

Environmental Best Management Practices for Small Businesses

Introduction

An environmental best management practice (BMP) is an action or combination of actions implemented to reduce the environmental impacts of business operations. There are two types of pollution prevention: source reduction and recycling. Source reduction reduces or eliminates the generation of waste. Recycling takes used materials, modifies their form, and makes them available for future reuse. The BMPs provided in the fact sheets listed below are a combination of source reduction and recycling strategies, which provide economic as well as environmental and safety benefits.

Each BMP fact sheet focuses on a particular sector, and draws information from several sources, which are listed in the endnotes section of each fact sheet. The BMPs listed in each fact sheet may be used as a guide for your business. Depending on your business' individual needs and technical and financial capacities, the BMPs may require modification. When adapting a BMP to your business, it may be necessary to contact your local regulatory agency to determine permit requirements. It is important to note that the BMPs listed in these fact sheets are intended as a starting point for your business' environmental management plan, and are not all-inclusive. Further information is available through links at the end of each fact sheet. For additional information about regional specific BMPs, or BMPs not covered in these fact sheets, contact your local authorities and regulating agencies. It is not expected that each BMP will work in all situations; each small business must factor in their own needs, resources, and capacities to find the ones that work best for them.

The fact sheets are intended to work in conjunction with the Environmental Protection Agency's *Practical Guide to Environmental Management for Small Business* and its companion book, *Documenting Your Environmental Management Plan*. For copies of these guides, please refer to the links provided on this website.

Each fact sheet is divided into five sections:

- 1) **Sector Introduction:** Provides basic background information on environmental impacts associated with the sector.
- 2) **Best Management Practices:** Divided into two or more subsections. Each subsection consists of a paragraph describing a particular environmental impact, followed by a list of BMPs which address the problem.
- 3) **Investments in Technology:** Supplies additional information on technologies mentioned in the BMPs or provides information on new technologies to consider when making your choice of BMPs to use. Information about returns on investment is provided where possible, but the true payback period will vary greatly, dependent upon your situation. To determine if a particular technology is right for your operations contact a local vendor for more information.
- 4) **Case Study:** Demonstrates the effectiveness of a BMP used in a business.
- 5) **Other Sources:** Provides links to BMP information listed in the fact sheet. Also provides additional resources available to small businesses.



Best Management Practice

Marina

Sector Introduction

Marinas engage in a variety of activities, such as fueling, boat maintenance, and maintaining and operating launch facilities. These activities have the potential to contaminate surrounding water bodies. Boating pollutants negatively impact both marine life and human health. Fish can become sick and die because of pollutants. As a result, commercial fishing is impacted by smaller populations of fish and poor water quality. Humans swimming in degraded waters may become ill due to exposure to harmful bacteria and microbes. People are less likely to spend time on a polluted water body, reducing the amount of tourism dollars and marina user fees collected. Aquatic grasses, an important habitat and food source for marina species, can die due to sedimentation and sunlight-blocking pollution. Debris and siltation from marina activities settle in barren channels, causing them to become shallower so that larger boats and ships cannot navigate the water bodies. To keep the channels open, dredging is often used. Dredging is very expensive and the debris removed from the channel may need to be treated as hazardous waste.

This fact sheet lists environmental best management practices (BMPs) for marinas. The BMPs listed in this fact sheet are only a starting point for your business. Additional suggestions for a wider range of activities, including construction of a new marina, can be found using the links in the “Other Sources” section.

Best Management Practices

Litter and Waste

Any spills that occur during boating activities discharge directly into the water. To avoid contamination, focus on precautions to be used when performing activities in and around the water.

- Do not throw fish cleaning wastes into water bodies that are poorly flushed.⁴
- Provide trashcans and recycle bins with lids (to keep the rain out and the trash in) near the launching facility.³
- Empty portable boat toilets into an approved shore side waste handling or pump out station facility.⁸
- Display posters along the docks to remind anglers to properly dispose of fish parts in clearly designated containers.¹⁴

Storm Water Run Off

Storm water runoff is rain or snowmelt that washes over the land instead of being absorbed. After storm events, storm water from marina property runs off into an adjacent body of water, carrying pollutants. These pollutants can include petroleum products from leaking vehicles, spilled materials from maintenance activities, dust from sanding, residues from cleaning and painting, and sediments from the surrounding land area.

- Create a storm water pollution prevention team

within the marina to increase awareness of the issues and solutions. Include managers and employees in this team.⁷

- Maintain grassy areas between the water and work areas.⁴
- Protect sensitive areas by minimizing impervious surfaces. For example, use gravel instead of concrete or asphalt for parking areas to prevent oil runoff into waterways.¹⁵
- Create a marina user contract requiring patrons to follow all of the BMPs adopted by the marina.²
- Designate a maintenance area as far away from the water’s edge as possible. Specify what kind of maintenance is permitted and what must be done off-site.⁹

Boat Maintenance

The upkeep of boat hulls creates a significant amount of pollution. Almost every step of the process, from power washing to painting, has the potential to cause pollution. Antifouling chemicals are found in boat paint. They reduce water friction but limit plant growth on the bottoms of the rivers, lakes, or other water bodies because they contain and leach copper. Bottom growth is essential in preventing erosion and maintaining healthy waterways.

- Conduct sanding or blasting in contained areas (i.e.,



inside a maintenance building, spray booth, or surrounded by tarps).¹

- Use a vacuum sander.²
- Vacuum up paint chips and paint dust after sanding.¹
- Perform sanding, painting, and maintenance activities on an absorbent pad, tarp, or similar ground protector on calm days to prevent dust from being blown into the water.⁶
- Avoid soft paints. They are partially soluble and may come off in the water.⁷
- Use brushes and rollers instead of a sprayer to apply paint.⁷
- Perform sanding and painting on-shore instead of in-water.¹
- Mix paints on land, not on the dock, to reduce the chance of water contamination.⁴
- Use propylene glycol antifreeze when winterizing all systems, instead of ethylene glycol, because it has a reduced impact on the environment.²

Cleaning

Many cleaning chemicals used on boats contain chlorine, ammonia, and phosphates which can kill fish.

- Select nontoxic cleaning products that are phosphate free and biodegradable.³
- Use a drop cloth when cleaning or performing maintenance on boats.⁴
- Perform cleaning and maintenance activities away from the water's edge.²

- Use soap in moderation.⁴
- Keep lids closed on all cleaning chemicals when not in use.⁴
- Pour small amounts of cleaning chemicals into a container for immediate use.⁹

Fuel and Oil Usage

Petroleum contains hydrocarbons that can attach to sediments in the water and remain persistent. Bottom-dwelling animals can be harmed by the hydrocarbons in the sediment, since their food supply is near the bottom of the water body. Hydrocarbons also become harmful to animals eating contaminated organisms.

- Use re-refined oil in boat engines.⁹
- Recycle used oil and antifreeze to reduce the amount of these materials introduced into the environment.⁶
- Equip fuel pump nozzles with automatic back pressure shut-off.¹
- Do not top off tanks.³
- Ensure that all gas caps are sealed tightly to reduce emission of fumes that could be deposited in local bodies of water.²
- Keep motors well tuned to prevent the burning of oil and to keep the motor running efficiently.¹¹
- Keep fully stocked spill kits near fueling operations.⁶
- Educate boaters that water contaminated with petroleum products cannot be discharged into waters of the United States, and encourage them to place oil absorbing pads in bilge.³

CASE STUDY Deep River Marina, Inc.

Deep River Marina won the National Marine Manufacturer Association's (NMMA's) first Boating Facilities Environmental Responsibility Award for its clean marina in 1993. A combination of free pump-out service, clean restrooms and showers, attractively maintained grounds, dustless sanders, and environmental recognition increased the gross income of the Connecticut River marina.

Total annual costs – \$13,000 for the program (including the amortization of capital purchases)

Increased gross revenue attributed to “our clean marina and efforts” – \$86,800

Net additional annual income – \$71,000

Source: U.S. EPA, <http://www.epa.gov/nps/marinas/appxc.html>



Other Sources

- ¹ Broward County Pollution Prevention and Remediation Division, *Pollution Prevention and Best Management Practices for Marine Facilities*, <http://www.co.broward.fl.us/ppi00400.htm>
- ² U.S. EPA's Office of Water, *National Management Measures to Control Non-point Source Pollution from Marinas and Recreational Boating*, <http://www.epa.gov/owow/nps/mmsp/index.html>
- ³ Canadian Coast Guard, Office of Boating Safety, *Protecting the Aquatic Environment*, <http://www.tc.gc.ca/BoatingSafety/pubs/pme/menu.htm>
- ⁴ U.S. Department of the Interior, Pollution Prevention Handbook: *Marinas and Boatyards*, <http://www.p2pays.org/ref/01/00589.pdf>
- ⁵ Maryland Clean Marina Initiative, *Steps to Being a Maryland Clean Marina*, <http://www.dnr.state.md.us/boating/cleanmarina/steps.html>
- ⁶ Delaware Department of Natural Resources and Environmental Control, *Best Management Practices for Delaware Boat Maintenance Facilities*, <http://www.p2pays.org/ref/01/00558.pdf>
- ⁷ Florida Department of Environmental Protection, *Clean Marina Program*, <http://www.dep.state.fl.us/law/Grants/CMP/>
- ⁸ New Hampshire Department of Environmental Services, *A Boater's Guide to Sewage Pump-out*, <http://www.des.state.nh.us/pumpout.htm>
- ⁹ New Hampshire Department of Environmental Services, *Best Management Practices for New Hampshire Marinas*, http://www.des.state.nh.us/nhppp/marina_bmp.pdf
- ¹⁰ North Carolina Department of Environment and Natural Resources, Division of Coastal Management, *Clean Marinas*, <http://dcm2.enr.state.nc.us/Marinas/marinas.htm>
- ¹¹ Rhode Island Department of Environmental Management, Office of Technical & Customer Assistance, *Preventing Boat Engine Pollution*, <http://www.state.ri.us/dem/programs/bpoladm/manserv/hfb/boating/clnboat.pdf>
- ¹² Virginia Department of Environmental Quality, Virginia Office of Pollution, *Prevention Pollution Prevention Fact Sheet*, <http://www.p2pays.org/ref/03/02990.pdf>
- ¹³ Virginia Department of Environmental Quality, *Virginia Clean Marina Program*, <http://www.deq.state.va.us/vacleanmarina/>
- ¹⁴ U.S. EPA, *Shipshape Shores and Waters: A Handbook for Marina Operators and Recreational Boaters*, <http://www.epa.gov/owow/nps/marinashdbk2003.pdf> also accessible via <http://cleanmarinas.org/>
- ¹⁵ Clean Texas Marina Program, *Clean Texas Marina Guidebook*, <http://www.cleanmarinas.org/guidebook.pdf>