by a local environmental consulting firm. As a result of the audit, ABC's noncompliance consists of:

1. Failure to submit a Notice of Intent (NOI) application and obtain an NPDES permit for storm water discharges associated with the facility. The company also failed to complete a storm water pollution prevention plan as required under the Clean Water Act and regulations adopted thereunder (40 CFR 122, OAC 3745-38);

2. Failure to obtain a permit-to-install and permit-to-operate for a paint spray booth that was constructed at the site approximately 12 months ago as required under the Clean Air Act and rules adopted thereunder (OAC 3745-31, 3745-35);

3. Failure to conduct annual personnel training for all hazardous-waste related employees under the hazardous waste generator regulations for the years 2002 and 2003. Specifically, ABC failed to include a newly hired employee in the training program. These training requirements are required pursuant to RCRA and the regulations adopted thereunder (OAC 3745-52).

The disclosure of noncompliance has been made promptly upon discovery and receipt of the environmental audit report, and ABC Company is making a good faith effort to achieve compliance as quickly as practicable. In this regard, ABC Company will do the following within (30) days):

1. Submit appropriate NOI application form(s) to Ohio EPA to obtain a storm water permit for the facility and develop a Storm Water Pollution Prevention Plan.

2. Submit permit-to-install and permit-to-operate application forms for the paint spray booth and associated equipment to Ohio EPA.

3. Conduct hazardous waste personnel training for all new personnel and maintain records of this training.

The information contained in this letter is being disclosed in order to obtain immunity from civil penalties under Ohio Revised Code 3745.72. This disclosure is being made by:

John Smith
ABC Company
123 Main Street
Anytown, Ohio 43333
333-333-3333

and

Bruce Brown (co-owner)
ABC Company
123 Main Street
Anytown, Ohio 43333
Tel: 333-333-3333

If you have any questions or require additional information, please feel free to contact me by mail or phone at 333-333-3333.

Sincerely,

John Smith
ABC Company

APPENDIX B
Hazardous Waste Generator Categories and Regulatory Summary

Conditionally Exempt Small Quantity Generator (CESQG)

A company is a conditionally exempt small quantity generator if, in a calendar month it:

- generates no more than 220 pounds (100 kg) of hazardous waste; or
- generates no more than 2.2 pounds (1 kg) of acutely hazardous waste.

CESQGs

- Cannot accumulate more than 2,200 pounds of hazardous waste (or 1,000 kg) on the property at any time. If more than this quantity is accumulated on-site, the company becomes subject to the small quantity generator requirements.
- Must evaluate all wastes to determine if they are hazardous and keep waste evaluation information in-file.
- Send all hazardous wastes to an Ohio EPA permitted hazardous waste disposal facility.

Small Quantity Generator (SQG)

A company is a small quantity generator if, in a calendar month it:

- generates no more than 220 and less than 2,200 pounds (100 to less than 1,000 kg) of hazardous waste; or
- generates no more than 2.2 pounds (1 kg) acutely hazardous waste.

SQGs

- Cannot accumulate more than 13,200 pounds (6,000 kg) of hazardous waste on the property at any time. If more than this quantity is accumulated, the company becomes subject to the hazardous waste storage facility requirements.
- May only accumulate hazardous waste on-site for up to 180 days or for up to 270 days if the generator has to transport hazardous waste to an off-site facility that is over 200 miles away.
- Must evaluate all wastes to determine if they are hazardous and keep waste evaluation information in-file.
- Must obtain an EPA identification number from Ohio EPA
- Can only store hazardous waste in tanks or containers.
- Must follow requirements for container storage (keeping containers closed, in good condition, away from ignition sources, etc.).
- Must maintain adequate aisle space between hazardous waste drums in storage area.
- Must follow container labeling, dating and inspection requirements.
- Must have adequate emergency communication and response equipment.
- Must designate an emergency coordinator and post emergency information by the telephone.
- Must make sure employees are familiar with waste handling and emergency response procedures.
- Operate the facility to minimize the possibility of a spill or release.
- Complete shipping manifests and land disposal restriction documents for Waste shipments off-site.
- If storing hazardous waste in tanks, comply with the hazardous waste tank standards.

Large Quantity Generator (LQG)

A company is a large quantity generator if, in a calendar month it:

- generates over 2,200 pounds (1,000 kg) of hazardous waste; or
- generates more than 2.2 pounds (1 kg) of acutely hazardous waste.

LQGs

- May only accumulate hazardous waste on-site for up to 90 days. In other words, once a hazardous waste is generated, it may not be kept on plant-site for more than 90 days.
- Must evaluate all wastes to determine if they are hazardous and keep waste evaluation information in-file.
- Must obtain an EPA identification number from Ohio EPA
- Can only store hazardous waste in tanks or containers.
- Must follow requirements for container storage (keeping containers closed, in good condition, away from ignition sources, etc.).
- Must maintain adequate aisle space between hazardous waste drums in storage area.
- Must follow container labeling, dating and inspection requirements.
- Must have adequate emergency communication and response equipment and test to ensure proper operation.
- Operate the facility to prevent a release or spill of hazardous waste.
- Must have an emergency coordinator and develop a written hazardous waste contingency plan.
- Must have a personnel training program.
- Complete shipping manifests and land disposal restriction documents for hazardous waste shipments off-site.
- Must submit an annual hazardous waste report to Ohio EPA.
- If storing hazardous waste in tanks, comply with the hazardous waste tank standards.
- When ceasing operation of a hazardous waste management unit, decontaminate and remove all contaminated equipment, structures, and soil, and minimize the need for further maintenance of your site. Meet unit-specific closure standards for tanks, containment buildings, and drip pads.

KEY: 100 kilogram = 220 pounds = 25 gallons

APPENDIX C
Ohio EPA: Office of Pollution Prevention
Antifreeze Recycling Services

The following list identifies companies that provide antifreeze recycling services. Services may include on-site pick-up and transportation to a recycling facility or actual on-site recycling with recovered antifreeze being returned to the customer. Service areas may be limited and minimum quantities may apply. Please note that this list is only a partial representation of providers and is updated periodically. This list should not be seen as an endorsement or approval of the businesses by Ohio EPA. Users of this list are encouraged to research the compliance status of any business they utilize. For additional information, contact Ohio EPA, Office of Pollution Prevention at (614) 644-3469 or visit OPP's Web site at www.epa.state.oh.us/opp/wastex.html.

Company Name

American Energy Products of Indiana, Inc.
375 Columbus Road
Mount Vernon, Ohio 43050
Telephone: (800) 201-0988

American Energy Products of Indiana, Inc.
310 Huron Street
Elyria, Ohio 44035
Telephone: (800) 322-6139

Colyeco, Inc.
P.O. Box 60064
Harrisburg, PA 17106
Phone: (717) 232-1122

Crystal Clean/Petroleum Management
3970 West 10th Street
Indianapolis, Indiana 46222
Phone: (800) 769-7622

Dickinson Antifreeze Recycling
975 Plymouth East Road
Greenwich, OH 44837
Phone: (419) 752-2691

EnviroFreeze Inc.
9009 Quince Street
Henderson, CO 80640
Phone: (303) 289-7227

First Recovery
3737A Fisher Road
Columbus, Ohio 43228
Phone: (800) 545-3520

Glycol Specialists. Inc.(GSD)
5915 N. Broadway
Denver, Colorado 80216
Phone: (303) 292-2000

Hi-Tech Antifreeze Recycling & Recovery
RR2, Box 2528
Brewick, PA 18603
Phone: (717) 759-7843

Max-Tech Antifreeze Recycling
P.O. Box 345
Toledo, OH 43697
Phone: (800) 360-6299

Research Oil
2777 Rockefeller Avenue
Site Address: 2655 Transport Road
Cleveland, Ohio 44115
Phone: (216) 623-8383

R. Harris Services
1440 Harding Avenue
Hershey, PA 17033
Phone: (717) 533-6353

Safety Kleen
581 Milliken Dr. SE
Hebron, Ohio 43025-9687
Phone: (740) 929-3532

TDA Antifreeze Recycling
Phone: (800) 587-4009
Fax: (614) 587-2280

APPENDIX D
Ohio EPA: Division of Hazardous Waste Management
Ohio Commercial Facilities Accepting Hazardous Waste

The following is a list of commercial facilities in Ohio accepting hazardous waste. Users should contact each facility for a complete description of services. Users should also check the compliance status of the facility they work with. For additional information, contact Ohio EPA's Division of Hazardous Waste Management at (614) 644-2917.

Company Name

Ashland Distribution Co.
2854 Springboro Road
Dayton, Oh 45439
(800)637-7922
Storage/Transfer

Chemical Solvents
1010 Denison Ave.
Cleveland, OH 44109
(216) 741-9310
Solvent Recycling, Fuel Blending

Chemtron Corporation
35850 Scheneider
Avon, Ohio 44011
(800)676-5091
Solvent Recycling, Fuel Blending,
Mercury Recovery

Clean Harbors
4879 Spring Grove
Cincinnati, Ohio 45232
(513)681-5738
Fuel Blending, Stabilization, Aqueous
Treatment

Clean Harbors of Cleveland
2900 Broadway
Cleveland, Ohio 44115
(216)429-2402

Detrex Corporation
1410 Chardon Road
Euclid, Ohio 44117
(216)692-2464
Storage/Transfer

Envirite of Ohio Inc
2050 Central Ave. SE
Canton, Ohio 44707
(330)456-6238
Chemical Precipitation, Chemical Treatment

Environmental Enterprises
4650 Spring Grove
Cincinnati, Ohio 45232
(513)541-1823
Fuel Blending, Treatment, Stabilization

Environmental Purification
2111 Champlain Street
Toledo, Ohio 43611
(419)727-0495
Thermal Treatment

Envirosafe Services of Ohio
876 Otter Creek Road
Oregon, Ohio 43616
(419)698-3500
Landfill

Hukill Chemical
7013 Krick Road
Bedford, Ohio 44146
(440)232-9400
Fuel Blending, Solvent Recycling

Klor Kleen Inc.
3118 Spring Grove Ave.
Cincinnati, Ohio 45225
(513)681-0060
Storage/Transfer

Onyx Environmental Recycling
4301 Infirmary Road
West Carrollton, Ohio 45449
(937)859-6101
Fuel Blending, Solvent Recycling

Perma-Fix of Dayton
300 S. West End Ave.
Dayton, Ohio 45247
(937)268-6501
Storage/Transfer, Aqueous Treatment

General Environmental Management
2655 Transport Road
Cleveland, Ohio 44115
(216)621-3694
Aqueous Organic & Inorganic Treatment

Reserve Environmental Services
4633 Middle Road
Ashtabula, Ohio 44004
(440)992-2162
Chemical Precipitation

Ross Incineration
36790 Giles Road
Grafton, Ohio 44044
(440)748-2200
Incineration Services

Safety Kleen
581 Milliken Drive SE
Hebron, Ohio 43025
(740)929-3532
Solvent Recycling

Systech Environmental Corp.
11397 CO. RD. 176
Paulding, Ohio 45879
(419)399-4835
Fuel Blending

Von Roll America Inc.
1250 Saint George St.
East Liverpool, Ohio
(330)385-7336
Incineration

Vickery Environmental
3956 State Route 412
Vickery, Ohio 43464
(419)547-7791
Underground Injection

Re-Gen Inc.
1040 Pine Ave. SE
Warren, Ohio 44481
(330)841-8200
Acid Regeneration

APPENDIX E
Ohio EPA: Office of Pollution Prevention
Commercial Used Oil Marketers and Recyclers

The used oil processors/handlers below were obtained from the list of companies that have notified Ohio EPA as used oil marketers. Please note that this list is only a partial representation of recyclers and is updated periodically. This list should not be seen as an endorsement or approval of the businesses by Ohio EPA. Users of this list are encouraged to research the compliance status of any business they utilize. For additional nformation, contact Ohio EPA, Office of Pollution Prevention at (614) 644-3469 or visit OPP's Web site at www.epa.state.oh.us/opp/wastex.html.

Company Name

American Energy Products
of Indiana, Inc.
375 Columbus Road
Mount Vernon, Ohio 43050
Telephone: (800) 201-0988
Fax: (740) 397-3943

American Energy Products
of Indiana, Inc.
310 Huron Street
Elyria, Ohio 44035
Telephone: (800) 322-6139
Fax: (440) 322-4520

Best Solutions Environmental, Inc.
120 Citycentre Drive, Box 7
Cincinnati, Ohio 45216
Telephone: (513) 821-2600
Fax: (513) 821-2649

Central Ohio Oil, Inc.
795 Marion Rd.
Columbus, Ohio 43027
Telephone: (614) 443-9728
Fax: (614) 444-5552

Chemical Solvents, Inc.
1010 Old Deinson Ave.
Cleveland, Ohio 44109
Telephone: (216) 741-9310
Fax: (216) 741-4080

Clean Harbors
2940 Independence Road
Cleveland, Ohio 44115
Telephone: (216) 429-2402
Fax: (216) 883-1918

Cousins Waste Control Corp.
1801 East Matzinger Road
Toledo, Ohio 43612
Telephone: (419) 726-1500
Fax: (419) 729-8501

DISC Environmental Service. Inc.
151 E. Andrus Rd.
P.O. Box 530
Walbridge, OH 43465
Telephone: (419) 691-3451
Fax: (419) 691-4390

First Recovery
3737A Fisher Rd.
Columbus, Ohio 43228
Telephone: (800) 545-3520
Fax: (800) 362-1494

Hazleton Oil Salvage
Route 309
Hazleton, PA
Telephone: (800) 458-3496

Heritage Environmental Services
2851 South Ave.
Toledo, Ohio 43609
Telephone: (419) 389-1451
Fax: (419) 389-1702

Hukill Chemical Corporation
7013 Krick Rd.
Bedford, Ohio 45430
Telephone: (440) 232-9400
Fax: (440) 232-9477

Peerless Oil Service
P.O. Box 173
North Olmsted, Ohio 44070
Telephone: (216) 777-6629

Perma-Fix, Inc.
300 5. West End Ave.
Dayton, Ohio 45427
Telephone: (513) 268-6501
Fax: (937) 268-5734

Petroleum Products, Inc.
4608 Central College Rd.
Westerville, Ohio 43081
Phone: (614) 882-2278

Petroleum Products, Inc.
628 Keen St.
Zanesville, Ohio 43701
Telephone: (614) 855-3934
Fax: (614) 855-7407

Research Oil
2655 Transport Rd.
Cleveland, Ohio 44115
Telephone: (2l6) 623-8383
Fax: (216) 623-8424

Safety Kleen Corp
4465 Marketing P1.
Groveport, Ohio 43125
Telephone: (614) 836-2505
Fax: (614) 836-1336

Systech Environmental Corporation
11397 Road 176
Paulding, Ohio 45879
Telephone: (419) 399-4835
Fax: (419) 399-4876

Commercial Ulman Lubricants Co.
2846 E. 37th St.
Cleveland, Ohio 44115
Telephone: (216) 441-7200
Fax: (216) 441-7205

APPENDIX F
Ohio EPA: Office of Pollution Prevention
Used Oil Filter Transportation and Recycling Services

The companies listed below provide used oil filter transportation or recycling services in Ohio. Please note that this list is only a partial representation of companies, and it should not be seen as an endorsement or approval of the businesses by Ohio EPA. Users of the list are encouraged to research the compliance status of any business they utilize. For additional information, contact Ohio EPA, Office of Pollution Prevention at (614) 644-3469 or visit OPP's Web site at www.epa.state.oh.us/opp/wastex.html.

Company Name

Advanced Recycling Technology, Inc.
5238 Broadway
Lancaster, New York 14086
Telephone: (716) 681-7938

American Resource Recovery, Ltd.
P.O. Box 306
Maywood, Illinois 60153
Telephone: (800) 841-6900 or (708) 681-3999
Fax: (708) 681-5583

Crystal Clean Parts Washer Service
7817 West Morris Street
Indianapolis, Indiana 46231
Telephone: (317) 486-2770

Detrex Corporation
322 International Parkway
Arlington, Texas 76011
Telephone: (800) 727-6461
Fax: (817) 633-6834

Drug and Laboratory Disposal, Inc.
331 Broad Street
Plainwell, Michigan 49080
Telephone: (616) 685-9824
Fax: (616) 685-1130

Northeast Environmental Services, Inc.
732 Smithtown Bypass, Suite 200
Smithtown, N.Y. 11787
Telephone: (516) 724-9496
Fax: (516) 724-0184

Environmental Enterprises
10163 Cincinnati-Dayton Road
Cincinnati, Ohio 45241
Telephone: (513) 541-1823 or (800) 453-7230
Fax: (513) 541-1638

First Recovery- Ecoguard, Inc.
301 East Main Street
Lexington, Kentucky 40507
Telephone: (606) 357-7389

Key Environmental
287 Lackawanna Drive
Andover, New Jersey 07821
Telephone: (800) 821-9741

Liquid Waste Removal, Inc.
500 South Polk Street, Suite 100
Greenwood, Indiana 46142
Telephone: (317) 881-9754
Fax: (317) 889-0383

M & M Chemical & Equipment Company
1229 Valley Drive
Attalla, Alabama 35954
Telephone: (256) 538-3800
Fax: (256)541-1638

Metropolitan Diesel Supply, Inc.
18211 Weaver Street
Detroit, Michigan 48228
Telephone: (313) 272-6370
Fax: (313) 272-9280

Phillip Services Corporation
515 Lycaste St.
Detroit, Michigan 48214
Telephone: (313) 824-5534 or 5836
Fax: (313) 824-5423

Oil Filter Recyclers of Illinois
P.O. Box 72
Easton, Illinois 62633
Telephone: (309) 329-2131
Fax: (309) 329-2355

Research Oil Company
Site Address: 2655 Transport Road
Cleveland, Ohio 44115
Telephone: (216) 623-8383
Fax: (216) 623-8424

Safety-Kleen Corporation
1000 North Randall Road
Elgin, Illinois 60123
Telephone: (800) 669-5740

Tonawanda Tank Transport Service, Inc.
1140 Military Road
Buffalo, New York 14217
Telephone: (716) 873-9703
Fax: (716) 877-0227

Tri-Star Environmental, Inc.
257 West South
Salt Lake City, Utah 84115
Telephone: (800) 967-6993
Fax: (801) 269-0335

United Recyclers Services of Texas, Inc.
1340 Manufacturing Street
Dallas, Texas 75207
Telephone: (800) 886-5657 or (214) 748-5764
Fax: (241) 761-1039

APPENDIX G
Landscaping with Native Plants

Acknowledgement: This document is comprised of material from the U.S. Environmental Protection Agency web site for the Great Lakes region http://www.epa.gov/greenacres/nativeplants/factsht.html. Additional information is available on the web site.

Prior to the arrival of the first European settlers, the Midwestern landscape was made up of a variety of ecosystems, including tallgrass prairies, oak savannas, woodlands, and wetlands. These ecosystems were home to abundant birds, butterflies and other animals. Most of these areas have been transformed into the agricultural lands, urban centers, and industrial sites we see today. Few acres of the original landscapes remain. For example, approximately 65% of Illinois was originally tallgrass prairie. Today, less than 0.01% of the original prairie survives in small, scattered preserves. Other natural ecosystems have fared similarly.

After European settlement, people planted gardens with plants brought from their home country. They were tiny, comfortable garden plots set in a huge wilderness. Today, however, the reverse is true. Agricultural and garden plants introduced from all over the world dominate the landscape, while native plants are managed in small preserves. In recent years, natural landscaping - using native plants and plant communities in landscaping - has become more common.

What is a Native Plant?
Native plants (also called indigenous plants) are plants that have evolved over thousands of years in a particular region. They have adapted to the geography, hydrology, and climate of that region. Native plants occur in communities, that is, they have evolved together with other plants. As a result, a community of native plants provides habitat for a variety of native wildlife species such as songbirds and butterflies.

What is a Non-Native Plant?
Non-native plants (also called non-indigenous plants, invasive plants, exotic species, or weeds) are plants that have been introduced into an environment in which they did not evolve. Introduction of non-native plants into our landscape has been both accidental and deliberate. Purple loosestrife, for example, was introduced from Europe in the 1800's in ship ballast and as a medicinal herb and ornamental plant. It quickly spread and can now be found in 42 states.

In general, aggressive, non-native plants have no enemies or controls to limit their spread. As they move in, complex native plant communities, with hundreds of different plant species supporting wildlife, will be converted to a monoculture. This means the community of plants and animals is simplified, with most plant species disappearing, leaving only the non-native plant population intact.

For example, purple loosestrife colonizes wetland areas, replacing native plants unable to compete for available sunlight, water, and nutrients. Wetlands infested with purple loosestrife lose as much as 50% of their original native plant populations. This limits the variety of food and cover available to birds and may cause the birds to move or disappear from a region altogether.

Why Should I Use Native Plants?
Native plants provide a beautiful, hardy, drought resistant, low maintenance landscape while benefiting the environment. Native plants, once established, save time and money by eliminating or significantly reducing the need for fertilizers, pesticides, water and lawn maintenance equipment.

Native plants do not require fertilizers. Vast amounts of fertilizers are applied to lawns. Excess phosphorus and nitrogen (the main components of fertilizers) run off into lakes and rivers causing excess algae growth. This depletes oxygen in our waters, harms aquatic life and interferes with recreational uses.

Native plants require fewer pesticides than lawns. Nationally, over 70 million pounds of pesticides are applied to lawns each year. Pesticides run off lawns and can contaminate rivers and lakes. People and pets in contact with chemically treated lawns can be exposed to pesticides.

Native plants require less water than lawns. The modern lawn requires significant amounts of water to thrive. In urban areas, lawn irrigation uses as much as 30% of the water consumption on the East Coast and up to 60% on the West Coast. The deep root systems of many native Midwestern plants increase the soil's capacity to store water. Native plants can significantly reduce water runoff and, consequently, flooding.

Native plants help reduce air pollution. Natural landscapes do not require mowing. Lawns, however, must be mowed regularly. Gas powered garden tools emit 5% of the nation's air pollution. Forty million lawnmowers consume 200 million gallons of gasoline per year. One gas-powered lawnmower emits 11 times the air pollution of a new car for each hour of operation. Excessive carbon from the burning of fossil fuels contributes to global warming. Native plants sequester, or remove, carbon from the air.

Native plants provide shelter and food for wildlife. Native plants attract a variety of birds, butterflies, and other wildlife by providing diverse habitats and food sources. Closely mowed lawns are of little use to most wildlife.

Native plants promote biodiversity and stewardship of our natural heritage. In the U.S., approximately 20 million acres of lawn are cultivated, covering more land than any single crop. Native plants are a part of our natural heritage. Natural landscaping is an opportunity to reestablish diverse native plants, thereby inviting the birds and butterflies back home.

Native plants save money. A study by Applied Ecological Services (Brodhead, WI) of larger properties estimates that over a 20 year period, the cumulative cost of maintaining a prairie or a wetland totals $3,000 per acre versus $20,000 per acre for non-native turf grasses.

Replacing Your Lawn

- Proper soil preparation is the most important factor in the success of a native planting.
- Use a sod cutter (which can be rented) to remove sections of your existing lawn.
- Do not turn over the exposed soil. Disturbing the soil will expose weed seeds and encourage their growth. The weeds will compete with new native seedlings for nutrients, water, and sunlight.
- If you choose to use herbicides to remove existing vegetation, use a low toxicity, non-persistent herbicide such as glyphosate (sold under various brand names). Read the label and follow the manufacturer's instructions carefully.

Seeding vs. Transplants

- Sowing seeds is less expensive than landscaping with transplants. However, native plants grow slowly from seed, often not blooming until the third year. The first few years are spent growing long, extensive root systems. Weeds grow quickly. This is normal, so don't be discouraged.
- Transplants grow more quickly than seeds, often blooming in the first year. Keep your costs down by buying the smallest plants available. Space the plants one foot apart and mark for later identification.

Maintenance Tips

- Mulch with a weed-free material (e.g., clean straw) to keep the weeds down.
- Cut, rather than pull, weeds. Pulling weeds may damage the roots of young native plants. Pulling also disturbs the soil, encouraging weed growth.
- If you use seeds, keeping your landscaped area cut to 6 inches during the first year will help control weeds. Most seeded native flowers and grasses will not grow taller than 6 inches the first year.
- In many Midwestern natural areas controlled burns are necessary to clear away old vegetation and stimulate new growth. Nutrients from the ash nourish the soil. In a home landscape, however, fire is not advisable, and may be illegal next to a building or in an enclosed garden setting. Cutting and removing the debris from the area mimics the natural fire cycle. It exposes soil to the warmth of the sun and encourages growth. Cutting can be done in the spring or fall, or skip a few seasons. Each technique favors different plants and encourages diverse plant growth.

Which Plants Attract Birds and Butterflies?		
There are several species of native wildflowers and grasses that will attract particular birds and butterflies.		
For song birds: sunflowers*, blazing star*, white prairie clover, compass plant, prairie dock, big bluestem, little bluestem, sideoats grama, switch grass, prairie dropseed, downy serviceberry, hackberry, dogwood, juniper*, elderberry, and hawthorn*.	**For hummingbirds:** columbine, jewelweed*, native phlox*, native honey- suckle, and cardinal flower.	**For butterflies:** milkweed*, aster*, purple cone-flower*, blazing star*, native phlox*, black-eyed Susan*, dogbane*, New Jersey tea, coreopsis*, joe-pye weed*, goldenrod*, vervain*, and ironweed*.

**All species*

Helpful Hints

- Draw your landscaping plan on paper.
- Start out small, only do a little at a time. Consider converting infrequently used areas of your lawn to native plants.
- Talk to your neighbors about what you are doing. Relaying the benefits of natural landscaping may inspire others to try it.
- Consider putting up a sign (e.g., "Jane's Wildflower Garden"), or putting a border around your native garden to better define it. This will help neighbors feel more comfortable with a different approach to landscaping.
- Talk with local officials about landscaping ordinances you should be aware of (e.g. restrictions on vegetation height).

Questions to Ask When Buying Native Plants

1. Are the native plants locally grown or shipped in? Native plants which are locally grown are best suited to the regional climatic conditions.
2. Have the seeds been propagated in a nursery or collected from the wild? Seeds from the wild need to be protected so that we do not deplete our natural areas.
3. Will the native plants grow best in sun or shade? Survey your plot carefully.
4. What soil type is required? Is it sandy or loamy, wet or dry?
5. Which native plants grow well together? Call your local nature center or Heritage Program Office to find out about plant communities.
6. How long will it take seeds to germinate or plants to mature? The key to growing native plants is patience.

Will Native Plants Aggravate Allergies?
Many native flowers, such as asters, goldenrods, and milkweeds, are insect-pollinated, not wind-pollinated, and do not cause allergies. It is the pollen in the air that triggers allergic reactions. The plants responsible for many pollen allergens are not native to the Midwest (e.g., Kentucky bluegrass, Bermuda grass, orchard grass, redtop grass, and timothy grass). Native ragweed is one native plant which is highly allergenic.

Will Native Plants Attract Pests?
Unsecured garbage is the main attraction for most pests such as rodents and raccoons. Native landscaping is not. Native plants will attract butterflies and dragonflies; birds such as purple martins, hummingbirds, hawks, and swallows; mammals, including bats; amphibians such as frogs and salamanders; and insects because they provide shelter and food. In return, wildlife will help control pesky bugs such as mosquitoes. A single bat can eat 3,000 to 7,000 insects per night. Canada geese, also considered a pest in some regions, prefer short turf grass over taller native grasses.

Weed Laws
Some municipalities have "weed laws" to prevent unsightly or poorly maintained property. Natural landscaping does not pose the hazards that the weed laws are intended to address (e.g. problems with vermin). Fortunately, many municipalities are responding to the current trend toward natural landscaping. Some communities have modified weed laws to allow natural landscaping, but require a "setback" or buffer strip to make the landscape look planned. A few municipalities actively promote natural landscaping because of the environmental and economic benefits. Check with your municipal officials regarding weed laws in your area.

How to Calculate the Time Needed to Properly Water Your Lawn

This section is from United States Fish and Wildlife Service. “BayScaping to Conserve Water,” A Homeowner’s Guide. Annapolis, MD: U.S. Fish & Wildlife Service Chesapeake Bay Field Office and Alliance for the Chesapeake Bay.

To determine how long you should run your water sprinkler to apply 1 inch of water to your lawn, use the following method:

Place your sprinkler in the desired location and set up five equally sized cans or cartons at intervals away from the sprinkler. Place cans no farther than 5 feet apart.

Run your sprinkler for one hour.

After the elapsed time, collect the cans and pour the water into a single can.

Measure the depth of the water you have collected during the 60 minutes and divide the amount of collected water in inches by the number of cans (five) to determine the application rate on an inch(es)-per-hour basis. For example, if a sprinkler runs for 60 minutes and the total water collected from the five cans is 7.5 inches, the application rate
will be 1.5 inches per hour (7.5 inches per 60 minutes divided by five cans equals 1.5 inches per hour).

Therefore, to apply 1 inch of water, divide watering time by average depth to arrive at the number of minutes needed to apply 1 inch of water (60 minutes divided by 1.5 inches per hour equals 40 minutes needed to apply 1 inch).

Plant Lists

The following lists of native plants include some of the species that are commonly available in nurseries and are relatively easy to grow. They are directed towards individuals doing a modest first planting. For large projects, which can accommodate a wide variety of species, you may want to consider consulting a professional with expertise in natural landscaping.

The herbaceous plant lists are divided into plants which thrive in full sun, partial sun and shade. A general rule is that prairie species need full sun; savanna species will grow in partial shade (and many will grow as well, or better, in full sun); and woodland species will grow in shade. It is very important to check catalogs and nursery information before you buy, because plants also vary in their need for moisture.

FULL SUN	
Grasses:	
Big Bluestem	*Andropogon gerardii*
Little Bluestem	*Andropogon scoparius*
Sideoats Grama	*Bouteloua curtipendula*
Switch Grass	*Panicum virgatum*
Indian Grass	*Sorghastrum nutans*
Prairie Dropseed	*Sporobolus heterolepis*
Prairie Cord Grass	*Spartina pectinata*
Porcupine Grass	*Stipa spartea*
Forbs (flowers):	
Lead Plant	*Amorpha canescens*
Pasque Flower	*Anemone patens*
Heath Aster	*Aster ericoides*
Silky Aster	*Aster sericeus*
Cream Wild Indigo	*Baptisia leucophaea*
Sand Coreopsis	*Coreopsis lanceolata*
Prairie Coreopsis	*Coreopsis palmata*
Pale Purple Coneflower	*Echinacea pallida*
Rattlesnake Master	*Eryngium yuccifolium*
Prairie Smoke	*Geum triflorum*
Western (or Naked) Sunflower	*Helianthus occidentalis*
False Boneset	*Kuhnia eupatorioides*
Round Headed Bush Clover	*Lespedeza capitata*
Rough Blazing Star	*Liatris aspera*

Cylindrical Blazing Star	*Liatris cylindracea*
Pale Spiked Lobelia	*Lobelia spicata*
Wild Quinine	*Parthenium integrifolium*
Prairie Cinquefoil	*Potentilla arguta*
Gray Goldenrod	*Solidago nemoralis*
Riddell's Goldenrod	*Solidago reddellii*
Golden Alexanders	*Zizia aurea*
FULL SUN-PART SHADE	
Forbs:	
Nodding Wild Onion	*Allium cernuum*
Prairie Thimbleweed	*Anemone cylindrica*
Butterfly Weed	*Asclepias tuberosa*
Smooth Blue Aster	*Aster azureaus*
Sky Blue Aster	*Aster laevis*
New England Aster	*Aster novae-angliae*
White Wild Indigo	*Baptisia leucantha*
Showy Tick Trefoil	*Desmodium canadense*
Shooting Star	*Dodecatheon meadia*
Purple Coneflower	*Echinacea purpurea*
Wild Bergamot (Beebalm)	*Monarda fistulosa*
Foxglove Beard Tongue	*Penstamon digitalis*
Obedient Plant	*Physostegia virginiana*
Black-Eyed Susan	*Rudbeckia hirta*
Ohio Goldenrod	*Solidago ohiensis*
Spiderwort	*Tradescantia ohioensis*
Heart-Leaved Meadow Parsnip	*Zizia aptera*
Grasses:	
Common Wood Reed	*Cinna arundinacea*
Canada Wild Rye	*Elymus canadensis*
Virginia Wild Rye	*Elymus virginicus*
Fowl Meadow (Manna) Grass	*Glyceria striata*
Bottlebrush Grass	*Hystrix patula*

SHADE	
Woodland:	
Wild Columbine	*Aquilegia canadensis*
Jack-in-the-Pulpit	*Arisaema triphyllum*
Wild Ginger	*Asarum canadense*
Dutchman's Breeches	*Dicentra cucullaria*
Yellow Trout Lily	*Erythroniuim americanum*
Wild Geranium	*Geranium maculatum*
Virginia Waterleaf	*Hydrophyllum virginianum*
Virginia Bluebells	*Mertensia virginica*
Mayapple	*Podophyllum peltatum*
Solomon's Seal	*Polygonatum canaliculatum*
Bloodroot	*Sanguinaria canadensis*
Trillium	*Trillium spp.*
Oak Savanna:	
Big Bluestem Grass	*Andropogon gerardii*
Little Bluestem Grass	*Andropogon scoparius*
Shagbark Hickory	*Carya ovata*
New Jersey Tea	*Ceanothus americanus*
American Hazelnut	*Corylus americana*
Purple Love Grass	*Eragrostis spectabilis*
June Grass	*Koehleria cristata*
Rough Blazing Star	*Liatris aspera*
White Oak	*Quercus alba*
Bur Oak	*Quercus macrocarpa*
Black Oak	*Quercus velutina*
Indian Grass	*Sorghastrum nutans*
GENERALLY WET CONDITIONS	
Marsh:	
Swamp Milkweed	*Asclepias incarnata*
Blue Joint Grass	*Calamagrostis canadensis*
Sedges	*Carex sp.*

Spotted Joe-Pye Weed	*Eupatorium maculatum*
Common Boneset	*Eupatorium perfoliatum*
Rice Cut Grass	*Leersia oryzoides*
Common Water Horehound	*Lycopus americanus*
Dark Green Rush	*Scirpus atrovirens*
Great Bulrush	*Scirpus validus*
Prairie Cordgrass	*Spartina pectinata*
Common Cattail	*Typha latifolia*
Lake and Pond:	
Hornwort	*Ceratophyllum demersum*
Common Rush	*Juncus effusus*
Rice Cut Grass	*Leersia oryzoides*
Small Duckweed	*Lemna minor*
Pickerel Weed	*Pontederia cordata*
Common Arrowhead	*Sagittaria latifolia*

Natural Landscaping Resource List for Ohio

Disclaimer: The following list of nurseries, seed sources, landscape architects, ecologists, consultants, and contractors does not imply any endorsement or recommendation by the Federal Government. This is not a complete list of resources. It is intended only to be an aid to those seeking initial guidance on native landscaping.

Below is a list of potential sources where you may obtain further information.

B.C. Nursery, 4183 State Route 276, Batavia, OH 45103; (513) 724-9032. Specialize in fruit trees for wildlife.

Bostdorff's Greenhouse Acres, 18862 N. Dixie Highway, Bowling Green, OH 43402; (419) 353-7858.

Calico, Sage and Tyme, 115 Clay Street, Bowling Green, OH 43402; (419) 352-5417.

Earthscapes Nursery, 10403 State Route 48, Loveland, OH 45140; (513) 683-0144.

Klotz's Flower Farm, Napoleon Road, Bowling Green, OH 43402; (419) 353-8381.

Land Reformers, 35703 Loop Road, Rutland, OH 45775; (740) 742-3478. Sell 100 native species and grow 300 species. Specialize in native plants.

Oak Park Garden Center, 3131 Wilkens Road, Swanton, OH 43558; (419) 825-1438.

The Ohio Seed Co., 8888 Parson Road, Croton, OH 43013; (614) 879-8366. E-mail: dougwittman@agribiotech.com. Sell seeds for 34 native species.

Portage Valley Plant Company, 1343 Albon Road, Holland, OH 43528; (419) 865-5843. Wholesale only.

Seeds of the Tall Grasses, 1961 Buttermilk Hill Road, Delaware, OH 43015; (740) 369-5625. Specializes in native prairie seeds of Ohio.

Springbrook Gardens, Inc., P.O. Box 388, 6778 Helsley Road, Mentor, OH 44061-0388; (216) 255-3059. Wholesale only.

Vintage Gardens, 8305 Fremont Pike, Perrysburg, OH 43551; (419) 872-1617.

Additional Resources:

Cincinnati Wild Flower Preservation Society, 90005 Decima St., Cincinnati, OH 45242.

Cleveland Botanical Garden, 11030 East Blvd., Cleveland, OH 44106; Horticulture Information Line: (216) 721-0400. Website: www.cbgarden.com. Wildflower garden.

Cox Arboretum Metropark, 6733 Springboro Pike, Dayton, OH 45449; (513) 434-9005. Conservation Corner planted as native prairie, wet prairie and wetland.

"Making a Prairie Garden", Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Fountain Square, Columbus, OH 43224. Siting a prairie garden, planning, collecting seeds, preparation, planting, maintenance.

Ohio Department of Natural Resources, Natural Heritage Program, Fountain Square, Columbus, OH 43224; (614) 265-6464. Website: www.dnr.state.oh.us.

Ohio Native Plant Society, 6 Louise Dr., Chagrin Falls, OH 44022.

Native Plant Society of Northeastern Ohio, 2651 Kerwick Rd., University Heights, OH 44118.

Native Plants of Ohio, Bulletin 865, Ohio State University. Available online at ohioline.ag.ohio-state.edu.

"Ohio Natural Heritage Data Services", Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Fountain Square, Building F-1, Columbus, OH 43224.

"Rare Native Ohio Plants: 1994-1995 Status List", Ohio Department of Natural Resources, Division of Natural Areas and Preserves, Columbus, OH 43224. Available online at www.dnr.state.oh.us.

Stanley M. Rowe Arboretum, 4600 Muchmore Rd., Indiana Hill, OH 45243; (513) 561-5151. Native plants and conifers.

University of Nebraska, Department of Horticulture, 377K Plant Science Hall, Lincoln, NE 68583-0724; (402) 472-2854. Information about PrairieScapes: landscapes and gardens that help prevent pollution; environmentally sound landscaping for prairie region.

Wild Ones - Natural Landscapers, P.O. Box 23576, Milwaukee, WI 53223. Non-profit organization educating members on landscaping using native species with a chapter in Columbus. For more information visit the national homepage at www.for-wild.org.

United States Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604
(800) 621-8431
www.epa.gov/greenacres/
March 2000

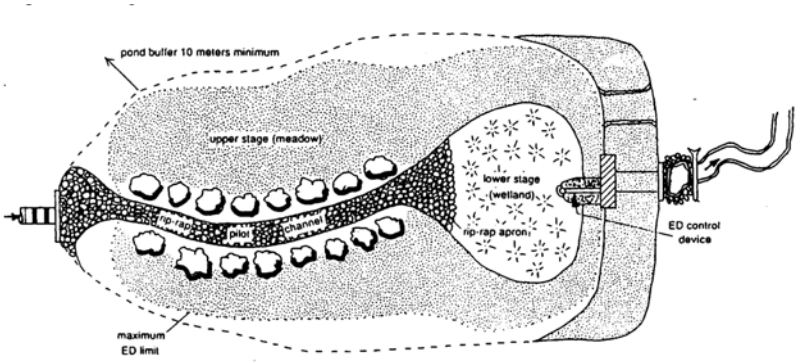
APPENDIX H
Structural Controls for Storm Water Management

Because of space limitations or other constraints, it may be necessary to adopt more traditional practices such as pond systems, wetland systems, infiltration systems, and filter systems for storm water management. Some examples of structural controls include:

Storm Water Pond Systems

Capture and slowly release storm flows. Ponds may be permanent (retention ponds) or may hold water only temporarily (detention ponds). A Dry Extended Detention pond is an example of a stormwater pond system *(see Figure1)*. Dry Extended Detention Ponds hold runoff for up to 24 hours after a storm. Water is slowly released through a fixed opening. The pond is normally dry between storms. This type of structure is effective for sites that are 10 acres or greater in size.

Figure 1. Dry Extended Detention Pond

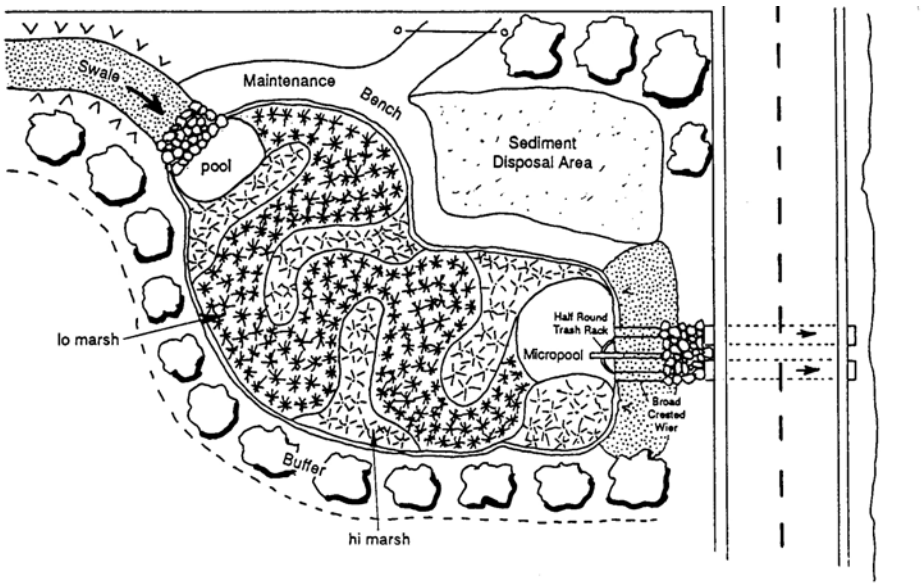


Source: Schueler, T.R. 1991. "Mitigating the Adverse Impacts of Urbanization on Streams: A Comprehensive Strategy for Local Governments," Proceedings of the National Conference Integration of Stormwater and Local Nonpoint Source Issues. Northern Illinois Planning Commission.

Storm Water Wetland Systems

Designed to mimic the ability of natural wetlands to cleanse and absorb storm flows. A Pocket Wetland *(see Figure 2)* is created by excavating to the high water table elevation. Pocket wetlands can serve drainage areas of 5 to 10 acres.

Figure 2. Pocket Wetland



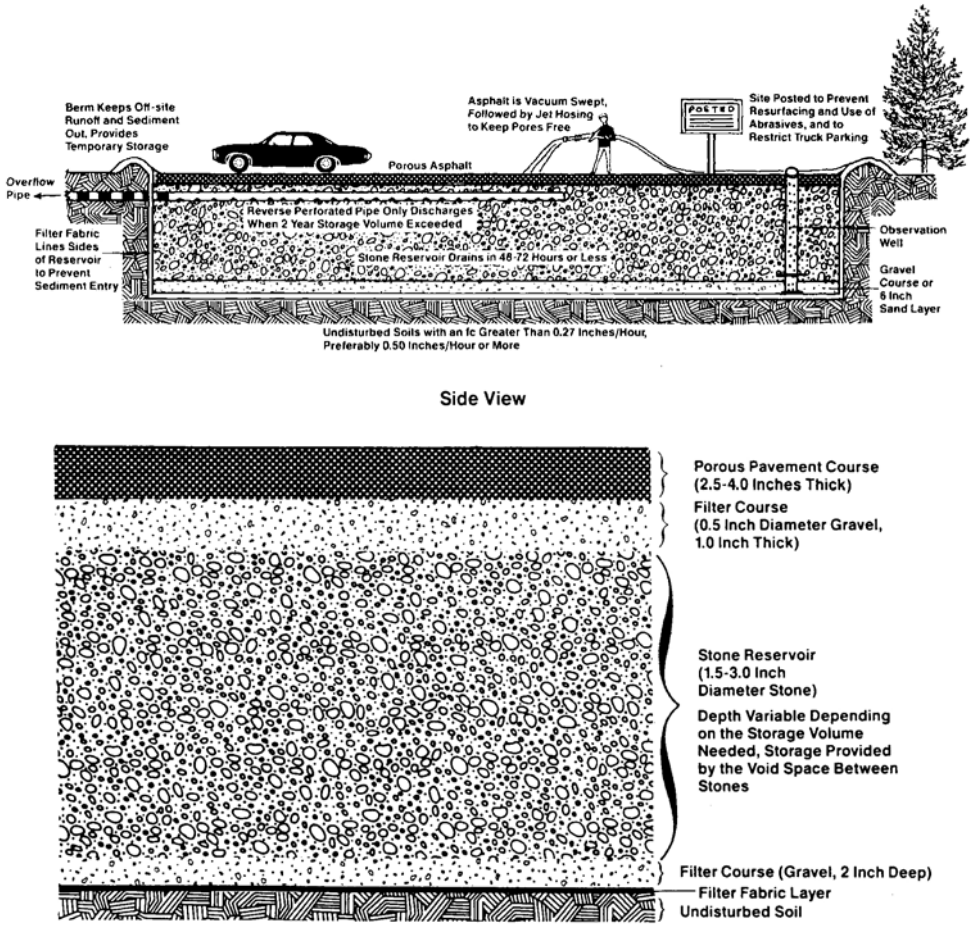
Source: Schueler, T.R. 1992. Design of Stormwater Pond Systems. Washington, DC: Metropolitan Washington Council of Governments.

Infiltration Systems

A rain garden is an example of an infiltration system. It is an area planted with native vegetation and sited such that it collects storm water. Water, nutrients, and pollutants are taken up by soil and plants within 24 to 48 hours after a storm. Rain gardens have the added advantage of being attractive areas that can provide shade and wildlife habitat, act as wind breaks, and muffle noise.

Another example of an infiltration system is porous pavement *(Figure 3)*. Minimize the amount of impervious surface at your facility. Instead of using asphalt for your parking lot, use a surface through which water can be absorbed.

Figure 3. Porous Pavement



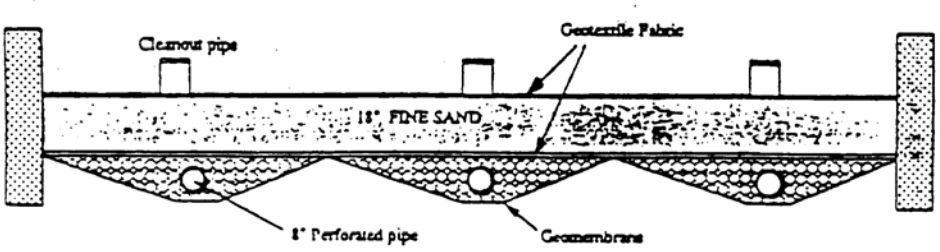
Source: Schueler, T.R. 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices. Washington, DC: Metropolitan Washington Council of Governments.

Filter systems

"Strain" runoff to remove pollutants. Conventional Sand Filter Systems *(see Figure 4)* are constructed of layers of sand, from most course on top to most fine below. The sand overlies either a gravel bed (for infiltration) or perforated underdrains (for discharge of treated water).

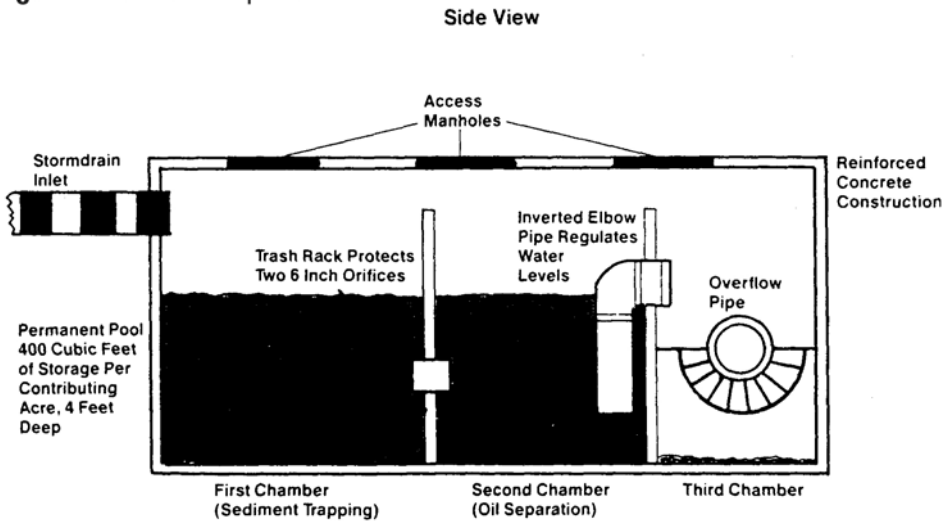
Oil Grit Separators *(see Figure 5)* are another form of filter system. Water from parking lots and other areas likely to have hydrocarbons can be directed through Oil Grit Separators (or oil absorbent fabric) before entering any other management structure.

Figure 4. Sand Filter



Source: City of Austin. 1991. Design Guidelines for Water Quality Control Basins. Austin, TX: Public Works Department.

Figure 5. Oil Grit Separator



Source: Schueler, T.R. 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban Best Management Practices. Washington, DC: Metropolitan Washington Council of Governments.

APPENDIX I
Helpful Web Sites

Many agencies have web sites that offer helpful information to the regulated community. Web sites provide technical resources, including guidance documents and fact sheets and allow businesses to obtain permit applications and information. Some web page offers county-specific information about permit activities and public notices, and news about special programs.

State of Ohio

Ohio EPA Divisions, Offices and Districts

Air Pollution Control.....
www.epa.state.oh.us/dapc
Drinking & Ground Waters .....
www.epa.state.oh.us/ddagw
Hazardous Waste Management .....
www.epa.state.oh.us/dhwm
Solid and Infectious Waste Management.....
www.epa.state.oh.us/dsiwm
Emergency & Remedial Response .....
www.epa.state.oh.us/derr
Surface Water .....
www.epa.state.oh.us/dsw
Office of Pollution Prevention .....
www.epa.state.oh.us/opp
Library.....
www.epa.state.oh.us/other/reoutsid
Central District Office .....
www.epa.state.oh.us/cdo/
Northeast District Office .....
www.epa.state.oh.us/nedo/
Northwest District Office .....
www.epa.state.oh.us/nwdo/
Southeast District Office .....
www.epa.state.oh.us/sedo/
Southwest District Office.....
http://swdoweb.epa.state.oh.us
Ohio EPA Small Business Assistance Office ……...
www.epa.state.oh.us/sbao
Small Business Assistance Office
Division of Air Pollution Control .....
www.epa.state.oh.us/dapc/sba/sbaintro.html

Ohio Department of Natural Resources

Ohio Department of Natural Resources…….
http://www.dnr.state.oh.us/
Division of Soil and Water Conservation……
http://www.dnr.state.oh.us/soilandwater/
Office of Coastal Management……
http://www.dnr.state.oh.us/coastal/

Ohio Department of Health

Ohio Department of Health……...
http://www.odh.state.oh.us/

Federal:

U. S. Environmental Protection Agency

U. S. Environmental Protection Agency…….... http://www.epa.gov

U. S. Army Corps of Engineers

National…….
http://www.hq.usace.army.mil/hqhome/
Buffalo District……
http://www.lrb.usace.army.mil/
Regulatory Program Home Page……
http://www.lrb.usace.army.mil/orgs/reg/index.htm

U. S. Coast Guard

U. S. Headquarters……
http://www.uscg.mil/USCG.shtm
Ninth District……
http://www.uscg.mil/d9/uscgd9.html

National Oceanic and Atmospheric Administration

National Oceanic and Atmospheric Administration……..…. http://www.noaa.gov

APPENDIX J
Telephone Contacts

Federal:

U. S. Environmental Protection Agency

U. S. Environmental Protection Agency……..(202) 272-0167

National Oceanic and Atmospheric Administration

National Oceanic and Atmospheric Administration……(202) 482-6090

U.S. Army Corp of Engineers

U.S. Army Corp of Engineers, Headquarters……(202) 761-0008

United States Coast Guard

United States Coast Guard……(202) 267-2229

State:

Ohio Department of Natural Resources

Coastal Management……(419) 609-4102

Ohio Department of Health

Ohio Department of Health……(614) 466-1390

Ohio EPA District Office Locations

Central District Office (CDO)
3232 Alum Creek Drive
Columbus, Ohio 43207
(614) 728-3778

Southeast District Office (SEDO)
2195 Front Street
Logan, Ohio 43138
(740) 385-8501

Southwest District Office (SWDO)
401 East 5th Street
Dayton, Ohio 45402
(937) 285-6357

Northeast District Office (NEDO)
2110 E. Aurora Road
Twinsburg, Ohio 44087
(330) 963-1200

Northwest District Office (NWDO)
347 N. Dunbridge Road
Bowling Green, Ohio 43402
(419) 352-8461

APPENDIX K

Boater Tip Sheets

1. Engine Maintenance
2. Vessel Cleaning
3. Sanding and Painting
4. Petroleum Control: Fueling, Bilge Maintenance & Spill Response
5. Waste Containment and Disposal
6. Boat Sewage

-

Clean Boater Tip Sheet

Engine Maintenance

Occasionally one may see a small fuel sheen on the water surface near boats. Although it may be only a tiny amount from some boats, the cumulative impacts can be damaging. Once in the aquatic environment, oils and fuels have a tendency to accumulate in bottom sediments and concentrate in aquatic organisms. These harmful substances commonly enter the aquatic environment through improper engine maintenance techniques and waste fluids disposal practices.

You can play an important role in protecting water quality while performing routine engine maintenance by following the simple tips.

Routine Engine Maintenance

- Keep engines properly tuned for efficient fuel consumption, clean exhaust, and economy.
- Keep your engine clean. It makes it easier to spot and correct small leaks before they become big problems.
- Keep an oil absorption pad in the bilge or below the engine to collect spilled products.
- When undertaking maintenance, wipe up spills so that they do not get pumped overboard with bilge water.
- For spill-proof oil changes, use non-spill pump systems that remove crankcase oils through the dipstick tube. Many marinas have these systems available for your use; check with them.
- In order to catch the oil traditionally spilled during filter removal, slip a plastic bag over the filter and then remove it.
- Keep the use of engine cleaners to a minimum. Parts cleaning should not be done in the bilge or over open ground. It should be done in a container or parts washer where the dirty fluids can be collected and recycled.
- Do not discharge oil into the water - it is prohibited by law. All boats 25 feet or longer are required to have a sign regarding oil pollution control regulations posted in the engine compartment. These signs are available at most marine supply stores.

Winterizing your boat

- Use the orange-pink colored propylene antifreeze, which is less toxic, rather than the blue-green colored ethylene glycol, which is highly toxic and can kill animals that ingest it.
- Fill fuel tanks to 90 percent of capacity during winter storage to reduce condensation buildup.

- Consider adding a fuel stabilizer so that you will not have problems disposing of stale fuel in the spring.
- Flush winterizing agents and antifreeze from the engine prior to launch each season and recycle or dispose of properly.

Recycle Regularly

- Recycle used oil, oil filters, antifreeze and lead acid batteries.
- Bring used solvents and waste gasoline to local hazardous waste collection days.
- Never dump waste oils and engine coolants on the ground or into storm drains, dumpsters, or open waters.
- When disposing of petroleum-based products, such as fuels and engine oils, keep them separate from each other and from other substances, such as antifreezes, solvents, and water. This lowers the disposal cost charged to your collection facility by preventing the creation of "hazardous wastes".
- Become knowledgeable about disposal procedures for waste oils, filters, absorptive materials and other hazardous materials at your marina.
- For additional information on recycling, contact Ohio EPA, Office of Pollution Prevention at (614) 644-3469 or Division of Hazardous Waste Management at (614) 644-2917, or visit the Ohio EPA web site at www.epa.state.oh.us/opp/wastex.html.

Be a Conscientious Consumer

- Read product labels. Labels convey information about the degree of hazard associated with a particular product. For example, DANGER equates to extremely flammable, corrosive or toxic; WARNING indicates that the material is moderately hazardous; and CAUTION signals a less hazardous product. Select products that contain no warnings or which merely CAUTION consumers.
- Be wary of unqualified general claims of environmental benefit, e.g., "ozone friendly." A better, more meaningful label would read, "This product is 95 percent less damaging to the ozone layer than past formulations that contained chlorofluorocarbons (CFCs)."

Clean Boater Tip Sheet

Ohio Clean Boater

Sea Grant
Ohio Sea Grant College Program

Vessel Cleaning

As a boater, you are well aware of the care your vessel requires. In order to keep your boat safe, reliable, and attractive, you must clean and maintain it. As you do so, minimize environmental impacts by following the recommendations listed here.

Caution is necessary because your choice of products and activities can have serious impacts on water quality and aquatic life. For example, if paint chips from a hull are not contained, they may end up in the water. The heavy metals in the paint chips may then be consumed by mussels, worms, and other bottom-dwelling creatures and passed up the food chain to fish, birds, and humans.

Clean Carefully

- Wash frequently with a sponge or nonabrasive pad and plain water. Additional "elbow-grease" is required to remove stains.
- When detergents are necessary, use soaps that are phosphate free, biodegradable, and non-toxic. Any soap should be used sparingly because even non toxic products can be harmful to wildlife. For example, detergents will destroy the natural oils on fish gills, limiting their ability to breathe.
- Wax your boat, if appropriate. A good coat of wax prevents surface dirt from becoming ingrained.
- Clean teak with a mild soap and abrasive pads or bronze wool. This method is safe for the environment and better for the boat than the solvents in standard teak cleaners which tend to eat away at the wood and to damage seam compounds.
- Avoid detergents that contain ammonia, sodium hypochlorite (bleach), chlorinated solvents, petroleum distillates, and lye.
- Try some of the alternative cleaning products listed in the table below.
- Collect all paint chips, dust, and residue. Dispose in regular trash at home or in designated receptacles at your marina.

Recycle Regularly

- Bring used solvents and waste gasoline to local hazardous waste collection days.
- Become knowledgeable about disposal procedures for waste and hazardous materials at your marina.
- For additional information, contact Ohio EPA, Office of Pollution Prevention at (614) 644-3469 or Division of Hazardous Waste Management at (614) 644-2917, or visit the Ohio EPA web site at www.epa.state.oh.us/opp/wastex.html.

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Alternatives to Toxic Products

While baking soda, vinegar, lemon juice, and vegetable oils are far less harmful than bleaches, scouring powders or detergents, they are still toxic to marine life. Use cleaning products sparingly and minimize the amount discharged into the water. Never dispose of any cleaning products down the thru-hull drain; dispose of them on shore.

Products	Alternative
Bleach	Borax
Detergent & Soap	Elbow grease
Scouring Powders	Baking soda. Or rub area with one-half lemon dipped in borax, then rinse
General Cleaner	Baking soda and vinegar. Or lemon juice combined with borax paste
Floor Cleaner	One cup vinegar + 2 gallons of water
Window Cleaner	One cup vinegar + 1 qt. warm water. Rinse and squeegee
Aluminum Cleaner	2 Tbsp. cream of tartar + 1 qt. of hot water
Brass Cleaner	Worcestershire sauce. Or paste made of equal amounts of salt, vinegar, and water
Copper Cleaner	Lemon juice and water. Or paste of lemon juice, salt, and flour
Chrome Cleaner/Polish	Apple cider vinegar to clean; baby oil to polish
Stainless Steel Cleaner	Baking soda or mineral oil for polishing, vinegar to remove spots
Fiberglass Stain Remover	Baking soda paste
Mildew Remover	Paste with equal amounts of lemon juice and salt, or white vinegar and salt
Drain Opener	Dissemble or use plumber's snake. Or flush with boiling water + one-quarter cup baking soda + one-quarter cup vinegar
Wood Polish	Olive or almond oil (interior walls only)
Hand Cleaner	Baby oil or margarine
Head & Shower	Baking soda; brush thoroughly
Rug/Upholstery Cleaner	Dry corn starch sprinkled on; vacuum

Adapted from Buller, Pat. 1995. Clean Marina+Clean Boating+Clean Water Partnership. Seattle, WA: Puget Soundkeeper Alliance.

Clean Boater Tip Sheet

Ohio Clean Boater

Sea Grant
Ohio Sea Grant College Program

Sanding and Painting

Sanding and painting can create environmental hazards if not conducted in a controlled area. Many anti-fouling paints are made with toxic chemicals designed to leach out and prevent bottom growth on the hull. When concentrated amounts of these materials are allowed to escape from hull maintenance and repair areas, there is a potential for environmental harm. Materials, such as solvents, thinners, and brush cleaners, often used in sanding and painting, can also harm the environment if improperly handled. These materials contain cancer-causing agents and have a tendency to sink in the water column, compromising water quality and damaging aquatic life and the aquatic environment.

You can play an important role in protecting water quality while sanding or painting your vessel by following simple tips.

Work in a Controlled Area

- When working in marinas, use designated sanding and painting areas. Check with the marina manager for the location and proper use of these areas.
- Work indoors or under cover whenever wind can potentially blow dust and paint into the open air.

Sanding, Grinding or Scraping

- Use environmentally friendly tools, such as vacuum sanders and grinders, to collect and trap dust. Some marinas have this equipment for rent, check with the manager.
- Clean up all debris, trash, sanding dust, and paint chips immediately following any maintenance or repair activity. Dispose of in your regular trash at home or in designated receptacles at your marina.
- Use a drop cloth beneath the hull to catch sanding dust and paint drops when working over unpaved surfaces.
- When sanding or grinding hulls over a paved surface, vacuuming or sweeping loose paint particles is the preferred cleanup method. Do not hose the debris away.

Painting and Varnishing

- Buy paints, varnishes, solvents, and thinners in sizes that can be used within one year to avoid having to dispose of stale products. Share left over paint and varnish with other boaters.
- When possible, use water-based paints and solvents.

- Switch to longer lasting, harder, or non-toxic anti-fouling paint at your next haul out. Select a bottom paint developed for Lake Erie or other freshwater body of water.
- Paints, solvents, and reducers should be mixed far from the water's edge and transferred to work areas in tightly covered containers of 1 gallon or less.
- Keep in mind that solvents and thinners can be used more than once by allowing the solids to settle out and draining the clean product off the top.
- Thoroughly dry all paint cans before disposing of them in the trash.

Recycle Regularly

- Bring used solvents and waste gasoline to local hazardous waste collection days.
- Become knowledgeable about disposal procedures for waste and hazardous materials at your marina or local municipality.
- For additional information, contact Ohio EPA, Office of Pollution Prevention at (614) 644-3469 or Division of Hazardous Waste Management at (614) 644-2917, or visit the Ohio EPA web site at www.epa.state.oh.us/opp/wastex.html.

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Clean Boater Tip Sheet

Petroleum Control: Fueling, Bilge Maintenance & Spill Response

Oil is harmful and sometimes fatal to aquatic plants and wildlife, including fish, birds and invertebrates. Oil can enter water intakes and affect drinking water. A gasoline spill poses a significant fire and explosion hazard. Gasoline and oil may also contain carcinogens, including benzene and PCBs. In addition, spilled oil is unsightly and can stain the shoreline.

The Law

The Federal Water Pollution Control Act of 1972, as amended by the Clean Water Act of 1977, and the Oil Pollution Act of 1990 prohibit the discharge of oil of any kind into or upon the navigable waters of the United States. This includes any discharge that causes a film, sheen, discoloration, sludge, or emulsion on or beneath the surface of the water. Any such discharge may result in a civil penalty.

In Case of a Spill

- Stop the flow.
- Contain the spill.
- Call the U.S. Coast Guard National Response Center at (800) 424-8802.
- Call the Ohio EPA (800) 282-9278 and the local fire department.
- Do not use emulsifiers or dispersants (soaps) to treat a spill; this is prohibited by federal law.

Fueling Practices

Gas or diesel may be spilled during the act of fueling: as backsplash out the fuel intake or as overflow out the vent fitting. Spills of this sort harm aquatic life, waste money, and can result in stains on the hull and damage to the gel coat and striping. Follow these tips to avoid problems:

- Fill tanks to no more than 90 percent capacity - gas that is drawn from cool storage tanks will expand as it warms up onboard your vessel.
- To determine when the tank is 90 percent full, listen to the filler pipe, use a sounding stick, and be aware of your tank's volume.
- Rather than filling your tank upon your return to port, wait and fill it just before leaving on your next trip. This practice will reduce spills due to thermal expansion because the fuel will be used before it has a chance to warm up.

- Fill portable tanks on shore where spills are less likely to occur and easier to clean up.
- Place an absorbent pad or container over the fuel fill or under the fuel vent to collect accidental overflow.
- Slow down at the beginning and end of fueling.

Bilge Maintenance
Engine oil tends to accumulate in bilges. If no precautions are taken, the oil is pumped overboard along with the bilge water. Discharging oily water is illegal. To avoid fines and to protect water quality, follow these tips:

- Keep your engine well tuned to minimize the amount of oil that is released. Be sure there are no leaking seals, gaskets, or hoses.
- Keep an oil absorption pad in the bilge or below the engine to absorb spilled oil.
- Replace oil absorbent materials regularly.
- Look for contractors or marinas that offer a bilge pumpout service.
- Do not treat oily water with detergents. Soaps pollute and make clean up impossible. You may be fined up to $25,000 for using soaps to dissipate oil.

Disposal of Oil Absorbent Materials
The disposal of used oil absorbent material depends on what type of product it is and how it was used:

- Become knowledgeable about disposal procedures for oil absorbent materials at your marina.
- Standard absorbents saturated with oil or diesel may be wrung out over oil recycling bins (if they are saturated with oil or diesel only!) and reused.
- Alternatively, they can be tossed in your regular trash after being drained or wrung out over oil recycling bins to the extent that there are no visible signs of free-flowing liquid in or on the material.

Emissions Control
Marine engines — especially 2-stroke outboard motors — produce the highest average level of hydrocarbon exhaust emissions after lawn and garden equipment. Hydrocarbon emissions contribute to ground level ozone, a known health risk. Follow these tips to help your engine operate as efficiently as possible:

- Use the gas to oil ratio recommended by the engine manufacturer. Too much oil can foul spark plugs and too little can lead to increased engine wear or even failure.
- Use premium two-cycle engine oil (TC-W3 or TC- W4). Premium oils improve engine performance and reduce pollution because they burn cleaner, contain more detergents, and prevent formation of carbon deposits.
- Use gasoline with the octane level recommended by the engine manufacturer.

Preventive Equipment
Products are available commercially which can help you prevent spills and reduce emissions:

- Install a fuel/air separator along your vent line. These devices allow air, but not fuel, to escape through a vent opening.

- Attach a safety nozzle to portable gas cans used to fill outboard engines. These nozzles automatically stop the flow of fuel when the receiving tank is full.
- To prevent oily bilge water from being discharged, install a bilge pump switch that leaves an inch or two of water in the bilge. Alternatively, connect a bilge water filter to your vessel's bilge pump. Filters will remove oil, fuel, and other petroleum hydrocarbons
- from the water.
- When it is time to buy a new engine, select a fuel efficient, low emission model.

Be a Conscientious Consumer

- Read product labels. Labels convey information about the degree of hazard associated with a particular product. For example, DANGER equates to extremely flammable, corrosive or toxic; WARNING indicates that the material is moderately hazardous; and CAUTION signals a less hazardous product. Select products that contain no warnings or which merely CAUTION consumers.
- Be wary of unqualified general claims of environmental benefit, e.g., "ozone friendly." A better, more meaningful label would read, "This product is 95 percent less damaging to the ozone layer than past formulations that contained chlorofluorocarbons (CFCs)."


Ohio
Clean Boater


Sea Grant
Ohio Sea Grant College Program

Clean Boater Tip Sheet

Ohio Clean Boater

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Waste Containment and Disposal

Trash is ugly and may be dangerous - dangerous to humans and to wildlife. For example, plastic may snare propellers and entangle birds or fish. Congress passed a law in 1987 to protect our water ways from garbage. The Marine Plastic Pollution Research and Control Act (Title II of Public Law 100-220) regulates the disposal of garbage at sea according to how far a vessel is from shore. In Ohio, it is illegal to dump plastic, paper, rags, glass, metal, crockery, dunnage (lining and packing material, nets, lines, etc.), and food.

Contain Trash

- Don't let trash get thrown or blown overboard.
- If trash blows overboard, retrieve it. Consider it "crew-overboard" practice.
- Pack food in reusable containers.
- Buy products without plastic or excessive packaging.
- Don't toss cigarette butts overboard. They are made of plastic (cellulose acetate).
- Don't toss fishing line overboard.
- Purchase refreshments in recyclable containers and recycle them.
- Properly dispose of all trash on-shore, e.g., take it home or leave it in a dumpster at the marina.

Recycle

- Recycle cans, glass, newspaper, antifreeze, oil, oil filters, and lead batteries.
- Bring used monofilament fishing line to recycling bins at your tackle shop or marina.

Fish Scraps

It is unlawful to place or dispose of a dead fish (or part thereof) in a stream, river, pond, lake or any other body of water or upon the banks thereof, excepting dead fish or parts of fish may be used as bait or a lure (Ohio Administrative Code 1501:31-13-01-Section F).

- Find out what your marina's fish cleaning and disposal policy is.
- Bag waste and dispose at home or in a dumpster designated for fish waste.

Transferring your Boat to another Body of Water

Prevent the Spread of zebra and quaga mussels, aquatic plants and other aquatic nuisance species when moving your boat from one body of water to another. Follow the practices:

- Drain, wash and inspect boats, trailers, personal watercraft and gear.

- Remove all aquatic plants and animals from boats, trailers, personal watercraft, and gear.
- Do not release live bait or fish into any water area.
- For more information contact www.protectyourwaters.net .

Be a Conscientious Consumer

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Clean Boater Tip Sheet

Ohio Clean Boater

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Boat Sewage

Raw or poorly treated boat sewage is harmful to human health. Typhoid, hepatitis, cholera, gastroenteritis, and other waterborne diseases may be passed directly to people who swim in contaminated waters. People may also become infected by eating fish contaminated with viruses and other micro organisms contained in sewage discharge.

Sewage is also harmful to water quality. Because the microorganisms within sewage need oxygen, any effluent discharged to water reduces the amount of oxygen available to fish and other forms of aquatic life. Furthermore, the heavy nutrient load in sewage promotes excessive algal growth. As the algae multiply, they prevent life-giving sunlight from reaching subsurface vegetation. When the algae die they create another problem; the algae are decomposed by bacteria which further reduce levels of dissolved oxygen.

What Does the Law Say?
According to Federal and State law, it is illegal to discharge raw sewage into any body of water in Ohio. All vessels must have a means of containing raw sewage. All vessels with installed toilets must have a Marine Sanitation Device (MSD):
_ **Type I** systems mechanically cut solids and disinfect waste. They must bear a U.S. Coast Guard certification label.
_ **Type II** systems are similar to Type I systems. The difference is that Type IIs treat sewage to a higher standard and generally require more space and energy. Type II systems must also have a Coast Guard certification label.
_ **Type III** systems do not discharge sewage. Holding tanks are the most common Type III system. Incinerating systems are another option. A Coast Guard label is not required.

Vessels 65 feet and under may have any of these three types of MSDs. Vessels over
65 feet must have a Type II or III system. Type I and Type II systems are legal only in commercial waters; in Ohio commercial waters are Lake Erie, the Ohio River and the Muskingum River.

Holding Tanks

- Install a holding tank. For most recreational boats with facilities for an installed toilet, a holding tank (Type III system) is the preferable system for handling sewage on board. Only Type III systems are allowed in Ohio waters other than Lake Erie, the Ohio River and the Muskingum River. In

addition, Types I or II systems should not be discharged while docked at any marina.
- Use good plumbing to control holding tank odor. Fiberglass and metal tanks are highly resistant to permeation. Specially labeled flexible "sanitation hoses" and PVC piping are also highly impermeable. Hose runs should be as short and as straight as possible. Wherever practical, use rigid pipe below the level of the holding tank and in other areas where sewage will accumulate. Keep the number of connections to a minimum and insure that seals are tight.
- Use enzyme-based products in your holding tank to further control odor. Enzymatic products use biological processes, rather than harsh chemicals, to break down sewage. Be sure to pump and rinse your holding tank prior to initial use of an enzyme product if you have used chemical-based odor control additives in the past. Chemical residues may interfere with the effectiveness of enzyme-based products.
- Avoid holding tank products that contain quaternary ammonium compounds (QACs) and formaldehyde. These products may disrupt sewage treatment plants.
- Empty your holding boat's holding tank at a pump out facility on a regular basis.

Portable Toilets
- If you have a small vessel, consider buying a portable toilet to contain raw sewage. It is against the law to dispose of raw sewage into any water of Ohio.

Type I and II MSDs
- Maintain your Type I or II MSD. Establish a regular maintenance schedule based on your owner's manual to remind yourself when chemicals need to be added, electrodes need to be cleaned, etc.
- Do not discharge your Type I or II MSD in a marina, in a swimming area, or in an area with poor water circulation. Effluent from legal Type I and Type II systems contains nutrients and possibly toxic chemicals. It may contain pathogens as well.

Use MSDs Only for Untreated Sewage
- Do not dispose of fats, solvents, oils, emulsifiers, disinfectants, paints, poisons, phosphates, diapers, and other similar products in MSDs.
- For more information, contact ODNR, Division of Watercraft at https://www.dnr.state.oh.us/watercraft/ .

Use Shoreside Restrooms When in Port.

Be a Conscientious Consumer
- Read product labels. Labels convey information about the degree of hazard associated with a particular product. For example, DANGER equates to extremely flammable, corrosive or toxic; WARNING indicates that the material is moderately hazardous; and CAUTION signals a less hazardous product. Select products that contain no warnings or which merely CAUTION consumers.
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APPENDIX L
Sample Contract Language

The following text is based on the Marine Trades Association of New Jersey's *Best Management Pledge*.

FOR TENENTS:

I, _____, understand that _____
(name) (marina/boatyard)

subscribes to and enforces pollution prevention procedures. I further understand and agree that in return for the privilege of performing work on a boat at this facility such as hull cleaning, washing, sanding, polishing and/or painting; bottom cleaning, sanding, scraping, and or/painting; opening the hull for any reason, e.g., installation of equipment or engine work; engine and/or stern drive maintenance, repair, painting; etc, it is my responsibility to comply with, at a minimum, the following pollution prevention practices. I understand that this list may not be complete and pledge that I will exercise common sense and judgement in my actions to insure that my activities will not deposit pollution residues in surface waters or elsewhere where they may be conveyed by stormwater runoff into the surface waters. I understand that failure to adopt pollution prevention procedures may result in expulsion from the marina/boatyard (insert name of facility) and forfeiture of rental fees. I understand that I may elect to employ the facility to perform potential pollution producing activities on my behalf in which case the responsibility for compliance with the best management practices is entirely theirs.

Signed _____ Date _____

FOR SUB-CONTRACTORS ONLY:

I understand and agree to have my proposed work first authorized by this facility and that I will adhere, at a minimum, to the contents of this document. I further understand that because of the nature of my proposed work, the facility may require that I be supervised by an employee of said facility for which I will pay the normal existing labor rate.

Signed _____ Date _____

POLLUTION PREVENTION PRACTICES:

A. REPAIRS AND SERVICE (to hull and engine: painting, cleaning, washing, sanding, scraping, etc.)

1. Work on hulls and engines only in designated areas or use portable containment enclosures with approval of marina management.
2. Use tarps and vacuums to collect solid wastes produced by cleaning and repair operations-especially boat bottom cleaning, sanding, scraping, and painting.
3. Conduct all spray painting within an enclosed booth or under tarps.
4. Use non-toxic, biodegradable solvents.
5. Capture debris from boat washing and use only minimal amounts of phosphate-free, non-toxic, and biodegradable cleaners.
6. Use drip pans for any oil transfers, grease operations, and when servicing I/Os and outboard motors.
7. Obtain management approval before commencing any repair which will open the hull. Clean and pump bilges free of contaminated materials before and after repairs which open the hull.
8. Use spill proof oil change equipment.

B. VESSEL MAINTENANCE WASTE

1. Non-toxic residue of sanding, scraping, and grinding: bag and dispose of in regular trash.
2. Toxic and non-environmentally safe solvents and cleaning liquids: seek specific directions from marina management or dispose of with licensed agency.

C. FUEL OPERATIONS

1. Install fuel/air separator on fuel tank vent line(s) to prevent overflow of fuel through vent.
2. Keep petroleum absorbent pad(s) readily available to catch or contain minor spills and drips during fueling.

D. WASTE OIL AND FUEL

1. Recycle used oil and antifreeze.
2. Add a stabilizer to fuel tank in the fall or an octane booster to stale fuel in the spring. Use the fuel or bring it to a household hazardous waste collection site.
3. Absorbent materials soaked with oil or diesel: drain liquid and dispose of in used oil recycling container; double bag absorbent material in plastic and dispose in regular trash receptacle.
4. Absorbent materials soaked with gasoline (flammable): air dry and reuse.
5. Bioremediating absorbent products: dispose in regular trash as long as no liquid is dripping. Because the microbes need oxygen to function, do not seal in plastic.
6. Oil filters: drain and recycle the oil; recycle the filter or double bag and put in regular trash.

E. ONBOARD PRACTICES

1. Maintain oil absorbent pads in bilge. Inspect no less than annually.
2. Do not discharge bilge water if there is a sheen to it.
3. Use only low-toxic antifreeze (propylene glycol). Recycle used antifreeze (even low-toxic antifreeze will contain heavy metals once it has been used).

F. SEWAGE HANDLING

1. Never discharge raw sewage within Maryland waters.
2. If you have an installed toilet, you must have an approved Marine Sanitation Device (MSD).
3. Do not discharge Type I or Type II marine sanitation devices within the marina basin.
4. Use marina restroom facilities when at slip.
5. Do not empty port-a-pots overboard; use marina dump facility. Do not empty port-a-pots in the restrooms.
6. Do not discharge holding tanks overboard; use pumpout facility.
7. If you must use a holding tank additive, use an enzyme-based product. Avoid products that contain quaternary ammonium compounds (QACs), formaldehyde, formalin, phenal derivatives, alcohol bases, or chlorine bleach.
8. Liveboards, place a dye tablet in holding tank after each pumpout out. The dye will make any illegal discharges clearly visible.

G. ORGANIC WASTE

1. Clean fish only in designated areas.
2. Grind, compost, or double bag fish scraps (depending on the services offered by your marina).
3. Walk pets in specified areas and dispose of their wastes, double-bagged, in the dumpster.

H. SOLID WASTE

1. Recycle plastic, glass, aluminum, newspaper, and used lead batteries (tailor this section to fit your facility’s practice).
2. Place trash in covered trash receptacles; replace covers.

APPENDIX M
Sample Signs

Keep Fuel Out of the Water
Do Not Top Off Tank
Listen to Anticipate When Tank is Full
Wipe-up Spills Immediately

OIL SPILL RESPONSE KIT

Include name and number of person to contact at the marina in case of a spill

Be sure that a copy of the Oil Spill Response Plan is clearly visible inside the Spill Response Kit

Vessel Maintenance Area

- All major repairs (*e.g.,* stripping, fiberglassing) must be performed in the Vessel Maintenance Area
- All blasting and spray painting must be performed within the enclosed booth or under tarps
- Use tarps or filter fabric to collect paint chips and other debris
- Use vacuum sander (*include rental information if appropriate*)
- Use high-volume low-pressure spray guns (*include rental information if appropriate*)
- Use drip pans with all liquids
- Reuse solvents
- Store waste solvents, rags, and paints in covered containers

Notice
The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters of the United States or the waters of the contiguous zone if such discharge causes a film or sheen upon, or discoloration of, the surface water. Violators are subject to a penalty of $5,000.

The use of soaps to disperse oil is illegal. Violators may be fined up to $25,000 per incident.

Report Oil Spills to
USCG at (800) 424-8802 and
MDE at (410) 974-3551

Pumpout Station

- *Instructions for use*
- *Hours of operation*
- *Fee*
- *Name and number of person to call in case of malfunction*

Do Not Discharge Sewage
Please use our clean, comfortable restrooms while you are in port

Nutrients and pathogens in sewage impair water quality

Think Before You Throw
The following items may not be placed in this dumpster

- Oil
- Antifreeze
- Paint or varnish
- Solvents
- Pesticides
- Lead batteries
- Transmission fluid
- Distress flares
- Loose polystyrene peanuts
- Hazardous waste

Recycle

Oil
Antifreeze
Lead batteries
Glass
Plastic
Aluminum
Corrugated cardboard
Metal fuel filter canisters
Mixed paper
Newspaper
Solvents
Steel
Scrap metal
Tin
Tires

Indicate which items you recycle and where the collection sites are

Include information about local recycling services for materials that you do not collect

Recycle Oil
This container is for

- Engine oil
- Transmission fluid
- Hydraulic fluid
- Gear oil
- #2 Diesel
- Kerosene

Tailor to fit your hauler's requirements

Gasoline is STRICTLY PROHIBITED

If container is locked, include information about where to find the key or leave the oil

Recycle Antifreeze
This container is for

- Ethylene glycol antifreeze
- Propylene glycol antifreeze

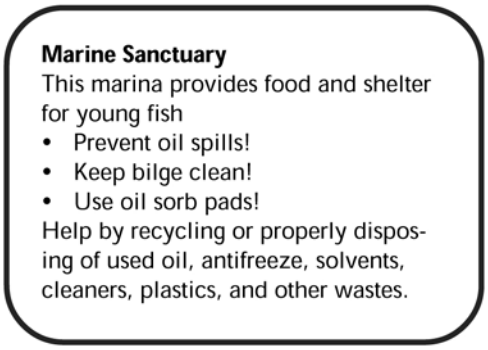
Tailor to fit your hauler's requirements

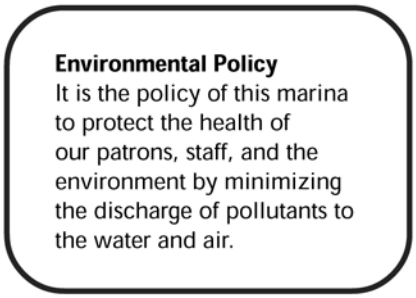
Gasoline, diesel, kerosene, and all other materials are STRICTLY PROHIBITED

If container is locked, include information about where to find the key or leave the antifreeze

No Fish Scraps
Please do not discard fish scraps within the marina basin

- Use our fish cleaning station
- Bag the scraps and dispose in dumpster or at home
- Save and dispose over deep water





Revised: March 11, 2004