

Pollution Prevention

Pollution Prevention for MarinasNumber 30
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Every marina owner or manager who wants to prosper should become environmentally aggressive by working to protect and to clean up the waterways. After 21 years studying marinas and the environment in seven nations, I'm confident that marinas can and should take the environmental initiative.

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Boating in Ohio

Fishing, water skiing, and sailing are just a few of the activities enjoyed by people in the water-rich state of Ohio. These activities are made possible through the services provided by marinas located on Ohio's lakes, rivers, and reservoirs. The marina industry recognizes that the preservation of these waterways is essential to their continued success and growth.

Marinas know they have an important responsibility in protecting shore and surface water environments. And like many other businesses, marinas are faced with challenging environmental problems. For example, adverse environmental impacts can result from pollutants generated by marina operations such as boat maintenance and repair.

Pollution prevention uses source reduction and environmentally sound recycling to reduce or

eliminate these impacts. Marinas can achieve a variety of benefits including lower operating costs, improved worker safety, and increased customer satisfaction from using pollution prevention. In addition, the use of pollution prevention is essential for marinas to meet the requirements of federal and state nonpoint source pollution and storm water programs.

This fact sheet will provide an overview of the pollution prevention opportunities available to marinas. These opportunities will help marinas in meeting their environmental responsibilities. Specific environmental regulations and compliance questions can be directed to the Ohio EPA program contacts identified in the **Who to Call** section of this fact sheet.

Common marina services can range from hull maintenance activities (including cleaning and painting), engine maintenance and repair, fueling operations and boater education.

Hull Maintenance Activities

For hull maintenance activities involving paint removal, there are a number of alternatives to the commonly used chemical strippers. In many marina situations these alternatives may be less toxic and less expensive. Mechanical sanders and scrapers equipped with vacuums are effective at removing paint in a way that prevents migration of debris and residue. Abrasive blasting technologies utilizing sand, plastic media, metal shot, and cryogenics are currently being used in many industries to remove paint. In addition, high pressure water jet stripping can be used and incorporated with technologies to recycle the used water.

If chemical stripping agents are used, it may be possible to substitute less toxic agents or to use a smaller volume of the present agent. In addition, solvent strippers can be recycled using an

onsite still. There are also offsite solvent recovery services available. Operating procedures and employee training can help ensure that only the minimum amount of agent is used, further minimizing waste generation.

Factors that need to be evaluated when selecting a paint-stripping technology include hull construction, type of paint to be removed, volume and characteristic of waste generated and the cost of waste disposal. Sources of additional information on these technologies are provided at the end of this fact sheet.

Pollution prevention measures for boat painting operations include technology changes, material substitution and good operating practices.

High volume, low pressure (HVLP) painting equipment can reduce paint emissions as well as improve paint application and minimize cost. Other painting technologies, such as air-assisted airless

and electrostatic application equipment, are other environmentally sound alternatives to the conventional high pressure spray application. The proper training and instruction of spray paint operators will further reduce paint emissions.

Painting operations at marinas should also include the evaluation of less toxic substitutes for antifouling paints. The purpose of these paints is to prevent or minimize marine growth on boat hulls. Less toxic alternatives are becoming more available for use on boat bottoms. For some surfaces not immersed in water, such as boat interiors, waste reduction can be achieved by using water-based paints in place of solvent-based paints.

When performing hull maintenance activities, it is essential that work areas are organized and best management practices are set up to further eliminate or reduce the creation of pollution at the source. This will minimize the environmental impact from cleaning and painting activities. Painting operations, like other hull maintenance activities, should occur in an enclosed work area. Where practical, these activities should take place inside a building or under a roof to minimize contaminated runoff. Containment pads with dikes of impervious

surfaces (concrete) should be installed. These measures will reduce overspray and prevent contamination of work area surfaces and runoff into adjacent waters.

If these areas are not available, plastic sheeting can be used to create a temporary containment pad. A PVC hose or pipe can be rolled up in the edges of the plastic sheeting to create a dike. Plastic sheeting or other screening material can be used to create an enclosed work area. These measures will prevent runoff of debris, residuals, and other pollutants and allow for the proper segregation and collection of waste streams.

Boat cleaning activities in the slip or dockside can also present water quality problems. Many products used for cleaning may be harmful to the marine environment. Less toxic substitutes such as phosphate-free and biodegradable soaps are now readily available.

In addition, more frequent cleaning with fresh water using a soft, non-abrasive sponge can minimize marine growth and prolong the life of hull coatings.

Aside from routine boat maintenance, it is recommended that these activities be scheduled during the

boating off-season. This allows the boat to be removed from the water and activities to occur in a more suitable work area location. Under no circumstances should in-the-water hull scraping and paint removal activities be allowed.

Good housekeeping measures, such as regularly scheduled work area inspections and yard cleanups, will also prevent the migration of pollutants to adjacent waters. Properly designed work areas for chemical storage will minimize the potential for spills. Storage areas should have restricted access and provide for the containment of spills and leaks. Drums and other containers should be in good condition and kept securely closed when not in use.

Engine Repair and Maintenance

Many significant problems associated with boat engine repair and maintenance can be eliminated through pollution prevention. Common waste streams generated from these activities include spent engine fluids, batteries, worn metal parts, and waste solvents. Marina operators have a number of options available to reduce or recycle these waste streams.

Proper management of spent engine fluids, such as waste oil and used anti-freeze, will prevent these materials from contaminating nearby surface waters. Individual waste streams should be collected in separate containers and segregated from other waste streams including trash and debris. These measures will reduce the volume of waste to be managed and improve the recycling capability of the waste streams. Marinas working together can implement a recycling program for their area using an outside service.

Waste solvents from parts-cleaning operations can be recovered by using an onsite distillation unit. In addition, there are offsite solvent recovery services available to the marina operator. Hazardous wastes from solvent cleaning operations can be completely eliminated by switching to an alternative cleaning method such as an aqueous cleaning system. Citrus-based cleaners are also an effective substitute.

Worn parts and scrap metal can be sold to a parts remanufacturer or metal recycler. Boat batteries can also be recycled along with nonhazardous waste such as cardboard, plastic and aluminum.

Proper housekeeping and spill control methods will help eliminate spillage of engine

fluids and solvents. Drip pans can be used for product recovery and to prevent loss or runoff. Equipment is available for product transfer from drums to further prevent spills from occurring.

Fuel Station Activities

Fueling operations are a common source of water pollution due to overfills and spills. Marinas can prevent such incidents and prepare for spills by developing a spill prevention plan. The plan should address proper procedures and maintenance of fuel station equipment. In addition, supplies and equipment for spill response should be identified. Booms and other sorbent materials should be immediately available and easily deployable. The plan will also help minimize environmental impact in the event of a spill.

Fuel pump nozzles should be equipped with automatic back pressure shut-off to prevent overfilling the fuel tank. Fuel nozzles should not be equipped with a clip designed to keep the nozzle open during refueling activities. Also, the use of fuel/air separators on fuel tank vents will further prevent fuel overflows from occurring. Marinas can make these devices

available and promote the their use to boat owners.

Fuel storage tanks should be properly designed and periodically tested to check the integrity of the system. Storage systems should have secondary containment. Overflow alarms on tanks can further reduce the chances of a spill occurring. Accurate fuel storage record keeping can be used to verify that fuel is not being lost through leakage.

Boater Education

Marinas can further enhance the quality of the environment by educating boaters on proper waste minimization. A well operated marina with an established pollution prevention program will set a positive example for boaters, resulting in increased environmental protection. Marinas can provide resources and establish activities in several different areas to educate boaters and prevent pollution.

It is essential that marinas provide recycling facilities for all types of solid waste such as plastic, glass, aluminum, and paper. Marinas should encourage boaters to use recyclable products to reduce the solid waste impact on the environment. Specially designated recycling areas should be conveniently located and easily identifiable

for boater use.

Marinas should also designate areas for boat maintenance and repair. These areas should be well maintained and include covered receptacles for non-recyclable solid wastes. Storm drains located throughout the marina area should be clearly identified to prevent the dumping of waste materials. In addition, marinas can provide recycling of waste oil and antifreeze from these activities.

As a further service to boaters, information on county household hazardous waste collection events can be provided by marinas.

For marinas that offer fishing charter services, an area should be established for cleaning fish. Sound fish waste management practices, including the proper disposal of fish waste, should be established. Marinas may also be able to implement a fish composting program.

Marinas can establish policies prohibiting certain activities that threaten the marine environment. These policies can be established in a lease or contract with boaters. These policies can address proper boat maintenance procedures and waste recycling and disposal.

Newsletters, notices in monthly bills, postings and

informal visits with boaters can further promote the benefits of pollution prevention. Topics such as proper disposal of marine sanitation devices (MSD), less toxic hull maintenance materials, and recycling will continue to remind boaters about environmental protection. Inexpensive awards, prizes or other recognition can be established for outstanding efforts made by boaters.

Closing

These are just a few of the pollution prevention opportunities available for marina operators and owners. Marinas are encouraged to evaluate source reduction and recycling options for all their activities. It is clear that marinas that make a commitment to incorporate pollution prevention into their business activities will realize economic and environmental benefits.

In addition, boating activities in Ohio and the preservation of waterways will continue to prosper.

References and Sources of Information

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Puget Sound Alliance, 1995. *A Resource Manual for Pollution Prevention in Marinas.* Puget Sound Alliance, Seattle, WA.

U.S. EPA, 1991. *Guides to Pollution Prevention - The Marine Maintenance and Repair Industry.* EPA/625/7-91/015. U.S. EPA, Washington D.C.

Who To Call

For additional information and **technical assistance regarding pollution prevention:**

Ohio EPA
Office of Pollution Prevention
Technical Assistance Unit
(614)644-3469

For information on **waste management and disposal requirements** involving paint and solvent wastes, sanding debris, spent cleaners, waste oils and fuels:

Ohio EPA
Division of Hazardous Waste Management
Technical Assistance Unit
(614)644-2917

For information on **storm water requirements and storm water permitting:**

Ohio EPA
Division of Surface Water
Storm Water Unit
(614) 644-2259

For information on **wastewater discharge requirements to sanitary sewers and publicly owned treatment works (POTWs):**

Ohio EPA
Division of Surface Water
Pretreatment Unit
(614) 644-2028

For information on **air pollution control requirements for operations such as painting and solvent (parts) cleaning:**

Ohio EPA
Division of Air Pollution Control
Small Business Assistance Program
(614) 728-1742

For information on **nonpoint source pollution** and requirements of the Coastal Zone Act Reauthorization Amendments (CZARA):

Ohio EPA
Division of Surface Water
Watershed Programs
(614) 644-2877

For information on services available from **marinas and boating trade associations:**

Lake Erie Marine Trades Association
(216) 621-3618

Southwest Ohio Marine Trades Association
(513) 321-1111

This is the thirtieth in a series of fact sheets Ohio EPA has prepared on pollution prevention. For more information, call the Office of Pollution Prevention at 614/644-3469.

The Office of Pollution Prevention was created to encourage multi-media pollution prevention activities within the state of Ohio, including source reduction and environmentally sound recycling practices. The office analyzes, develops, and publicizes information and data related to pollution prevention. Additionally, the section increases awareness of pollution prevention opportunities through education, outreach, and technical assistance programs directed toward business, government, and the public.